

Rural Health Information Technology Workforce Curriculum Resources

September 2016

Here you will find a complete inventory of curriculum resources, including detailed course descriptions and training materials, developed by Federal Office of Rural Health Policy (FORHP) Rural Health Information Technology (HIT) Workforce Program grantees.

The grantees' training programs were designed to ensure that others could build on their curricula, helping to seed additional health IT training programs at rural serving community colleges.



How to Use the Rural Health IT Workforce Curriculum Resources

These resources can be used as examples for rural and rural-serving community, vocation, and technical colleges that wish to offer similar trainings in their educational institutions. Educators are encouraged to use and adapt the information provided.

What Is Included

The programs used the ONC Health IT Curriculum Focus Areas in their course development. The six focus areas include:

- Practice Workflow and Information Management Redesign Specialist
- Clinical/Practitioner Consultants
- Technical/Software Support
- Implementation Manager
- Implementation Support Specialists
- Trainers
- Other



In addition to course development, some grantees included information on the requirements for their individual required Apprenticeship Training Programs.

Courses may serve as preparation for health IT certifications:

- [CAHIMS \(Certified Associate in Healthcare Information and Management Systems\)](#), Healthcare Information and Management Systems Society
- [CEHRS \(Certified Electronic Health Records Specialist\)](#), National Healthcareer Association
- CHTS (Certified Healthcare Technology Specialist), including Practice Workflow and Information Management Redesign (PW), Clinical/Practitioner Consultant (CP), Technical/Software Support (TS),

Implementation Manager (IM), Implementation Support Specialist (IS), and Trainer (TR) Specializations, American Health Information Management Association (No longer offered by AHIMA, as of 5/31/19)

- [CPC \(Certified Professional Coder\)](#), American Academy of Professional Coders
- [CPEHR \(Certified Professional in Electronic Health Records\)](#), Health IT Certification
- [CPHIMS \(Certified Professional in Healthcare Information and Management Systems\)](#), Healthcare Information and Management Systems Society
- [CPHIT \(Certified Professional in Health Information Technology\)](#), Health IT Certification
- [RHIT \(Registered Health Information Technician\)](#), American Health Information Management Association



These resources were developed through support from the Federal Office of Rural Health Policy. The Rural Health Information Technology Workforce Program funded 15 grantees in 2013-2016 to develop formal health IT training programs serving rural areas, along with training materials other rural serving community colleges could build on.

Curriculum Resources from Rural Health Information Technology Workforce Program Grantees

<u>Alabama</u>	ONC Focus Areas	Health IT Certification
Regional Healthcare Network Childersburg, AL <ul style="list-style-type: none"> • Curriculum Blueprint • CHTS Exam Guide • Associate of Applied Science Degree • HIT Short-term Certificate 	Implementation Manager	CHTS*
<u>California</u>	ONC Focus Areas	Health IT Certification
Livingston Community Health Services Fresno City College <ul style="list-style-type: none"> • Curriculum Narrative • CHTS Exam Blue Print • Course Syllabus 	Practice Workflow & Information Management Redesign Specialist Technical/Software Support Specialist Trainer	CHTS*
<u>Colorado</u>	ONC Focus Areas	Health IT Certification
Valley Citizens' Foundation for Healthcare Pueblo Community College <ul style="list-style-type: none"> • HIT Certificate Curriculum 		CHTS*

<u>Florida</u>	ONC Focus Areas	Health IT Certification
North Florida Community College <ul style="list-style-type: none"> Curriculum Outline 	Practice Workflow & Information Management Redesign Specialist	CHTS*
<u>Indiana</u>	ONC Focus Areas	Health IT Certification
Indiana Rural Health Information Technology Education Network (IRHITEN) Ivy Tech Community College <ul style="list-style-type: none"> Health IT Course Description and Exam Blueprints 	Clinician/Practitioner Consultant Practice Workflow & Information Management Redesign Specialist	CHTS*
<u>Kentucky</u>	ONC Focus Areas	Health IT Certification
Northeast Kentucky Regional Health Information Organization Somerset Community College <ul style="list-style-type: none"> Curriculum Outline 	Clinician/Practitioner Consultant	CHTS* CAHIMS CPHIMS
<u>Minnesota</u>	ONC Focus Areas	Health IT Certification
Lac qui Parle Health Network Normandale Community College Madison, MN <ul style="list-style-type: none"> Curriculum Outline for Informatics and Technical Support, Trainer, and Health IT Analyst 	Practice Workflow & Information Management Redesign Specialist Technical/Software Support Specialist Trainer	CAHIMS CPHIT CPEHR
<u>Montana</u>	ONC Focus Areas	Health IT Certification
Montana State University Bozeman, MT <ul style="list-style-type: none"> Curriculum Outline 	Clinician/Practitioner Consultant	CAHIMS CPHIMS
<u>New York</u>	ONC Focus Areas	Health IT Certification
Fort Drum Regional Health Planning Organization Watertown, NY <ul style="list-style-type: none"> Curriculum Outline 	Practice Workflow & Information Management Redesign Specialist	CHTS*
<u>North Carolina</u>	ONC Focus Areas	Health IT Certification
McDowell Technical Community College Marion, NC <ul style="list-style-type: none"> Curriculum Outline 	Practice Workflow & Information Management Redesign Specialist	CHTS-PW* RHIT CAHIMS

Pennsylvania

	ONC Focus Areas	Health IT Certification
Pennsylvania Mountains Healthcare Alliance	Clinician/Practitioner Consultant	CAHIMS
Penn State University	Practice Workflow & Information Management Redesign Specialist	CPHIMS
<ul style="list-style-type: none">• Curriculum Outline		

South Dakota

	ONC Focus Areas	Health IT Certification
Horizon Healthcare	Practice Workflow & Information Management Redesign Specialist	CHTS*
Dakota State University, SD	Clinician/Practitioner Consultant	
<ul style="list-style-type: none">• Curriculum Outline and Apprenticeship Training Outline		

Texas

	ONC Focus Areas	Health IT Certification
AHEC of the Plains	Practice Workflow & Information Management Redesign Specialist	CHTS*
Plainview, TX		
<ul style="list-style-type: none">• Curriculum Outline		

Virginia

	ONC Focus Areas	Health IT Certification
Mountain Empire Community College		CEHRS
Big Stone Gap, VA		CPC
<ul style="list-style-type: none">• Curriculum Outline		RHIT (pending)

Wisconsin

	ONC Focus Areas	Health IT Certification
Southwest Technical College	Practice Workflow & Information Management Redesign Specialist	RHIT (pending)
Fennimore, WI	Clinician/Practitioner Consultant	
<ul style="list-style-type: none">• Curriculum Outline		

* No longer offered by AHIMA, as of 5/31/19

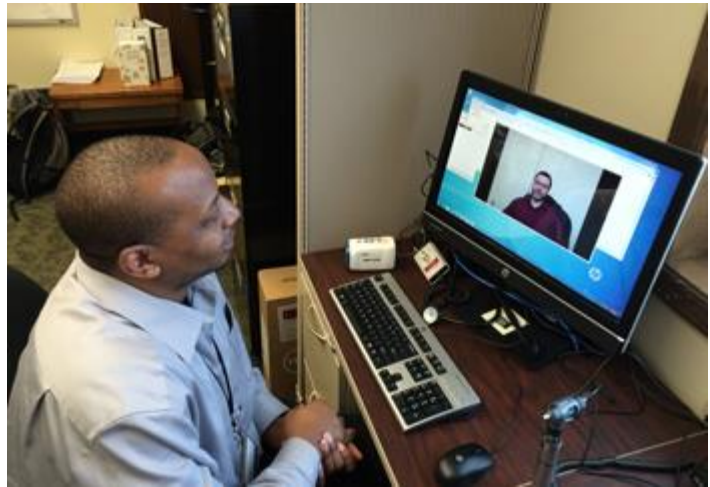
About the Rural Health Information Technology Workforce Program

The Federal Office of Rural Health Policy funded 15 grantees for the Rural Health Information Technology Workforce Program in 2013-2016. The purpose of the program is to support formal rural health networks that focus on activities related to recruitment, education, training, and retention of health information technology specialists. In addition to establishing new health IT training programs, the program was designed to ensure that others could build on the grantees' curriculum resources, helping to seed additional programs at rural serving community colleges.

For more on the funded programs, see the [Rural Health Information Technology \(HIT\) Workforce Program Directory](#). Additional background information is available in the [Rural Health IT Workforce Program Sourcebook](#).

The **formal training programs** supported by this program have resulted in the development of a cadre of health IT workers who can help rural hospitals and clinics:

- Implement and maintain systems, such as:
 - Electronic health records (EHRs)
 - Telehealth
 - Home monitoring and mobile health technology
- Meet EHR meaningful use standards



Brian Shaw, a Rural Health IT program graduate, tests a telemedicine unit.



2013-2016 Rural Health Information Technology Workforce Grantees, with FORHP Project Officers and Rural Health Innovations Technical Assistance Providers.

This program provides support to rural health networks that can **leverage and enhance existing health IT training materials** to develop formal training programs, which will provide instructional opportunities to:

- Current healthcare staff
- Local displaced workers
- Rural residents
- Veterans
- Other potential students

The grantees could either build on existing health IT specialist programs at their educational institution or develop a new program based on [training materials](#) from the Office of the National Coordinator for Health IT (ONC).

Included in the formal training programs was the requirement to **provide apprenticeship training** for each student. Information about the elements of the individual apprenticeship programs have been included in the course descriptions provided in the [curriculum resources](#).

After federal funding ends, the networks should continue to expand the workforce development program and widely disseminate program information in order to support the continual training of health IT workers within rural areas.

Grantee Featured

- [Reaching Veterans through Rural Health Networks](#)
Rural Roads, Spring 2016, p. 22-23, 25
Discusses 3 Rural Health IT Workforce Program grantees

Alabama

Regional Healthcare Network
Childersburg, AL

ONC Focus Area:

- Implementation Manager

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Curriculum Blueprint](#)
- [CHTS Exam Guide](#)
- [Associate of Applied Science Degree](#)
- [HIT Short-term Certificate](#)

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 1

Component Title: Introduction to Healthcare and Public Health in the US

Component Description: This component is a survey of how healthcare and public health are organized and services delivered in the US. It covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. It also addresses health reform initiatives in the US.

Assigned Institution: Oregon Health & Science University

Principal Investigator: William Hersh, MD, OHSU

Team Lead(s): Vishnu Mohan, MD, OHSU

Team Members:

Thomas Blehl, MD, Valencia Community College, FL (Curriculum Developer)

Karen Eden, PHD OHSU(Curriculum Developer)

Bill Hersh, MD, OHSU(Curriculum Developer)

JA Magnuson, PhD, OHSU(Curriculum Developer)

Vishnu Mohan, MD, OHSU(Curriculum Developer)

Joanne Valerius, MPH, RHIA, OHSU (Curriculum Developer)

Workforce Roles:

- Implementation Managers
- Implementation Support Specialist
- Practice Workflow and Information Management Redesign Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

1. Define healthcare terms.
2. Describe paradigm shifts in healthcare.
3. Describe the medical model of healthcare in the US.
4. Describe the administrative and functional organization of entities that deliver healthcare in the US, both in the inpatient as well as the outpatient settings.

5. Discuss the role of various healthcare professionals, their education, and certification/licensure requirements.
6. Distinguish between public and private funding for healthcare.
7. Describe healthcare financing structures, including insurance plans, third-party payers, Medicare, and Medicaid.
8. Describe the organization and structures of Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), and Independent Practice Associations (IPAs).
9. Describe methods of billing and reimbursement in healthcare.
10. Describe elements of coding and charge capture in healthcare.
11. Compare and contrast the function of the Joint Commission, Food and Drug Administration (FDA), Centers for Disease Control (CDC), and National Institutes of Health (NIH), with an emphasis on Electronic Health Records (EHRs).
12. Discuss legal issues in medicine including the Health Insurance Portability and Accountability Act (HIPAA), confidentiality, medical malpractice, and tort reform.
13. Describe the organization of public health in the US at the federal, state, and local levels, and discuss the role of public health in averting epidemics and bioterrorism.
14. Describe evidence-based medicine, clinical practice guidelines, and quality indicators in medicine. Identify key organizations involved in developing clinical guidelines.
15. Discuss the key issues driving healthcare reform in the US.
16. Describe the implementation of meaningful use of health information technology in the context of the Health Information Technology for Economic and Clinical Health (HITECH) Act.

Component Units with Objectives and Topics

Unit 1: Introduction and History of Modern Healthcare in the US

Description:

This introductory unit covers definitions of terms used in the component, with an emphasis on paradigm shifts in healthcare, including the transition from physician-centric to patient-centric care, the transition from individual care to interdisciplinary team-based care, and the central role of technology in healthcare delivery. This unit also emphasizes the core values in US healthcare.

Objectives:

1. Delineate key definitions in the healthcare domain (Lectures a, b, c, d)
2. Explore components of healthcare delivery and healthcare systems (Lecture a)
3. Define public health and review examples of improvements in public health (Lecture b)
4. Discuss core values and paradigm shifts in US healthcare (Lecture c)
5. Describe in overview terms, the technology used in the delivery and administration of healthcare (Lecture d)

Topics:

1. Description of terms commonly used in healthcare including:
 - a) Health
 - b) Healthcare
 - c) Healthcare Delivery
 - d) Healthcare Industry
 - e) Healthcare Systems
 - f) Public Health
2. Core values in US healthcare
3. Discussion of critical paradigm shifts in medicine including
 - a) Physician-centric to patient-centric care
 - b) Individual to team-based care
 - c) Physician-kept records to personal health records
 - d) Dominance of technology in healthcare delivery
4. The dominant role of technology in healthcare delivery - technology used in the delivery and administration of healthcare, with emphasis on technology used in:
 - a) Clinical medicine
 - b) Telemedicine
 - c) Pharmacy
 - d) Radiology
 - e) Rehabilitation
 - f) Dentistry
 - g) Healthcare education

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 2

Component Title: The Culture of Healthcare

Component Description: For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.

Assigned Institution: Oregon Health & Science University

Principal Investigator: William Hersh, MD, OHSU

Team Lead(s): Vishnu Mohan, MD, OHSU

Team Members:

Tim Hickman, MD, University of Missouri, Kansas City (Curriculum Developer)

Vishnu Mohan, MD, OHSU (Curriculum Developer)

William Hersh, MD, OHSU (Curriculum Developer)

Workforce Roles:

- Implementation Managers
- Implementation Support Specialists
- Practice Workflow and Information Management Redesign Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

17. Describe the major types of clinical personnel involved in healthcare, including their education and training, certification and licensure, and typical roles in healthcare.
18. Describe the major types of settings in which healthcare occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
19. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
20. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care,

care of chronic conditions, population based care, disease management, long-term care, and end of life care.

21. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
22. Understand the basic principles of evidence-based practice, including the application of the best evidence in clinical decision-making.
23. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.
24. Discuss the role of medical ethics and professional values in care delivery including such issues as ethical conflicts, and health disparities.
25. Understand the concepts underlying the application of privacy, confidentiality, and security to health care practice and information technology, being able to help individuals and organizations adhere to the HIPAA Privacy and Security Rules.

Component Units with Objectives and Topics

Unit 2: Health Professionals – the People in Healthcare

Description:

This unit discusses the health professionals who deliver healthcare and the training needed to work in these professions. The following professionals are described in this unit: physicians, nurses, advanced practice nurses, physician assistants, pharmacists, therapists, allied health professionals, paramedics, EMTs, dental professionals, mental health professionals, and social workers.

Objectives:

1. Define terms used in healthcare including clinician, patient, disease, and syndrome and in health professionals' education and training. (Lecture a)
2. Describe the education, training, certification, licensure and roles of physicians including those in primary care and other specialties. (Lecture a)
3. Describe the education, training, certification, licensure and roles of nurses, advanced practice nurses, LPNs, MA's and Medication Aids. . (Lecture b)
4. Describe the education, training, certification, licensure and roles of physician assistants, pharmacists, therapists, allied health professionals. (Lecture c)
5. Describe the education, training, certification, licensure and roles of paramedics, EMTs, dental professionals, mental health professionals, and social workers. (Lecture c)

Topics/Lectures:

1. Introduction and Physicians
2. Nursing Professionals
3. Physician assistants, Pharmacists, Therapists, Technicians, Paramedics, Dental Professionals, Mental Health Professionals, Care Coordinators

Unit 4: Healthcare Processes and Decision Making

Description:

This unit describes the process used by a clinician to make a diagnosis and determine a care plan. This includes gathering information from the patient as well as other objective and subjective sources, managing and organizing the information, comparing the information to known states of disease, and developing a care plan for the patient.

Objectives:

1. Describe the elements of the 'classic paradigm' of the clinical process. (Lecture a)
2. List the types of information used by clinicians when they care for patients. (Lecture a)
3. Describe the steps required to manage information during the patient-clinician interaction. (Lecture a, b, c)
4. List the different information structures or formats used to organize clinical information. (Lecture b)
5. Explain what is meant by the 'hypothetico-deductive' reasoning process. (Lecture a, b)
6. Explain the difference between observations, findings, syndromes, and diseases. (Lecture a, b, c)
7. Describe techniques or approaches used by clinicians to reach a diagnosis. (Lecture a, b, c, d, e)
8. List the major types of factors that clinicians consider when devising a management plan for a patient's condition, in addition to the diagnosis and recommended treatment. (Lecture e)

Topics/Lectures:

1. The clinical process - overview of the classic paradigm
2. Gathering data and analyzing findings
3. Making a diagnosis
4. Choosing therapy
5. Communicating the plan

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 3

Component Title: Terminology in Health Care and Public Health Settings

Component Description: This component explains specific terminology used by workers in health care and public health. This is NOT a course in data representation or standards.

Assigned Institution: University of Alabama at Birmingham

Team Lead(s): Kay Clements, MA, RHIA, UAB

Team Members:

Kay Clements, MA, RHIA, UAB (Curriculum Developer)
Robert Garrie, MPA, RHIA, UAB (Curriculum Developer)
Jacqueline A. Moss, PhD, RN, UAB (Curriculum Developer)
Midge N. Ray, RN, MSN, CCS, UAB (Curriculum Developer)
Donna Slovensky, PhD, RHIA, UAB (Curriculum Developer)

Workforce Roles:

- Clinician/Practitioner Consultant
- Implementation Managers
- Implementation Support Specialist
- Practice Workflow and Information Management Technology Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

1. Define, understand and correctly pronounce medical terms related to each of the major body systems.
2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.

4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

Component Units with Objectives and Topics

Unit 14: What is Health Information Management and Technology?

Description:

This unit describes health information management and technology.

Objectives:

1. Define and explain the terms and concepts used in the field of Health Information Management and Technology.
2. Understand the terms that frame Health Information Management (HIM) and Health Information Technology (HIT) practice.
3. Describe health IT hardware and software.
4. Define acronyms and abbreviations.

Topics:

- 14.1 Electronic Health Information Management
- 14.2 Health Information Technology: Hardware and Software
- 14.3 Types of Networks
- 14.4 Data Entry Devices and Locations
- 14.5 Commonly Used Health Information Technology (HIT) Acronyms
- 14.6 Professional Organizations Supporting HIT
- 14.7 National Agencies Supporting HIT
- 14.8 US Governmental Oversight for HITECH
- 14.9 Organizations Supporting HIT Standards
- 14.10 Commonly Used Health Information Technology Acronyms
- 14.11 Commonly Used HIT Acronyms
- 14.12 Commonly Used HIPAA Acronyms

Unit 16: Standards to Promote Health Information Exchange

Description:

This unit describes standards to promote health information exchange.

Objectives:

1. Define terms related to standardized terminologies.
2. Identify and define HIPAA standard code sets.
3. Identify and define terminologies and vocabularies that represent nursing care.
4. Define and give examples of data interchange standards.

Topics:

- 16.1 Terms Related to Health Information Standards

- 16.2 EHR Messaging Standards
- 16.3 Digital Imaging Communications in Medicine (DICOM)
- 16.4 Health Level 7 (HL7)
- 16.5 Classifications, Terminologies and Vocabularies
- 16.6 Clinical Terminologies
- 16.7 Health Information Standards
- 16.8 HIPAA Standard Code Sets
- 16.9 International Classification of Diseases, 9th Revision, Clinical Modification
- 16.10 National Drug Codes (NDC)
- 16.11 Healthcare Common Procedure Coding System (HCPCS)
- 16.12 American Nursing Association's Recommended Standardized Nursing Terminologies
- 16.13 North American Nursing Diagnosis Association (NAND)
- 16.14 Nursing Intervention Classification (NIC)
- 16.15 Nursing Outcomes Classification (NOC)
- 16.16 Perioperative Nursing Data Set (PNDS)
- 16.17 National Committee on Vital and Health Statistics Recommended Data Interchange Standards
- 16.18 Health Level 7
- 16.19 SNOMED CT
- 16.20 Logical Observation Identifiers, Names, and Codes (LOINC)
- 16.21 Consolidated Health Informatics (CHI) Initiative

**HEALTH IT WORKFORCE CURRICULUM
COMPONENT BLUEPRINT
Version 3.0/Spring 2012**

Component Number: 4

Component Title: Introduction to Information and Computer Science

Component Description: For students without an IT background, this Component provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.

Assigned Institution: Oregon Health & Science University

Principal Investigator: William Hersh, MD, OHSU

Team Lead(s): Michelle R. Hribar, PhD, OHSU

Team Members:

John Blackwood, MS, Umpqua Community College

Justin Fletcher, PhD, OHSU

Workforce Roles:

- Clinician/Practitioner Consultant
- Implementation Support Specialist
- Practice Workflow and Information Management Redesign Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

1. Learn correct terminology for computing and technology including for hardware, software, networks, Internet and databases
2. Identify commonly used hardware components.
3. Identify commonly used software applications and operating systems.
4. Explain the function and use of programming languages and identify commonly used languages.
5. Define what a database is, explain what querying languages are and identify commonly used database systems.
6. Describe network computing, its benefits and risks, and identify commonly used communications hardware and software components.

7. Identify security risks for computing systems and discuss potential solutions.
8. Explain the design and development process of a software information system such as an EHR.

Component Units with Objectives and Topics

Unit 2: Internet and the World Wide Web

Description:

This unit covers the implications, origins, and use of the Internet and the World Wide Web, including the advantages and disadvantages of this technology.

Objectives:

1. Discuss security and privacy concerns on the Internet. (Lecture c)
2. Describe ethical issues for the Internet. (Lecture c, d)

Topics/Lectures:

1. Internet security and privacy concerns
2. Internet devices and methods of attack
3. Operating system and device security
 - a. File security
 - b. Internet security
4. Password security
 - a. User accounts
 - b. Miscellaneous security considerations
5. Trojans, viruses, worms, phishing, and hoaxes
6. Ethical considerations of the Internet
 - a. Sharing Internet connectivity with others
 - b. Copyright infringement
 - c. Internet-based databases
 - d. False information on the Internet
7. Online information sharing
 - a. Online privacy
 - b. Online confidentiality

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 5

Component Title: History of Health Information Technology in the U.S.

Component Description: This component traces the development of IT systems in health care and public health, beginning with the experiments of the 1950s and 1960s and culminating in the HITECH act, including the introduction of the concept of “meaningful use” of electronic health records.

Assigned Institution: University of Alabama at Birmingham

Team Lead(s): Eta S. Berner, EdD, UAB

Team Members:

Eta S. Berner, EdD, UAB (Curriculum Developer)

Nir Menachemi, PhD, MPH, UAB (Curriculum Developer)

Glenn Hammack, OD, MSHI, NuPhysicia LLC, Houston, TX (Curriculum Developer)

Terrell Herzig, MSHI, UAB (Curriculum Developer)

Workforce Roles:

- Clinician/Practitioner Consultant
- Implementation Managers
- Implementation Support Specialist
- Practice Workflow and Information Management Technology Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

5. Explain the rationale for elements of the HITECH Act in terms of the history of health IT
6. Describe the background of today’s health IT landscape including EHR, HIE, CDS, applications in Public Health, relevant professional organizations
7. Describe the history of regulation of Health IT in the U.S.
8. Describe how legislation related to privacy and security of electronic health information has evolved in the US.
9. Discuss how financial incentives for use of HIT have changed over time.

Component Units with Objectives and Topics

Unit 2: Evolution of Health IT: The Modern Era

Description:

This unit describes the evolution of health IT from 1990 - 2009.

Objectives:

1. Discuss factors that led to increasing clinical use of computers from 1990- 2009.
2. Discuss key influences on health IT developments including the Internet, HIPAA, and the Institute of Medicine reports.
3. Discuss the focus of health IT in the late 90s up to the present.
4. Discuss the role of health IT in clinical and translational research and personalized medicine.
5. Discuss why there is more receptivity to the use of Health IT now than during the previous 50 years.

Topics:

- 2a.1 Changes in the general environment from 1990-2009
- 2a.2 Changes in the healthcare environment from 1990-2009
- 2b.1 Changes in healthcare organizations from 1990-2009
- 2b.2 The practice of medicine in the modern era
- 2b.3 Academic medicine and the role of Informatics
- 2b.4 Impact of changes over the last 50 years

Unit 3: Evolution of Health IT: The HITECH Act

Description:

This unit describes the background and provisions of the HITECH Act.

Objectives:

1. Discuss the barriers to adoption of Health IT that the HITECH Act is designed to address.
2. Discuss how the following ARRA/HITECH requirements relate to previous developments in health IT:
 - a. Certified electronic health records
 - b. Concept of meaningful use including e-prescribing, clinical decision support, interoperability and HIE, structured documentation of quality measures
 - c. Incentives to providers
 - d. Education of clinicians
 - e. Workforce development.
3. Give examples of how the HITECH provisions support healthcare reform efforts.
4. Discuss the overall vision for the effects of the HITECH Act.

Topics:

- 3a.1 Barriers to the use of Health IT to improve quality and reduce cost
- 3a.2 The HITECH vision
- 3a.3 Regional Extension Centers
- 3a.4 Workforce Development
- 3b.1 “Meaningful Use” of Health IT
- 3b.2 Promotion of Health Information Exchange
- 3b.3 Strategic Health IT Advanced Research Projects

Unit 7: History of Clinical Decision Support Systems**Description:**

This unit describes the history of clinical decision support systems.

Objectives:

1. Describe various types and structures of clinical decision support (CDS) systems.
2. Discuss the evolution of clinical decision support from expert system research.
3. Discuss the changes in focus of clinical decision support from the 1980s to the present.
4. Discuss the change in architecture and mode of access of clinical decision support systems from the 1980s to the present.
5. Describe some of the early clinical decision support systems.
6. Discuss the historical challenges in implementing CDS.

Topics:

- 7a.1 Definition of clinical decision support (CDS)
- 7a.2 Types of CDS
- 7a.3 “Classic” clinical decision support systems
- 7c.1 Evolution of CDS architecture
- 7c.2 Challenges to be overcome

Unit 10: History of Privacy and Security Legislation**Description:**

This unit describes the history of privacy and security legislation in the US.

Objectives:

1. Describe the major changes in privacy and security requirements as a result of HITECH and the reasons why the changes were needed.

Topics:

- 10c.1 Background to HITECH changes to HIPAA
- 10c.2 HITECH changes to HIPAA
- 10c.3 Challenges in implementing HITECH privacy and security requirements

Unit 15: Payment-Related Issues and the Role of HIT

Description:

This unit describes payment-related issues and the role of HIT.

Objectives:

1. Discuss the evolution of incentives for adoption of HIT.
2. Discuss direct and indirect ways in which health care payors can influence the adoption of HIT.
3. Describe past and current strategies employed by payors to influence HIT adoption.

Topics:

- 15.1 Third party payors and misalignment of incentives
- 15.2 Payor's influence on HIT
- 15.3 Incentivizing the use of HIT
- 15.4 Payor generosity and HIT
- 15.5 Other roles for payors and HIT
- 15.6 Payors and health information exchange
- 15.7 Incentives under the HITECH Act

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 6

Component Title: Health Management Information Systems

Component Description: A “theory” component, specific to health care and public health applications. Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in health care and public health organizations.

Assigned Institution: Duke University

Team Lead(s):

Kathy Giannangelo, MA, RHIA, CCS, CPHIMS, FAHIMA, Pitt Community College

Team Members:

Sandra Crockett, RHIA (Curriculum Contributor and Reviewer)

Constance M. Johnson, PhD, RN (Curriculum Contributor and Reviewer)

Brian Reynolds, PhD (Curriculum Reviewer)

Workforce Roles:

- Practice Workflow and Information Management Redesign Specialist (primary component)
- Clinician/Practitioner Consultant (primary component)
- Trainer (primary component)
- Implementation Managers (secondary component)
- Implementation Support Specialist (secondary component)
- Technical/Software Support (secondary component)

Component Objectives:

At the completion of this component, the student will be able to:

1. Describe general functions, purposes and benefits of health information systems in various health care settings
2. Describe the federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems
3. Compare/Contrast different types of health information systems in terms of their ability to meet the needs of various types of health care enterprises

4. Explain how electronic health records affect patient safety, quality care, efficiency, productivity, and reporting/documentation mechanisms
5. Propose strategies to minimize major barriers to the adoption of electronic health records
6. Explain how the principles of health care data exchange and health care data standards relate to patient care, productivity and data analysis

Component Units with Objectives and Topics

Unit 2: Health Information Systems Overview

NOTE: This Unit was previously titled Hardware and Software Supporting Health Information System. It is now Health Information Systems Overview

Description: Lecture a defines the concept of an information system and its characteristics, describes the different types of information systems, and describe various types of technologies that support health care information systems. Lecture b examines the challenges presented by emerging trends in information technology (e.g., mobility, web services, the Internet, Intranet, and wireless computing), social media, and global communications and discusses the advantages and disadvantages of using the Internet as a platform for health care applications.

Objectives:

1. Define the concept of an information system and its characteristics
2. Describe the different types of information systems
3. Describe various types of technologies that support health care information systems

Topics:

1. Introduction to Health Information Systems

Unit 4: Computerized Provider Order Entry (CPOE)

Description: Lecture a defines CPOE, states the purpose of CPOE, lists attributes and functions of CPOE, and explains how CPOE is currently being used in health care. Lecture b describes the major value to adopting CPOE applications, identifies the common barriers to adoption, and summarizes the potential impact CPOE has on patient care safety, quality and efficiency, and patient outcomes.

Objectives:

1. Describe the purpose, attributes and functions of CPOE
2. Explain ways in which CPOE is currently being used in health care
3. Discuss the major value to CPOE adoption
4. Identify common barriers to CPOE adoption

5. Identify how CPOE can affect patient care safety, quality and efficiency, as well as patient outcomes

Topics:

2. Introduction to CPOE
3. Aspects of CPOE

Unit 6: Patient Monitoring Systems

Description: Lecture a offers a definition of patient monitoring systems, describes the purpose, attributes, and functions of patient monitoring systems, discusses the primary applications and how automation can improve quality of care, and analyzes how the integration of data from many sources assists in medical decision making. Lecture b discusses how telehealth communication technologies support clinical care, explains the effectiveness and economic benefit of telehealth, and examines the role smart technology in the home and remote links to health information systems play in enhancing the quality of patient care.

Objectives:

1. Describe the purpose, attributes, and functions of patient monitoring systems
2. Discuss ways in which automation can improve the quality of patient care
3. Analyze how the integration of data from many sources assists in making clinical decisions
4. Discuss how telehealth communication technologies support clinical care
5. Discuss the effectiveness and economic benefit of telehealth
6. Examine how smart technology in the home and remote links to health information systems can enhance the quality of patient care

Topics:

4. Introduction to Patient Monitoring Systems
5. Telehealth and Other Remote Patient Monitoring Technology

Unit 7: Medical Imaging Systems

Description: The lecture offers a definition of medical imaging, describes the purpose, processes, and management issues of medical imaging systems, analyzes the economic and technological factors that must be considered in the adoption of digital displays in radiology departments, looks at the major challenges with imaging systems faced by health care institutions and informaticians, and examines the future directions for imaging systems.

Objectives:

1. Examine the purposes, processes, and management issues
2. Understand the economic and technological factors associated with digital displays

3. Describe the major challenges
4. Describe the future directions

Topics:

6. Medical Imaging Systems

Unit 8: Consumer Health Informatics

Description: Lecture a provides a definitions of health communication, e-Health, consumer health informatics, and interactive health communication, identifies how the Internet has impacted consumer health informatics, explains how current and emerging technologies may affect consumer health informatics, and introduces the role of genomics in consumer health informatics. Lecture b offers definitions of personal health records or PHRs, describes the role of PHRs and their implications within health care, and discusses the challenges of consumerism in health information systems.

Objectives:

1. Explain how current and emerging technologies have impacted and may continue to affect consumer health informatics
2. Describe the role of genomics in consumer health informatics
3. Describe the emergence of personal health records and their implications
4. Discuss how consumerism influences the ongoing development and use of health information systems

Topics:

1. Introduction to Consumer Health Informatics
2. Personal Health Records and Consumerism

Unit 9: Administrative, Billing, and Financial Systems

Description: Lecture a examines the relationship of administrative, billing, and financial systems to the health care information system, explains applications that need to be integrated in health care information systems, explores health care organizations' integration strategies, identifies the critical elements for integration of these systems with clinical information systems, and discusses how health care organizations may gain valuable insights from integrated data through data analytics and trending. Lecture b defines a master patient index or MPI and describes its core elements and discusses current trends to establish a unique patient identifier.

Objectives:

1. Explain applications that need to be integrated in health care information systems
2. Describe the strategies used by health care organizations to ensure integration of functions

3. Discuss the critical elements needed to integrate billing, financial, and clinical systems
4. Discuss the core elements of a Master Patient Index (MPI)
5. Describe current trends to establish a Unique Patient Identifier (UPI)

Topics:

7. Introduction to Administrative, Billing, and Financial Systems and Health Care Information Systems Integration
8. Master Patient Index and the Unique Patient Identifier

**HEALTH IT WORKFORCE CURRICULUM
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Component Number: 7

Component Name: Working with Health IT Systems

Component Description: A laboratory component. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.

Assigned Institution: Johns Hopkins University

Team Lead(s): Patricia (Patti) Abbott, PhD, RN, FAAN, JHU School of Nursing
Michael Vaughn, MS, JHU School of Nursing

Team Members: Robert Kolodner, MD, FAMCI
David Hinton, Howard Community College

Workforce Roles: Clinician/ Practitioner Consultant, Implementation Support
Specialist and Technical/ Software Support

Component Objectives

At the completion of this component, the student will be able to:

1. Identify common components of an HIT system and types of HIT applications
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system)
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use

Component Units with Objectives and Topics

Unit 1 Introduction & Overview: Components of HIT Systems

Description:

Unit 1 is an introductory unit where the core definitions and concepts of systems in general and healthcare specifically are presented. Using hands on exploratory lab exercises, students will be introduced to an example HIT system where they will learn basic navigation and gain familiarity with components common to many clinical HIT systems. Specific examples of HIT systems from a variety of settings will be discussed.

Objectives:

1. Define a system and relate systems concepts to HIT
2. Discuss specific examples of settings where Health IT is used (acute, rural, public health, clinic, office, patient home, etc.)
3. Identify common components of a clinical HIT system
4. Demonstrate beginning level competency in maneuvering the demonstration EHRs

Topics:

- 1.1 - Understanding Systems - Conceptualizing HIT Use
- 1.2 - HIT Systems
- 1.3 - Big Picture of HIT Systems
- 1.4 - Common Aspects of Clinical HIT Systems

Unit 3 Understanding Information Exchange in HIT Systems

Description:

Unit 3 will focus upon the functional aspects of interoperability within and between systems. Applying didactically presented concepts to hands on lab assignments, students will be challenged to locate and collate data from disparate systems, to respond to user requests for reports, and to assist users in planning for enhanced information flow in HIT systems.

Objectives:

1. Identify common elements of the HIT system.
2. Explain the need for standards and why they exist.
3. Define and differentiate between messaging standards and terminology standards. (transmission VS meaning – very basic)
4. Compare current efforts to facilitate health information exchange between providers, communities, regions, & nation. (basic level definitions/descriptions – NHIN, HIEs, etc.)

Topics:

- 3.1 – Types of Information Exchange
- 3.2 – “Meaningful Use” and HIT Information Exchange

- 3.3 – Types of Standards
- 3.4 – HIE Initiatives

Unit 4 The Effective HIT System

Description:

Unit 4 is designed to emphasize the aspects of HIT that contribute to effectiveness and meaningful use. The concepts of usability, consistency, and reliability in regards to HIT systems and how each contributes to, or detracts from, effectiveness will be presented. Definitions of evidence-based practice and guideline-enhanced care will be covered in addition to how HIT can support effective, safe, and efficient patient-centered care.

Objectives:

1. Identify characteristics of an effective HIT system.
2. Define and provide examples of how evidence-based practice can be supported in HIT Systems.
3. Define and cite examples of usability / configurability / scalability and reliability in HIT Systems.
4. List and contrast different types of reports/queries (predefined vs. ad hoc) required for internal and external reporting.

Topics:

- 4.1 – Effective HIT
- 4.2 – Characteristics of Effective HIT
- 4.3 – Supporting Workflows

Unit 5 Fundamentals of Usability in HIT Systems – What Does It Matter?

Description:

Unit 5 will present the basic concepts of usability in general and HIT usability specifically. Students will be exposed to usability bottlenecks and learn to identify usability roadblocks in the EHRS lab system, hypothesizing potential downstream effects of poor usability, and suggesting solutions/alternate designs. This unit will detail the relationships between usability, user satisfaction, and workarounds.

Objectives:

1. Define usability in relation to HIT systems.
2. Explain the impact of HIT usability on user satisfaction, adoption, and workarounds in error rates or unintended consequences.
3. Provide alternatives to HIT usability bottlenecks.

Topics:

- 5.1 – Defining Usability
- 5.2 – User Centered Design
- 5.3 – Usability in HIT

- 5.4– Impact of Poor HIT Usability
- 5.5– Strategies for Bottlenecks

Unit 7 Protecting Privacy, Security, and Confidentiality in HIT Systems

Description:

Unit 7 is designed to present an overview of the concepts of privacy, security, and confidentiality of protected health information (PHI) in relation to HIT systems. Threats to PHI frequently encountered in HIT environments such as password sharing, offsite access to EHRs, challenges of staff turn-over and student access, unauthorized access, etc. will be detailed. Students will be exposed to simulated breaches of privacy, security and confidentiality of PHI in lab exercises, asked to identify, and propose strategies to thwart.

Objectives:

1. Explain and illustrate privacy, security, and confidentiality in HIT settings.
2. Identify common threats encountered when using HIT.
3. Formulate strategies to minimize threats to privacy, security, and confidentiality in HIT systems.

Topics:

- 7.1 – Administrative Safeguards
- 7.2 – Physical Safeguards
- 7.3 – Technical Safeguards

Unit 9 Potential Issues with Adoption and Installation of an HIT system

Description:

The basics of human behavior, change, and adaptation will be discussed. Strategies for dealing with barriers to implementation (human and structural) will be covered.

Objectives:

1. Identify frequently encountered challenges to adoption and implementation of HIT systems
2. Design an action plan to address barriers to implementation of an HIT system.
3. Propose solutions to common problems in the implementation of HIT systems.

Topics:

- 9.1 – Why Systems Fail
- 9.2 – Critical Success Factors in HIT Adoption/Implementation
- 9.3 – Common Challenges
- 9.4 – Potential Strategies



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**HEALTH IT WORKFORCE CURRICULUM
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Component Number: 8

Component Name: Installation and Maintenance of Health IT Systems

Component Description: Instruction in installation and maintenance of health IT systems, including testing prior to implementation. Introduction to principles underlying system configuration. Hands-on experiences in computer labs and on-site in health organizations.

Assigned Institution: Duke University

Team Lead(s):

Scott Neal, Durham Technical Community College

R. Clayton Musser, MD, MS, Duke University

Team Members:

Harry Bulbrook, (Consultant)

Charlene West, (Consultant)

Workforce Roles:

- Implementation support specialists
- Implementation managers
- Technical/software support staff

Component Objectives:

At the completion of this component, the student will be able to:

1. Articulate the elements of Health IT systems, including their advantages and disadvantages.
2. Justify criteria to be considered when recommending vendors and software
3. Design a comprehensive plan to install a health IT system
4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback
5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed
6. Verify plan implementation

Component Units with Objectives and Topics

Unit 1 (Elements of a Typical EHR System):

Description: This unit will give a brief overview of a typical Electronic Health Record (or EHR) system, including discussion of the Institute of Medicine's six aims for improving healthcare, what an EHR is, and how it has evolved. Additionally, it will outline the types of network elements an EHR system needs to function, as well as its typical hardware and software components.

Objectives:

1. Identify the core elements that comprise an EHR system
2. Describe the use of client and server hardware for access to and storage of EHRs
3. Describe network needs for access to and storage of EHRs
4. Identify the application software and back-end data storage software needed for a comprehensive, effective health IT system

Topics:

1. Six aims for improving Healthcare
2. Outline and advantages of EHR system functions and capabilities
3. Elements of EHR system
 - a. Hardware
 - b. Software
 - c. Client-Server model
 - d. Network – LAN and WAN

Unit 3 (System Selection - Functional and Technical Requirements):

Description: This unit explores aspects of functional requirements of systems (by users) and technical requirements (by the system), including how to determine, document, prioritize, and act on those requirements.

Objectives:

1. Identify 12 possible steps to choosing an EHR system
2. Gather functional requirements from institution and users
3. Document use-cases and relate them to functional requirements

Topics:

1. Twelve steps in evaluating EHR systems
2. Functional requirements and the HL7 model
3. Non-Functional requirements
4. Use Cases pre- and post-EHR
5. Hardware and software requirements

Unit 7 (System Interfaces and Integration):

Description: This unit will define interface and integration and explain their importance, discuss common interface methods point to point and interface engines and the types of protocols they use, examine HL7 and how it simplifies the process of communicating between various dissimilar components, and connecting your EHR system to the outside world.

Objectives:

1. Determine and document system interfaces and integration requirements
2. Describe the pitfalls associated with installing a new application in an environment of pre-existing applications
3. Give examples of interfacing modalities

Topics:

1. Interface and Integration
 - a. HL7 communication protocol
 - b. Integration between EHRs
1. Methods
 - a. Interface Engine
 - b. Point to point

Unit 8 (Troubleshooting, Maintenance and Upgrades, and Interaction with Vendors, Developers, and Users):

Description: This unit will discuss ways you can implement an infrastructure for troubleshooting, and maintaining EHRs and their existing infrastructure.

Objectives:

1. Identify and implement an effective troubleshooting procedure for reporting, evaluating, fixing, deploying, and follow-up of errors, problems, or limitations for the system
2. Integrate downtime schedule for OS, network, database, and client application maintenance and updates
3. Develop a process for communicating requirements and supplying updates between vendors/developer and users
4. Create a baseline for system performance measurement and comparison for troubleshooting

Topics:

1. Support staff
 - a. Troubleshooting workflow
 - b. Tiered approach
 - c. Request prioritization
2. Application to small business
3. Diagnosing Infrastructure issues
4. Performance testing
 - a. Baseline measurement
 - b. Measurement utilities
 - c. Next steps
5. Maintenance and Upgrades
 - a. Structured approach
6. Relationships
 - a. Users
 - b. Vendors

**HEALTH IT WORKFORCE CURRICULUM
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Component Number: 9

Component Name: Networking and Health Information Exchange

Component Description: In-depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them) , the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches.

Assigned Institution: Duke University

Team Lead(s):

W. Ed Hammond, Ph.D., Duke Center for Health Informatics

Michele Parrish, Durham Technical Community College

Team Members:

Harry Bulbrook, (Consultant)

Charlene West, (Consultant)

Workforce Roles:

- Practice workflow and information management redesign specialist
- Clinician/practitioner consultants
- Implementation support specialists

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported.
2. Recommend components of networking hardware that meet standards and support information exchange.
3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements
4. Explain the process and value of EHR certification.

5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards.
6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders.
7. Examine additional standards related to shared and effective use of data, including clinical decision support.
8. Describe enterprise architecture models, including centralization vs federation and grids, service oriented architectures, and local implementations with respect to systems from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN).
9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.

Component Units with Objectives

Unit 9 (Privacy, Confidentiality, and Security Issues and Standards):

Description: This unit explores issues related to creating an environment in which to transport data in a secure manner that ensures privacy and confidentiality.

Objectives:

1. Explain the concepts of privacy and confidentiality requirements and policies and learn how to implement the requirements
2. Describe how to secure data storage and transmission using data encryption, signatures, validation, non-repudiation, and integrity (PKI, certificates, and security protocols)
3. Define access control methods
4. Analyze access restrictions to data storage and retrieval (physical and software)

Topics:

1. Security Concepts
2. Access Control
 - a. Logical
 - b. Physical

Unit 10 (Health Information Exchange):

Description: This unit explores the networking standards and the standards required for interoperability to enable the creation of Health Information Exchanges.

Objectives:

1. Understand the purpose and importance of a Health Information Exchange strategy,
2. Understand what an HIE is,
3. Understand the components of an

Topics:

1. EHR Settings
2. Issues for Sharing EHRs
3. Regional Centers

**HEALTH IT WORKFORCE CURRICULUM
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Component Number: 10

Component Title: Fundamentals of Health Workflow Process Analysis & Redesign

Component Description: Fundamentals of health workflow process analysis and redesign is a necessary component of complete practice automation and includes topics of process validation and change management.

Assigned Institution: Duke University

Team Lead(s):

Meredith Nahm, PhD, Duke University

Team Members:

Meredith Nahm, PhD, (Developer)

Kaye Fendt, MSPH, (Developer)

Brian Reynolds, PhD, (Developer)

Marcy Corjay, PhD, (Rowan Cabarrus Community College Principal Investigator)

Charmaine Smith, MA (Quality Control)

Workforce Roles:

Health IT Roles to Which this Content Applies:

- Clinician/Practitioner Consultant
- Implementation Support Specialist
- Practice Workflow and Information Management Redesign Specialist

Component Objectives:

At the completion of this component, the student will be able to:

7. Identify the elements involved in providing patient care within a complex health care setting that must be taken into consideration when examining and proposing changes in workflow processes.
8. Create a diagram of processes in the health care setting that support workflow analysis and re-design.
9. Critically analyze the workflow processes in a selected health care setting to determine their effectiveness from the perspective of those being served (i.e.,

- patients), those providing the services (i.e., professional and non-professional staff), and the organization's leadership (i.e., decision makers).
10. Propose ways in which quality improvement methods, tools and health IT can be applied within a health care setting to improve workflow processes.
 11. Suggest approaches that would ensure the success of workflow re-design from development and presentation of the implementation plan, to facilitation of decision making meetings, implementation of the changes, evaluation of the new processes, sustainability of new workflow processes, and continuous quality improvement efforts to achieve meaningful use.
 12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Component Units with Objectives and Topics

Unit 1: Concepts of Processes and Process Analysis

Description: This unit focuses on the six aims for health care process improvement. In this unit, students are helped to understand the concepts of systems, systems thinking and health care processes. Such understanding provides a foundation for the study of clinical process analysis and redesign.

Objectives:

6. Describe the purpose for process analysis and redesign in the clinical setting
7. Describe the role of a Practice workflow and information management redesign specialist and contrast it with other roles such as technical support and implementation management
8. Explain how health care process analysis and redesign and meaningful use are related
9. Analyze a health care scenario and identify the components of clinical workflow.
10. Given a scenario of a health care analysis and redesign, analyze the responsibilities of each participant in the process and how the roles complement or overlap with one another
11. Describe how the workflow processes used by a health care facility might differ depending on the type of facility

Topics:

1. Role of Health Care Workflow Analysis and Redesign Specialist
 - a. Definitions
 - b. Health care Roles and Responsibilities
2. IOM 6 Quality Areas
3. Importance of HIT to Health Care - Meaningful Use
4. The Clinical Setting
5. Common Health Care Processes
6. Clinical Workflow
7. Summary: What a Process Analysis and Redesign Specialist Does

Unit 2: Process Mapping Theory and Rationale

Description: In two parts, Fundamentals of Health Workflow Process Analysis and Redesign: Process Mapping Theory and Rationale, Lecture a and Process Mapping Diagramming Tools, Lecture b, covers the background necessary for graphically representing processes. It uses flowcharts and basic flowchart symbols to provide an introduction to graphical process representation, also called process diagramming. Separate units cover complete symbol sets and conventions for different types of process diagrams.

Objectives:

1. Articulate the value of process mapping.
2. Describe standard process mapping symbols and conventions.
3. Analyze an existing workflow process chart in terms of the information that could be generated, and the sequence of steps that are being communicated.
4. Choose the correct scope and detail level for a process map.
5. Choose an appropriate process mapping methodology.
6. Create a process map for a health care system (or system component) using correct symbols and conventions.

Topics:

1. Purpose of graphic process representation
2. Process diagram vocabulary
3. Identifying process steps
4. Basic flowchart symbols
5. Creating a basic flowchart

Unit 3: Interpreting and Creating Process Diagrams

Description: Unit 3 is composed of several lectures, one for each diagramming method. Lecture a, Interpreting and Creating Process Diagrams: Introduction - provides an introduction to these concepts and reviews information from Unit 2, Lecture b. Based on feedback from practitioners, we recommend using two methods (data flow diagrams in Yourdon notation, and flowcharts). In Lecture a, we review the process aspects that

each diagram type covers. In separate presentations, we cover each diagram type. For the two recommended methods, the presentation covers concepts and skills from reading and interpreting the diagrams to actually creating them. For the rest of the diagrams, we cover only background, use, and notation, i.e., the presentation prepares the student to read and interpret the diagram but not to create them.

Objectives:

1. Create a process flowchart for a health care system (or system component) using appropriate ISO 5807 symbols and conventions,
2. Create context and data flow diagrams for a health care system (or system component) using appropriate Yourdon symbols and conventions,
3. Choose the correct scope and detail level for a process flowchart and data flow diagram,
4. Read and interpret Gane-Sarson data flow diagram,
5. Read and interpret an entity relationship diagram in crow's foot notation, and
6. Read and interpret UML class, activity, and state diagrams.

Topics:

1. Key process aspects that may require analysis and diagramming
2. Types of process diagrams
3. Standard ISO 5807 process diagramming symbols and conventions
4. Reading an ISO 5807 flowchart in terms of the information that could be generated and the workflow steps that are being communicated
5. Create ISO 5807 flowcharts for a health care system (or system component) using correct symbols and conventions
6. Yourdon data flow diagram symbols and conventions
7. Creating data flow diagrams (DFDs) for a given a health care scenario
8. Gane-Sarson symbols and conventions for process mapping
9. Reading Gane-Sarson data flow diagrams
10. Understand the background of how Entity-Relationship Diagrams (ERDs) are used and maintained, the symbol set used in producing ERDs, and process aspects covered by them
11. Understand the notation conventions and be able to read (not create) a simple Entity Relationship Diagram (ERD)
12. Purpose, symbols, and conventions for UML
 - a. Class,
 - b. Activity and
 - c. State machine diagram
13. Reading and interpreting the diagrams

Unit 4: Acquiring Clinical Process Knowledge

Description: In three lectures, this unit covers the concepts and methods for Acquiring Clinical Process Knowledge in the health care setting needed by the health care Workflow Analysis and Redesign Specialist.

Objectives:

1. Identify how the strategic goals and stakeholders for a given health care facility can influence workflow processes in that facility,
2. Create an agenda for an opening meeting to discuss workflow processes in a health care facility, in light of that facility's strategic goals and stakeholders,
3. Compare and contrast different types of knowledge and their impact on organizations,
4. Analyze a health care scenario according to CMMI levels,
5. Identify the workflow processes that are likely to be used by a health care facility,
6. Identify the workflow processes that are essential to observe in order to determine how best to streamline the operations in a given health care facility, and
7. Identify key individuals with whom the Practice Workflow and Information Management Redesign Specialist should meet or observe in order to gain an understanding of the nature and complexity of their work.
8. Given a process observation scenario, formulate the questions that would facilitate a productive discussion of the workflow of information, activities and roles within that facility,
9. Suggest ways to successfully respond to common challenges encountered in knowledge acquisition,
10. Given a practice scenario, choose an appropriate knowledge acquisition method,
11. Given a process analysis scenario including list of observations, create agenda for visit closing meeting and an initial meeting report, and
12. Given a set of diagrams and observations from an information gathering meeting, draft a summary report.

Topics:

1. Knowledge Acquisition (KA) goals in health care,
2. Importance of KA,
3. Categories of knowledge, and
4. Knowledge and the Capability Maturity Model (CMM).
5. Clinic information such as mission, stakeholders and goals that can help inform the analysis,
6. Common clinic processes, and
7. Creating a process inventory.
8. Knowledge sources,
9. Process information that should be considered in the analysis,
10. Methods to obtain the information,
11. Knowledge acquisition plan, and
12. Initiating a relationship with a clinic.

Unit 5: Process Analysis

Description: In two lectures, Fundamentals of Health Workflow Process Analysis and Redesign: Process Analysis covers the background and methodology for process analysis.

Objectives:

1. Describe the purpose of process analysis,
2. Describe skills and knowledge necessary for process analysis,
3. Perform a process analysis for a given clinic scenario,
4. Given results of a process analysis draft a summary report, and
5. Given results of a process analysis, identify desired EMR functionality

Topics:

1. Objectives of Process Analysis
2. Relevant concepts for process analysis
3. Steps for process analysis
4. Starting with process inventory and diagrams
5. For each process, listing
 - a. Variations applicable to the clinic
 - b. Exceptions
6. And Reporting findings
7. Process Variations for common clinic processes
 - a. Patient check-in
 - b. Patient visit
 - c. Prescription
 - d. Received documentation
 - e. Labs & diagnostic tests
 - f. Referral and consults
 - g. Disease management
 - h. Billing
8. Identifying EHR functionality from Process Analysis

Unit 6: Process Redesign

Description: This unit, Process Design, consists of 4 lectures and covers the background and methodology for process redesign in the health care facility.

Objectives:

1. Identify the factors that optimize workflow processes in health care settings.
2. Describe how information technology can be used to increase the efficiency of workflow in health care settings.
3. Identify aspects of clinical workflow that are improved by EHR.
4. Propose ways in which the workflow processes in health care settings can be re-designed to ensure patient safety and increase efficiency in such settings.
5. Use knowledge of common software functionality and meaningful use objectives to inform a process redesign for a given clinic scenario.

Topics:

1. Objectives and goals of Process Redesign,
2. Unproductive work,
3. Twenty seven strategies for optimizing processes, and
4. An example of each optimization strategy.
5. Describe how information technology can be used to increase the efficiency of workflow in health care settings
6. Identify aspects of clinical workflow that are improved by EHR
7. Objectives, Skills and Knowledge for Process Redesign,
8. Common process problems,
9. Solutions to process problems, and
10. Human-Centered Design Framework as applied to Process Redesign.
11. Matching common clinic system functionality to solve process problems.
12. Objectives, skills and knowledge for Process Redesign,
13. Human-Centered Design framework applied to Process Redesign,
14. Common process problems,
15. Solutions to process problems,
16. Matching common clinic system functionality to solve process problems, and
17. Process redesign for Meaningful Use.

Unit 7: Facilitating Meetings for Implementation Decisions

Description: In one lecture, this unit, Facilitating Meetings for Implementation Decisions, covers a method and the associated logistics for conducting meetings in which health care facility decision makers review options for major process and implementation related decisions and make decisions. The purpose of the meetings is to outline the decisions that need to be made, to assure that decision makers have the necessary information for decision making, and to facilitate decision making. This unit provides the Practice Workflow and Information Management Redesign Specialist with tools for conducting decision making meetings. There are many methods for conducting and facilitating meetings. Here, we provide one method, discuss key concepts, and provide references to resources that you can use as you develop your skills and portfolio of tools for meeting facilitation.

Objectives:

12. Describe major health care facility decisions in process redesign that includes EHR technology
13. Draft an agenda and facilitation plan for a decision making meeting,
14. Prepare a presentation to communicate findings of a workflow analysis or process redesign to health care facility decision makers,
15. Document those decisions that are made and actions identified in a decision making meeting, and
16. Critique a decision making meeting agenda, facilitation plan or scenario to identify problems and how they could have been prevented

Topics:

1. Coordinating a decision making meeting
2. Using appropriate group methods to discuss and make decisions on inefficiencies
3. Identifying opportunities for streamlining manual and computer-aided processes, and the
4. Transition from analysis and redesign to implementation planning, and we will also give examples of the plan content.

Unit 8: Quality Improvement Methods

Description: This unit covers Quality Improvement Methods recommended for use in the Health Care Setting. Many different approaches to quality improvement have been used in the health care arena. The workflow analysts will encounter organizations and people with experience with a multitude of proven methods and fads. Thus, an awareness of the history, methods, and tools of quality improvement is critical. This unit introduces students to these elements of QI, as well as categories of mistakes seen in these methods. It is not intended to teach the student how to use these methods and tools.

Objectives:

17. Describe strategies for quality improvement
18. Describe the role of Leadership in Quality Improvement
19. Describe the local clinic improvement capabilities
20. Describe and recommend tools for quality improvement
21. Compare and contrast the quality improvement methodologies and tools and their appropriate uses in the health care setting

Topics:

1. Foundations of Quality Improvement
2. Methods for Quality Improvement
3. Tools for performing Quality Improvement
4. A culture of Quality Improvement
5. Mistakes in Quality Improvement

Unit 9: Leading and Facilitating Change

Description: This unit, Leading and Facilitating Change, introduces the concepts of change and the impact of such change on the providers and staff within a health care facility. It enhances the understanding that workflow analysts must be sensitive to the human component as they examine and propose modifications in processes. This unit prepares the student to recognize and address common change management problems, and to work with individuals and groups to facilitate change.

Objectives:

22. Explain concerns expressed by participants in a process analysis & redesign scenario in terms of common change management concepts.
23. Propose strategies to gain acceptance of changes in work processes.
24. Create and critique a facilitation plan, including appropriate facilitation tools for a given process analysis & redesign scenario, and
25. Given a health care change management scenario, explain outcomes in terms of common change management concepts

Topics:

1. Change Management concepts
2. Tools for Facilitating change
3. Facilitation Planning

Unit 10: Process Change Implementation and Evaluation

Description: This unit focuses on helping students develop skills needed to implement and evaluate the effectiveness of changes designed to improve workflow processes and the quality of care in health care facility. This unit prepares the student to implement a process change by covering three key skill sets: 1) develop a process change plan (implementation plan), 2) communicate a process change plan, and 3) develop an evaluation plan.

Objectives:

26. Develop a Process Change Implementation Plan for a health care facility that includes tasks to be accomplished, responsible parties for various tasks, a timeline, and the human and material resources needed
27. Identify management tracking and measurement opportunities for the process change
28. Outline elements of an evaluation plan that will help determine the success of a workflow process change implemented in a health care facility
29. Describe how the workflow analyst can help a health care facility continually improve its workflow processes, based on results of ongoing evaluations

Topics:

1. Common process changes

2. Implementation plan components
3. Communication for implementation
4. Common implementation problems
5. Evaluating the new process

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Component Number: 12

Component Name: Quality Improvement

Component Description: Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Assigned Institution: Johns Hopkins University

Team Lead(s): Stephanie Poe, DNP, RN, The Johns Hopkins Hospital
Anna Maria Izquierdo-Porrera, MD PhD, BlueNovo, Inc.

Peter Pronovost, PhD, MD, JHU, School of Medicine

Team Members: Patricia Dawson, MSN, RN, The Johns Hopkins Hospital
Kelly Hugo, MBA, Anne Arundel Community College

Workforce Roles:

- Clinician/Practitioner Consultant
- Practice Workflow and Information Management Redesign Specialist

Component Objectives

At the completion of this component, the student will be able to:

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply of information technology and standardized practices that support safety and quality
5. Formulate activation planning that supports and maintains safety and quality

6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Component Units with Objectives and Topics

Unit 1 Introduction to Quality Improvement and Health Information Technology

Description:

This unit will introduce the learner to the concept of health care quality and the importance of meaningful use of health information technology in improving health care quality. The Institute of Medicine aims of quality improvement and the Institute of Healthcare Improvement's triple aim are used to frame a discussion of the role of health information technology in leading to improvement of patient safety, efficiency, effectiveness, equity, timeliness, and patient-centeredness. The learner is also provided with examples of how health IT can facilitate quality improvement as well as unintended consequences of health IT that can be byproducts of poor system design and user work-arounds.

Objectives:

1. Identify the current challenges in health care quality.
2. Examine the components of the health care system that have an impact on quality.
3. Describe QI as a goal of meaningful use of HIT.
4. Analyze the ways that HIT can either help or hinder quality improvement.
5. Explain health care quality and quality improvement (QI).

Topics:

- 1.1 – Health Care Quality and HIT
- 1.2 – Relationship of QI and HIT

Unit 2 Principles of Quality and Safety for HIT

Description:

This unit is designed to introduce the learner to the magnitude of the problem of medical error in the US. Health care system and the role of the learning in helping to make our system safer. Emphasis is placed on how the science of safety can be applied to health care and the impact of system factors on patient safety. Three principles of safe design are introduced (eliminate steps, create independent checks. and learn from mistakes).

Objectives:

1. Investigate the fallibility of people and systems.
2. Describe the ways that every system is designed to achieve the results it gets.
3. Apply the basic principles of safe design.
4. Explain the ways that teams make wise decisions with diverse and independent input.

Topics:

- 2.1 – Improving Patient Safety

Unit 5 Decision Support for Quality Improvement

Description:

This unit presents an in depth review of ways in which decision support can enhance quality and safety in patient care. Definitions of decision support are provided.

Objectives:

1. Define decision support, its importance and why it is difficult to implement.
2. Compare decision support tools that help improve quality.
3. Analyze the benefits and shortfalls of alerts and clinical reminders.

Topics:

- 5.1 – Clinical Decision Support System (CDSS) Basics
- 5.2 – Alerts and Clinical Reminders.

Unit 6 Workflow Design

Description:

This unit introduces the learner to good practices for determining current workflow design and whether this design can be supported by HIT. It also presents ways of assisting users to redesign clinical work-flow as needed without loss of quality and safety in the clinical environment. Discussion of questions to ask when determining hard-wired and mobile technology placement is included.

Objectives:

1. Assess decision-making requirements in health or health care.
2. Construct a work process flow chart.
3. Appraise ways of incorporating decision-making requirements into HIT design.

Unit Topics/Lecture Titles

- 6.1 - Workflow Assessment

6.2 - Work Process Flow Charts

Unit 9 HIT Implementation Planning for Quality and Safety

Description:

This unit focuses the attention of the learner on ways in which HIT implementation can be managed to ensure the quality and safety are maintained during the transition period. Use of internal support pools, super-users, and front-line clinical experts to provide at-the-elbow support during the transition period is discussed. Emphasis is placed on the need for local adaptation and ongoing development of skills so that users can gain expertise in safe use of electronic health records and other information technology.

Objectives:

1. Critique an implementation team and the roles they play in ensuring quality.
2. Analyze effective implementation planning.
3. Assess the quality implications of “big bang” versus “staggered” approaches to activation.
4. Discuss “go live” support strategies that minimize risk.

Topics:

- 9.1 - The Implementation Team and Effective Implementation Planning
- 9.2 - Go-Live Support Strategies

Unit 10 Measuring Quality

Description:

This unit we will discuss the basics of measurement for quality. We will introduce the concepts of understanding variation. We will also discuss the fact that the design of electronic documents and flow sheets have a significant impact on the ability to extract quality measures from the resulting database. The importance of rigorous design and testing of system reports used for quality purposes is emphasized. Sample quality measures that are frequently requested of HIT systems are identified, and questions that guide data extraction are suggested.

Objectives:

1. Understand the basic concepts of variation.
2. Explain the attributes of an effective reporting system.
3. Examine the importance of having standardized and structured health information so that you can use those data to make valid reports.
4. Discuss how HIT can facilitate data collection and reporting for improving quality of care and patient safety.

Topics:

- 10.1 – Measuring Patient Safety

Unit 11 Data Quality Improvement

Description:

This unit will introduce the learner to the importance of data quality and the role of the HIT professional in monitoring and ensuring the quality of data in clinical information systems. The theme of this unit is "beginning with the end in mind" and a review of both measurable and intangible dimensions of data quality is provided. Examples of each dimension are reviewed and a business case for quality is presented.

Objectives:

1. Understand the different purposes of data.
2. Discuss the impact of poor data quality on quality measurement.
3. Identify ten attributes of data quality and key process recommendations.
4. Explore the attributes of data quality and key process recommendations for maintaining data integrity.
5. Discuss common causes of data insufficiency.
6. Describe how health information technology design can enhance data quality.

Topics:

- 11.1– Characteristics and use of data.
- 11.2 – Common causes of Insufficient Data Quality and Design Recommendations.

Unit 12 Learning from Mistakes: Error Reporting and Analysis and HIT

Description:

This unit is designed to assist the learner in understanding the role of HIT in error detection and reporting and analysis of errors. The unit pulls together the links between learning from mistakes and the science of safety and safe culture. It includes a review of three tools for error detection and reporting: automated surveillance systems, error reporting systems, and predictive analytics and modeling. Examples of two powerful quality improvement tools (root cause analysis and failure mode effects analysis) are provided and the role of HIT professional in contributing to these efforts is discussed.

Objectives:

1. Explain how reporting errors can help to identify HIT system issues.
2. Describe ways in which HIT can facilitate error reporting and detection.
3. Assess HIT for unintended negative consequences.
4. Examine common themes in HIT design deficiencies.
5. Apply QI tools to examine HIT errors.

Topics:

- 12.1 – HIT, Error Detection, and Reporting
- 12.2 – Quality Improvement Tools and HIT



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HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 13

Component Name: Public Health Information Technology

Component Description: This component is designed for individuals specifically contemplating careers in public health agencies. The unit will provide an overview of specialized public health applications such as registries, epidemiological databases, biosurveillance, and situational awareness and emergency response. In addition it will include information exchange issues specific to public health.

Assigned Institution: Columbia University

Team Lead(s):

Rita Kukafka, DrPH, Columbia University

Michael Buck, PhD, New York City Department of Health and Mental Hygiene
(NYCDHMH)

Syncia Sabain, EdD (Project Manager)

Team Members:

Lynda Carlson, PHD, Borough of Manhattan Community College (Content Specialist)

Winfred Wu, MD, NYCDHMH (Content Specialist)

Marlena Plagianos, NYCDHMH (Content Specialist)

Sarah Shih, NYCDHMH (content Specialist)

Sharib Khan, DBMI (Content Specialist)

Anna Ritko, PhD Candidate (Content Specialist)

Madhabi Chatterji, PhD (Curriculum Developer)

John Allegrante, PhD (Curriculum Developer)

John Zimmerman, DDS (Instructional Design Specialist)

Cindy Smalletz, (Instructional Design Specialist)

Elizabeth Oliver, Bronx Community College (Content Specialist)

Component Objectives:

Upon completion of this component, the student will be able to:

1. Distinguish (draw distinctions) among core functions and essential services of 'public

health' and 'clinical care'.

2. Synthesize key reasons and current contextual factors for providers in clinical practice to improve public health services and practices using EHRs
3. Apply health data definitions and standards, as well as privacy and confidentiality issues, in typical public health scenarios.
4. Summarize the strategies, features, and systems needed for public health agencies to define and build the necessary connections to EHRs as identified by meaningful use legislation.
5. Describe the roles and functions of existing public health data and health databases and networks
6. Identify current needs and future directions for EHR biosurveillance, disaster-preparedness, and situational awareness in improving public health.
7. Summarize/describe the main role, functions and applications of public health reporting, alerts and decision support systems.
8. Summarize the role, functions and applications of public health IT for health promotion and chronic disease prevention
9. Delineate the critical role of advocacy in adoption/use of EHRs and Consumer functions for PHRs to improve public health.

Component Units with Objectives and Topics

Unit 1:

Overview & contribution to public health through Electronic Health Record use

Description:

Synthesize key reasons and current contextual factors for providers in clinical practice to improve public health practice using EHRs.

Objectives:

By the end of this unit students will be able to:

1. Explain what is public health?
2. Discuss what distinguishes public health from the other health sciences
3. Explain public health's unique contributions to the health of the public
4. To define Public Health (PH) Information Technology and PH Informatics
5. To illustrate how innovative IT solutions are being applied to PH practice
6. To explain the role of electronic health records and data exchange to clinical care and health care improvement
7. Describe PH organizational structure

Topics:

- A. Introduction to Public Health
- B. Historical Context of Public Health
- C. Opportunities for Public Health enabled electronic health records
- D. Public Health + Health Information Technology (PHIT)
- E. Public Health Informatics



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HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 14

Component Name: Special Topics Course on Vendor-Specific Systems

Component Description: Provides an overview of the most popular vendor systems highlighting the features of each as they would relate to practical deployments, and noting differences between the systems.

Assigned Institution: Columbia University

Team Lead(s):

David Vawdrey, PhD, Columbia University

Bob Sideli, MD, Columbia University and Columbia-Presbyterian Medical Center

Team Members:

Sarah Collins, PhD (Content Specialist)

Rita Kukafka, Dr.Ph (Principal Investigator)

Syncia Sabain, EdD (Project Manager)

Michael Buck, PhD, New York City Department of Health and Mental Hygiene (NYCDHMH)

Lynda Carlson, BMCC (Content Specialist)

Madhabi Chatterji, PhD (Curriculum Developer)

John Allegrante, PhD (Curriculum Developer)

John Zimmerman, DDS (Instructional Design Specialist)

Cindy Smalletz, MS (Instructional Design Specialist)

Component Objectives:

Upon completion of this component, the student will be able to:

1. Assess and compare common commercial Electronic Health Record (EHR) systems using KLAS ratings in training and organizational decision-making contexts.
2. Apply Certification Commission for Health Information Technology (CCHIT), meaningful use, Joint Commission and National Patient Safety Goals to decisions about

commercial EHR vendor selection, when given typical workplace scenarios.

3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor-specific systems

4. Analyze the functionality of a vendor EHR system, given a set of user needs

5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility

6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange

7. Compare decision support capabilities and customizability, given different vendor EHRs

8. Evaluate training and go-live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.

Component Units with Objectives and Topics

Unit 3:

How do organizations select an EHR? Lessons from the front lines

Description:

Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor-specific systems.

Objectives:

Students will be able to:

1. Demonstrate concept knowledge of the RFP process
2. Identify the key stakeholders involved in EHR selection and the roles they each play
3. Identify and give examples of the categories of project costs when selecting vendor-specific EHR systems
4. Analyze the financial components that strengthen an EHR vendor
5. Identify the key steps in the selection process for choosing a vendor HER

Topics:

- A. RFP process
- B. Stakeholders involved
- C. Cost (capital, licensing, maintenance, staffing)
- D. Financial strength of vendor

Unit 4:

Electronic Health Record (HER) Functionality

Description:

Analyze the functionality of a vendor EHR system, given a set of user needs.

Objectives:

Students will be able to:

1. Describe EHR functionality of Results Review
2. Describe the EHR functionality of Computerized Provider Order Entry (CPOE)
3. Describe the EHR functionality of Documentation
4. Describe the EHR functionality of Messaging among different vendor systems
5. Describe the procedures for billing supported by EHR vendor systems.

Topics:

- A. Results Review
- B. Computerized Provider Order Entry (CPOE)
- C. Documentation
- D. Messaging



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HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 15

Component Name: Usability and Human Factors

Component Description: Discussion of rapid prototyping, user-centered design and evaluation, usability; understanding effects of new technology and workflow on downstream processes; facilitation of a unit-wide focus group or simulation.

Assigned Institution: Columbia University

Team Lead(s):

Dave Kaufman, PhD, Columbia University

Team Members:

Yalini Senathirajah, PhD (Content Specialist)

Olena Mamykina, Columbia University (Content Specialist)

Rita Kukafka, DrPH (Principal Investigator)

Syncia Sabain, EdD (Program Manager)

Lynda Carlson, BMCC (Content Specialist)

Madhabi Chatterji, PhD (Curriculum Developer)

John Allegrante, PhD (Curriculum Developer)

John Zimmerman, DDS (Instructional Design Specialist)

Cindy Smalletz, (Instructional Design Specialist)

Component Objectives:

Upon completion of this component, the student will be able to:

1. Articulate a systems approach to usability and human factors as it applies to health information technology.
2. Explain the cognitive consequences of health information technology on clinical performance.
3. Identify the consequences of suboptimal design in the delivery of healthcare.
4. Apply methods of cognitive research, sources of usability evidence, and principles of

user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users.

5. Apply requirements engineering methods to inform design and technology selection.

6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods.

7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering.

8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase.

9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement.

10. Diagnose problems associated with a clinical decision support system.

11. Apply cognitive methods of analysis to medical device testing.

12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen's heuristic evaluation method.

13. Diagnose various types of error and create or select potential solutions.

14. Select appropriate technology input methods given different technology uses, user populations and contexts.

15. Describe how information visualization can support and enhance the representation of trends and aggregate data.

16. Describe the role of mobile and ubiquitous computing in healthcare.

Component Units with Objectives and Topics

Unit 4:

Human factors and healthcare

Description:

Apply concept knowledge of human factors to the evaluation of systems-design and the study of human errors and patient safety.

Objectives:

Students will be able to:

1. Distinguish between human factors and human computer interactions (HCI) as they apply to usability
2. Explain how cognitive, physical and organization ergonomics can be applied to human factors engineering
3. Describe how the concepts of mental workload, selective attention and information overload affect usability
4. Describe the different dimensions of the concept of human error
5. Describe a systems-centered approach to error and patient safety
6. Apply methods for measuring mental workload and information overload
7. Describe how human factors analysis can be applied to the study of medical devices

Topics:

- A. Introduction to human factors engineering

- B. Cognitive, physical and organization ergonomics
- C. Mental workload
- D. Selective attention and information overload
- E. The nature of human error and patient safety

**HEALTH IT WORKFORCE CURRICULUM
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Component Number: 16

Component Title: Professionalism/Customer Service in the Health Environment

Component Description: This component develops the skills necessary to communicate effectively across the full range of roles that will be encountered in healthcare and public health settings.

Assigned Institution: University of Alabama at Birmingham

Team Lead(s): Beth L. Elias, PhD, MS, UAB

Team Members:

Beth L. Elias, PhD, MS, UAB (Curriculum Developer)

Darrell Burke, PhD, UAB (Curriculum Developer)

Stephen J. O'Connor, PhD, FACHE, UAB (Curriculum Developer)

Robert Weech-Maldonado, MBA, PhD, UAB (Curriculum Developer)

Feliciano Yu, Jr., MD, MSHI, MSPH, Washington University School of Medicine
(Curriculum Developer)

Workforce Roles:

- Implementation Manager
- Practice Workflow and Information Management Technology Specialist
- Technical/Software Support
- Trainer

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain key elements of customer service in health IT.
2. Demonstrate appropriate behaviors in simulations of health IT customer service.
3. Demonstrate effective written and oral communication approaches to common communication interactions.
4. Identify core elements of effective communication and techniques to resolve conflicts.
5. Identify ethical and cultural aspects of communication.

Component Units with Objectives and Topics

Unit 1: Customer Service in Healthcare IT

Description:

This unit describes Customer Service in Healthcare IT.

Objectives:

1. Describe the definitions of customer service.
2. Identify customers' needs based on context.
3. Discuss different metrics to measure customer service in Healthcare IT.

Topics:

- 1a.1 Customer Service in Healthcare IT, Definitions of Customers and Customer Service
- 1a.2 What is customer service?
- 1a.3 A service culture
- 1a.4 Who are healthcare IT customers?
- 1a.5 What do customers want?
- 1b.1 Customer Service in Healthcare IT, Measurement Challenges in Customer Service
- 1b.2 The challenge
- 1b.3 EHR customer service implementation success factors
- 1b.4 Meaningful use perspective
- 1b.5 Balancing customer demands

Unit 3: Overview of Communication Relevant to Health IT

Description:

This unit describes the Overview of Communication Relevant to Health IT.

Objectives:

1. Explain the purpose and goal of professional communication.
2. Describe what is meant by effective communication.
3. Discuss what is meant by ineffective communication.
4. Identify communication needs of common roles in healthcare.
5. Describe Disability Etiquette's contribution to professional communication.

Topics:

- 3.1 Overview of communication relevant to Health IT
- 3.2 Unit 3: Objectives
- 3.3 Professional communication: purpose and goal
- 3.4 Effective communication
- 3.5 Ineffective communication
- 3.6 Communication and healthcare roles
- 3.7 Description of different professional roles in healthcare
- 3.8 Communication guidelines: face-to-face, electronic, phone
- 3.9 Disability etiquette and professional communication

3.10 Summary

Unit 4: Key Elements of Effective Communication

Description:

This unit describes Key elements of effective communication.

Objectives:

1. Discuss the definition of communication.
2. Discuss assumptions used in communication.
3. Discuss the communication models from general to health-specific.
4. Discuss variables used in communication.
5. Define nonverbal communications.
6. Describe how nonverbal communication functions in the human communication process.
7. Describe specific dimensions and give examples of nonverbal communication.
8. Discuss communication in paper-based and electronic formats.
9. Discuss personal communication in the work setting.
10. Understand the importance of listening skills.
11. Understand the role of diversity.

Topics:

- 4a.1 Lecture 1, Key elements of effective communication, verbal communication
- 4a.2 Learning objectives
- 4a.3 Communication defined
- 4a.4 Assumptions of human communication
- 4a.5 Communication models
- 4a.6 Common health-specific communication models
- 4a.7 HIT communication
- 4a.8 Communication variables in healthcare
- 4a.9 Summary
- 4b.1 Lecture 2, Key elements of effective communication, nonverbal communication
- 4b.2 Nonverbal communication
- 4b.3 Learning objectives
- 4b.4 Nonverbal communication defined
- 4b.5 Importance of nonverbal communication
- 4b.6 Functions of nonverbal communication
- 4b.7 Dimensions of nonverbal communication
- 4b.8 Components of kinesics
- 4b.9 Components of proxemics
- 4b.10 Components of paralinguistics
- 4b.11 Summary
- 4c.1 Lecture 3, Key elements of effective communication, using media for communication
- 4c.2 Using media for communication

Unit 5: Regulatory Issues: HIPAA and Standard Precautions

Description:

This unit describes Regulatory Issues: Standard Precautions and HIPAA.

Objectives:

1. Characterize the importance of and guidelines associated with infection control.
2. Relate protecting yourself and others with standard precautions.
3. Explain HIPAA and communication.

Topics:

- 5.1 Regulatory issues: HIPAA and standard precautions
- 5.2 Infection control
- 5.3 Standard precautions
- 5.4 HIPAA
- 5.5 Important components of HIPAA
- 5.6 HIPAA and communication
- 5.7 Guidelines for communication
- 5.8 Summary

Unit 8: Ethical and Cultural Issues Related to Communication and Customer Service

Description:

This unit describes Ethical and Cultural Issues Related to Communication and Customer Service.

Objectives:

1. Characterize dimensions of ethics.
2. Identify major characteristics of culture.
3. Distinguish elements in intercultural communication.
4. Perform effective intercultural communication.

Topics:

- 8a.1 Lecture 1: Ethical Issues
- 8a.2 Learning objectives
- 8a.3 What are ethics?
- 8a.4 Approaches in ethical decision making
- 8a.5 Medical ethics committees
- 8a.6 Ethics and cultural issues related to communication
- 8a.7 Summary
- 8b.1 Lecture 2: Cultural Issues
- 8b.2 Learning objectives
- 8b.2 Diversity and healthcare
- 8b.3 Diversity and cultural differences
- 8b.4 Dimensions of diversity

- 8b.5 Potential benefits of workforce diversity
- 8b.6 Ethnocentrism and intercultural relationships
- 8b.7 Cultural differences that may affect communication
- 8b.8 Equal Employment Opportunity laws
- 8b.9 Implications of diversity for healthcare delivery
- 8b.10 Cultural competency
- 8b.11 Summary

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Component Number: 17

Component Name: Working in Teams

Component Description: An experiential course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.

Assigned Institution: Johns Hopkins University

Team Lead(s): Pamela R. Jeffries DNS, RN, FAAN, ANEF, JHU, School of Nursing
Rick Milter, PhD, The Johns Hopkins Carey Business School

Team Members: Dawn Kemp, RN, MBA, Johns Hopkins Hospital
Diane Hawkins, BA, COTA/L, Community College of Baltimore County

Workforce Roles: Implementation Managers

Component Objectives:

At the completion of this component, the student will be able to:

1. Establish and monitor ground rules, or rules of engagement, that serve as behavioral guidelines for members of teams involved in HIT.
2. Develop an HIT action plan that can be easily adapted to changing situations, environments, and goals across a variety of health and healthcare settings.
3. Communicate a clearly articulated position in writing and speech.
4. Incorporate diversity in values, critical thinking, and judgments that amplifies the best of individual performance toward the HIT team mission.
5. Provide leadership for continuous assessment and learning on practices, processes, and outcomes of the HIT team mission.

Develop a sustaining framework that maximizes the integrated power of teams while recognizing excellence in individual performance of various stakeholders involved in HIT (patients, families, communities, nation, etc.).

Component Units with Objectives and Topics

Unit 5: Leveraging Integration Techniques: Power of HIT Team Dynamics

Description: This unit will discuss techniques for team members to problem solve within their teams so the team can be more effective. Activities will include how to conduct a SWOT analysis and mind maps within this component. Different activities described within the module will be differentiated between team or individual task. Activities will include a SWOT analysis of a case-based team and other experiential activities associated with team tasks and specific roles within the team.

Objectives:

1. Use problem-solving techniques (mind maps, SWOT analysis, swim lanes, fish bone diagrams) when developing teams.
2. Differentiate between a team task and an individual task.
3. Demonstrate a practical understanding of dimensions of team formation and management.

Topics:

- 5.1 – Problem-solving Techniques
- 5.2 – Team task versus Individual Task



Awardee of The Office of the National Coordinator for Health Information Technology

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 18

Component Title: Planning, Management and Leadership for Health IT

Component Description: This component targets those preparing for leadership roles, principles of leadership and effective management of teams. Emphasis on the leadership modes and styles best suited to IT deployment.

Assigned Institution: University of Alabama at Birmingham

Team Lead(s): Amanda Dorsey, MSHI, UAB

Team Members:

Meg N Bruck, MSHI, UAB (Curriculum Developer)

Amanda Dorsey, MSHI, UAB (Curriculum Developer)

David Friday, MSHI, UAB (Curriculum Developer)

Sherrilynne Fuller, PhD, University of Washington School of Medicine/Information School (Curriculum Developer)

Stephen J. O'Connor, PhD, FACHE, UAB (Curriculum Developer)

Pamela E. Paustian, PhD, RHIA, UAB (Curriculum Developer)

Workforce Roles:

- Clinician/Practitioner Consultant
- Implementation Manager

Component Objectives:

At the completion of this component, the student will be able to:

10.1 Explain leadership traits and theories

11. Recognize leadership's role in IT and EHR project success and project failure

12. Describe importance of effective leadership of teams

13. Demonstrate team leadership competencies.

Component Units with Objectives and Topics

Unit 1: Introduction to Leadership

Description:

This unit describes leadership styles and theories of leadership.

Objectives:

1. Define leadership
2. Distinguish between leadership styles in the Blake and Mouton's Managerial Grid
3. Define and describe classic leadership theories
4. Describe characteristics of classic leaders

Topics:

- 1a.1 What is Leadership
- 1a.2 Leadership Values
- 1a.3 Employee and Production Centered Leaders
- 1a.4 Blake and Mouton's Managerial Grid
- 1b.1 Transformational Leadership
- 1b.2 Transactional Leadership
- 1b.3 Charismatic Leadership
- 1b.4 Visionary Leadership
- 1b.5 Servant Leadership

Unit 2: The Management and Leadership Distinction**Description:**

This unit describes the management and leadership distinction.

Objectives:

1. Compare and contrast concepts of leadership and management
2. Describe the concept and importance of developing followership
3. Discuss challenges of leading in a hybrid HIT organization
4. Define and discuss the Project Management Institute's (PMI) three types of organizations
5. Discuss pros and cons of temporary leadership

Topics:

- 2a.1 The management and leadership distinction
- 2a.2 Leaders and followers
- 2a.3 Leader and follower collaboration
- 2b.1 Leadership challenges in the HIT environment
- 2b.2 PMI Organization types
- 2b.3 Leading in a hybrid organization
- 2b.4 Temporary Leadership

Unit 4: Effective and Ineffective Leaders

Description:

This unit describes the traits of effective and ineffective leaders.

Objectives:

1. Describe the common traits of effective leaders
2. Describe skills needed in order for HIT leaders to be effective
3. Describe the common traits of ineffective leaders
4. Distinguish between de-motivating and motivating leaders
5. Discuss ineffective leadership's role on stress in the work environment

Topics:

- 4a.1 Effective leaders
- 4a.2 Leadership challenges in the healthcare landscape
- 4a.3 The evolving role of healthcare IT leaders
- 4a.4 Traits of effective healthcare IT leaders
- 4a.5 Challenges of the new leader
- 4b.1 De-motivating and motivating leadership styles
- 4b.2 Ten traits and habits of ineffective leaders

Unit 5: Overview of the IT Strategic Planning Process**Description:**

This unit provides a high level of overview of the IT Strategic Planning Process.

Objectives:

1. Describe the importance of an Information Technology Strategic Plan.
2. Describe a typical IT Planning scenario.
3. Describe the importance of prioritizing HIT goals.
4. List common pitfalls in prioritizing IT investments.
5. Recognize common IT governance structures.

Topics:

- 5a.1 What is an IT Plan?
- 5a.2 Why is IT alignment difficult?
- 5a.3 Aligning the IT Plan with Organizational Goals
- 5b.1 Existing IT projects vs. new EHR implementation
- 5b.2 IT Governance structures
- 5b.3 Best of breed vs. single system

Unit 7: Team and Small Group Communication

(All materials for this unit are the same as those for Component 16/Unit 6)

Description:

This unit describes Team and Small Group Communication.

Objectives:

1. Explore the phenomena of teams in our culture and look at the popularity and necessity of teams in delivering quality healthcare services
2. Define a team as compared to a group
3. Identify the stages of team development
4. Identify the characteristics of successful teams and team members
5. Analyze team conflict and performance
6. Define what we mean by virtual teams
7. Explore the guidelines for building and leading successful teams

Topics:

- 7a.1 Lecture 1: Characteristics of Teams and Small Groups
- 7a.2 Learning objectives
- 7a.3 Teamwork is essential to healthcare
- 7a.4 Benefits of teams
- 7a.5 Distinguishing teams from groups
- 7a.6 Stages of team development
- 7a.7 Characteristics of successful teams
- 7a.8 Summary
- 7b.1 Lecture 2: Managing Teams
- 7b.2 Teams in healthcare
- 7b.3 Being a “team player”
- 7b.4 Team conflict and performance
- 7b.5 Virtual teams
- 7b.6 Team building and leadership
- 7b.7 Summary

Unit 8: Conflict Resolution

(All materials for this unit are the same as those for Component 16/Unit 7)

Description:

This unit describes Handling Conflict.

Objectives:

1. Define conflict.
2. Explore historical views of conflict
3. Explore conflict as a positive/negative force
4. Study various styles for handling conflict.
5. Review ways to promote positive conflict in a group.

Topics:

- 8a.1 Lecture 1: Definitions of Conflict
- 8a.2 Conflict defined
- 8a.3 Healthcare context
- 8a.4 Transitions in ideas about conflict

- 8a.5 Conflict good and bad
- 8a.6 Types of conflict
- 8a.7 Conflict resolution
- 8a.8 Summary
- 8b.1 Lecture 2: Managing Conflict
- 8b.2 Handling conflict
- 8b.3 Conflict handling styles
- 8b.4 Individual preferences in conflict situations
- 8b.5 Conflict intensity continuum
- 8b.6 Results of conflict
- 8b.7 Promoting positive conflict
- 8b.8 Summary

Unit 9: Purchasing and Contracting

Description:

This unit describes Purchasing and Contracting.

Objectives:

1. Understand the process for gathering a team to negotiate a contract
2. Understand the need for documenting contract goals and objectives
3. Understand the purpose of a contract and how to participate in negotiation.

Topics:

- 9c.1 Negotiation Team Composition
- 9c.2 Managing Vendor Relationships
- 9c.3 Defining Your Game Plan
- 9c.4 Dual and Single Threaded Negotiation Strategies
- 9c.5 Contracts 101
- 9c.6 Using Consultants

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

Assigned Institution: Johns Hopkins University

Team Lead(s): William Agresti, PhD, Johns Hopkins Carey Business School
Theron Feist, MS, JHU, School of Nursing

Team Members: James Smith, RN, MSITS, Johns Hopkins Hospital
Mary McNally, PMP, Harford Community College, Gabrielle Haskins, PMP

Workforce Roles: Implementation Managers

Component Objectives

Upon completion of this component, the student will be able to:

- Describe factors that are critical to project success.
- Develop a comprehensive project management plan.
- Define project scope that reflects stakeholder perspectives and project requirements.
- Prepare an effective work breakdown structure.
- Differentiate project life cycle models based on project characteristics.
- Develop estimates for project cost and schedule.
- Apply tools and techniques to manage project scope, time, and budget.
- Plan and implement effective communications with the project team and stakeholders.
- Differentiate roles of project team members.
- Select and apply appropriate tools and techniques for risk management, quality management, and change management.

Component Units with Objectives and Topics

Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

Objectives:

1. Review the history of project management.
2. Define what a project is.
3. Define project management.
4. Identify reasons that more organizations are implementing HIT projects.
5. Identify key characteristics for project success and failure.
6. Describe the range and characteristics of health IT projects.

Topics:

- 1.1 - Health IT Scenarios
- 1.2 - What Is Project Management?
- 1.3 - Reasons for Projects
- 1.4 - Role of the Project Manager
- 1.5 - Reasons Success/Failure

Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

Objectives:

1. Identify process groups and knowledge areas used in project management
2. Differentiate linear, iterative, adaptive, and agile project life cycles
3. Relate life cycle phases to reviews, milestones, and deliverables
4. Compare various organizational structures as contexts for managing projects

Topics:

- 2.1 – Project Management Elements
- 2.2 – Life Cycles
- 2.3 – Phases
- 2.4 – Organizations

Unit 3: Project Selection and Initiation

Description: Students learn what is necessary to get projects off to a strong start. Critical activities are to prepare a project charter and to identify and engage the project stakeholders.

Objectives:

1. Identify the key elements of a project environment and HIT landscape.
2. Outline the needs for projects, how and why they are selected and initiated.

3. Construct a project charter.
4. Identify project stakeholders.
5. Generate a stakeholder register.

Topics:

- 3.1 – Project Initiation
- 3.2 – Project Charter
- 3.3 – Stakeholders & Stakeholder Register

Unit 4: Project Planning Overview

Description: In this unit, students will learn how to effectively plan projects and to develop a project management plan. Several key documentation components will be introduced.

Objectives:

1. Identify the importance and purpose of effective planning.
2. Identify and describe each component of the project management plan.
3. Define and prepare project planning documents.

Topics:

- 4.1 - Project Management
- 4.2 - Project Management Processes and Groups
- 4.3 - Planning a Project
- 4.4 - Project Planning Processes

Unit 5: Managing Project Scope

Description: This unit addresses a critical determinant of project success: defining and managing the scope of the project. Students learn the importance of eliciting stakeholder requirements and developing effective work breakdown structures.

Objectives:

1. Analyze scope to develop the project scope statement.
2. Elicit stakeholder requirements for the project.
3. Create a Work Breakdown Structure (WBS).

Topics:

- 5.1 – Project Scope
- 5.2 – Stakeholder Requirements
- 5.3 – Work Breakdown Structure

Unit 6: Managing Project Time, Cost, and Procurements

Description: In this unit, students will gain an understanding of how to manage project schedules and spending. The unit will cover broad topics such as purchasing, procurement, cost estimation and scheduling.

Objectives:

1. Define project management time activities.

2. Define project cost management activities.
3. Define project procurement activities.

Topics:

- 6.1 – Define activities and project schedule
- 6.2 – Develop estimates for project cost and budget
- 6.3 – Evaluate make or buy decisions
- 6.4 – Develop a procurement plan

Unit 7: Managing Project Risk

Description: A key to successful health IT projects is the pro-active management of risks: beginning with the preparation of a risk management plan. Risk management will be a continuing activity throughout the project, to identify risks and to plan and implement risk responses.

Objectives:

1. Assess project risks
2. Plan project responses
3. Prepare and maintain a risk register, and
4. Develop and execute a risk management plan

Topics:

- 7.1 – Managing Project Risk
- 7.2 – Risk Management Processes
- 7.3 – Risk Management Plan

Unit 10: Quality Management

Description: Quality is an elusive but essential component and consideration in any project. This unit will cover quality management planning and key characteristics of quality assurance and its impact on project management.

Objectives:

1. Develop a quality management plan
2. Perform quality assurance
3. Apply quality tools

Topics:

- 10.1 – Total Quality Management Theory
- 10.2 – Quality Culture
- 10.3 – Quality Tools
- 10.4 – Quality Management Plan

Unit 11: Project Closure and Transition

Description: It is essential that project managers know all the processes required to bring a project to a successful conclusion. Key steps include completing all deliverables

on time, gaining customer acceptance, documenting the project lessons learned, and managing the transition to operations.

Objectives:

4. Bring project activities to a close.
5. Conclude the customer acceptance process.
6. Document and archive lessons learned.
7. Update and close out project documents.
8. Manage transition to operations.

Topics:

- 11.1 – Project Closure and Transition



Curriculum Development Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

HEALTH IT WORKFORCE CURRICULUM COMPONENT BLUEPRINT Version 3.0/Spring 2012

Component Number: 20

Component Name: Training and Instructional Design

Component Description: Overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness.

Assigned Institution: Columbia University

Team Lead(s):

John Zimmerman, DDS, Columbia University

Michelle Hall, MA, Columbia University

Team Members:

Cindy Smalletz, (Content and Instructional Design Specialist)

Rita Kukafka, Dr.PH (Principal Investigator)

Syncia Sabain, Ed.D (Program Manager)

Lynda Carlson, BMCC (Content Specialist)

Madhabi Chatterji, PhD (Curriculum Developer)

John Allegrante, PhD (Curriculum Developer)

Component Objectives:

Upon completion of this component, the student will be able to:

1. Plan, design, develop (produce), deliver, and evaluate technology-based instruction according to sound instructional design models and principles.
2. Describe the training cycle by the Instructional Systems Design method and the phases of the ADDIE model of instruction design given a population of adult learners.
3. Plan and implement an instructional needs assessment given a specific population of users in a health care setting.
4. Construct a lesson plan using appropriate instructional methods and approaches,

given a specific population of learners.

5. Construct an instructional product (simple online tutorial) using the appropriate media based instructional method, such as customized images, customized video (e.g., EHR screen captures).

6. Create a custom PowerPoint presentation using the principles of effective PowerPoint design given a particular training program.

7. Demonstrate effective public speaking skills and proper operation of computer and AV equipment for a multimedia presentation, given a set of user needs.

8. Plan and conduct student assessment and program evaluation given different population contexts.

9. Design a training program in LMS that adhere to the standards and open source initiatives in online learning.

10. Select and implement Web 2.0 technologies as instructional technologies given a specific platform and training program.

Component Units with Objectives and Topics

Unit 1:

Introduction to Training and Adult Learning

Description:

Apply the Instructional Systems Design method and the phases of the ADDIE model of instruction design, to a given population of adult learners.

Objectives:

Students will be able to:

1. Define the levels of learning per Bloom's Taxonomic Domains (Cognitive, Affective, and Psychomotor)
2. Describe the characteristics of adult learners and factors that could impact training design and learning outcomes.
3. Describe the recommended training cycle of the Instructional Systems Design method
4. Describe the five phases of the ADDIE model of instruction design.

Topics:

- A. Training Introduction
- B. Roles & Competencies of Trainers
- C. Cone of Learning
- D. Principles of Adult Learning
- E. Knowle's Principles of Adult Learning
- F. Bloom's Taxonomy
- G. Knowledge, Skills & Attitudes (KSA)
- H. Analysis, Design, Development, Implementation & Evaluation Model (ADDIE)

Unit 2:

Needs Analysis

Description:

Plan and implement an instructional needs assessment, given a specific population of users in a health care setting.

Objectives:

Students will be able to:

1. Identify an instructional design problem for a given group of learners and a training setting.
2. List a range of useful data collection methods for conducting needs assessments in healthcare settings.
3. Identify the principles of the planning and implementation process of an instructional needs assessment in a health organization setting.
4. Analyze learner, task, and situational characteristics.
5. Recognize the special training needs and constraints in a health care setting [such as, time constraints and work pressures, resistance to change, impact of system on work flow and patient care, security requirements for EHRs, etc.]
6. Project instruction plans based on data gathered from a needs assessment.

Topics:

- A. Assessing the training/learning needs of the organization and individual learners
- B. Basic computer literacy as well as EHR, security and confidentiality, classroom training/tutoring/helpdesk support
- C. Understanding your students – recognize the special needs and constraints of training users in a health care setting
- D. Time constraints and work pressures, resistance to change, impact of system on work flow and patient care, train-the-trainer programs
- E. Data Collection

Unit 3:**Creating a Lesson Plan****Description:**

Construct a lesson plan using appropriate instructional methods and approaches, given a specific population of learners.

Objectives:

Students will be able to:

1. Write measurable goals and learning objectives for a training program which meet the SMART criteria (Specific, Measurable, Attainable, Relevant, Time-bound)
2. Write specific learning objectives based on Bloom's Taxonomy, classifying learning from the simplest to the most complex levels.
3. Write learning objectives that are tied to needs analysis and outcomes
4. Select appropriate activities for training objectives
5. Identify the appropriate instructional approaches tied to a needs analysis, situational characteristics, and subject matter domain when designing a lesson plan.

Topics:

- A. Defining Instructional Goals
- B. Writing Good Learning Objectives that are tied to Needs Analysis and Outcomes
- C. Creating and Customizing Content
- D. Instructional Approaches

Lectures – classroom and online

Cases-based learning, simulations and other active learning pedagogies

Tutoring or solo training

Unit 4:**Selecting and Working with Media****Description:**

Construct an instructional product (simple online tutorial) using appropriate media, such as customized images, customized video (e.g., EHR screen captures).

Objectives:

Students will be able to:

1. Select appropriate instructional media for a given lesson plan and objectives/goals.
2. Select and customize images to embed in training materials
3. Select and customize video (e.g., EHR screen captures) to embed in training materials
4. Design simple online tutorials using screen capture software

Topics:

A. Text – desktop publishing, creating handouts and web content

B. Images – working with graphics and photographs to enhance learning

C. Video and Audio – use simple editing programs and publish content to online environment

D. Interactive Media – create simple online tutorials using screen capture software

Unit 5:**Building & Delivering Effective PowerPoint Presentation****Description:**

Create a custom PowerPoint presentation using the principles of effective PowerPoint design, given a particular training program and learner population.

Objectives:

Students will be able to:

1. Construct a script or storyboard for a presentation
2. Design a custom slide background for a training program
3. Demonstrate the appropriate use of color and text in a presentation
4. Embed graphics and video in a presentation

5. Demonstrate the appropriate use of 'builds' and 'actions'.
6. Use the PowerPoint graph and chart functions for designing instructional materials.
7. Assess the training environment
8. Modify a presentation to compensate for presentation constraints
9. Demonstrate effective public speaking skills
10. Operate necessary computer and AV equipment to make an effective multimedia presentation

Topics:

- A. Design guidelines for PowerPoint stacks
- B. Scripting and Storyboarding
- C. The Utilization of Color and Text in PowerPoint Presentations
- D. The Utilization of Text in PowerPoint Presentations
- E. The Appropriate Utilization of Multimedia in PowerPoint Presentations
- F. Slide Frame Layout, Format Design, Color, Text Styles and Size
- G. Graphs and Charts
- H. Embedding Media and Actions

Certified Healthcare Technology Specialist (CHTS) Examinations

Candidate Guide



*Health Information Technology Competency Exams for
Tomorrow's Health IT Professionals*

Version 1.1 – Updated 7.18.13

Note: It is your responsibility to ensure that you have the most current version of the Candidate Guide.

Implementation Manager Examination

Workers in this role provide on-site management of mobile adoption support teams for the period of time before and during implementation of health IT systems in clinical and public health settings. Workers in this role will, prior to training, have experience in health and/or IT environments as well as administrative and managerial experience. Workers in this role will:

- Apply project management and change management principles to create implementation project plans to achieve the project goals.
- Interact with office/hospital personnel to ensure open communication with the support team.
- Lead implementation teams consisting of workers in the roles described above.
- Manage vendor relations, providing feedback to health IT vendors for product improvement.

The current content domain breakdown for the Implementation Manager Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

IMPLEMENTATION MANAGER EXAM BLUEPRINT

Domain I: Project Management

17%

1. Describe factors that are critical to project success.
2. Develop a comprehensive project management plan.
3. Define project scope that reflects stakeholder perspectives and project requirements.

4. Prepare an effective work breakdown structure.
5. Differentiate project life cycle models based on project characteristics.
6. Develop estimates for project cost and schedule.
7. Apply tools and techniques to manage project scope, time, and budget.
8. Plan and implement effective communications with the project team and stakeholders.
9. Differentiate roles of project team members.

Domain II: Fundamentals of Health Workflow Process Analysis and Redesign

17%

Competency Statements:

1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes.
2. Document clinic processes to facilitate workflow analysis and redesign.
3. Develop a process map for given clinical process workflows within a complex health care system.
4. Facilitate decision-making necessary for optimizing health care processes.
5. Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time.
6. Design processes and information flows for the practice that accommodate quality improvement and reporting.
7. Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology.
8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.
9. Develop and present an implementation plan for a process change.
10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.
11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.
12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Domain III: Working in Teams

17%

Competency Statements:

1. Establish and monitor ground rules, or rules of engagement, that serve as behavioral guidelines for members of teams involved in HIT.
2. Develop an HIT action plan that can be easily adapted to changing situations, environments, and goals across a variety of health and healthcare settings.
3. Communicate a clearly articulated position in writing and speech.
4. Incorporate diversity in values, critical thinking, and judgments that amplifies the best of individual performance toward the HIT team mission.
5. Provide leadership for continuous assessment and learning on practices, processes, and outcomes of the HIT team mission.

6. Develop a sustaining framework that maximizes the integrated power of teams while recognizing excellence in individual performance of various stakeholders involved in HIT (patients, families, communities, nation, etc.).

Domain IV: The Culture of Health Care

17%

Competency Statements:

1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.
2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, end of life care.
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.

Domain V: Planning, Management, and Leadership for Health IT

16%

Competency Statements:

1. Explain leadership traits and theories.
2. Recognize leadership's role in IT and EHR project success and project failure.
3. Describe importance of effective leadership of teams.
4. Demonstrate team leadership competencies.

Domain VI: History of Health Information Technology in the U.S.

16%

Competency Statements:

1. Explain the rationale for elements of the HITECH Act in terms of the history of health IT.
2. Describe the background of today's health IT landscape including EHR, HIE, CDS, applications in Public Health, relevant professional organizations.
3. Describe the history of regulation of Health IT in the U.S.
4. Describe how legislation related to privacy and security of electronic health information has evolved in the US.
5. Discuss how financial incentives for use of HIT have changed over time.

100%

OFFICE ADMINISTRATION

Associate in Applied Science Degree

Advisors - Ayers Campus: Glenda Copeland (256.835.5446) gcopeland@gadsdenstate.edu

Wallace Drive Campus: Fay Scott (256.439.6876) fscott@gadsdenstate.edu;

Larrea Sims (256.439.6904) lsims@gadsdenstate.edu

		STUDENT PROGRESS	
		GRADE	TERM COMPLETED
Area I – Written Composition	6		
ENG 101 English Composition I	3		
ENG 102 English Composition II	3		
 Area II – Humanities and Fine Arts	 6		
Speech (SPH 106, 107 OR 116)	3		
Humanities OR Fine Arts	3		
 Area III – Natural Science and Mathematics	 10		
BIO 103 Principles of Biology I	4		
CIS 146 Microcomputer Applications	3		
MTH 100 Intermediate College Algebra OR			
MTH 116 Mathematical Applications	3		
 Area IV – History, Social and Behavioral Sciences	 3		
ECO 231 Principles of Macroeconomics	3		
 Area V –Health Information Technology Management	 42		
ORI 101 Orientation	1		
BIO 120 Medical Terminology	3		
BIO 206 Human Anatomy	4		
HIT 134 HIT Legal and Ethical Issues	3		
HIT 151 Healthcare Data Content and Structure	3		
HIT 153 Healthcare Delivery Systems	2		
HIT 230 Medical Coding Systems I	3		
HIT 231 Medical Coding Skills Laboratory I	1		
HIT 232 Medical Coding Systems I	3		
HIT 233 Medical Coding Skills Laboratory I	1		
HIT 254 Organization Improvement	3		
HIT 295 Special Topics in HIT III	3		
OAD 101 Beginning Keyboarding or OAD Elective	3		
OAD 125 Word Processing	3		
OAD 215 Health Information Management	3		
OAD 217 Office Management	3		
OAD 241 Office C-op OR			
OAD 242 Office Internship	3		
Total Hours Required for Degree	67		

OFFICE ADMINISTRATION – Health Information Technology Short-term Certificate

Students should consult with the Office Administration faculty with regard to the suggested sequence for scheduling courses.

GENERAL EDUCATION, TECHNICAL CONCENTRATION & ELECTIVE COURSES

SEMESTER HOURS

BUS 215	Business Communication	3
BUS 241	Principles of Accounting I.....	3
HIT 254	Organizational Improvement.....	3
HIT 296	Professional Practices Simulations (Internship)	2
OAD 101	Beginning Keyboarding	3
OAD 211	Medical Terminology	3
OAD 215	Health Information Management.....	3
OAD 216	Advanced Health Information Management.....	3
OAD 243	Spreadsheet Applications	3

GENERAL EDUCATION, TECHNICAL CONCENTRATION & ELECTIVE COURSES

26

Total Credit Hours in the

OAD Short-term Certificate – Health Information Technology **26**

California

Livingston Community Health Services
Fresno City College

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist
- Technical/Software Support Specialist
- Trainer

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Curriculum Narrative](#)
- [CHTS Exam Blueprint](#)
- [Course Syllabus](#)

**Rural Health Information Technology Workforce Program
Health IT Curriculum Deliverable
Livingston Community Health Services**

Narrative of Course Offerings Selection Process

In our original grant application, we indicated that we would review course offerings with our academic partner to revise or adapt materials to align with project goals. We knew that we wanted to align our curriculum with the former HIT Pro exams, now the AHIMA Certified Healthcare Technology Specialist (CHTS) certifications. Our curriculum needed to be targeted to specific roles among the six available under the CHTS umbrella, so we set out to analyze which roles and course offerings would be most valuable for our students and the clinics where we planned to place our students for their apprenticeships later in the program. We also heard feedback from our college partner that their 10-11 classes per specialization track was overwhelming for students. We wanted to prevent our students from feeling overwhelmed, while still offering the most relevant curriculum to help them meet their educational and professional goals.

We completed this analysis and revision twice, prior to each of the two cohorts of students that were trained between 2014 and 2016. After receiving the Notice of Grant Award in 2013, we administered a Needs Assessment to our healthcare network members. We provided a list of all 20 components available from the ONC curriculum, and asked them to rate which ones they saw as most valuable for students to complete in their training to become Certified Healthcare Technology Specialists. We also asked them which employment roles they anticipated needing to hire over the next 2-3 years, and combined this data for a foundation in our curriculum evaluation at the end of 2013.


After completing our analysis, we determined that our healthcare partners saw a need for students to fulfill three roles of the six CHTS certifications: Practice Workflow & Information Management Redesign Specialist, Technical/Software Support Specialist, and Trainer. We looked at the ONC's curriculum matrix and at the courses our clinics indicated as the priority for them, both in the 2013 and 2014 Needs Assessments. Between these two data sources, we revised the track offerings from our academic partner, Fresno City College, taking out the "Implementation Support Specialist" that would have been more relevant around 2010/2011 when providers were first looking at Meaningful Use, and added the Technical/Software Support Specialist and Trainer to reflect ongoing maintenance needs facing the organizations.

To this end, evaluations, conversations, and revisions made, our final course offerings included:

		Practice Workflow & Information Management Redesign Specialist	Technical/Software Support Specialist	Trainer
ONC Component	Course			
#2	Culture of Health Care (w/ Billing & Coding Intro)	X		X
#4	Introduction to Information & Computer Science	X	X	X
#3	Terminology in Health Care & Public Health Settings	X		
#6	Health Management Information Systems	X		X
#10	Health Workflow Process Analysis & Redesign	X		
#20	Training and Instructional Design			X
#15	Usability and Human Factors	X		X
#12	Quality Improvement	X		
#8	Installation and Maintenance of Health IT Systems		X	

The courses were taught over an eight month period and administered through the Blackboard LMS environment. Students did not receive academic credit, instead receiving a letter and certificate verifying their completion of coursework at the end of the program.

The schedule for the second cohort was:

HIT Training - Cohort 2				
Central Valley Collaborative				Rev: 11.24.2014
				
Session	ONC #	Component		
1	#2	Culture of Health Care (w/ Billing & Coding Intro)	Req'd	Feb 17 - Apr 14
1	#4	Introduction to Information & Computer Science	Req'd	Feb 17 - Apr 14
2	#3	Terminology in Health Care & Public Health Settings	Req'd	Apr 20 - Jun 12
2	#6	Health Management Information Systems	Req'd	Apr 20 - Jun 12
3	#10	Health Workflow Process Analysis & Redesign	Req'd	Jun 22 - Aug 14
3	#20	Training and Instructional Design	Req'd	Jun 22 - Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22 - Aug 14
4	#12	Quality Improvement	Req'd	Aug 24 - Oct 16
4	#8	Installation and Maintenance of Health IT Systems	Elective	Aug 24 - Oct 16

We made two courses electives which would allow students to focus on more of a technical track or a people-oriented track (workflow redesign and trainer roles). Some students chose to take all courses offered, while others chose to complete the electives. All students were exposed to common courses with content that they could apply to their apprenticeships and certification ambitions. Students were also directed to the AMIA resources for all ONC courses so that they could continue studying more in depth any other content they saw as valuable for their individual aspirations.

Courses are described more in depth on the following page.



HIT Workforce Curriculum Components

<u>Number</u>	<u>Title</u>	<u>Description</u>
2	The Culture of Health Care	This component explains patterns of human behavior that include the language, thoughts, communications, actions, customs, beliefs, values, and institutions of the health care system. Behavior patterns in the health care system acquired and socially transmitted, including customs, traditions, and language.
3	Terminology in Health Care and Public Health Settings	This component explains specific terminology used by workers in health care and public health. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
4	Introduction to Information and Computer Science	Introduction to Information and Computer Science is for students without an IT background. It provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. Includes basic terminology of computing.
6	Health Management Information Systems	This component introduces students to the health IT standards, health-related data structures, software applications, enterprise architecture in health care and public health objectives. Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings.
10	Health Workflow Process Analysis & Redesign	Fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation; includes topics of process validation and change management.
20	Training & Instructional Design	This course will provide an overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness. In addition, this course will discuss selecting and implementing Web 2.0 technologies as instructional technologies given a specific platform and training programs.
15	Usability and Human Factors	This course will give you the skills necessary to effectively apply principles of specific designs and usability evaluations, including technology evaluation and iterative design.
12	Quality Improvement	This component Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.
8	Installation & Maintenance of Health IT Systems	This component covers fundamentals of selection, installation and maintenance of typical Electronic Health Records (EHR) systems. Students will be introduced to the principles underlying system configuration including basic hardware and software components, principles of system selection, planning, testing, troubleshooting, and final deployment. System security and procedures will also be introduced in this component.

Certified Healthcare Technology Specialist (CHTS) Examinations

Candidate Guide



*Health Information Technology Competency Exams for
Tomorrow's Health IT Professionals*

Version 1.1 – Updated 7.18.13

Note: It is your responsibility to ensure that you have the most current version of the Candidate Guide.

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INTRODUCTION

The Certified Healthcare Technology Specialist (CHTS) exams will confirm that a candidate's experience and skills are ready to meet the nation's need for health information technology workers. As the healthcare industry transitions to electronic health records (EHRs), CHTS credential holders show a commitment to their profession and their career. They are eager to demonstrate competency in this evolving field and are excited to work on the leading edge of health IT. The future of health IT starts with the (CHTS) competency exams.

There are six separate (CHTS) exams, each of which pertains to a specific HIT workforce role instrumental in the process of achieving meaningful use of EHR systems. The six exams are:

- Clinician/Practitioner Consultant
- Implementation Manager
- Implementation Support Specialist
- Practice Workflow & Information Management Redesign Specialist
- Technical/Software Support Staff
- Trainer

The (CHTS) exams assess basic competency of individuals who are seeking to demonstrate their proficiency in certain health IT workforce roles integral to the implementation and management of electronic health information. The (CHTS) exams assess the competency of health IT professionals to:

- Assess workflows
- Select hardware and software
- Work with vendors
- Install and test systems
- Diagnose IT problems
- Train practice staff on systems

ABOUT THE CHTS EXAMS

Exam Times and Number of Questions

All (CHTS) exams consist of 125 multiple choice questions, with an exam duration time of 3 hours (180 minutes).

Practice Workflow & Information Management Redesign Specialist Examination

Workers in this role assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. Individuals in this role may have backgrounds in health care (for example, as a practice administrator) or in information technology, but are not licensed clinical professionals. Workers in this role will:

- Conduct user requirements analysis to facilitate workflow design.
- Integrate information technology functions into workflow.
- Document health information exchange needs.
- Design processes and information flows that accommodate quality improvement and reporting.
- Work with provider personnel to implement revised workflows.
- Evaluate process workflows to validate or improve practice's systems.

The current content domain breakdown for the Practice Workflow & Information Management Redesign Specialist Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

PRACTICE WORKFLOW & INFORMATION MANAGEMENT REDESIGN SPECIALIST EXAM BLUEPRINT
--

Domain I: Fundamentals of Health Workflow Process Analysis and Redesign

15%

Competency Statements:

1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes.
2. Document clinic processes to facilitate workflow analysis and redesign.
3. Develop a process map for given clinical process workflows within a complex health care system.
4. Facilitate decision-making necessary for optimizing health care processes.
5. Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time.
6. Design processes and information flows for the practice that accommodate quality improvement and reporting.

7. Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology.
8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.
9. Develop and present an implementation plan for a process change.
10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.
11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.
12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Domain II: Usability and Human Factors

15%

Competency Statements:

1. Articulate a systems approach to usability and human factors as it applies to health information technology.
2. Explain the cognitive consequences of health information technology on clinical performance.
3. Identify the consequences of suboptimal design in the delivery of healthcare.
4. Apply methods of cognitive research, sources of usability evidence, and principles of user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users.
5. Apply requirements engineering methods to inform design and technology selection.
6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods.
7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering.
8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase.
9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement.
10. Diagnose problems associated with a clinical decision support system.
11. Apply cognitive methods of analysis to medical device.
12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen's heuristic evaluation method.
13. Diagnose various types of error and create or select potential solutions.
14. Select appropriate technology input methods given different technology uses, user populations and contexts.
15. Describe how information visualization can support and enhance the representation of trends and aggregate data.
16. Describe the role of mobile and ubiquitous computing in healthcare.

Domain III: Health Management Information Systems

14%

Competency Statements:

1. Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings.
2. Describe the significant developments and federal initiatives that have influenced the evolution and adoption of health information systems.
3. Compare/Contrast different types of health information systems in terms of their ability to support the requirements of a health care enterprise.
4. Understand how electronic health records affect patient safety, quality, efficiency and patient care, productivity, and reporting outcomes.
5. Propose strategies to minimize major barriers to the adoption of electronic health records.
6. Understand the principles of healthcare data exchange and standards, workflow design and assessment, and their relationship to patient care.

Domain IV: Quality Improvement

14%

Competency Statements:

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care.
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply information technology and standardized practices that support safety and quality.
5. Formulate activation planning that supports and maintains safety and quality.
6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities.
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors.
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Domain V: Introduction to Information and Computer Science

14%

Competency Statements:

1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.
2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.
3. Design a simple database and develop querying statements for it.

4. Describe network computing, its benefits and risks, and identify commonly-used communications hardware and software components.
5. Identify security risks for computing systems and discuss potential solutions.
6. Explain the design and development process of a large system such as an EHR.

Domain VI: Terminology in Health Care and Public Health Settings

14%

Competency Statements:

1. Define, understand and correctly pronounce medical terms related to each of the major body systems.
2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.
4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

Domain VII: The Culture of Health Care

14%

Competency Statements:

1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.
2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, end of life care.
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.

100%

Clinician/Practitioner Consultant Examination

This role is similar to the Redesign specialist role listed above, but brings to bear the background and experience of a licensed clinical and professional or public health professional. In addition to the activities noted above, workers in this role will:

- Suggest solutions for health IT implementation problems in clinical and public health settings.
- Address workflow and data collection issues from a clinical perspective, including quality measurement and improvement.
- Assist in selection of vendors and software.
- Advocate for users' needs, acting as a liaison between users, IT staff, and vendors.

The current content domain breakdown for the Clinician/Practitioner Consultant Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

CLINICIAN/PRACTITIONER CONSULTANT EXAM BLUEPRINT
--

Domain I: Fundamentals of Health Workflow Process Analysis and Redesign

20%

Competency Statements:

1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes.
2. Document clinic processes to facilitate workflow analysis and redesign.
3. Develop a process map for given clinical process workflows within a complex health care system.
4. Facilitate decision-making necessary for optimizing health care processes.
5. Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time.
6. Design processes and information flows for the practice that accommodate quality improvement and reporting.
7. Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology.
8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.
9. Develop and present an implementation plan for a process change.
10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.
11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.
12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Domain II: Quality Improvement

20%

Competency Statements:

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care.
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply information technology and standardized practices that support safety and quality.
5. Formulate activation planning that supports and maintains safety and quality.
6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities.
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors.
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Domain III: Working with HIT Systems

20%

Competency Statements:

1. Identify common components of an HIT system and types of HIT applications (E-Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.).
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system).
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use.

Domain IV: Health Information Management Systems

20%

Competency Statements:

1. Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings.

2. Describe the significant developments and federal initiatives that have influenced the evolution and adoption of health information systems.
3. Compare/Contrast different types of health information systems in terms of their ability to support the requirements of a health care enterprise.
4. Understand how electronic health records affect patient safety, quality, efficiency and patient care, productivity, and reporting outcomes.
5. Propose strategies to minimize major barriers to the adoption of electronic health records.
6. Understand the principles of healthcare data exchange and standards, workflow design and assessment, and their relationship to patient care.

Domain V: Planning, Management, and Leadership for Health IT

20%

Competency Statements:

1. Explain leadership traits and theories.
2. Recognize leadership’s role in IT and EHR project success and project failure.
3. Describe importance of effective leadership of teams.
4. Demonstrate team leadership competencies.

100%

Implementation Manager Examination

Workers in this role provide on-site management of mobile adoption support teams for the period of time before and during implementation of health IT systems in clinical and public health settings.

Workers in this role will, prior to training, have experience in health and/or IT environments as well as administrative and managerial experience. Workers in this role will:

- Apply project management and change management principles to create implementation project plans to achieve the project goals.
- Interact with office/hospital personnel to ensure open communication with the support team.
- Lead implementation teams consisting of workers in the roles described above.
- Manage vendor relations, providing feedback to health IT vendors for product improvement.

The current content domain breakdown for the Implementation Manager Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

IMPLEMENTATION MANAGER EXAM BLUEPRINT
--

Domain I: Project Management

17%

1. Describe factors that are critical to project success.
2. Develop a comprehensive project management plan.
3. Define project scope that reflects stakeholder perspectives and project requirements.

4. Prepare an effective work breakdown structure.
5. Differentiate project life cycle models based on project characteristics.
6. Develop estimates for project cost and schedule.
7. Apply tools and techniques to manage project scope, time, and budget.
8. Plan and implement effective communications with the project team and stakeholders.
9. Differentiate roles of project team members.

Domain II: Fundamentals of Health Workflow Process Analysis and Redesign

17%

Competency Statements:

1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes.
2. Document clinic processes to facilitate workflow analysis and redesign.
3. Develop a process map for given clinical process workflows within a complex health care system.
4. Facilitate decision-making necessary for optimizing health care processes.
5. Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time.
6. Design processes and information flows for the practice that accommodate quality improvement and reporting.
7. Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology.
8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.
9. Develop and present an implementation plan for a process change.
10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.
11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.
12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Domain III: Working in Teams

17%

Competency Statements:

1. Establish and monitor ground rules, or rules of engagement, that serve as behavioral guidelines for members of teams involved in HIT.
2. Develop an HIT action plan that can be easily adapted to changing situations, environments, and goals across a variety of health and healthcare settings.
3. Communicate a clearly articulated position in writing and speech.
4. Incorporate diversity in values, critical thinking, and judgments that amplifies the best of individual performance toward the HIT team mission.
5. Provide leadership for continuous assessment and learning on practices, processes, and outcomes of the HIT team mission.

6. Develop a sustaining framework that maximizes the integrated power of teams while recognizing excellence in individual performance of various stakeholders involved in HIT (patients, families, communities, nation, etc.).

Domain IV: The Culture of Health Care

17%

Competency Statements:

1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.
2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, end of life care.
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.

Domain V: Planning, Management, and Leadership for Health IT

16%

Competency Statements:

1. Explain leadership traits and theories.
2. Recognize leadership's role in IT and EHR project success and project failure.
3. Describe importance of effective leadership of teams.
4. Demonstrate team leadership competencies.

Domain VI: History of Health Information Technology in the U.S.

16%

Competency Statements:

1. Explain the rationale for elements of the HITECH Act in terms of the history of health IT.
2. Describe the background of today's health IT landscape including EHR, HIE, CDS, applications in Public Health, relevant professional organizations.
3. Describe the history of regulation of Health IT in the U.S.
4. Describe how legislation related to privacy and security of electronic health information has evolved in the US.
5. Discuss how financial incentives for use of HIT have changed over time.

100%

Implementation Support Specialist Examination

Workers in this role provide on-site user support for the period of time before and during implementation of health IT systems in clinical and public health settings. The previous background of workers in this role includes information technology or information management. Workers in this role will:

- Execute implementation project plans, by installing hardware (as needed) and configuring software to meet practice needs.
- Incorporate usability principles into design and implementation.
- Test the software against performance specifications.
- Interact with the vendors as needed to rectify problems that occur during the deployment process.

The current content domain breakdown for the Implementation Support Specialist Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

IMPLEMENTATION SUPPORT SPECIALIST EXAM BLUEPRINT
--

Domain I: Networking and Health Information Exchange

15%

Competency Statements:

1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported.
2. Recommend components of networking hardware that meet standards and support information exchange.
3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements.
4. Explain the process and value of EHR certification.
5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards.
6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders.
7. Examine additional standards related to shared and effective use of data, including clinical decision support.
8. Describe enterprise architecture models, including centralization vs federation and grids, service oriented architectures, and local implementations with respect to systems from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN).
9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.

Domain II: Configuring EHRs

15%

Competency Statements:

1. Describe the process of migration to an electronic health record (EHR) from organizational strategy, planning, analysis of EHR options, decision-making techniques, training, and implementation strategies.
2. Given a case study of a facility moving from a paper health record to an EHR, discuss the migration path from organizational strategy to implementation, including meaningful use criteria.
3. Discuss the importance and use of clinical decision support systems for clinical and administrative use.
4. Given an EHR system, configure the system to achieve features required for meaningful use, including labs for:
 - a. Building of order sets
 - b. Data entry templates
 - c. Generate quality reports
 - d. Implementation of clinical decision support
5. Understand data infrastructure including data architecture, data sets, data repositories, data standards, data types and data dictionaries.
6. Write an RFI/RFP using stated criteria.
7. Evaluate EHR systems to select an EHR most appropriate to an organization and clinical setting.

Domain III: Vendor-Specific Systems

14%

Competency Statements:

1. Assess and compare common commercial EHR systems using KLAS ratings in training and organizational decision-making contexts.
2. Apply CCHIT, meaningful use, Joint Commission and National Patient Safety Goals to decisions about commercial EHR vendor selection, when given typical workplace scenarios.
3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor-specific systems.
4. Analyze the functionality of a vendor EHR system, given a set of user needs.
5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility.
6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange.
7. Compare decision support capabilities and customizability, given different vendor EHRs.
8. Evaluate training and go-live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.

Domain IV: Working with Health IT Systems

14%

Competency Statements:

1. Identify common components of an HIT system and types of HIT applications (E-Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.).

2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system).
5. Define usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use.

Domain V: Installation and Maintenance of Health IT Systems

14%

Competency Statements:

1. Articulate the elements of Health IT systems, including their advantages and disadvantages.
2. Justify criteria to be considered when recommending vendors and software.
3. Design a comprehensive plan to install a health IT system.
4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback.
5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed.
6. Verify plan implementation.

Domain VI: Information and Computer Science

14%

Competency Statements:

1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.
2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.
3. Design a simple database and develop querying statements for it.
4. Describe network computing, its benefits and risks, and identify commonly-used communications hardware and software components.
5. Identify security risks for computing systems and discuss potential solutions.
6. Explain the design and development process of a large system such as an EHR.

Domain VII: Terminology in Health Care and Public Health Settings

14%

Competency Statements:

1. Define, understand and correctly pronounce medical terms related to each of the major body systems.
2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.

4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles

100%

Technical/Software Support Staff Examination

Workers in this role maintain systems in clinical and public health settings, including patching and upgrading of software. The previous background of workers in this role includes information technology or information management. Workers in this role will:

- Interact with end users to diagnose IT problems and implement solutions.
- Document IT problems and evaluate the effectiveness of problem resolution.
- Support systems security and standards.

The current content domain breakdown for the Technical/Software Support Staff Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

TECHNICAL/SOFTWARE SUPPORT STAFF EXAM BLUEPRINT

Domain I: Networking and Health Information Exchange

15%

Competency Statements:

1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported.
2. Recommend components of networking hardware that meet standards and support information exchange.
3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements.
4. Explain the process and value of EHR certification.
5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards.
6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders.
7. Examine additional standards related to shared and effective use of data, including clinical decision support.
8. Describe enterprise architecture models, including centralization vs. federation and grids, service oriented architectures, and local implementations with respect to systems from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN).
9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.

Domain II: Special Topics Course on Vendor-Specific Systems

15%

Competency Statements:

1. Assess and compare common commercial EHR systems using KLAS ratings in training and organizational decision-making contexts.
2. Apply CCHIT, meaningful use, Joint Commission and National Patient Safety Goals to decisions about commercial EHR vendor selection, when given typical workplace scenarios.
3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor-specific systems.
4. Analyze the functionality of a vendor EHR system, given a set of user needs.
5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility.
6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange.
7. Compare decision support capabilities and customizability, given different vendor EHRs.
8. Evaluate training and go-live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.

Domain III: Introduction to Information and Computer Science

14%

Competency Statements:

1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.
2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.
3. Design a simple database and develop querying statements for it.
4. Describe network computing, its benefits and risks, and identify commonly-used communications hardware and software components.
5. Identify security risks for computing systems and discuss potential solutions.
6. Explain the design and development process of a large system such as an EHR.

Domain IV: Working with Health IT Systems

14%

Competency Statements:

1. Identify common components of an HIT system and types of HIT applications (E-Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.).
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system).
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.

6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use.

Domain V: Installation and Maintenance of Health IT Systems

14%

Competency Statements:

1. Articulate the elements of Health IT systems, including their advantages and disadvantages.
2. Justify criteria to be considered when recommending vendors and software.
3. Design a comprehensive plan to install a health IT system.
4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback.
5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed.
6. Verify plan implementation.

Domain VI: Configuring EHRs

14%

Competency Statements:

1. Describe the process of migration to an electronic health record (EHR) from organizational strategy, planning, analysis of EHR options, decision-making techniques, training, and implementation strategies.
2. Given a case study of a facility moving from a paper health record to an EHR, discuss the migration path from organizational strategy to implementation, including meaningful use criteria.
3. Discuss the importance and use of clinical decision support systems for clinical and administrative use.
4. Given an EHR system, configure the system to achieve features required for meaningful use, including labs for:
 - a. Building of order sets
 - b. Data entry templates
 - c. Generate quality reports
 - d. Implementation of clinical decision support
5. Understand data infrastructure including data architecture, data sets, data repositories, data standards, data types and data dictionaries.
6. Write an RFI/RFP using stated criteria.
7. Evaluate EHR systems to select an EHR most appropriate to an organization and clinical setting.

Domain VII: Professionalism/Customer Service in the Health Environment

14%

Competency Statements:

1. Explain key elements of customer service in health IT.
2. Demonstrate appropriate behaviors in simulations of health IT customer service.
3. Demonstrate effective written and oral communication approaches to common communication interactions.

4. Identify core elements of effective communication and techniques to resolve conflicts.
5. Identify ethical and cultural aspects of communication.

100%

Trainer Examination

Workers in this role design and deliver training programs, using adult learning principles, to employees in clinical and public health settings. The previous background of workers in this role includes experience as a health professional or health information management specialist. Experience as a trainer in the classroom is also desired. Workers in this role will:

- Be able to use a range of health IT applications, preferably at an expert level.
- Communicate both health and IT concepts as appropriate.
- Assess training needs and competencies of learners.
- Design lesson plans, structuring active learning experiences for users.
- Track training records of the users and develop learning plans for further instruction.

The current content domain breakdown for the Trainer Exam is listed below. Please note that all competency statements are tested on the exam, and are equally important.

TRAINER EXAM BLUEPRINT

Domain I: Usability and Human Factors

16%

Competency Statements:

1. Articulate a systems approach to usability and human factors as it applies to health information technology.
2. Explain the cognitive consequences of health information technology on clinical performance.
3. Identify the consequences of suboptimal design in the delivery of healthcare.
4. Apply methods of cognitive research, sources of usability evidence, and principles of user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users.
5. Apply requirements engineering methods to inform design and technology selection.
6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods.
7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering.
8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase.
9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement.
10. Diagnose problems associated with a clinical decision support system.
11. Apply cognitive methods of analysis to medical device testing.

12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen's heuristic evaluation method.
13. Diagnose various types of error and create or select potential solutions.
14. Select appropriate technology input methods given different technology uses, user populations and contexts.
15. Describe how information visualization can support and enhance the representation of trends and aggregate data.
16. Describe the role of mobile and ubiquitous computing in healthcare.

Domain II: Training and Instructional Design

14%

Competency Statements:

1. Plan, design, develop (produce), deliver, and evaluate technology-based instruction according to sound instructional design models and principles.
2. Describe the training cycle by the Instructional Systems Design method and the phases of the ADDIE model of instruction design given a population of adult learners.
3. Plan and implement an instructional needs assessment given a specific population of users in a health care setting.
4. Construct a lesson plan using appropriate instructional methods and approaches, given a specific population of learners.
5. Construct an instructional product (simple online tutorial) using the appropriate media based instructional method, such as customized images, customized video (e.g., EHR screen captures).
6. Create a custom PowerPoint presentation using the principles of effective PowerPoint design given a particular training program.
7. Demonstrate effective public speaking skills and proper operation of computer and AV equipment for a multimedia presentation, given a set of user needs.
8. Plan and conduct student assessment and program evaluation given different population contexts.
9. Design a training program in LMS that adhere to the standards and open source initiatives in online learning.
10. Select and implement Web 2.0 technologies as instructional technologies given a specific platform and training program.

Domain III: Health Care and Public Health in the U.S.

14%

Competency Statements:

1. Describe the medical model of healthcare in the U.S.
2. Describe the administrative and functional organization of entities that deliver healthcare in the US, both in the inpatient as well as the outpatient setting.
3. Discuss the role of various healthcare professionals, their education, and certification/licensure requirements.
4. Distinguish between public and private funding for healthcare.
5. Describe health care financing structures, including insurance plans, third-party payers, Medicare, and Medicaid.
6. Describe the organization and structures of HMOs, PPOs, and IPAs.

7. Describe methods of billing and reimbursement in healthcare.
8. Describe elements of coding and charge capture in healthcare.
9. Compare and contrast the function of the Joint Commission, FDA, CDC, and NIH, with an emphasis on EHRs.
10. Discuss legal issues in medicine including HIPAA, confidentiality, medical malpractice, and tort reform.
11. Describe the organization of public health in the US at the federal, state, and local levels, and discuss the role of public health in averting epidemics and bioterrorism.
12. Describe evidence-based medicine, clinical practice guidelines, and quality indicators in medicine. Identify key organizations involved in developing clinical guidelines.
13. Discuss the key issues driving health care reform in the U.S.

Domain IV: The Culture of Health Care

14%

Competency Statements:

1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.
2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, end of life care.
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.

Domain V: Information and Computer Science

14%

Competency Statements:

1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.
2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.
3. Design a simple database and develop querying statements for it.
4. Describe network computing, its benefits and risks, and identify commonly-used communications hardware and software components.
5. Identify security risks for computing systems and discuss potential solutions.
6. Explain the design and development process of a large system such as an EHR.

Domain VI: Health Information Management Systems

14%

Competency Statements:

1. Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings.
2. Describe the significant developments and federal initiatives that have influenced the evolution and adoption of health information systems.
3. Compare/Contrast different types of health information systems in terms of their ability to support the requirements of a health care enterprise.
4. Understand how electronic health records affect patient safety, quality, efficiency and patient care, productivity, and reporting outcomes.
5. Propose strategies to minimize major barriers to the adoption of electronic health records.

Domain VII: Professionalism/Customer Service in the Health Environment

14%

Competency Statements:

1. Explain key elements of customer service in health IT.
2. Demonstrate appropriate behaviors in simulations of health IT customer service.
3. Demonstrate effective written and oral communication approaches to common communication interactions.
4. Identify core elements of effective communication and techniques to resolve conflicts.
5. Identify ethical and cultural aspects of communication.

100%

WHO IS ELIGIBLE TO TAKE THE CHTS EXAMS?

The exam is intended for:

- Individuals trained through short-duration (typically six months) non-degree health IT workforce development programs, or
- Members of the workforce with relevant experience or other types of training.

HOW MUCH DOES THE CHTS EXAM COST?

Please see below for the pricing structure based on candidate type:

CANDIDATE TYPE	EXAM PRICE
a. Pursuing their initial attempt	\$299.00
b. Who do NOT pass their initial exam attempt and pursue one or more subsequent retakes of the same CHTS exam	\$199.00
c. Do NOT show up for their initial exam and attempt to reschedule for the exam	\$199.00
d. Who PASS their initial attempt, and choose to pursue any additional CHTS exams	\$199.00

SCHEDULING THE EXAMINATION

Candidates are directed to schedule appointments through the Candidate Registration Website or through the Call Center, as indicated below. Scheduling is not available through test centers.

(CHTS) candidates can schedule an exam appointment at any of the 230 Pearson Professional Centers in the U.S. and its territories either online or via phone by:

- **Visiting the Candidate Registration Website (<http://www.pearsonvue.com/AHIMA>).**
To schedule your exam, first create a Pearson VUE Web account, username, and password. Follow instructions on the website to create an account and register for the exam. Once you set up your account, you can use it to review your exam information and also schedule, reschedule, and cancel your exam.
- **Calling the Call Center.**
Candidates can phone the Call Center at 1-888-5AHIMA2 (1-888-524-4662) (toll free) Monday through Friday, 7:00 AM to 7:00 PM Central Standard Time.

All (CHTS) exams should be scheduled at least two full business days (48 hours) in advance. Please note that when scheduling an exam appointment, you must list your name exactly as it is presented on your photo ID.

APPOINTMENT CHANGES (RESCHEDULING/CANCELLATION)

(CHTS) candidates must reschedule and cancel exam appointments at least two full business days (48 hours) before the appointment via the candidate registration website or the Call Center. All registrations with accommodations must be rescheduled or canceled through the Call Center. If a reschedule or cancel request is made fewer than two full business days (48 hours) before the scheduled appointment time, or candidates fail to arrive for their appointment, they will be considered a no-show and will forfeit their exam fee. Candidates who fail to show up for their exam will forfeit their application.

TESTING ACCOMMODATIONS

(CHTS) Policy Statement for Americans with Disabilities Act (ADA) Compliance

AHIMA/Pearson VUE provides reasonable accommodations in accordance with the Americans with Disabilities Act (ADA) and the ADA Amendments Act of 2008 (ADAAA) for individuals with documented disabilities who demonstrate a need for accommodation. In accordance with these Acts, AHIMA/Pearson VUE does not discriminate against individuals with disabilities in providing access to its examination program.

The ADA Amendments Act of 2008 defines a person with a disability as someone with a physical or mental impairment that substantially limits one or more major life activities of such individual. Major life activities include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working.

The purpose of accommodations is to provide equal access to (CHTS) examinations for all individuals. Accommodations “match up” with the identified functional limitation so that the area of impairment is relieved by means of an auxiliary aid or modification to the testing procedure. Functional limitation refers to the aspects of a disability that interfere with an individual’s ability to function as compared to most adults; that is, what someone cannot do on a regular and continuing basis as a result of the disability.

The purpose of documentation is to validate that an applicant for test accommodations is a disabled individual as defined by the amended ADA and to provide guidance in determining effective accommodations. Comprehensive information by a qualified professional is necessary to allow AHIMA/Pearson VUE to understand the nature and extent of the applicant’s disability and the resulting functional impairment that limits access to its examinations. It is essential that an applicant’s documentation provide a clear explanation of the functional impairment and a rationale for the requested accommodation.

No candidate shall be offered a modification which would compromise the (CHTS) examination's ability to test accurately the skills and knowledge it purports to measure and no auxiliary aid or service will be provided which will fundamentally alter the examination or will result in an undue burden to AHIMA/Pearson VUE.

Confidentiality

AHIMA and Pearson VUE strictly adhere to a policy of confidentiality and do not disclose names of applicants with disabilities or information concerning the application or accompanying documentation. Examinations administered with accommodations are not identified to third party score recipients.

How to Request Test Accommodations for the (CHTS) Examination

- An applicant must personally submit a written request.
- Requests by a third party (such as an evaluator, employer, etc.) will not be considered.
- If an applicant has a documented disability covered under the Americans with Disabilities Act and ADA Amendments Act (ADAAA) and requires test accommodations, s/he must notify AHIMA/Pearson VUE in writing each time s/he requests accommodations.
- The request should indicate the nature of the disability and the test accommodations needed. A qualified professional must verify in the documentation both the disability and explain the need for test accommodations.
- Applicants will be notified in writing whether their accommodation request has been approved.
- **The request must be submitted and processed prior to scheduling the (CHTS) examination. Please note that it may take as long as 30 days for processing.**

What to Do:

1. Read the General Guidelines for Documenting a Request for Test Accommodations and the specific guidelines for your disability area and share them with the professional who will be preparing your documentation.
2. Complete the Test Accommodation Request Form, which can be downloaded here: http://ahima.org/downloads/pdfs/certification/ADA_Form.pdf
3. Attach documentation of the disability and your need for accommodation. Compare your documentation with the information listed in the documentation guidelines to ensure a complete submission. **Incomplete documentation will delay processing of your request.**
4. Retain a photocopy of all Request Forms and documentation submitted.
5. Send your completed Test Accommodation Request Form and documentation with your Examination Registration form to Certification Services at the following fax or mail address:

Fax
(312) 233-1500

Standard Mail
AHIMA
Attention: Certification Services

233 N. Michigan Ave, 21st Floor
Chicago, IL 60601

Appeal Process

Any applicant who is denied accommodations may appeal this decision by submitting the following materials to AHIMA/Pearson VUE:

- A written request for a formal appeal of the denial of accommodations. The request should describe the rationale for the appeal based on **additional information** not previously provided to AHIMA/Pearson VUE.
- Additional written information in support of the appeal, such as new diagnostic or treatment information from the treating professional. The appeal materials must be sent together in a single mailing.

AHIMA/Pearson VUE will review the appeal and accompanying materials and make a timely determination. The appeal determination is final and binding.

PREPARATION FOR THE CHTS EXAMS

Tips for Success

- Read through the entire candidate guide.
- Review the exam blueprints and competency statements listed on pages 5-23. These detail the content areas covered on the exams.
- Create a study plan based on the exam blueprint. Focus on the content areas that are less familiar to you. If you have experience in healthcare and/or IT, you may need less preparation time than others without that relevant background.
- It is better to break up your studies and exam preparation over the course of several days/weeks as needed, as opposed to trying to cram shortly before your exam appointment.
- Know when and where the test will be given, appear on time with any required materials (for example, valid identification), and be ready to be tested.
 - Please ensure that both forms of your identification abide by all requirements as described on pages 30-31 of this guide.

TEST TAKERS' RIGHTS AND RESPONSIBILITIES

As a test taker, you have the right to:

1. Be informed of your rights and responsibilities as a test taker.
2. Be treated with courtesy, respect, and impartiality, regardless of your age, disability, ethnicity, gender, national origin, religion, sexual orientation, or other personal characteristics.
3. Be tested with measures that meet professional standards and that are appropriate, given the manner in which the test results will be used.

4. Receive written explanation prior to testing about the purpose(s) for testing, the kind(s) of tests to be used, if the results will be reported to you or to others, and the planned use(s) of the results. If you have a disability, you have the right to inquire and receive information about testing accommodations.
5. Know in advance of testing when the test will be administered, if and when test results will be available to you, and if there is a fee for testing services you are expected to pay.
6. Have your test administered and your test results interpreted by appropriately trained individuals who follow a professional code of ethics.
7. Know the consequences of taking or not taking the test, fully completing the test, or canceling the scores. You may need to ask questions to learn these consequences.
8. Receive a written explanation of your test results within a reasonable amount of time after testing and in commonly understood terms.
9. Have your test results kept confidential to the extent allowed by law.
10. Present concerns about the testing process or your results and receive information about procedures that will be used to address such concerns.

As a test taker, you have the responsibility to:

1. Read or listen to your rights and responsibilities as a test taker.
2. Treat others with courtesy and respect during the testing process.
3. Ask questions prior to testing if you are uncertain about why the test is being given, how it will be given, what you will be asked to do, and what will be done with the results.
4. Read or listen to descriptive information in advance of testing and listen carefully to all test instructions. You should inform Pearson VUE before scheduling your test if you wish you receive a testing accommodation or if you have a physical condition or illness that may interfere with your performance on the test.
5. Know when and where the test will be given, pay for the test if required, appear on time with any required materials (for example, valid identification), and be ready to be tested.
6. Follow the test instructions you are given and represent yourself honestly during the testing.
7. Be familiar with and accept the consequences of not taking the test, should you choose not to take the test.
8. Inform appropriate person(s) (as specified to you by the organization responsible for testing) if you believe that testing conditions affected your results.
9. Ask about the confidentiality of your test results, if this aspect concerns you.
10. Present concerns, if you have any, about the testing process or results in a timely, respectful way.

(Adopted from the American Psychological Association Test Takers' Rights and Responsibilities, 1999)

ON EXAMINATION DAY

Examination Procedures

We ask that you arrive at the test center 30 minutes before your scheduled appointment time. This will give you adequate time to complete the necessary sign-in procedures. Please be prepared to show two (2) valid, non-expired forms of personal identification. Both must have your signature, and one of the

two must have your photo. If you arrive more than 15 minutes late for an exam and are refused admission, you will be considered a no-show and you will forfeit your exam fee.

If you wish to reschedule or cancel your exam appointment, you must do so at least two full business days (48 hours) before the appointment via the Pearson VUE website or call center. All registrations with accommodations must be rescheduled or canceled through the call center. If your request is made less than two business days (48 hours) before your scheduled appointment time or you fail to arrive for your appointment, you will be considered a no-show and you will forfeit your exam fee.

Please note, you will not be allowed to take any personal items with you into the testing room including all bags, books or other materials not authorized for this exam, notes, phones, pagers, watches and wallets.

When arriving at the test center, candidates will:

1. Receive the Professional Examination Rules Agreement
2. Submit two valid, correct forms identification (ID)
3. Have their digital signature captured to verify that signatures match
4. Have their palm vein pattern captured
5. Have a photograph taken
6. Store belongings

A dry erase board will be provided to all candidates for use during the examination. No scratch paper is allowed.

Identification Requirements

The identification (ID) requirements to be allowed to test include a primary form of ID that contains the candidate's signature and picture, and a secondary form of ID that contains the candidate's signature. The name on the primary and secondary forms of ID should be the same as the name that appears on the testing application.

Acceptable forms of primary ID are valid and non-expired with the candidate's photograph and signature including:

- Government-issued driver's license, including temporary licenses with all required elements
- U.S. Department of State driver's license
- U.S. learner's permit (plastic card only with photo and signature)
- National/State/Country Identification Card
- Passport
- Passport cards
- Military ID
- Military ID for spouses and dependents
- Government-Issued local language ID (plastic card with photo and signature)

The following are examples of **unacceptable** forms of ID:

- Any form of ID that is expired, unless it is accompanied by renewal paperwork
- Library card
- Marriage certificate
- Voter's registration card
- Club membership card
- Public aid card
- Temporary driver's license without proper paperwork and photo identification
- Video club membership card
- Traffic citation (arrest ticket)
- Fishing or hunting license

Without acceptable forms of ID, candidates will not be allowed to test and will forfeit their voucher. Pearson VUE reserves the right to deny a candidate from taking the exam if there is a question in regards to the validity of the ID(s).

Test Center Restrictions

To ensure that examination results for all candidates are earned under comparable conditions, it is necessary to maintain a standardized testing environment. Candidates must adhere to the following:

No reference or study materials may be brought into the examination room.

Documents or notes of any kind may not be removed from the examination room. All computer screens, paper, and written materials are the copyrighted property of Pearson VUE and may not be reproduced in any form.

Candidates will not be allowed to take anything into the examination room other than those items given to them by the administrator and their identification documents.

Prohibited items will not be allowed into the examination room. Prohibited items include, but are not limited to the following: calculators, pagers, cell phones, electronic digital devices (PDAs, watches), recording or photographic devices, weapons, briefcases, computers or computer bags, and handbags or purses. Candidates cannot bring in drinks or snacks of any kind.

Eating, drinking, and smoking are prohibited in the test center.

Questions regarding the content of the examination may not be asked of the test center administrator during the examination.

Security

Each candidate will be required to electronically sign a nondisclosure agreement at the beginning of the examination session. **If a candidate does not understand or agree to the terms of the nondisclosure agreement, the candidate will be unable to continue with the examination and will forfeit his or her voucher.**

All proprietary rights in the examinations, including copyrights and trade secrets, are held by AHIMA/Pearson VUE. In order to protect the integrity of the examinations and to ensure the validity of the scores reported, candidates must adhere to strict guidelines regarding proper conduct in handling copyrighted proprietary examinations. Any attempt to reproduce all or part of the examinations, including, but not limited to, removing materials from the examination room, aiding others by any means in reconstructing any portion of the examinations, selling, distributing, receiving or having unauthorized possession of any portion of the examinations, is strictly prohibited by law. Alleged copyright violations will be investigated and, if warranted, prosecuted to the fullest extent of the law. It should be noted that all examination scores may be invalidated in the event of this type of suspected breach.

Candidates may not write on any examination materials distributed by or belonging to AHIMA/Pearson VUE.

A candidate can be disqualified from taking or continuing an examination, or from receiving examination results, or the candidate's scores might be cancelled if Pearson VUE determines through proctor observation, statistical analysis, and other evidence that the candidate's score may not be valid or that the candidate was engaged in collaborative, disruptive, or other unacceptable behavior during the administration of the examination.

Test centers are continuously monitored by audio and video surveillance equipment for security purposes.

Misconduct

Individuals who engage in the following conduct may be dismissed from the test center and their scores will not be reported. Examples of misconduct include but are not limited to:

- Using electronic communications equipment such as personal digital assistants (PDAs), calculators, pagers, and cellular telephones.
- Giving or receiving help during the examination or being suspected of doing so.
- Attempting to take the examination for someone else.
- Using notes, books, or other aids.
- Removing or attempting to remove note paper from the test center.
- Creating a disturbance or behaving in an abusive or otherwise uncooperative manner.

Cancellation Due to Bad Weather or Other Emergencies

In the event of bad weather, a natural disaster, or other emergency (for example, a test center power outage), Pearson VUE will determine whether circumstances warrant cancellation and rescheduling of examinations at a particular test center.

Examinations will not be cancelled and rescheduled if the test center administrator can open the test center. Every attempt will be made to administer all examinations as scheduled.

However, should examinations at a test center be cancelled, all affected candidates will be contacted by Pearson VUE about rescheduling their examinations.

AFTER THE EXAMINATION

Notification of Examination Results & Scoring

The current passing **scaled score** for all CHTS exams is 500 out of 600. A scaled score is a mathematical conversion of a raw score (number of questions answered correctly). The scaled score is determined by converting the number of questions answered correctly to a scaled score ranging from 300-600. Candidates need a minimum scaled score of 500 to pass a CHTS exam.

Score reports will clearly indicate whether the candidate passed or failed the exam, and will provide the candidate's scaled score. Candidates will also receive a percentage breakdown of how they scored in each domain (content area) on the exam. Those who pass the exam will also receive a printed certificate along with their score report.

See Appendix A for a sample score report and explanation of how to interpret your results.

Confidentiality Procedures

AHIMA and Pearson VUE have adopted policies and procedures to protect the confidentiality of examination candidates. AHIMA and Pearson VUE staff members will not discuss pending examination applications with anyone but the candidate and will not report scores via telephone, e-mail, or fax.

AHIMA and Pearson VUE will not release exam results to educational institutions unless authorized by the candidate.

Validation of Scores

AHIMA and Pearson VUE are responsible for the validity and integrity of the scores reported. Occasionally, computer malfunctions or candidate misconduct may cause a score report to be suspect.

AHIMA and Pearson VUE reserve the right to void or withhold examination results if, upon investigation, violation of AHIMA's regulations is discovered. Candidates are expected to fully cooperate with any investigation.

Examination Complaints

Candidates are required to report any complaints at the test center on the day of their examination.

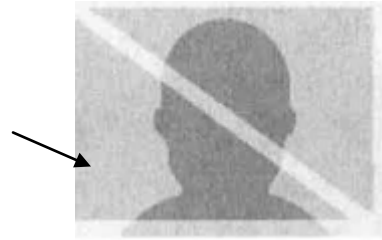
Because of the secure nature of the examination, neither AHIMA nor Pearson VUE will disclose examination questions or a candidate's responses to individual questions.

Retake Policy

- Candidates who have taken and failed an examination must wait a minimum of 45 days before testing again.

APPENDIX A: SAMPLE SCORE REPORT

Your photo will be printed on the top right of your score report to help verify authenticity.



Score Report for the CHTS Implementation Support Specialist Exam

Test Taker
1002 Examination Lane
Houston, TX 00000

Examination Date: X/X/XXXX

Passing Score: 500
Your Score: XXX
Result: Pass/Fail

The minimum passing score is 500, so you must achieve a score of at least 500 to pass.

Your score out of 600 possible points.

Will indicate whether you passed or failed the exam.

Content Category By Domain

- 1—Networking and Health Information Exchange
- 2—Configuring EHRs
- 3—Vendor-Specific Systems
- 4—Working with Health IT Systems
- 5—Installation and Maintenance of HIT Systems
- 6—Information and Computer Science
- 7—Terminology in Health Care & Public Health Settings

Percent Correct

XXX%
XXX%
XXX%
XXX%
XXX%
XXX%
XXX%

Percentage breakdown of the number of questions answered correctly per content domain.

Congratulations on your achievement! You have successfully passed the CHTS Implementation Support Specialist Exam.

For additional information on the CHTS exams, please visit <http://www.AHIMA.org/certification>.

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **The Culture of Health Care**

Dates: February 17 – April 10, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

1. Access to a computer and Blackboard (<https://scccd.blackboard.com>)
2. All course readings and assignments are provided in the course site in Blackboard.

Course Description:

This component explains patterns of human behavior that include the language, thoughts, communications, actions, customs, beliefs, values, and institutions of the health care system.

Behavior patterns in the health care system acquired and socially transmitted, including customs, traditions, and language.

Course Objectives:

1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care;
2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings;
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases;
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, and end of life care;
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics

6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy, confidentiality, ethical conflicts, and health disparities; and
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.
8. Describe the differences of code sets, ICD9, ICDIO, CPT, and HCPCs and understand the differences in the hospital setting versus the clinic or physician setting.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading, discussion questions, and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted; however, a deduction of up to half the point value may be applied.

Course Grading:

A cumulative points system is used. Possible points for discussion questions and self-assessments will vary and tracking of your total points for each assignment or self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course. Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still enrolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical - do your own work.

IMPORTANT DATES: This course is in Session I. This 8-week session runs from 2/17/2015 to 4/10/2015, there will be a one week break in between each session.

Session-	Como#	Name	Req/Elective	Dates
I	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
1	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Apr 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for the Culture of Health Care:

DATE	UNITS	TOPICS
Week 1	Unit 1 - Introduction to the Culture of Health Care	A. Unit 1.1 - What Do We Mean by "The Culture of Healthcare" B. Unit 1.2 - Learning More About the Culture of Health Care
Activity: discussion questions (2)/quiz		
Week 2	Unit 2 - Health Professionals -The People in Health Care	A. Unit 2.1 - Introduction and Physicians B. Unit 2.2 - Nurses C. Unit 2.3 - Additional Health Professionals
Activity: discussion questions (2)/quiz		

Week3	Unit 3 - Health Care Settings - The Places Where Care is Delivered.. Includes an introduction of coding concepts, ICD9, ICD10, CPT and HCPCS.	<ul style="list-style-type: none"> A. Unit 3.1 • Outpatient Care B. Unit 3.2 - Hospitals C. Unit 3.3 • Hospital Structure D. Unit 3.4 • Hospital Departments and Their Functions (Nonclinical) E. Unit 3.5 - Hospital Departments and Their Functions (Clinical)
Activity: discussion questions(4)/quiz Additional Resources: YouTube videos covering basic coding concepts		
FIRST DUE DATE: Weeks 1-3 assignments must be completed by the end of week 3 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.		
Week 4	Unit 4 - Health Care Processes and Decision Making	<ul style="list-style-type: none"> A. Unit 4.1 • The Clinical Process- Overview of the Classic Paradigm B. Unit 4.2 - Gathering Data and Analyzing Findings C. Unit 4.3 - Making a Diagnosis D. Unit 4.4 - Choosing Therapy E. Unit 4.5 • Communicating the Plan
Activity: discussion questions(3)/quiz		
Week5	Unit 5 - Evidence-Based Medicine	<ul style="list-style-type: none"> A. Unit 5.1 - Introduction • Evidence-Based Medicine B. Unit 5.2 • Definitions and Application of Evidence-Based Medicine (EBM) C. Unit 5.3 - Interventions D. Unit 5.4 • Diagnosis E. Unit 5.5 - Harm and Prognosis F. Unit 5.6 • Summarizing Evidence G. Unit 5.7 - Putting Evidence into Practice H. Unit 5.8 • Limitations of Evidence-Based Medicine (EBM)
Activity: discussion questions(3)/quiz		
Week6	Unit 6 - Nursing Care Processes	<ul style="list-style-type: none"> A. Unit 6-1 • Nursing Roles and Responsibilities B. Unit 6-2 • The Nursing Process/Clinical Judgment and Assessing the Patient C. Unit 6-3 • Nursing routines and Procedures
Activity: discussion questions(!)/quiz		
SECOND DUE DATE: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated		

back to the Health IT Academy Program Coordinator.		
Week7	Unit 7 Quality Measurement and Improvement	<p>A. Unit 7-1 - Quality Measurement and Improvement, Part 1 -TheState of quality Care in the US</p> <p>B. Unit 7-2 - Quality Measurement and Improvement, Part 2 - Operationalization</p> <p>C. Unit 7-3 - Quality Measurement and Improvement, Part 3 - The Role of Information Technology</p> <p>D. Unit 7-4 - Quality Measurement and Improvement, Part 4 - HITECH Meanin ful Use Rules</p>
Activity: discussion questions(!)/quiz		
Week8	Unit 8- Professional Value and Medical Ethics	<p>A. Unit 8-1 - Privacy, Confidentiality, and Security, Part 1- Definitions and Concerns</p> <p>B. Unit 8-2 . Privacy, Confidentiality, and Security, Part 2 -Tools for Protecting Health Information</p> <p>C. Unit 8-3 - Privacy, Confidentiality, and Security, Part 3 - HIPAA</p> <p>D. Unit 8-4 " Privacy, Confidentiality, and Security, Part4 - HIPAA & HITECH</p>
Activity: discussion questions(l)/quiz		
FINAL DUE DATE: Weeks 7-8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated back to the Health IT Academy Program Coordinator.		

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Terminology in Health Care and Public Health Settings**
Dates: April 20, 2015 - June 12, 2015
This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://1/scccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

Course Description:

This component explains specific terminology used by workers in health care and public health. This is NOT a course in data representation or standards.

Course Objectives:

- Define, understand and correctly pronounce medical terms related to each of the major body systems
- Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records
- Identify the purpose and uses of pertinent health care terminologies in the electronic health record
- Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to

during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/tutorials/word exercises and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for self-assessments will vary and tracking of your total points for each self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course.

Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still emolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical - do your own work.

IMPORTANT DATES: This course is in Session 2. This 8-week session runs from 4/20/2015 to 6/12/2015, there will be a one week break in between each session.

Session:	Comp#	Name	Reg/Elective	Dates
1	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
1	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Apr 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#5	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Terminology in Health Care & Public Health:
Health Information Technology Exam Guide - READ Chapters 12 and 18

DATE	UNITS	TOPICS
Week 1	Unit 1 -,-Understanding Medical Words (three lectures) Unit 2- Integumentary System (one lecture)	<ul style="list-style-type: none"> Unit 1 A C-Discuss the four parts of medical terms; recognize word roots and combining forms; define directional and positional terms; build, divide, spell and pronounce common medical terms Unit 2 -,- Define, understand and correctly pronounce medical terms related to the Integumentary System; describe common diseases and conditions with an overview of various treatments related to the integumentary system.
Activity: (2)/quiz Additional Resources: Unit 1 -Tutorial -Understanding Medical Words AND Medical Dictionary Exercise (20 pts) Unit 2 - Word Search-Integumentary System and Watch the Videos Week 2 Unit 3 - Musculoskeletal System • Unit 3 - Define, understand and correctly pronounce medical terms related to the Musculoskeletal System; describe common diseases Unit 4 -,- Blood, Lymphatic and Immune System • Unit 4 - Define, understand and correctly pronounce medical terms related to the Blood, Lymphatic and Immune Systems; describe common diseases		
Activity: (2)/quiz Additional Resources: Unit 3 - Review the images and Watch the Videos Unit 4-. Word Search and watch YouTube Video - "Tonsillectomy"		
Week 3	Unit 5 - Cardiovascular System	• Unit 5 - Define, understand and

	Unit 6 - Digestive System	<p>correctly pronounce medical terms related to the cardiovascular system; describe common diseases</p> <ul style="list-style-type: none"> Unit 6 • Define, understand and correctly pronounce medical terms related to the Digestive System; describe common diseases
<p>Activity: (2)/quiz Additional Resources: Unit 5- Word Search AND Medical Dictionary Exercise (20 pts) Unit 6 - Review the Digestive System</p>		
<p>FIRST DUE DATE 5/11/15: Weeks 1-3 assignments must be completed by the end of week 3 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program: 1 Coordinator.</p>		
Week 4	<p>Unit 7 -Endocrine Glands</p> <p>Unit 8 - Ears, Nose, Throat, Eye and Vision</p>	<ul style="list-style-type: none"> Unit 7-Define, understand and correctly pronounce medical terms related to the endocrine glands; describe common diseases Unit 8 - Define, understand and correctly pronounce medical terms related to the Ears, Nose, Throat, Eye and Vision; describe common diseases
<p>Activity: (2)/quiz Additional Resources: Unit 7 -SEER Anatomy Module, Dive into the Endocrine Gland Unit 8 - Prerecorded Webcasts of Surgical Procedures AND Medical Word Search</p>		
Week 5	<p>Unit 9-Nervous System</p> <p>Unit 10- Reproductive System</p>	<ul style="list-style-type: none"> Unit 9.- Define, understand and correctly pronounce medical terms related to the Nervous System; describe common diseases Unit 10 - Define, understand and correctly pronounce medical terms related to the Reproductive System; describe common diseases
<p>Activity: (2)/quiz Additional Resources Unit 9 - Review images of a "brain" Unit 10- Word Search</p>		
Week 6	<p>Unit 11 - Respiratory System</p> <p>Unit 12 - Urinary System</p>	<ul style="list-style-type: none"> Unit 11- Define, understand and correctly pronounce medical terms related to the Respiratory System; describe common diseases Unit 12 - Define, understand and correctly pronounce medical terms related to the Urinary System;

describe common diseases		
<p>Activity: (2)/quiz Additional Resources Unit 11 - Medical Dictionary Exercise (10 pts) Unit 12 Watch the video, Living Donor Kidney Transplant Surgery SECOND DUE DATE 6/1/15: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		
Week 7	Unit 13 Public Health and Health Care System Terminology Unit 14 What is Health Information Management and Technology?	<ul style="list-style-type: none"> • Unit 13 - Define, identify and distinguish frequently used and common healthcare system terms • Unit 14-Define and explain terms and concepts used in HIT; describe health IT hardware and software; and define acronyms and abbreviations
<p>Activity: (2)/quiz Additional Resources: Unit 13- Word Match Exercise-(15 pts) Unit 14- (Review articles)</p>		
Week 8	Unit 15 - Electronic Health Records Unit 16- Standards to Promote Health Information Exchange Unit 17 - Clinical Vocabularies	<ul style="list-style-type: none"> • Unit 15 -Overview and introduction to the electronic health record • Unit 16 - Define terms related to standardized terminologies including HIPAA and vocabularies that represent nursing care • Unit 17 Clinical Vocabularies
<p>Activity: (2)/quiz Additional Resources: Unit 15 -Review CDC website articles on "Meaningful Use" and Office of Civil Rights Unit 16- YouTube Video - "HIPAA and Compliance"</p>		
<p>FINAL DUE DATE 6/12/15: Weeks 7-8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Introduction to Information and Computer Science**

Dates: February 17 -April 10, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

1. Access to a computer and Blackboard (<https://scccd.blackboard.com>)
2. All course readings and assignments are provided in the course site in Blackboard.

Course Description:

Introduction to Information and Computer Science is for students without an IT background. It provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. Includes basic terminology of computing.

Course Objectives:

1. Use proper hardware, network, Internet, and software computer terminology in written and verbal communications.
2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.
3. Design a simple database and develop querying statements for it.
4. Describe network computing, its benefits and risks, and identify commonly-used communications hardware and software components.
5. Identify security risks for computing systems and discuss potential solutions.
6. Explain the design and development process of a large system such as an EHR.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading, discussion questions, and creation of an instructional media tool, lesson plan, evaluation, video script/plan, and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted; however, a deduction of up to half the point value may be applied.

Course Grading:

A cumulative points system is used. Possible points for discussion questions and self-assessments will vary and tracking of your total points for each assignment or self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course. Participation in an online course means you stay on schedule, turn assignments in on time, post discussion board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher= Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still emolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical - do your own work.

IMPORTANT DATES: This course is in Session!. This 8-week session runs from 2/17/2015 to 4/10/2015, there will be a one week break in between each session.

Session-	Como#	Name	Rea/Elective	Dates
1	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
1	#4	Intro to Information & Computer Science	Reauired	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Svstems	Required	Aor 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments and due dates for Introduction to Information and Computer Science:

DATE	UNITS	TOPICS
Week 1	Unit 1 - Basic Computing Concepts, including history	A. Unit 1-1• Define what a computer is and list the types.of computers including hardware and software B. Unit 1-2c Selecting a computer C. Unit 1c3- Options for Computer Systems D. Unit 1-4- The First "Computers" E. Unit 1-5- Personal Computers
Activity: Research AssignmenUquiz		
Week2	Unit 2-Internet and World Wide Web Unit 3 - Computer Hardware and Architecture	A. Unit 2-1 -Definitions, connecting, searching, filtering results, internet security and privacy concerns B. Unit 2-2 -Service Providers, Internet Access Providers C. Unit 2-3 - Routers, managing cookies D. Unit 2-4 - Ethical considerations of the Internet

		<p>E. Unit 3-1 -Understand the Major Elements of a Computer</p> <p>F. Unit 3-2 --,Describe How Data is Stored, Input and OutputPorts</p> <p>G. Unit 3-3 - Data Storage/CPU Performance</p>
Activity: Writing Assignment/quiz		
Week3	Unit 4 -Application and System Software	<p>A. Unit 4-1 - Define Application versus System Software</p> <p>B. Unit 4-2 - System Software/Operating System (OS) and Functions. Managing Processes and Resources</p> <p>C. Unit 4-3 - File System, fileTypes, File Management Utilities, File System Implementation, File Management Tips</p>
Activity: Writing Assignment/quiz		
<p>FIRST DUE DATE: Weeks 1-3 assignments must be completed by the end ofweek3 this is to ensure that all students stay on track. A progress report will be generated and. communicated back to the Health IT Academy Program Coordinator.</p>		
Week 4	Units- Overview ofProgranng Languages, including Basic Programming Concepts	<p>A. Unit 5-1 - Define Programming Languages</p> <p>B. Unit 5-2 - Define Purpose of Progranng.Languages</p> <p>C. Unit 5-3 - Build a Simple Program: variables, loops and conditional statements</p> <p>D. Unit 5-4 - Control Structures, loops and conditional expressions</p> <p>E. Unit 5-5 - Introduce additional Programming Concepts, Objects and Modularity</p>
Activity: Writing Assignment/quiz		
Week5	Unit 6 - Databases and Structure Query Language (SQL)	<p>A. Unit 6-1 Understand the Purpose of Databases</p> <p>B. Unit 6-2 - Relational Databases/Data Modeling</p> <p>C. Unit 6c3 Structure Query Language</p> <p>D. Unit 6-4- Design A Relational Database</p> <p>E. Unit 6-5 - Define the Basic Data Operation and How to Implement them inSQL</p>

		F. Unit 6°6- Create Simple Querying Statement for the Database
Activity: Writing Assignment/quiz		
Week6	Unit 7 - Networks & Networking Unit 8 - Security	A. Unit 7-1 - Understand the History of Networks and their Evolution B. Unit 7-2-IP Address Basics/Versions C. Unit7-3 --'Network Types D. Unit 7-4 ~.Wireless Communications E. Unit 7-5 - Networking Logical Models F. Unit 8-1- Common Security Concerns G. Unit 8-2 - Mitigating Security Issues/Firewalls/Encryption H. Unit 8-3 - Security and Wireless Networking/Federal Regulations/HIPAA and Privacy
Activity: Writing Assignment/quiz		
SECOND DUE DATE: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health ITAcademy Program Coordinator.		
Week 7	Unit 9 - Components and Development of Large Scale Systems	A. Unit 9-1 - Describe the building blocks of a large scale system; System Development Lifecycle; Financial Support B. Unit 9-2 - Systems Development Lifecycle (SDLC)- Systems Planning C. Unit 9-3 - Systems Development Lifecycle (SDLC)- Systems Analysis D. Unit 9-4 - Systems Development Lifecycle (SDLC)- Systems Design E. Unit 9 5 - Systems Development Lifecycle (SDLC)- Systems Implementation F. Unit 9-6 and 9-7 - Systems Development Lifecycle (SDLC)- Systems Support and Security
Activity: Writing Assignment/quiz		
Week8	Unit 10- Future of Computing	A. Unit 10-1 - Trends in Computing B. Unit 10-2 - Future of Computing
Activity: Writing Assignment/quiz		
FINAL DUE DATE: Weeks 7-8 assignments must be completed by .the end of week 8. A final progress report will be generated and communicated back to the Health IT Academy Pro am		

[Coordinator.

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Health Management Information Systems**

Dates: April 20, 2015 - June 12, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://scccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard

Course Description:

This component introduces students to the health IT standards, health-related data structures, software applications, enterprise architecture in health care and public health objectives.

Course Objectives:

- Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings.
- Describe the significant developments and federal initiatives that have influenced the evolution and adoption of health information systems.
- Compare/Contrast different types of health information systems in terms of their ability to support the requirements of a health care enterprise.
- Understand how electronic health records affect patient safety, quality, efficiency and patient care, productivity, and reporting outcomes.
- Propose strategies to minimize major barriers to the adoption of electronic health records.
- Understand the principles of healthcare data exchange and standards, workflow design and assessment, and their relationship to patient care, productivity and data analysis.

- Propose the hardware, software, operating system and networking considerations necessary for effective data storage and use in healthcare organizations.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/tutorials/word exercises and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for self-assessments will vary and tracking of your total points for each self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course.

Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher= Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still enrolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical - do your own work.

IMPORTANT DATES: This course is in Session 2. This 8-week session runs from 4/20/2015 to 6/12/2015, there will be a one week break in between each session.

Session:	Comp#	Name	Req/Elective	Dates
I	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
I	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Apr 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Health Management Information Systems:
Health Information Technology Exam Guide -READ Chapters 19 through 23

DATE	UNITS	TOPICS
Week1	Unit 1 - What is Health Informatics?	<ul style="list-style-type: none"> -Definitions of information management, information technology, and informatics -Fundamental theorem of informatics -Meaning of biomedical and health informatics as a field of study -Major biomedical informatics areas of application -Overview of informatics drivers and trends -Informatics team -Informatician skills, roles and responsibilities
Activity: writing assignment / quiz		
Week2	Unit 2 - Hardware and Software Supporting Health Information Systems	<ul style="list-style-type: none"> -Major hardware and software components used in computer systems -Types of network configurations -What is an information system? What are its characteristics? -Types of information systems that support the health care enterprise

		<p>requirements</p> <ul style="list-style-type: none"> -The technologies that support health care information systems -Challenges with the use of emerging information technology trends -Advantages and disadvantages of the Internet as a platform for health care applications
Activity: writing assignment / quiz		
Week3	Unit 3 Electronic Health Records	<ul style="list-style-type: none"> -Definitions of an electronic medical record (EMR) and electronic health record (EHR) -Identify .attributes and functions ofan EHR -Industry issues surrounding EHR adoption and implementation -ImpactofEHRs on patient care -Perspectives .on Health Information Exchange (HIE) and the Nationwide Health Information Network (NHIN) and their impact on health care delivery and the practice of health care providers -Governmental efforts related to EHR systems including meaningful use of interoperable health information technology and a qualified EHR -Institute of Medicine's vision of the future health care system -Effects of developments in bioinformatics on health information systems
Activity: writing assignment/ quiz		
<p>FIRST DUE DATES/11/15: Weeks 1-3 assignments must be completed by the end of week 3 this is to ensure thatall students stay on track. A progress report will be generated and communicated back to the Health IT Academ Program Coordinator.</p>		
Week 4	<p>Unit 4- Computerized Provider Order Entry (CPOE)</p> <p>Unit 5 - Clinical Decision Support Systems</p>	<p>Unit 4:</p> <ul style="list-style-type: none"> -Purpose ofCPOE -Characteristics of CPOE -Functions ofCPOE -Uses ofCPOE in health care <p>Unit 5:</p> <ul style="list-style-type: none"> - Definition of a clinical decision support system - History and evolution of clinical

		<p>decision support systems</p> <ul style="list-style-type: none"> - Dimensions of a clinical decision support system t 5:
<p>Activity: writing assignment/ 2 quizzes</p>		
Weeks	Unit 6 - Patient Monitoring Systems	<ul style="list-style-type: none"> -Purpose, attributes and functions of patient monitoring systems -Applications of and ways in which automation can improve the quality of patient care -Advantages and disadvantages of using computers at the bedside -Integrating data from many sources -Telehealth as a patient monitoring system
<p>Activity: writing assignment/ quiz</p>		
Week6	Unit 7 -Medical Imaging Systems	<ul style="list-style-type: none"> aPurposes, processes, and management issues -Challenges with imaging systems -Future directions
<p>Activity: writing assignment / quiz</p> <p>SECOND DUE DATE 6/1/15: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		
Week 7	Unit 8-Consumer Health Informatics	<ul style="list-style-type: none"> -Definition of personal health records -Role of PHRs and their implications within health care -Definition of health consumerism -Benefits of consumerism in health information systems -Challenges of consumerism in health information systems -The impact of the Internet on consumer health informatics -Current and emerging technologies affecting consumer health informatics -Role of genomics in consumer health informatics
<p>Activity: writing assignment / quiz</p>		
Week8	Unit 9 - Administrative, Billing and Financial Systems	<ul style="list-style-type: none"> -Health care organizations strategies to ensuring integration of front-end clinical data collection, back-end billing functions -Integrated billing and financial and

		clinical systems requirements -Role of automation tools in health information systems -Definition and core elements of a master patient index -Current trends in establishing a national patient index or universal identifier -Data analysis and trending
Activity: writing assignment / quiz		
FINAL DUE DATE 6/12/15: Weeks 7-8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated back to the Health ITAcademy Program Coordinator.		

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Health Workflow Process and Analysis**

Dates: June 22, 2015-August 14, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://sccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

Course Description:

Fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation; includes topics of process validation and change management.

Course Objectives:

- Give a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes;
- Document clinic processes to facilitate workflow analysis and redesign
- Develop a process map for given clinical process workflows within a complex health care system;
- Facilitate decision-making necessary for optimizing health care processes;
- Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time;
- Design processes and information flows for the practice that accommodate quality improvement and reporting;

- Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology;
- Propose way in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting;
- Develop and present an implementation plan for a process change;
- Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails;
- Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes; and
- Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/discussion assignments and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for self-assessments will vary and tracking of your total points for each self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course.

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Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still emolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical- do your own work.

IMPORTANT DATES: This course is in Session 3. This 8-week session runs from 6/22/2015 to 8/14/2015, there will be a one week break in between each session.

Session:	Comp#	Name	Req/Elective	Dates
1	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
I	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Apr 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Health Workflow Process and Analysis:
Health Information Technology Exam Guide - READ Chapter 21

DATE	UNITS	TOPICS
Week 1	Unit 10-1 - Concepts of Processes and Process Analysis, Part 1 and 2 Unit 10-2 - Process Representation, Part 1 and 2	<ul style="list-style-type: none"> Unit 1 - Focus on six aims for health care process improvement. Understand the concepts of systems, systems thinking and health care processes. Unit 2 - Articulate the value of process mapping; describe standard processing mapping symbols and conventions; create a process map for a health care system using correct symbols and conventions
Activity: 2)/quiz		

<p>Additional Resources: Unit 10-1 - Discussion Forum: YouTube Video review (2) and answer questions Unit 10-2 - Discussion Forum: YouTube Video review (3) and answer questions</p>		
Week 2	Unit 10-3 - Interpreting and Creating Process Diagrams, six lectures Unit 10-4 - Acquiring Clinical Process Knowledge, three lectures	<ul style="list-style-type: none"> Unit 3- Create context and data flow diagrams for a health care system; create a process flowchart including correct scope and detail; read and interpret data flow charts Unit 4" Identify how the strategic goals and stakeholders for a given health care facility can influence workflow processes; identify key workflow processes and key individuals
<p>Activity: (2)/quiz Additional Resources: Unit 10-3 - Discussion Forum - Complete the tutorial Unit 10-4 - Discussion Forum -Identify a healthcare organization near you</p>		
Week3	Unit 10-5 -Process Analysis, Part 1 and 2	<ul style="list-style-type: none"> Unit 5 -Describe the purpose of process analysis; describe skills and knowledge necessary for process analysis
<p>Activity: (2)/quiz Additional Resources: Unit 10-5 - Discussion Forum- Scenarios and variations, list out processes FIRST DUE DATE 7/13/15: Weeks 1-3 assignments must be completed by the end of week 3 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academ Program Coordinator.</p>		
Week 4	Unit 10-6 - Process Redesign	<ul style="list-style-type: none"> Unit 6- Identify the factors that optimize workflow processes in health care settings; use knowledge of common software functionality to inform a process redesign for a given clinic scenario
<p>Activity: (2)/quiz Additional Resources: Unit 10-6 - Discussion Forum - YouTube video review and answer questions</p>		
Week.5	Unit 10-7- Facilitating Optimization Decisions	<ul style="list-style-type: none"> Unit? - Learn the processes and logistics necessary for conducting the critical meeting in which healthcare setting personnel will review and streamline the redesigned process
<p>Activity: (2)/quiz Additional Resources: Unit 10-7 - Discussion Forum - Design an Agenda</p>		
Week 6	Unit 10-8 - Quality Improvement	<ul style="list-style-type: none"> Unit 8 - Quality Improvement

	Methods, two lectures	methods that workflow analysis process redesign specialists are likely to encounter in practice at clinics
<p>Activity: (2)/quiz Additional Resources Unit 10-8 - Discussion Forum - Writing Assignment</p>		
<p>SECOND DUE DATE 8/3/15: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		
Week 7	Unit 10-9 - Leading and Facilitating Change	<ul style="list-style-type: none"> Unit 9 - Explore how concerns expressed by participants in a process analysis meeting can facilitate or serve as a barrier to changes in workflow processes that are proposed; critique a facilitation plan
<p>Activity: (2)/quiz Additional Resources: Unit 10-9 - Discussion Forum - Interview a co-worker</p>		
.Week 8	Unit 10-10-Process change implementation and evaluation Unit 10-11 -Maintaining and Enhancing the Improvements	<ul style="list-style-type: none"> Unit 10- Develop a process change implementation plan for a healthcare facility; outline elements of an evaluation plan that will determine the success of a workflow process change Unit 11 - Design processes and information flows that will help sustain and continually facilitate quality improvement; Develop a set of plans to keep the practice running if the EHR system fails; Propose a plan where the workflow analyst collaborates with practice staff
<p>Activity: (2)/quiz Additional Resources: Unit 10 and 11 - Discussion Forum - Implementation Plan - writing assignment, 3-4 cases</p>		
<p>FINAL DUE DATE 8/14/15: Weeks 7-8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated back to the Health IT Academy Program Coordinator. You will have a one week break the week of August 17th.</p>		

FRESNO CITY COLLEGE TRAINING INSTITUTE

Syllabus

Course Information:

Training and Instructional Design

Dates: June 22, 2015 -August 14, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week, or by the given due date, in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

Contact:

Required Materials:

- Access to a computer and Blackboard (<https://1/scccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

COURSE DESCRIPTION:

This course will provide an overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness. In addition, this course will discuss selecting and implementing Web 2.0 technologies as instructional technologies given a specific platform and training programs.

COURSE OBJECTIVES:

- At the completion of this component, students will be able to:
- Plan, design, develop (produce), deliver, and evaluate technology-based instruction according to sound instructional design models and principles.
- Describe the training cycle by the Instructional Systems Design method and the phases of the ADDIE model of instruction design given a population of adult learners.
- Plan and implement an instructional needs assessment given a specific population of users in a health care setting.
- Construct a lesson plan using appropriate instructional methods and approaches, given a specific population of learners.

- Construct an instructional product (simple online tutorial) using the appropriate media based instructional method, such as customized images, customized video (e.g., EHR screen captures).
- Create a custom PowerPoint presentation using the principles of effective PowerPoint design given a particular training program.
- Demonstrate effective public speaking skills and proper operation of computer and AV equipment for a multimedia presentation, given a set of user needs.
- Plan and conduct student assessment and program evaluation given different population contexts.
- Design a training program in LMS that adhere to the standards and open source initiatives in online learning.
- Select and implement Web 2.0 technologies as instructional technologies given a specific platform and training program.

Course Requirements

Assignments will be included in weekly learning units. Assignments include lectures via PowerPoint presentations, reading, discussion questions, projects to create an instructional media tool, a lesson plan, an evaluation, a video script/plan, and unit self-assessments (quizzes).

You have flexibility to work on class assignments any time after they are posted as long as you complete the assignments by the due date. You may log in to the class as often as you need to work on the assignments.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments, due dates and other program related information. Read the announcements and assignment information regularly and carefully. It is your responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Evaluation and Grading

A cumulative points system is used. Possible points for unit assignments will vary week to week. Tracking of your total points for each assignment will be available in Blackboard Tools under My Grades. You are responsible for checking scores on a periodic basis to be familiar with your grade status. Class participation is an essential element to your success in this course. Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of

other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score. Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the class session.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

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Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical - do your own work.

IMPORTANT DATES: This course is in Session 3. This 8-week session runs from 6/22/2015 to 8/14/2015, there will be a one week break in between Session 3 and Session 4.

SCHEDULE OF ASSIGNMENTS

Health Information Technology Exam Guide - Read Chapter 23

DATE	UNITS	TOPICS•
Week 1	Unit 1 - Introduction to Training and Adult Learning	A. Introduction to Training and Adult Learning B. Principles of Adult Learning C. Training Cycle
Activity: discussion questions		
Week 2	Unit 2 - Needs Assessment	A. Need Analysis B. Need Analysis/ADDIE
Activity: scenario response - 1 to 2 pages		
Week 3	Unit3- Creating a Lesson Plan	A. Creating a Lesson Plan B. Writing a Lesson Plan & Objectives C. Blooms Taxonomy D. Objectives Tied to Need Analysis E. EHRIntake Learning Objectives F. Instructional Materials
Activity: construct an instructional media tool, create a lesson plan template		
Week4	Unit 4 - Selecting and Working With Media	A. Text- desktop publishing, creating handouts and web content B. Images - working with graphics and photographs to enhance learning C, Video and Audio - use simple editing programs and publish content to online environment D. Interactive Media - create simple online tutorials using screen capture software
Activity: continuation of Week 3 activity		
Week 5	Unit 5" Building & Delivering Effective PowerPoint Presentation	A. Design guidelines for PowerPoint stacks B. Scripting and Storyboarding C. The Utilization of Color and Text in PowerPoint Presentations 0. The Utilization of Text in PowerPoint Presentations E. The Appropriate Utilization of

		<p>Multimedia in PowerPoint Presentations</p> <p>F. Slide Frame Layout, Format Design, Color, Text Styles and Size</p> <p>G. Graphs and Charts</p> <p>H. Embedding Media and Actions</p>
Activity: continuation of Week 3 activity		
Week 6	Unit 6 - Assessments	<p>A. Developing Appropriate Assessments</p> <p>8. Creating a Program Evaluation Plan</p>
Activity: prepare an evaluation proposal		
Week 7	Unit 7 - Learning Management Systems	<p>A. The Basic Functions and Technologies in LMS and CMS Systems</p> <p>B. How to Build a Training Program in an LMS</p> <p>C. The Role and Application of Standards and Open Source Initiatives in Online Learning</p>
Activity: submit instructional media tool, lesson plan template, and evaluation proposal		
Week 8	Unit 8 - Web 2.0 and Social Networking Tools	<p>This unit will cover the use of electronic social networking tools, and informatics knowledge exchange to foster learning in a corporate environment. These tools include:</p> <p>A. Wikis</p> <p>B. Blogs</p>
Activity: write a script plan for a video		

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Usability and Human Factors - Overview**

Dates: June 22, 2015 -August 14, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://sccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

Course Description:

This course will give you the skills necessary to effectively apply principles of specific designs and usability evaluations, including technology evaluation and iterative design.

Course Objectives:

- Apply methods of cognitive research
- Demonstrate concept knowledge of principles of user-centered design
- Demonstrate knowledge of explaining the role of requirements gathering in the design process
- Identify advantages and disadvantages of data collection and methods used for requirements gathering
- Demonstrate concept knowledge of cognition and human performance models in relation to systems evaluation methods
- Apply concept knowledge of human factors for evaluating systems design and the study of human errors and patient safety

- Apply principles of usability and design to critique EHR systems and make improvement recommendations.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/discussion assignments and the unit quizzes. There is also a section in each unit for additional resources. These resources are not for required reading, but are additional information for your reference.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for quizzes will vary and tracking of your total points for each quiz will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course. Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still emolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical- do your own work.

IMPORTANT DATES: This course is in Session 3. This 8-week session runs from 6/22/2015 to 08/14/2015, there will be a one week break in between Session 3 and 4.

Session	Cornn#	Name	Rea/Elective	Dates
I	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
I	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Apr 20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Usability and Human Factors:
Health Information Technology Exam Guide - READ Chapter 16

UNITS
<ul style="list-style-type: none"> • Unit 1.: People and Technology, Studies of technology • Unit 2: Requirements Engineering • Unit 3: Cognition and Human Performance • Unit 4: Human Factors and Healthcare • Unit 5: Usability Evaluation Methods • Unit 6: Electronic Health Records and Usability • Unit 7: Decision Support Systems: A Human Factors Approach • Unit 8: Approaches to Design • Unit 9: Ubiquitous Computing in Healthcare • Unit 10: Designing for Safety • Unit 11: Input and Selection Methods • Unit 12: Information Visualization

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Quality Improvement**

Dates: August 24, 2015-October 16, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://sccccLblackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

Course Description:

This component Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Course Objectives:

At the completion of this component, the student will be able to:

- Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
- Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care
- Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
- Design and apply of information technology and standardized practices that support safety and quality
- Formulate activation planning that supports and maintains safety and quality
- Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities

- Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
- Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
- Monitor use of information technology for inappropriate use leading to hazards and errors
- Design an information technology culture conducive to highly reliable processes built on human factors research.
- Design and implement effective strategies to use information technology to decrease reliance on memory.

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/discussion assignments and the unit quizzes.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for self-assessments will vary and tracking of your total points for each self-assessment will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course.

Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

Borderline final grades will be viewed in terms of timely completion of assignments and class participation throughout the semester.

Class Policies:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments.

It is the responsibility of the student to contact the instructor and the Health IT Academy Program Coordinator about dropping the course. A student who is still enrolled in this course at the end date but fails to participate in class, is at risk for a failing grade.

Cheating in any form will not be tolerated and can result in the student receiving a failing grade. A report of academic dishonesty will be filed in the student's record. Cheating includes copying another's work as homework or on quizzes. Be professional and ethical- do your own work.

IMPORTANT DATES: This course is in Session 4. This 8-week session runs from 8/24/2015 to 10/16/2015, there will be a one week break in between each session.

Session:	Comp#	Name	Reg/Elective	Dates
1	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
1	#4	Intro to Information & Computer Science	Required	Feb 17-Apr 10
2	#3	Terminology in Health Care & Public	Required	Apr 20-Jun 12
2	#6	Health Management Information Systems	Required	Anr20-Jun 12
3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Jun 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	Installation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Quality Improvement:
Health Information Technology Exam Guide - READ Chapter 7

DATE	UNITS	TOPICS
Week 1	Unit 12-1 - Introduction to Quality Improvement, four lectures Unit 12-2 - Principles of Quality and Safety for HIT	<ul style="list-style-type: none"> Unit 1 - Identify the current challenges in health care quality; describe quality improvement as a goal of meaningful use of HIT; Explain Quality and Quality Improvement Unit 2 - Recognize that every system is designed to achieve the results it gets; discuss how teams make wise decisions
Activity: (2)/quiz Additional Resources: Unit 12-1 - Discussion Forum: Answer post lecture questions Unit 12-2 - Discussion Forum: Answer post lecture question		
Week 2	Unit 12-3 - Reliability and Culture of Safety	<ul style="list-style-type: none"> Unit 3 - Discuss reliability science as a tool for ensuring safety; examine how ultra-safe organizations operate;

		identify how teams make wise decisions
<p>Activity: {1}/quiz Additional Resources: Unit 12-3-DiscussionForum- YouTube video review (2) and answer questions</p>		
Week 3	Unit 12-4- Human Factors: HIT Design and Complexity	<ul style="list-style-type: none"> Unit 4 Examine the basic principles of cognitive ergonomics/engineering as these apply to patient safety; Define Human Factors Engineering and its impact on HIT quality and safety
<p>Activity: (1)/quiz Additional Resources: Unit12-4- Discussion Forum - Answer post lecture questions FIRST DUE DATE 9/14/15: Weeks 1-3 assignments must be completed by the end of week 3 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		
Week 4	Unit12-5- HIT Design to Support Teamwork and Communication	<ul style="list-style-type: none"> Unit 5- Assess the impact of teamwork and communication on patient safety and clinical effectiveness; Describe ways in which IDT design can enhance teamwork and communication
<p>Activity: (1)/quiz Additional Resources: Unit 12-5 --,- Discussion Forum - Writing Assignment (2-3 paragraphs)</p>		
Week 5	Unit 12-6- Decision Support for Quality Improvement	<ul style="list-style-type: none"> Unit6-Define decision support, its importance and why it is difficult to implement; Analyze the benefits and shortfalls of alerts .and clinical reminders
<p>Activity: (1)/quiz Additional Resources Unit 12-6- Discussion Forum - Writing Assignment (2-3 paragraphs)</p>		
Week 6	Unit 12-7- Safe WorkflowDesign Unit 12-8- HIT Implementation Planning	<ul style="list-style-type: none"> Unit 7- Assess decision-making requirements in health care Unit 8- Critique an implementation team and the roles they play in ensuring quality
<p>Activity: (2)/quiz Additional Resources Unit 12-7 - Discussion Forum- Design a flow chart and discussion Unit 12-8 -Discussion Forum - Writing Assignment (2-3 paragraphs) SECOND DUE DATE 10/05/15: Weeks4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.</p>		
Week 7	Unit 12-9 - HIT and Infecting a Patient	<ul style="list-style-type: none"> Unit 9 - Discuss the success of a

	Safety Culture Unit 12-10 HIT Design for Quality Reporting	<p>simple checklist; Identify strategies for adaptive work that can be useful HIT initiatives</p> <ul style="list-style-type: none"> • Unit 10 Explain the attributes of an effective reporting system and standardized and structured health information
<p>Activity: (2)/quiz Additional Resources: Unit 10-9 - Discussion Forwn - Answer post lecture questions Unit 10-10-Discussion Forwn-'- Writing Assignment.(2-3) paragraphs</p>		
Week8	Unit 12-11-DataQuality Improvement Unit 12-12 Learning from Mistakes: Error Reporting and Analysis and HIT	<ul style="list-style-type: none"> • Unit 11-Discuss the impact of poor data quality on quality measurement; Discuss common causes of data insufficiently • Unit 12 - Describe ways in which health information technology can facilitate error detection and reporting; Apply QI tools to examine HITerros
<p>Activity: (2)/quiz Additional Resources: Unit .11 - Discussion Forwn- Writing Assignment (3-5 paragraphs) Unit 12 - Discussion Forum -Answer post lecture questions</p>		
<p>FINAL DUE DATE10/16/15: Weeks 7°8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated. back to the Health IT Academy Program Coordinator.</p>		

FRESNO CITY COLLEGE TRAINING INSTITUTE
Syllabus

Course Information: **Installation and Maintenance of Health IT Systems**

Dates: August 24, 2015- October 16, 2015

This class meets online for weekly learning units for the 8 week session. New learning unit assignments will be posted each week, and those assignments should be completed during that week in order to stay on track. A schedule of assignments is included at the end of the syllabus.

Instructor:

E-Mail:

Required Materials:

- Access to a computer and Blackboard (<https://scccd.blackboard.com>)
- All course readings and assignments are provided in the course site in Blackboard.

Course Description:

This component covers fundamentals of selection, installation and maintenance of typical Electronic Health Records (EHR) systems. Students will be introduced to the principles underlying system configuration including basic hardware and software components, principles of system selection, planning, testing, troubleshooting, and final deployment. System security and procedures will also be introduced in this component.

Course Objectives:

- Describe the use of client and server hardware for access to and storage of EHRs
- Describe network needs for access to and storage of EHRs
- Identify the application software and back-end data storage software needed for a comprehensive, effective Health IT System
- Compare and contrast COTS (Commercial Off-The-Shelf) and In-House /homegrown systems and describe their relative advantages and disadvantages
- Verify system compliance with ONC-ATCB certification
- Identify purpose and categories of ARRA "Meaningful Use" criteria
- Identify 12 possible steps to choosing an EHR system
- Gather functional requirements from institution and users
- Document use-cases and relate them to functional requirements
- Identify the 8 basic components to a project plan
- Define the role of a project manager
- Equate the basic project plan components to a typical EHR implementation plan

- Create a project plan for system design and implementation
- Define the steps of the Software Development Life Cycle (SDLC) and the purpose and importance of each.
- Describe different models of the SDLC and their key differences.
- Describe how and why an HIT software application would go through the SDLC
- Identify regulatory requirements for EHRS and integrate into the project plan
- Identify best practices for OS and network system security installation and patches (such as those provided by vendors, SANs, and ISC2) and integrate into project plan
- Identify and assess protection measures including access control, firewalls, intrusion detection and encryption
- Provide training for system users regarding the methods and importance of security compliance
- Determine and document system interfaces and integration requirements
- Describe the pitfalls associated with installing a new application in an environment of pre-existing applications
- Give examples of interfacing modalities
- Identify and implement an effective troubleshooting procedure for reporting, evaluating, fixing, deploying, and follow-up of errors, problems, or limitations for the system
- Integrate downtime schedule for OS, network, database, and client application maintenance and updates
- Develop a process for communicating requirements and supplying updates between vendors/developer and users
- Create a baseline for system performance measurement and comparison for troubleshooting
- Create redundancy and fault-tolerance in systems for access and data storage, providing high performance and reliability
- Backup and restore databases, applications, and operating systems
- Develop a plan for decommissioning systems and data
- Gather user feedback and performance baseline for system validation and testing
- Document problems with their resolution status
- Create, execute, and document a test plan
- Identify pilot group and plan scope of pilot
- Install pilot system, train pilot users, and make pilot available

Course Requirements:

In this online class, you have flexibility in when you work on class assignments as long as you complete the assignments by the due date. You may log in to the class as often as you need to during the week's period for the assignments. Expect to spend 5-8 hours per week on course assignments.

Assignments include lectures via PowerPoint presentations, reading/discussion assignments and the unit quizzes. There is also a section in each unit for additional resources. These resources are not for required reading, but are additional information for your reference.

The class Web site will have announcements with instructions and information needed to stay informed about class assignments and events. Individual communication with the instructor may be by e-mail. It is the student's responsibility to contact the instructor with problems and issues regarding the course Web site, inability to meet deadlines, absence from the class, etc. Complete assignments by the due dates. Late assignments are accepted at the discretion of the instructor.

Course Grading:

A cumulative points system is used. Possible points for quizzes will vary and tracking of your total points for each quiz will be available in Blackboard Tools under My Grades. Students are responsible for checking scores on a periodic basis to be familiar with their grade status. Class participation is an essential element to your success in this course. Participation in an online course means you stay on schedule, turn assignments in on time, post discussions board responses timely, and share comments to your classmates' discussion postings. Class assignments will be evaluated for accuracy, content, form, knowledge of subject matter, application of knowledge and ability to communicate effectively. Discussion thread posts should reflect thoughtful analysis and interpretation of the assigned reading and the posts of other students. You are expected to respond to discussion board questions with at least one posting of your original thoughts and ideas. It is expected that there will be differences of opinions on certain discussion board topics. Please be respectful of the different opinions you read and respond to. As the discussion is monitored, inappropriate postings will be deleted and no points will be given to the offender.

Grading Scale: Total points accumulated during the semester will be calculated into a percent and graded on a pass or no pass scale: 70% and higher = Pass Score

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IMPORTANT DATES: This course is in Session 4. This 8-week session runs from 8/24/2015 to 10/16/2015, there will be a one week break in between each session.

Session: Comp#	Name	Reg/Elective	Dates
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1	#2	Culture of Health Care (w/Coding Intro)	Required	Feb 17-Apr 10
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3	#10	Health Workflow Process Analysis/Design	Required	Jun 22-Aug 14
3	#20	Training and Instructional Design	Required	Juu 22-Aug 14
3	#15	Usability and Human Factors	Elective	Jun 22-Aug 14
4	#12	Quality Improvement	Required	Aug 24-Oct 16
4	#8	InstalJation and Maintenance of Health IT Sys.	Elective	Aug 24-Oct 16

Schedule of Assignments for Health Workflow Process and Analysis:

Health Information Technology Exam Guide - READ Chapter 29, 32-33, & 36-37

DATE	UNITS	TOPICS
Week 1	Unit 8-1 - Elements of a Typical EHR System, Part 1 and 2	<ul style="list-style-type: none"> Unit 1.- Overview of what a typical electronic health record system is and focuses on the elements that make up such a system ^o. hardware, networks, software, and storage requirements.
<p>Activity: Quiz</p> <p>Discussion Board Assignments:</p> <p>Unit 8-1-Discussion Forum: YouTube Video review and discussion questions</p>		

<p>Week2</p>	<p>Unit 8-2 - System Selection - Software and Certification Unit 8-3 - System Selection - Functional and Technical Requirements</p>	<ul style="list-style-type: none"> • Unit 2 - Discuss the differences in COTS (Commercial Off-The-Shelf) and in-house/homegrown systems; how to select the system to meet the needs of the end users; advantages of purchasing a CCHIT-certified system and discuss ARRA and "meaningful use" in the context of EHR systems; estimating the typical costs associated with EHR system startup. • Unit 3 Review the 12 different steps associated with system selection focusing on defining user functional requirements of systems and technical requirements (by the system), including how to determine, document, prioritize, and act on those requirements through the use of case studies and other means.
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Activity: Quiz(2)
Discussion Board Assignments:
Unit 8-2 - Discussion Forum: Article review and discussion questions
Unit 8-3 - Discussion Forum - Identify 3 separate EHR systems

<p>Week3</p>	<p>Unit 8-4 - Structured Systems Analysis and Design. Unit 8-5 - Software Development Life Cycle</p>	<ul style="list-style-type: none"> • Unit 4 - Describe the basics of developing a project plan and the role of a project manager. • Unit 5 - Learn the SDLC model and explore its application to well-known software and its utility for healthcare IT systems.
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Activity: Quiz(2)
Discussion Board Assignments:
Unit 8-4- Discussion Forum - Case Study review and discussion questions
Unit 8-5 - Discussion Forum - Design an outline for an EHR Implementation

FIRST DUE DATE 9/14/15: Weeks 3 assignments must be completed by the end of week 3 this is to ensure that all students stay on track.. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.

Week 4	Unit 8-6 - System Security Procedures and Standards, Part 1 and 2	<ul style="list-style-type: none"> Unit 6 - Learn Federal, State, and local health information regulations for EHRs, computer and network system vulnerabilities and best practices for identification and mitigation of those vulnerabilities, information access and protection measures, and user security training.
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Activity: Quiz
 Discussion Board Assignments:
 Unit 8-6 Discussion Forum - YouTube video review and discussion questions

Week 5	Unit 8-7- System Interfaces and Integration	<ul style="list-style-type: none"> Unit 7 - Explore the issues and challenges involved in interfacing and integrating systems including understanding system requirements and the messaging and other techniques used between various systems.
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Activity: Quiz
 Discussion Board Assignments:
 Unit 8-7 - Discussion Forum - YouTube video review and discussion questions

Week 6	Unit 8-8 Troubleshooting, Maintenance and Upgrades, and Interaction with Vendors, Developers, & Users, Part 1 and 2	<ul style="list-style-type: none"> Unit 8 - Learn aspects of setting up a robust support structure for troubleshooting and maintaining the system, including developing troubleshooting and escalation procedures, measuring system performance, and communication with vendors (or local developers).
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Activity: Quiz
 Discussion Board Assignments:
 Unit 8-8 - Discussion Forum - Create an action plan for an OS upgrade

SECOND DUE DATE 10/5/15: Weeks 4-6 assignments must be completed by the end of week 6 this is to ensure that all students stay on track. A progress report will be generated and communicated back to the Health IT Academy Program Coordinator.

Week 7	Unit 8-9 - Creating Fault Tolerant Systems, Backups, and Decommissioning, Part 1 and 2	<ul style="list-style-type: none"> Unit 9 - Learn about redundancy and fault-tolerance in systems to provide high performance and reliability. Develop a plan for decommissioning systems and data.
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Activity: Quiz
 Discussion Board Assignments:
 Unit 8-9 - Discussion Forum - Implementing a practice fault tolerant system with back up strategy

Week 8	Unit 8-10 Developing a Test Strategy and a Test Plan Unit 8-11 Pilot Testing and Full-Scale Deployment	<ul style="list-style-type: none"> Unit 10--- Describe aspects of testing the system, including the use of performance baselines and the role of test plans. Unit 11 - Learn aspects of deploying the system to end users, including communication, technical support, user feedback, and system resource evaluation including initial pilot testing to obtain feedback before full deployment, including planning, identifying the user group, setting up the system, and gathering feedback
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Activity: Quiz(2)
 Discussion Board Assignments:
 Unit 8-10 - Discussion Forum - Developing a test strategy
 Unit 8-11 - Discussion Forum - Developing a roll out strategy

FINAL DUE DATE 10/16/15: Weeks 7-8 assignments must be completed by the end of week 8. A final progress report will be generated and communicated back to the Health IT Academy Program Coordinator.

Colorado

Valley Citizens' Foundation for Healthcare
Pueblo Community College

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [HIT Certificate Curriculum](#)

Rural Health Information Technology Workforce Program
Health IT Curriculum Deliverable
Pueblo Community College HIT Certificate Curriculum

Option A: Medical Coding Emphasis (Graduates of Medical Coding Program Only)			42-47
	BIO 106	**Basic Anatomy and Physiology	4
	HIT 102	**Medical Vocabulary	3
	CIS 118	**Introduction to PC Applications	3
	HIT 111	Health Data Management and Information Systems	3
	HIT 220	ICD Coding	3
	HIT 241	CPT Coding Basic Principles	3
	HIT 150	**Healthcare Delivery Systems	3
	HPR 232	Disease Process and Treatment	5
	HIT 261	**Healthcare Software	3
	HIT 252	Coding Applications	3
	HIT 105	Principles of Healthcare Reimbursement	3
	HIT 188	Practicum Coding	2
	HIT 268	Certificate Test Preparation	1
	BTE 287	**Coop/Internship	3
	Elective	Electives to be approved by Dept. Chair before enrolling in courses	3-5
Option B: HIT Management & Support			41.5
	HIT 102	**Medical Vocabulary	3
	CIS 115	Intro to Information Systems	3
	CIS 118	**Introduction to PC Applications	3
	HIT 122	Work Flow Fundamentals of Healthcare	3
	HIT 121	Networking and Health Info	2.5
	CSC 119	Introduction to Programming	3
	HIT 120	Working with Health IT System	4
	HIT 123	Configuring EHRs	3
	HIT 261	**Healthcare Software	3
	MAN 241	Project Management in Organizations	3
	HIT 111	Health Data Management and Information Systems	3
	HIT 222	**Quality Management	3
	HIT 112	**Legal Aspects Health Records	2
	BTE 287	**Coop/Internship	3

Option C: HIT Network Security/Technical Support			46.5
	HIT 102	**Medical Vocabulary	3
	CIS 118	**Introduction to PC Applications	3
	HIT 122	Work Flow Fundamentals of Healthcare	3
	CNG 124	Networking 1: Network + (** Take with CNG 121) Eligible: CompTIA Network+ Certificate)	3
	CSC 119	Introduction to Programming (+ include curriculum from HIT 122 Focus: Data Logic)	3
	CNG 132	Network Security Fundamentals Eligible: CompTIA Sec+ Certificate	3
	CNG 133	Firewalls/Network Security	3
	CNG 224	Microsoft Windows Wireless Network Eligible: CWNA	3
	HIT 121	Networking & Health Information Exchange	2.5
	HIT 261	**Healthcare Software	3
	CNG 121	Computer Technician I: A+	4
	CNG 122	Computer Technician II: A+	4
	CNG 136	Guide to IT Disaster Recovery	3
	CNG 254	Data Encryption	3
	BTE 287	**Coop/Internship	3

**Health Information Technology
Medical Coding Certificate (AHIMA Accredited) Course Descriptions**

BIO 106 Basic Anatomy and Physiology 4CR HRS

Focuses on basic knowledge of body structures and function, and provides a foundation for understanding deviations from normal and disease conditions. This course is designed for individuals interested in health care and is directly applicable to the Practical Nursing Program, Paramedic Program and the Medical Office Technology program.

HIT 102 Medical Terminology 3CR HRS
(Starting Summer 2014 the course name and number will change to HIT 102 Medical Vocabulary)

Introduces the student, to medical terminology through the study of word structures, such as common medical prefixes & suffixes, and the origins of terminology currently used in medical practice. Also includes basic anatomy and physiology, appropriate medical terminology, and procedures and diagnostic testing for each body system. Exercises in reading, writing and speaking new vocabularies are required. This course also includes an introduction to the medical record. Students read and analyze patient records. In turn, students are assigned writing exercise creating medical records using learned vocabulary.

CIS 118 Introduction to PC Applications 3CR HRS

Introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.

HIT 111 Health Data Management and Information Systems 3CR HRS

This course covers maintenance, compilation, analysis, and presentation of healthcare statistics. Discussion is focused on the use, collection, presentation, and verification of health care data including fundamental concepts of descriptive statistics; data validity and reliability; data presentation techniques; and vital statistics. Students will be introduced to topics such as basic statistical principles; morbidity and mortality, commonly computed hospital rates, uniform reporting requirements, and selection and construction of data displays. This course also introduces principles of quality improvement, utilization management, and risk management in health care. Topics include the continuous quality improvement philosophy, including tools, data analysis/application, and related committee functions; utilization management and risk management; and credentialing, accreditation and regulation.

HIT 220 ICD Coding 1 3CR HRS

An introduction to the basic coding guidelines using Volumes 1, 2, and 3 of the ICD-9-CM coding classification system. Students will practice the application of diagnosis and procedure codes validating coding accuracy using clinical information found in the health record. Ethical coding standards will be applied and promoted while adhering to current regulations and established guidelines in code assignment.

HIT 241 CPT Coding Basic Principals 3CR HRS

Provides an introduction to the basic coding guidelines of the Current Procedural Terminology (CPT) nomenclature. Students will practice the application of CPT/HCPCS codes validating coding accuracy using clinical information found in the health record. Ethical coding standards will be applied and promoted while adhering to current regulations and established guidelines such as the National Correct Coding Initiative. Encoding systems and software with practice applications are included. This course is designed according to the standards of the American Hospital Management Association to prepare students for national certification exams.

HIT 150 Healthcare Delivery Systems 3CR HRS

This course provides an overview of the health care delivery system at the national, state and local level including the organizations that provide health care, applicable regulations and standards, reimbursement methods used professionals that provide the services, as well as resources. Current trends in health care delivery are presented including health facilities, medical staff organization and functions, the changing roles of health care professionals, and patterns of financing health care.

HPR 232 Disease Process and Treatment 5CR HRS

Covers disease etiology and organ system involvement, including physical signs and symptoms, prognoses, and common complications and their management. The disease process, basic concepts and terminology are presented. This course also includes an examination of the most common diseases of each body system, with normal anatomy and physiology compared to pathologic anatomy and physiologic malfunctioning due to disease process. Diagnostic methods, management, treatment modalities and prognosis are discussed. The course also provides an investigation into the study pharmacology and pharmacotherapeutics, including terminology, drug category, use, side effects, contraindications, and interactions. Common dosage ranges and routes of administration will also be examined. A general understanding of the actions; absorption, metabolism and excretion; and reasons for use of various groups of pharmacologic agents are introduced. Medications are discussed according to major drug classifications, body systems and disease process.

HIT 261 Healthcare Software 3CR HRS

This course covers basic computer system architecture, file structure, and design for health care settings. Topics include system analysis, design, security, and selection for a variety of hardware environments. This course provides students with a review of computer fundamentals and the fundamentals of the electronic health record and an introduction to the information systems life cycle with software application. Security and confidentiality issues, concerns and implications in relation to the electronic health record will be addressed.

HIT 252 Coding Applications 3CR HRS

This advanced course will cover medical necessity, coding issues for specific body systems, and for general conditions using ICD-9-CM and CPT coding principles. Students should already possess a fundamental understanding of the CPT, ICD-CM, and HCPCS coding principles at the start of this course. Intensive coding application will be achieved through the use of real medical records, case studies, and scenarios. DRGs, APC's, RUGs, RBRVs, and the Correct Coding

Initiative (CCI) will also be covered in this class. This coding class requires hands-on coding skills, knowledge of basic use of applicable codebooks are essential.

HIT 105 Principles of Healthcare Reimbursement 3CR HRS

This course provides students the opportunity to learn the history, rationale, and methodology of the systems used by third party payers to determine the reimbursement that health care providers will receive. Reimbursement concepts include fee-for-service, managed care, capitation systems, Diagnosis-Related Groups (DRGs), Resource Based Relative Value Scale (RBRVS), Ambulatory Payment Classifications (APCs), and related concepts. The use of the charge description master (chargemaster) in reimbursement will be discussed. The importance of compliance with regulations and the related issues of fraud and abuse will also be addressed.

HIT 268 Test Preparation 1CR HR

This course is designed for students who have made the decision to earn the Certified Coding Associate (CCA) credential. This credential is an entry-level certification in coding. Individuals earning the CCA credential demonstrate professional competency and express a high level of commitment to the health information management field. Certification is a process by which a non-governmental organization or association recognizes the competence of an individual who has met certain qualifications as determined by that organization or association. To achieve certification from the American Health Information Management Association (AHIMA), individuals must meet certain eligibility requirements and pass the certification examination.

HIT 188 Health Information Practicum I 2CR HRS

Provides a directed clinical experience in a health information department in a health care facility or in a controlled environment. This experience focuses on the practice of skills related to medical coding and billing, the application of legal principles, record analysis and abstraction and record retention and retrieval.

Focuses on the ability of the student to apply classroom knowledge of medical billing and coding in a clinical setting, practice professionalism, gain insight into the functions of the department and understand the relationship of health records to the facility as a whole. Emphasis is on the ability to act independently, complete assigned projects and demonstrate a good understanding of health information management concepts.

BTE 287 Cooperative Education/Internship 1-3CR HRS

Provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved work sites that are related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

HIT Management and Support Course Descriptions

HIT 102 Medical Vocabulary 3 CR HRS

Introduces medical vocabulary through the study of word structures and phrases with reinforcement in writing narratives and the study of medical records. Anatomy and physiology of all body systems are reviewed with discussion of related diseases, diagnostic procedures, treatments and drugs. Emphasis on learning to read, pronounce and interpret medical documentation prepares the student for document review in HIT fields. Illustrates the importance of HIPAA, in both physical and electronic dissemination of medical records.

CIS 115 Intro to Information System 3 CR HRS

Focuses on an overview of the needs for and roles of computer information systems. Emphasizes computer requirements in organizations, history, hardware functions, programming, systems development, and computer operations. Introduces computer applications.

CSI 118 Introduction to PC Applications 3 CR HRS

Introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.

HIT 261 Healthcare Software 3 CR HRS

This course covers basic computer system architecture, file structure, and design for health care settings. Topics include system analysis, design, security, and selection for a variety of hardware environments. This course provides students with a review of computer fundamentals and the fundamentals of the electronic health record and an introduction to the information systems life cycle with software application. Security and confidentiality issues, concerns and implications in relation to the electronic health record will be addressed.

HIT 111 Health Data Management and Information Systems 3 CR HRS

Introduces the practice of maintenance, compilation, analysis, and presentation of healthcare statistical data. Discussion is focused on the use, collection, presentation, and verification of health care data including fundamental concepts of descriptive statistics; data validity and reliability; data presentation techniques; and vital statistics. Introduces the electronic health record (EHR), health informatics and the infrastructure required for the EHR. Data reliability and validity will be emphasized.

HIT 112 Legal Aspects Health Records 2 CR HRS

Introduces the student to the legal system and identified the role of the HIM professional in this system. Specific Federal and State laws are identified and discussed as they relate to release of medical information. Proposed Federal and State legislation that affects the health care industry is examined and discussed.

BTE 287 Coop/Internship

3CR HRS

Provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved work sites that are related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

HIT 122 Work Flow Fundamentals of Healthcare 3 CR HRS

This course covers the fundamentals of health workflow, process analysis, and redesign. Also includes medical practice automation, dealing with the topics of process validation, quality management, and change management.

HIT 121 Networking and Health Info. 2.5 CR HRS

In-depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them), the ISO stack, standards, Internet protocols, federations and grids. The Nationwide Health Information Network and other nationwide approaches to distribution of Electronic Health Records by Health Information Exchanges will also be explored. Also covered are the functional models and certification of the Electronic Health Record and Data Standards for these Records.

CSC 119 Introduction to Programming 3 CR HRS

Focuses on a general introduction to computer programming. Emphasizes the design and implementation of structured and logically correct programs with good documentation. Focuses on basic programming concepts, including numbering systems, control structures, modularization, and data processing. A structured programming language is used to implement the student's program designs.

HIT 120 Working with Health IT System 4 CR HRS

Provides hands-on experience with a computerized HIT system/electronic health record, utilizing contemporary on-line systems with simulated data. The course will include additional lecture, project work, and practice in the use of HIT systems. Students will play the role of practitioners using these systems and experience threats to security and gain an appreciation of the need for standards and high levels of usability. Students will also learn how errors can occur and ways to minimize them.

HIT 123 Configuring EHRs 3CR HRS

Provides a practical experience addressing approaches to assessing, selecting, and configuring EHRs to meet the specific needs of customers and end-users. The course provides additional opportunities for hands on experience, on a computer, or in a classroom simulated environment, in configuring an EHR system that will provide features required to meet meaningful use.

HIT 222 Quality Management 3 CR HRS

Introduces the student to the basic concepts of quality management in the health care environment. Requirements by regulatory agencies regarding quality, utilization and risk management are discussed. Data collection, verification, analysis and presentation techniques

will be studied. The course emphasizes the ongoing use of objective data and feedback to improve processes, systems and patient outcomes.

MAN 241 Project Management in Organizations 3 CR HRS

Introduces students to the planning, implementation, and control activities of project management, including project and performance evaluation, quality control and work flow analysis. Emphasis will be on the initiating, planning, executing, controlling and closing activities of project management.

CNG 224 Microsoft Windows Wireless Network 3CR HRS

Provides the student with the Microsoft official curriculum from the Microsoft Regional Academy. Offers detailed instruction on the foundation concepts and technologies of wireless data networking. Upon completion of this course, students are prepared to take the Certified Wireless Network Administrator (CWNP) Certification Exam.

CNG 121 Computer Technician I 4 CR HRS

Provides students with an in-depth look at personal computer hardware, introduces O.S. features and security concepts, and covers interpersonal skills, all of which are necessary for a successful entry-level computer service technician position. Provides extensive hands-on work with computer systems, PC setup and configuration, and basic maintenance and troubleshooting. This course helps prepare you for the CompTIA A+ Essentials Exam.

CNG 122 Computer Technician II 4 CR HRS

Provides students with an in-depth look at Operating System support, maintenance, and troubleshooting, and an overview of hardware, security concepts, and interpersonal skills, all of which are necessary for a successful entry-level computer service technician position. Provides extensive hands-on work with Windows 2000 and/or XP, including using common GUI and command line tools, registry editing, System backup and Recovery, Networking, and O.S. Troubleshooting. This course helps prepare you for the CompTIA A+ 602 Exam.

CNG 136 Guide to IT Disaster Recovery 3 CR HRS

Presents methods to identify vulnerabilities and take appropriate countermeasures to prevent and mitigate failure risks for an organization. It will take an enterprise-wide approach to developing a disaster recovery plan.

BTE 287 Coop/Internship 3CR HRS

Provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved work sites that are related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

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CSC 119 Introduction to Programming

3CR HRS

Focuses on a general introduction to computer programming. Emphasizes the design and implementation of structured and logically correct programs with good documentation. Focuses on basic programming concepts, including numbering systems, control structures, modularization, and data processing. A structured programming language is used to implement the student's program designs.

CNG 254 Data Encryption

3CR HRS

Exposes the student to data encryption models. Examines the differences between data storage including Microsoft, Novell Netware and UNIX. Includes encryption and data transmission. Covers encryption over various networks including the Internet.

HIT Program Certificates **Certificates and Certification Exams**

Medical Coding Certificate (AHIMA Accredited)

Candidate Guide Handbook:

http://www.ahima.org/~media/AHIMA/Files/Certification/Candidate_Guide.ashx

Certified Coding Associate (CCA®)

<http://www.ahima.org/certification/CCA>

Based upon job analysis standards and state-of-the-art test construction, the CCA designation has been a nationally accepted standard of achievement in the health information management (HIM) field since 2002. More than 8,000 people have attained the certification since inception. The CCA, the CCS and the CCS-P are the only coding credentials worldwide currently [accredited by the National Commission for Certifying Agencies \(NCCA\)](#).

HIT Management and Support

AHIMA Certification CHTS

<http://www.ahima.org/certification/chts>

CHTS CANDIDATE HANDBOOK:

<http://www.ahima.org/~media/AHIMA/Files/Certification/CHTS%20Candidate%20Guide.ashx>

Certified Healthcare Technology Specialist (CHTS) Exams

As the nation moves toward industry-wide adoption of electronic health records (EHRs), the Bureau of Labor Statistics expects a shortage of about 50,000 qualified health IT workers to meet the needs of hospitals and healthcare affiliates. The Certified Healthcare Technology Specialist (CHTS) competency exams allow professionals and employers to capitalize on new technologies, procedures and careers.

Exams



Implementation Manager Examination (CHTS-IM)

Implementation Manager Examination demonstrates a candidate's ability to provide on-site management of mobile adoption support teams throughout the implementation process of health IT

systems. Prior to training, workers will have experience in health, IT environments, administrative or managerial positions.



Implementation Support Specialist Examination (CHTS-IS)

Implementation Support Specialist Examination tests a candidate's ability to provide on-site user support throughout the health IT system implementation process. Previous background in this role includes information technology or information management.

HIT Network Security Certificate

AHIMA Certification

Certified Healthcare Technology Specialist (CHTS) Exams



Technical/Software Support Staff Examination (CHTS-TS)

<http://www.ahima.org/certification/CCA>

CHTS CANDIDATE HANDBOOK:

<http://www.ahima.org/~media/AHIMA/Files/Certification/CHTS%20Candidate%20Guide.ashx>

Technical/Software Support Staff Examination assesses a candidate's ability to maintain systems in clinical and public health settings, including patching and upgrading software. Candidate backgrounds include information technology or information management.

CompTIA A+

<http://certification.comptia.org/getCertified/certifications/a.aspx>

800 series



The CompTIA A+ certification is the starting point for a career in IT. The exams cover maintenance of PCs, mobile devices, laptops, operating systems and printers.

Certification Information

In order to receive the CompTIA A+ certification, you must pass two exams.

CompTIA A+ 220-801 covers the fundamentals of computer technology, installation and configuration of PCs, laptops and related hardware, and basic networking.

CompTIA A+ 220-802 covers the skills required to install and configure PC operating systems, as well as configuring common features (e.g. network connectivity and email) for mobile operating systems Android and Apple iOS.

CWNA[®]

Certified Wireless Network Administrator

<http://www.cwnp.com/certifications/cwna>

The CWNA certification is the foundation level enterprise Wi-Fi certification for the CWNP Program, and CWNA is required for your CWSP, CWAP, CWDP and CWNE certifications. Your CWNA certification will get you started in your wireless career by ensuring you have the skills to successfully survey, install, and administer enterprise Wi-Fi networks.

Florida

North Florida Community College

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Curriculum Outline](#)

HEALTH INFORMATION TECHNOLOGY (HIT) PROGRAM

**North Florida Community College
325 NW Turner Davis Drive, Building 13
Madison, Florida 32340
Phone: (850) 973-9478
FAX: (850) 973-1694**



Curriculum Outline

**North Florida Community College
Rural Health IT Workforce Training Program
Grant Period: 09/15/2013 – 08/31/2016
Grant#: R01RH26268**



Organization: North Florida Community College/North Florida Rural Health Network
Couse: Health Information Technology
Certification: AHIMA CHTS-PW

Course Description

As the nation moves toward a more technologically advanced health care system, providers are going to need highly skilled health IT experts to support them in the adoption and meaningful use of electronic health records. Completion of this program will require six months of intense training, achieved through lecture, laboratory exercises, and apprenticeships. This program will also prepare students for certification as Certified Healthcare Technology Specialist (CHTS). Upon completion of the program, students will be eligible to sit for the CHTS-PW exam. Earning this credential will confirm the student's skills are ready to meet the nation's need for health information technology workers.

Practice workflow and information management redesign specialists assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. Individuals in this role may have backgrounds in health care (for example, as a practice administrator) or in information technology, but are not licensed clinical professionals.

Workers in this role will:

- Conduct user requirements analysis to facilitate workflow design.
- Integrate information technology functions into workflow.
- Document health information exchange needs.
- Design processes and information flows that accommodate quality improvement and reporting.
- Work with provider personnel to implement revised workflows.
- Evaluate process workflows to validate or improve practice's system

Material used in this course was obtained from the curriculum set forth by the Office of the National Coordinator (ONC). Where applicable, the instructor has modified the course material to meet student needs. Program material has been divided into four Modules, each of which is comprised of more than one ONC Component.



Module 1

ONC Component 2: The Culture of Healthcare

Description

For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.

Component Objectives

1. Describe the major types of clinical personnel involved in healthcare, including their education and training, certification and licensure, and typical roles in healthcare.
2. Describe the major types of settings in which healthcare occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.
3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.
4. Give examples and explain the differences between common forms of care delivery including episodic one-on-one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long-term care, and end of life care.
5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.
6. Understand the basic principles of evidence-based practice, including the application of the best evidence in clinical decision-making.
7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.
8. Discuss the role of medical ethics and professional values in care delivery including such issues as ethical conflicts, and health disparities.
9. Understand the concepts underlying the application of privacy, confidentiality, and security to health care practice and information technology, being able to help individuals and organizations adhere to the HIPAA Privacy and Security Rules.

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides.

Component Timeline

2 weeks



ONC Component 2: The Culture of Healthcare, Units 1-10

Unit 1: Introduction to the Culture of Healthcare

Unit 1 Objectives:

- Distinguish between disease and illness.
- Discuss the relationship between health and the healthcare system
- Define 'culture' in the classic sense, as well as in the modern sense of the term, and what it means for culture to be partial, plural, and relative. Explain the concept of 'cultural competence
- Explain the concepts and distinguish between 'culture', 'cultural safety', and 'safety culture', as applied to organizations Be aware of the multiple cultures that interact in healthcare delivery
- Define 'acculturation' and how it relates to working in healthcare settings Be able to give examples of health informatics applications of the study of culture

Unit 2: Health Professionals – The People in Healthcare

Unit 2 Objectives:

- Define terms used in healthcare including clinician, patient, disease, and syndrome and in health professionals' education and training.
- Describe the education, training, certification, licensure and roles of physicians including those in primary care and other specialties.
- Describe the education, training, certification, licensure and roles of nurses, advanced practice nurses, LPNs, MAs and Medication Aids.
- Describe the education, training, certification, licensure and roles of physician assistants, pharmacists, therapists, allied health professionals.
- Describe the education, training, certification, licensure and roles of paramedics, EMTs, dental professionals, mental health professionals, and social workers.

Unit 3: Healthcare Settings – The Places Where Care Is Delivered

Unit 3 Objectives:

- Differentiate the range of care delivery organizations, including primary care, specialty care, tertiary care, inpatient and outpatient facilities, long-term care hospitals, and long-term care facilities
- Analyze the organization of healthcare delivery from the perspective of a “continuum of care,” such as ambulatory services, in-patient care, long-term care, and end-of-life care
- Evaluate the similarities and differences of community hospitals, teaching hospitals, and community health clinics



ONC Component 2: The Culture of Healthcare, Units 1-10 (cont.)

Unit 4: Healthcare Process and Decision Making

Unit 4 Objectives:

- Describe the elements of the 'classic paradigm' of the clinical process.
- List the types of information used by clinicians when they care for patients.
- Describe the steps required to manage information during the patient-clinician interaction.
- List the different information structures or formats used to organize clinical information.
- Explain what is meant by the 'hypothetic-deductive' reasoning process.
- Explain the difference between observations, findings, syndromes, and diseases.
- Describe techniques or approaches used by clinicians to reach a diagnosis.
- List the major types of factors that clinicians consider when devising a management plan for a patient's condition, in addition to the diagnosis and recommended treatment.

Unit 5: Evidence-Based Practice

Unit 5 Objectives:

- Define the key tenets of evidence-based medicine (EBM) and its role in the culture of health care
- Construct answerable clinical questions and critically appraise evidence answering them
- Apply EBM for intervention studies, including the phrasing of answerable questions, finding evidence to answer them, and applying them to given clinical situations
- Understand EBM applied to the other key clinical questions of diagnosis, harm, and prognosis
- Discuss the benefits and limitations to summarizing evidence
- Describe how to implement EBM in clinical settings through clinical practice guidelines and decision analysis

Unit 6: Nursing Care Process

Unit 6 Objectives:

- Learn what nurses do and how they are trained
- Learn how nurses make clinical decisions and assess patients
- Learn about the settings where nurses work
- Learn about the procedures that nurses perform



ONC Component 2: The Culture of Healthcare, Units 1-10 (cont.)

Unit 7: Quality Measurement and Improvement

Unit 7 Objectives:

- Define healthcare quality and the major types of quality measures: structural, process, and outcome measures
- Describe the current state of healthcare quality in the United States
- Discuss the current healthcare quality measures used in various healthcare settings in the US, including those required for the HITECH meaningful use program
- Describe the role of information technology in measuring and improving healthcare quality
- Describe the results of current healthcare quality efforts in the US

Unit 8: Ethics and Professionalism

Unit 8 Objectives:

- Provide an orientation to ideas about medical ethics and professionalism
- Explore the relationships among ethical ideals, professionalism, and legal duties
- Apply the general principles of ethics and professionalism to specific topics
- Examine ethical issues in health informatics

Unit 9: Privacy, Confidentiality and Security

Unit 9 Objectives:

- Define and discern the differences between privacy, confidentiality, and security
- Discuss the major methods for protecting privacy and confidentiality, including through the use of information technology
- Describe and apply privacy, confidentiality, and security under the tenets of HIPAA Privacy Rule
- Describe and apply privacy, confidentiality, and security under the tenets of the HIPAA Security Rule



ONC Component 2: The Culture of Healthcare, Units 1-10 (cont.)

Unit 10: Sociotechnical Aspects: Clinicians and Technology

Unit 10 Objectives:

- Describe the concepts of medical error and patient safety
- Discuss error as an individual and as a system problem
- Compare and contrast the interaction and interdependence of social and technical “resistance to change”
- Discuss the challenges inherent with adapting work processes to new technology
- Discuss the downside of adapting technology to work practices and why this is not desirable
- Discuss the impact of changing sociotechnical processes on quality, efficiency, and safety



Module 1 (cont.)

ONC Component 3: Terminology in Healthcare and Public Health Settings

Description

This component explains specific terminology used by workers in healthcare and public health. This is NOT a course in data representation or standards.

Component Objectives

1. Define, understand and correctly pronounce medical terms related to each of the major body systems.
2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.
4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides.

Component Timeline

2 weeks



ONC Component 3: Terminology in Healthcare and Public Health Settings, Units 1-16

Unit 1: Understanding Medical Words

Unit 1 Objectives:

- Discuss the four parts of medical terms
- Recognize word roots and combining forms
- Identify the most common prefixes and suffixes
- Describe the anatomical positions
- Define the body planes
- Identify regions of the body
- Define directional and positional terms
- Build, divide, spell and pronounce common medical words

Unit 2: Integumentary System

Unit 2 Objectives:

- Define, understand and correctly pronounce medical terms related to the integumentary system
- Describe common diseases and conditions with an overview of various treatments related to the integumentary system

Unit 3: Musculoskeletal System

Unit 3 Objectives:

- Define, understand and correctly pronounce medical terms related to the musculoskeletal system
- Describe common diseases and conditions with an overview of various treatments related to the musculoskeletal system

Unit 4: Blood, Lymphatic and Immune System

Unit 4 Objectives:

- Define, understand and correctly pronounce medical terms related to the blood, lymphatic and immune system
- Describe common diseases and conditions with an overview of various treatments related to the blood, lymphatic and immune system



ONC Component 3: Terminology in Healthcare and Public Health Settings, Units 1-16 (cont.)

Unit 5: Cardiovascular System

Unit 5 Objectives:

- Define, understand and correctly pronounce medical terms related to the cardiovascular system
- Describe common diseases and conditions with an overview of various treatments related to the cardiovascular system

Unit 6: Digestive System

Unit 6 Objectives:

- Define, understand and correctly pronounce medical terms related to the digestive system
- Describe common diseases and conditions with an overview of various treatments related to the digestive system

Unit 7: Endocrine System

Unit 7 Objectives:

- Define, understand and correctly pronounce medical terms related to the endocrine system
- Describe common diseases and conditions with an overview of various treatments related to the endocrine system

Unit 8: Ears, Nose, Throat, Eyes, and Vision

Unit 8 Objectives:

- Define, understand and correctly pronounce medical terms related to the ears, nose, throat, eyes, and vision.
- Describe common diseases and conditions with an overview of various treatments related to the ears, nose, throat, eyes, and vision.

Unit 9: Nervous System

Unit 9 Objectives:

- Define, understand and correctly pronounce medical terms related to the nervous system
- Describe common diseases and conditions with an overview of various treatments related to the nervous system



ONC Component 3: Terminology in Healthcare and Public Health Settings, Units 1-16 (cont.)

Unit 10: Reproductive System

Unit 10 Objectives:

- Define, understand and correctly pronounce medical terms related to the reproductive system
- Describe common diseases and conditions with an overview of various treatments related to the reproductive system

Unit 11: Respiratory System

Unit 11 Objectives:

- Define, understand and correctly pronounce medical terms related to the respiratory system
- Describe common diseases and conditions with an overview of various treatments related to the respiratory system

Unit 12: Urinary System

Unit 12 Objectives:

- Define, understand and correctly pronounce medical terms related to the urinary system
- Describe common diseases and conditions with an overview of various treatments related to the urinary system

Unit 13: Public Health and Healthcare System Terminology

Unit 13 Objectives:

- Define frequently used public health terms
- Identify distinguishing features of public health
- Identify categories and factors that influence health
- Identify terms commonly used as measures of health status

Unit 14: What is Health Information Management and Technology?

Unit 14 Objectives:

- Define and explain terms and concepts
- Understand terms that frame HIM and HIT practice
- Describe health IT hardware and software
- Define acronyms and abbreviations



ONC Component 3: Terminology in Healthcare and Public Health Settings, Units 1-16 (cont.)

Unit 15: Electronic Health Records

Unit 15 Objectives:

- Identify the functions of the health record
- Describe the American Recovery and Reinvestment Act of 2009 (ARRA) including the portion of the bill called the Health Information Technology for Economic and Clinical Health Act (HITECH) of 2009
- Define meaningful use

Unit 16: Standards to Promote Health Information Exchange

Unit 16 Objectives:

- Define terms related to standardized terminologies
- Identify and define HIPAA standard code sets
- Identify and define terminologies and vocabularies that represent nursing care
- Define and give examples of data interchange standards



Module 1 (cont.)

ONC Component 4: Introduction to Information and Computer Science

Description

This Component provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.

Component Objectives

1. Learn correct terminology for computing and technology including for hardware, software, networks, Internet and databases
2. Identify commonly used hardware components.
3. Identify commonly used software applications and operating systems.
4. Explain the function and use of programming languages and identify commonly used languages.
5. Define what a database is, explain what querying languages are and identify commonly used database systems.
6. Describe network computing, its benefits and risks, and identify commonly used communications hardware and software components.
7. Identify security risks for computing systems and discuss potential solutions.
8. Explain the design and development process of a software information system such as an EHR.

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides.

Component Timeline

3 weeks



ONC Component 4: Introduction to Information and Computer Science, Units 1-10 (cont.)

Unit 1: Basic Computing Concepts Including History

Unit 1 Objectives:

- Define “What is a computer?”
- Describe different types of computers, including PCs, mobile devices and embedded computers
- Define the common elements of computer systems
- Describe the various hardware and software options for typical desktop, laptop and server systems for home and business use with a focus on healthcare systems
- Explain the development of computers and the Internet, including healthcare systems, up until the present time.

Unit 2: Internet and the Worldwide Web

Unit 2 Objectives:

- Define the Internet and how to connect to it
- Define the World Wide Web and how to access it
- Write effective search queries for Internet search engines, filter the results, and evaluate credibility of information
- Discuss security and privacy concerns on the Internet
- Describe ethical issues for the Internet
- Explore online healthcare applications and associated security and privacy issues including HIPAA

Unit 3: Computer Hardware

Unit 3 Objectives:

- List the major elements of a computer
- Describe how data is stored in memory and in secondary storage
- Describe how data is represented in binary notation
- Describe the function of the central processing unit (CPU) of the computer
- Describe how data is input/output from a computer
- Describe how the elements of a computer system work together
- Explain how specialized architectures and embedded systems are used in healthcare settings



ONC Component 4: Introduction to Information and Computer Science, Units 1-10 (cont.)

Unit 4: Computer Software

Unit 4 Objectives:

- Define application vs. system software.
- Give examples of application software focusing on healthcare systems.
- Describe the functions of system software.
- List different types of operating systems.
- Explain the purpose and usage of file systems.

Unit 5: Computer Programming

Unit 5 Objectives:

- Define the purpose of programming languages.
- Differentiate between the different types of programming languages and list commonly used ones.
- Explain the compiling and interpreting process for computer programs.
- Learn basic programming concepts including variable declarations, assignment statements, expressions, conditional statements and loops.
- Describe advanced programming concepts including objects and modularity.

Unit 6: Database and SQL

Unit 6 Objectives:

- Define and describe the purpose of databases
- Define a relational database
- Describe data modeling and normalization
- Describe the structured query language (SQL)
- Define the basic data operations for relational databases and how to implement them in SQL
- Design a simple relational database and create corresponding SQL commands
- Examine the structure of a healthcare database component



ONC Component 4: Introduction to Information and Computer Science, Units 1-10 (cont.)

Unit 7: Networks

Unit 7 Objectives:

- List and describe the various types of network communications and network addressing
List and define the different types of networks
- Describe different network topologies
- List and describe different network standards and protocols
- Describe wireless communication
- List and describe network hardware
-

Unit 8: Security

Unit 8 Objectives:

- List and describe common security concerns
- Describe safeguards against common security concerns
- Describe security concerns for wireless networks and how to address them
- List security concerns/regulations for health care applications
- Describe security safeguards used for health care applications

Unit 9: Information Systems

Unit 9 Objectives:

- Define an information system, how one is used and list examples.
- Describe the components of an information system.
- Describe the process developing an information system.
- Describe the different types of testing and when testing should occur.
- Describe how information systems are supported and maintained over time.
- Describe specialized information systems.
- Explain how information systems are used in healthcare.

Unit 10: The Future of Computing

Unit 10 Objectives:

- Describe the latest advances in technology
- Discuss the implications of advances in technology for healthcare systems, including potential risks



Module 1: Assignments and Assessments

ONC Component 2: The Culture of Healthcare

- Syllabus Quiz
- Week 1 Discussion
 - **Prompt:** Using knowledge gained from the Culture of Healthcare, Unit 3e, discuss the role of different healthcare providers, with an emphasis on the delivery of care in an interdisciplinary setting.
- The Culture of Healthcare Activity
 - **Description:** Students given choice of two writing prompts:
 - Interaction of Healthcare Departments
 - Procedures and Technology
- The Culture of Healthcare Quiz

ONC Component 3: Terminology in Healthcare and Public Health Settings

- Week 3 Discussion
 - **Prompt:** Using knowledge gained from Terminology in Healthcare and Public Health Settings, Unit 15, describe the American Recovery and Reinvestment Act of 2009 (ARRA) including the portion of the bill called the Health Information Technology for Economic and Clinical Health Act (HITECH) Act of 2009.
- Terminology in Healthcare and Public Health Settings Activity
 - **Description:** Crossword puzzle
- Terminology in Healthcare and Public Health Settings Quiz

ONC Component 4: Introduction to Information and Computer Science

- Week 5 Discussion
 - **Prompt:** Using knowledge gained from Introduction to Information and Computer Science, Unit 8, describe safeguards against common security concerns.
- Week 6 Discussion
 - **Prompt:** Describe various types of technologies that support healthcare information systems.
- Introduction to Information and Computer Science Activity
 - **Description:** Writing prompt regarding Internet security.
- Introduction to Information and Computer Science Quiz
- Week 8 Discussion
 - **Prompt:** Students are given the link to a video and asked to answer the prompt Compare and contrast EMR and EHR.



Module 1: Assignments and Assessments

After students have completed the above assignments, they must complete the following:

- Module 1 Extra Credit Opportunity (optional)
- Module 1 Test



Module 2

ONC Component 6: Health Management Information System

Description

A “theory” component, specific to health care and public health applications. Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in health care and public health organizations.

Component Objectives

1. Describe general functions, purposes and benefits of health information systems in various health care settings
2. Describe the federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems
3. Compare/Contrast different types of health information systems in terms of their ability to meet the needs of various types of health care enterprises
4. Explain how electronic health records affect patient safety, quality care, efficiency, productivity, and reporting/documentation mechanisms
5. Propose strategies to minimize major barriers to the adoption of electronic health records
6. Explain how the principles of health care data exchange and health care data standards relate to patient care, productivity and data analysis

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor’s study guides.

Component Timeline

2 weeks



ONC Component 6: Health Management Information Systems, Units 1-9

Unit 1: What is Health Informatics?

Unit 1 Objectives:

- Define information management, information system (technology) and informatics
- Explain the basic theoretical concept that underlies informatics practice
- Define the meaning of biomedical and health informatics as a field of study

Unit 2: Health Information Systems Overview

Unit 2 Objectives:

- Define the concept of an information system and its characteristics
- Describe the different types of information systems
- Describe various types of technologies that support health care information systems

Unit 3: Electronic Health Record

Unit 3 Objectives:

- State the similarities and differences between an electronic medical record (EMR) and electronic health record (EHR)
- Identify attributes and functions of an EHR
- Describe the perspectives of health care providers and the public regarding acceptance of or issues with an EHR, which can serve as facilitators of or major barriers to its adoption
- Explain how the use of an EHR can affect patient care safety, efficiency of care practices, and patient outcomes

Unit 4: Computerized Provider Order Entry (CPOE)

Unit 4 Objectives:

- Describe the purpose, attributes and functions of CPOE
- Explain ways in which CPOE is currently being used in health care

Unit 5: Clinical Decision Support System

Unit 5 Objectives:

- Describe the history and evolution of clinical decision support
- Describe the fundamental requirements of effective clinical decision support systems
- Discuss how clinical practice guidelines and evidence-based practice affect clinical decision support systems



ONC Component 6: Health Management Information Systems, Units 1-9 (cont.)

Unit 6: Patient Monitoring System

Unit 6 Objectives:

- Describe the purpose, attributes, and functions of patient monitoring systems
- Discuss ways in which automation can improve the quality of patient care
- Analyze how the integration of data from many sources assists in making clinical decisions

Unit 7: Medical Imaging System

Unit 7 Objectives:

- Examine the purposes, processes, and management issues
- Understand the economic and technological factors associated with digital displays
- Describe the major challenges
- Describe the future directions

Unit 8: Consumer Health Informatics

Unit 8 Objectives:

- Explain how current and emerging technologies have impacted and may continue to affect consumer health informatics
- Describe the role of genomics in consumer health informatics
- Describe the emergence of personal health records and their implications
- Discuss how consumerism influences the ongoing development and use of health information systems

Unit 9: Administrative, Billing, and Financial Systems

Unit 9 Objectives:

- Explain applications that need to be integrated in health care information systems
- Describe the strategies used by health care organizations to ensure integration of functions
- Discuss the critical elements needed to integrate billing, financial, and clinical systems



Module 2 (cont.)

ONC Component 7: Working with Health IT Systems

Description

This is a laboratory component. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations

Component Objectives

1. Identify common components of an HIT system and types of HIT applications (e-Mar, POE, PACS, ADT, Lab, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.)
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system)
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor’s study guides.

Component Timeline

2 weeks



ONC Component: Working with Health IT Systems, Units 1-11

Unit 1: Introduction and Overview: Components of HIT System

Unit 1 Objectives:

- Define a system and relate systems concepts to HIT.
- Discuss specific examples of settings where Health IT is used (acute, rural, public health, clinic, office, patient home, etc.).
- Identify common components of a clinical HIT system.
- Demonstrate beginning level competency in maneuvering the demonstration Electronic Health Record System (EHRS).

Unit 2: Under the Hood

Unit 2 Objectives:

- Identify the health IT functions that support a generic *ambulatory* patient care process.
- Identify the health IT functions that support a generic *inpatient* care process.

Unit 3: Understanding Information Exchange in HIT System

Unit 3 Objectives:

- Identify entities that are commonly involved in HIT system data exchange.
- Explain the need for standards and why they exist.
- Define and differentiate between vocabulary, content exchange, and privacy and security standards.
- Compare current efforts to facilitate health information exchange between providers, communities, regions, and nation (NHIN, HIEs, and NHIN Direct).

Unit 4: The Effective HIT System

Unit 4 Objectives:

- Identify characteristics of an effective HIT system.
- Define and provide examples of how evidence-based practice can be supported in HIT systems.
- Define and cite examples of usability, configurability, scalability, and reliability in HIT systems.
- List and contrast different types of reports/queries (predefined vs. ad hoc) required for internal and external reporting.



ONC Component: Working with Health IT Systems, Units 1-11 (cont.)

Unit 5: Fundamentals of Usability in HIT System – What Does It Matter?

Unit 5 Objectives:

- Define usability and its relationship to HIT systems.
- Explain the impact of HIT usability on user satisfaction, adoption, and workarounds including error rates and unintended consequences.
- Provide alternatives to HIT usability bottlenecks.

Unit 6: HIT Facilitated Error – Cause and Effect

Unit 6 Objectives:

- Explain the concept of facilitated error in HIT
- Cite examples of situations where HIT systems could increase the potential for user error
- Analyze sources of HIT facilitated errors and suggest realistic solutions

Unit 7: Protecting Privacy, Security and Confidentiality – HIT Systems

Unit 7 Objectives:

- Explain and illustrate privacy, security, and confidentiality in HIT settings.
- Identify common threats encountered when using HIT.
- Formulate strategies to minimize threats to privacy, security, and confidentiality in HIT systems.

Unit 8: HIT System Planning, Acquisition, Installation and Training: Practices to Support and Pitfalls to Avoid

Unit 8 Objectives:

- Conduct a basic user needs analysis for a given example situation.
- Create a plan for training users in a small office practice, a large community clinic, or a single unit in an ambulatory care setting.
- Identify several potential challenges that may emerge during installation and generate a strategy to solve (lack of basic computer literacy in staff, etc.).



ONC Component: Working with Health IT Systems, Units 1-11 (cont.)

Unit 9: Potential Issues with Adoption and Installation of a HIT System

Unit 9 Objectives:

- Identify frequently encountered challenges to adoption and implementation of HIT systems.
- Propose solutions to common problems in the implementation of HIT systems.
- Design a plan to address barriers to implementation of an HIT system.

Unit 10: HIT Aspects of Patient Centered Care

Unit 10 Objectives:

- Define patient-centered care.
- Suggest HIT-enabled solutions/strategies to enhance patient involvement in health and healthcare.
- Assess the effectiveness of HIT systems in supporting patient-centered care.
- Perform self-assessment of personal beliefs related to HIT and patient-centered care.

Unit 11: Health IT in the Future

Unit 11 Objectives:

- Speculate on the relationship between HIT and health reform.
- Suggest alternative designs for usable & supportive HIT.
- Hypothesize how HIT may intersect with publicly available data to improve health (i.e. Point of Sale, Weather, GIS, foods, etc.).
- Predict avenues of future innovations in HIT.



Module 2: Assignments and Assessments

ONC Component 6: Health Management Information Systems

- Week 9 Discussion
 - **Prompt:** Using knowledge gained from Component Health Management Information Systems, Unit 3, Explain the need for standards and why they exist.
- Neehr Perfect Level I Scavenger Hunt: EHR Orientation
 - **Description:** Introduction to Neehr Perfect, navigating the EHR and beginner level use of the EHR
- Health Management Information System Activity
 - **Description:** Students choose one of three writing prompts:
 - Similarities and differences between EMRs and EHRs
 - Advantages and disadvantages of using the internet as a platform for healthcare applications
 - Describe fundamentals of effective clinical decision support systems
- Health Management Information System Quiz

ONC Component 7: Working with Health IT Systems

- Week 11 Discussion
 - **Prompt:** Describe how and why the SDLC applies to HIT software deployment.
- Neehr Perfect Level II Scavenger Hunt: EHR Essential Skills Usability
 - **Description:** Essential skills needed to navigate the EHR using filters, setting preferences and more detailed aspects of the electronic chart
- Neehr Perfect Activity: Introducing HI-TECH and the history of EHRs
 - **Description:** Introduction to Health Information Technology in the US, The HITECH Act, the American Recovery and Investment Act (ARRA), the US Institute of Medicine (IOM), the evolution of electronic health records, and how Neehr Perfect incorporates these pieces of healthcare information technology. The key attributes of a computer-based patient record are discussed in detail as well.
- Working with Health IT Systems Activity
 - **Description:** Scenario-based writing prompt regarding clinical decision support
- Working with Health IT Systems Quiz
- Neehr Perfect Activity: Structured and Unstructured Data
 - **Description:** Foundation for understanding structured and unstructured data, coding, and meaningful use.



Module 2: Assignments and Assessments (cont.)

ONC Component 7: Working with Health IT Systems (cont.)

- Week 13 Discussion
 - **Prompt:** Describe how and why the SDLC applies to HIT software deployment.

After students have completed the above assignments, they must complete the following:

- Module 2 Extra Credit Opportunity (optional)
- Module 2 Test



Module 3

ONC Component 8: Installation and Maintenance of Health IT Systems

Description

This component covers fundamentals of selection, installation and maintenance of typical Electronic Health Records (EHR) systems. Students will be introduced to the principles underlying system configuration including basic hardware and software components, principles of system selection, planning, testing, troubleshooting, and final deployment. System security and procedures will also be introduced in this component.

Component Objectives

1. Describe the use of client and server hardware for access to and storage of EHRs
2. Describe network needs for access to and storage of EHRs
3. Identify the application software and back-end data storage software needed for a comprehensive, effective Health IT System
4. Compare and contrast COTS (Commercial Off-The-Shelf) and In-House /homegrown systems and describe their relative advantages and disadvantages
5. Verify system compliance with ONC-ATCB certification
6. Identify purpose and categories of ARRA “Meaningful Use” criteria
7. Identify 12 possible steps to choosing an EHR system
8. Gather functional requirements from institution and users
9. Document use-cases and relate them to functional requirements
10. Identify the 8 basic components to a project plan
11. Define the role of a project manager
12. Equate the basic project plan components to a typical EHR implementation plan
13. Create a project plan for system design and implementation
14. Define the steps of the Software Development Life Cycle (SDLC) and the purpose and importance of each.
15. Describe different models of the SDLC and their key differences.
16. Describe how and why an HIT software application would go through the SDLC
17. Identify regulatory requirements for EHRs and integrate into the project plan
18. Identify best practices for OS and network system security installation and patches (such as those provided by vendors, SANs, and ISC2) and integrate into project plan
19. Identify and assess protection measures including access control, firewalls, intrusion detection and encryption
20. Provide training for system users regarding the methods and importance of security compliance
21. Determine and document system interfaces and integration requirements



ONC Component 8: Installation and Maintenance of Health IT Systems

Component Objectives (cont.)

22. Describe the pitfalls associated with installing a new application in an environment of pre-existing applications
23. Give examples of interfacing modalities
24. Identify and implement an effective troubleshooting procedure for reporting, evaluating, fixing, deploying, and follow-up of errors, problems, or limitations for the system
25. Integrate downtime schedule for OS, network, database, and client application maintenance and updates
26. Develop a process for communicating requirements and supplying updates between vendors/developer and users
27. Create a baseline for system performance measurement and comparison for troubleshooting
28. Create redundancy and fault-tolerance in systems for access and data storage, providing high performance and reliability
29. Backup and restore databases, applications, and operating systems
30. Develop a plan for decommissioning systems and data
31. Gather user feedback and performance baseline for system validation and testing
32. Document problems with their resolution status
33. Create, execute, and document a test plan
34. Identify pilot group and plan scope of pilot
35. Install pilot system, train pilot users, and make pilot available
36. Gather and prioritize feedback from pilot test, revising project plan if necessary
37. Develop and implement strategy for:
 - a. Communicating deployment plan to end users and management
 - b. Technical support of deployment (e.g. live on-site support versus phone/Internet support)
 - c. Getting feedback from end users following deployment
 - d. Evaluating usage and capacity of system resources under conditions of full deployment
38. Deploy revised system

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides. Lab activities delivered through D2L and Neehr Perfect Educational Electronic Health Record (EHR).

Component Timeline

1 week



ONC Component 8: Installation and Maintenance of Health IT Systems, Units 1-11

Unit 1: Elements of a Typical Electronic Health Record System

Unit 1 Objectives:

- Identify the core elements that comprise an EHR system
- Describe the use of client and server hardware for access to and storage of EHRs
- Describe network needs for access to and storage of EHRs
- Identify the application software and back-end data storage software needed for a comprehensive, effective health IT system

Unit 2: System Selection – Software and Certification

Unit 2 Objectives:

- Compare and contrast COTS (Commercial Off-The-Shelf) and In-House /homegrown systems and describe their relative advantages and disadvantages
- Verify system compliance with ONC-ATCB certification
- Identify purpose and categories of ARRA “Meaningful Use” criteria

Unit 3: System Selection – Functional and Technical Requirements

Unit 3 Objectives:

- Identify 12 possible steps to choosing an EHR system
- Gather functional requirements from institution and users
- Document use-cases and relate them to functional requirements

Unit 4: Structured Analysis and Design

Unit 4 Objectives:

- Identify the 8 basic components to a project plan
- Define the role of a project manager
- Equate the basic project plan components to a typical EHR implementation plan
- Create a project plan for system design and implementation

Unit 5: Software Development Life Cycle (SDLC) Model

Unit 5 Objectives:

- Define the steps of the Software Development Life Cycle (SDLC) and the purpose and importance of each.
- Describe different models of the SDLC and their key differences.
- Describe how and why the SDLC applies to HIT software deployment.



ONC Component 8: Installation and Maintenance of Health IT Systems, Units 1-11 (cont.)

Unit 6: System Security Procedures and Standards

Unit 6 Objectives:

- Identify regulatory requirements for EHRs
- Provide training for system users regarding the methods and importance of security compliance
- Identify administrative, physical, and technical safeguards for system security and regulatory compliance
- Identify best practices for system security
- Identify best practices for risk / contingency management

Unit 7: System Interfaces and Integration

Unit 7 Objectives:

- Determine and document system interfaces and integration requirements
- Describe the pitfalls associated with installing a new application in an environment of pre-existing applications
- Give examples of interfacing modalities

Unit 8: Troubleshooting; Maintenance and Upgrades; Interaction with Vendors, Developers, and Users

Unit 8 Objectives:

- Identify and implement an effective troubleshooting procedure for reporting, evaluating, fixing, deploying, and follow-up of errors, problems, or limitations for the system
- Integrate downtime schedule for OS, network, database, and client application maintenance and updates
- Develop a process for communicating requirements and supplying updates between vendors/developer and users
- Create a baseline for system performance measurement and comparison for troubleshooting

Unit 9: Creating Fault-Tolerant Systems, Backups, and Commissioning

Unit 9 Objectives:

- Define availability, reliability, redundancy, and fault tolerance
- Explain areas and outline rules for implementing fault tolerant systems
- Perform risk assessment
- Follow best practice guidelines for common implementations
- Develop strategies for backup and restore of operating systems, applications, configuration settings, and databases
- Decommission systems and data



ONC Component 8: Installation and Maintenance of Health IT Systems, Units 1-11 (cont.)

Unit 10: Developing a Test Strategy and Plan

Unit 10 Objectives:

- Gather user feedback and performance baseline for system validation and testing
- Document problems with their resolution status
- Create, execute, and document a test plan

Unit 11: Pilot Testing and Full-Scale Deployments

Unit 11 Objectives:

- Identify pilot testing, deployment steps, and group for pilot testing
- Develop a plan for training pilot users
- Gather and prioritize feedback from pilot test
- Recommend amount of legacy data to preload
- Develop a plan for implementation using best practices
- Identify post-implementation practices



Module 3 (cont.)

ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign

Description

This component covers fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation. Process validation and change management are also covered.

Component Objectives

1. Identify the elements involved in providing patient care within a complex health care setting that must be taken into consideration when examining and proposing changes in workflow processes.
2. Create diagram of processes in the healthcare setting that support workflow analysis and re-design.
3. Critically analyze the workflow processes in a selected health care setting to determine their effectiveness from the perspective of those being served (i.e., patients), those providing the services (i.e., professional and non-professional staff), and the organization's leadership (i.e., decision makers).
4. Propose ways in which quality improvement methods, tools and health IT can be applied within a healthcare setting to improve workflow processes.
5. Suggest approaches that would ensure the success of workflow re-design from development and presentation of the implementation plan, to facilitation of decision making meetings, implementation of the changes, evaluation of the new processes, sustainability of new workflow processes, and continuous quality improvement efforts to achieve meaningful use.
6. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides. Lab activities delivered through D2L and Neehr Perfect Educational Electronic Health Record (EHR).

Component Timeline

3 weeks



ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign, Units 1-11

Unit 1: The Concepts of Healthcare Processes and Process Analysis

Unit 1 Objectives:

- Describe the purpose for process analysis and redesign in the clinical setting
- Describe the role of a practice workflow and information management redesign specialist and contrast it with other roles such as technical support and implementation management
- Explain how health care process analysis and redesign and meaningful use are related
- Analyze a health care scenario and identify the components of clinical workflow
- Given a scenario of a health care analysis and redesign, analyze the responsibilities of each participant in the process and how the roles complement or overlap with one another
- Describe how the workflow processes used by a health care facility might differ depending on the type of facility

Unit 2: Process Mapping

Unit 2 Objectives:

- Articulate the value of process mapping.
- Describe standard process mapping symbols and conventions.
- Analyze an existing workflow process chart in terms of the information that could be generated, and the sequence of steps that are being communicated.
- Choose the correct scope and detail level for a process map.
- Choose an appropriate process mapping methodology.
- Create a process map for a health care system (or system component) using correct symbols and conventions.

Unit 3: Interpreting and Creating Process Diagrams

Unit 3 Objectives:

- Create a process flowchart for a health care system (or system component) using appropriate ISO 5807 symbols and conventions. (Lecture b)
- Create context and data flow diagrams for a health care system (or system component) using appropriate Yourdon symbols and conventions (Lecture c)
- Choose the correct scope and detail level for a process flowchart and data flow diagram (Lecture b, c)
- Read and interpret Gane-Sarson data flow diagram (Lecture d)
- Read and interpret an entity relationship diagram in crow's foot notation (Lecture e)
- Read and interpret UML class, activity, and state diagrams (Lecture f)



ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign, Units 1-11 (cont.)

Unit 4: Acquiring Clinical Process Knowledge

Unit 4 Objectives:

- Identify how the strategic goals and stakeholders for a given health care facility can influence workflow processes in that facility
- Create an agenda for an opening meeting to discuss workflow processes in a health care facility
- Compare and contrast different types of knowledge and their impact on organizations
- Analyze a health care scenario according to CMMI levels
- Identify the workflow processes that are likely to be used by a healthcare facility
- Identify the workflow processes that are essential to document and analyze in order to determine how best to streamline the operations in a given health care facility
- Identify key individuals with whom the analyst should meet or observe in order to gain an understanding of the nature and complexity of their work
- Given a process observation scenario, formulate the questions that would facilitate a productive discussion of the workflow of information, activities and roles within that facility
- Suggest ways to successfully respond to common challenges encountered in knowledge acquisition
- Given a practice scenario, choose an appropriate knowledge acquisition method
- Given a process analysis scenario including list of observations, create agenda for visit closing meeting and an initial meeting report
- Given a set of diagrams and observations from an information gathering meeting draft a summary report

Unit 5: Process Analysis

Unit 5 Objectives:

- Describe the purpose of Process Analysis
- Describe skills and knowledge necessary for Process Analysis
- Perform a process analysis for a given clinic scenario
- Given results of a process analysis, draft a summary report
- Given results of a process analysis, identify desired electronic medical record functionality



ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign, Units 1-11 (cont.)

Unit 6: Process Redesign

Unit 6 Objectives:

- Identify the factors that optimize workflow processes in health care settings
- Describe how information technology can be used to increase the efficiency of workflow in health care settings
- Identify aspects of clinical workflow that are improved by EHR
- Propose ways in which the workflow processes in health care settings can be re-designed to ensure patient safety and increase efficiency in such settings
- Use knowledge of common software functionality and meaningful use objectives to inform a process redesign for a given clinic scenario

Unit 7: Facilitating Meetings for Implementation Decisions

Unit 7 Objectives:

- Describe major health care facility decisions in process redesign that includes EHR technology
- Draft an agenda and facilitation plan for a decision making meeting,
- Prepare a presentation to communicate findings of a workflow analysis or process redesign to health care facility decision makers, and
- Document those decisions that are made and actions identified in a decision making meeting
- Critique a decision making meeting agenda, facilitation plan or scenario to identify problems and how they could have been prevented

Unit 8: Quality Improvement Methods

Unit 8 Objectives:

- Describe strategies for quality improvement
- Describe the role of Leadership in Quality Improvement
- Describe the local clinic improvement capabilities
- Describe and recommend tools for quality improvement
- Compare and contrast the quality improvement methodologies and tools and their appropriate uses in the health care setting



ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign, Units 1-11 (cont.)

Unit 9: Leading and Facilitating Change

Unit 9 Objectives:

- Explain concerns expressed by participants in a process analysis & redesign scenario in terms of common change management concepts.
- Propose strategies to gain acceptance of changes in work processes.
- Create and critique a facilitation plan, including appropriate facilitation tools for a given process analysis & redesign scenario.
- Given a health care change management scenario, explain outcomes in terms of common change management concepts.

Unit 10: Process Change Implementation and Evaluation

Unit 10 Objectives:

- Develop a process change implementation plan for a health care facility that includes tasks to be accomplished, responsible parties for tasks, a timeline, and the human and material resources needed
- Identify management tracking and measurement opportunities for the process change
- Outline elements of an evaluation plan that will help determine the success of a workflow process change implemented in a health care facility
- Describe how the workflow analyst can help a health care facility continually improve its workflow processes, based on results of ongoing evaluations

Unit 11: Maintaining and Enhancing Improvements

Unit 11 Objectives:

- Design control strategies to maintain performance of clinic processes
- Develop and present a sustainability and continuous improvement plan for a health care setting
- Work with practice staff to develop a set of plans to keep the practice running (to the extent necessary and practical) if the EHR system fails
- Work with practice staff to evaluate the new processes as implemented and identify problems and changes that are needed



Module 3: Assignments and Assessments

ONC Component 8: Installation and Maintenance of Health IT Systems

- Neehr Perfect Level III Scavenger Hunt: Meaningful Use
 - **Description:** Coded and non-coded data, health factors, purpose of meaningful use
- Week 14 Discussion
 - **Prompt:** Using your knowledge gained from Fundamentals of Health Workflow Process Analysis & Redesign, Unit 1, Lecture A, explain how health care process analysis and redesign and meaningful use are related.
- Installation and Maintenance of Health IT Systems Quiz

ONC Component 10: Fundamentals of Health Workflow Process Analysis and Redesign

- Neehr Perfect Level Activity: Registering a Patient and Adding Orders Part I
 - **Description:** Students register a patient in the EHR (creating a new chart) and will add orders for the patient.
- Week 15 Discussion
 - **Prompt:** Using your knowledge gained from Fundamentals of Health Workflow Process Analysis & Redesign, Unit 10, propose strategies to gain acceptance of changes in processes.
- Neehr Perfect Activity: Case Study Review
 - **Description:** A detailed case study review, or audit, of a chart and its contents to determine what is present, or not present, in the chart. Students will be introduced to the documentation in the health record, how the diagnosis supported through documentation, the patient's progress, clinical findings, and discharge status.
- Fundamentals of Health Workflow Process Analysis and Redesign
 - **Description:** Scenario-based activity involving the use of the *Lucid Chart* online flowchart creator
- Neehr Perfect Activity: Quality Improvement Utilizing the EHR
 - **Description:** Students will review five patient charts from the EHR. Using "Plan, Do, Study/Check, Act (PDSA/PDCA), students will analyze the documentation of consents in the chart for accuracy and quality. Quality management, performance improvement, and initiatives within a healthcare system are discussed.
- Week 17 Discussion
 - **Prompt:** Using knowledge gained from Component Configuring EHRs, Unit 7, describe elements of disaster preparedness and disaster recovery.
- Fundamentals of Health Workflow Process Analysis and Redesign Quiz



Module 3: Assignments and Assessments (cont.)

After students have completed the above assignments, they must complete the following:

- Module 3 Extra Credit Opportunity (optional)
- Module 3 Test



Module 4

ONC Component 11: Configuring EHRs

Description

This component provides a practical experience with a laboratory component (utilizing the Neehr Perfect Educational EHR system) that will address approaches to assessing, selecting, and configuring EHRs to meet the specific needs of customers and end-users.

Component Objectives

1. Describe the process of migration to an electronic health record (EHR) from the perspectives of organizational strategy, planning, analysis of EHR options, decision-making techniques, training, and implementation strategies.
2. Discuss the migration path from a paper to an electronic health record with an emphasis on organizational strategy to implementation, including meaningful use criteria.
3. Discuss the importance and use of clinical decision support systems for clinical and administrative use.
4. Given an EHR system, configure the system to achieve features required for meaningful use. The course includes VistA simulation EHR environment lab exercises for:
 - a. Patient care clinical workflow
 - b. Implementing clinical decision support
 - c. Building order sets
 - d. Utilizing data entry templates
 - e. Health summary and clinical reminder reports
5. Understand clinical workflows from multiple clinician perspectives, and in different clinical settings.
6. Understand concepts of privacy and security as applied to the EHR, including regulatory frameworks, risk management, authentication and authorization, user passwords, and physical security of systems.
7. Describe security issues with mobile and medical devices, and elements of disaster preparedness and disaster recovery.
8. Discuss the migration path from a paper to an electronic health record with an emphasis on organizational strategy to implementation, including meaningful use criteria.



ONC Component 11: Configuring EHRs

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides. Lab activities delivered through D2L and Neehr Perfect Educational Electronic Health Record (EHR).

Component Timeline

2 weeks



ONC Component 11: Configuring EHRs, Units 1-8

Unit 1: Migration to an Electronic Health Record System

Unit 1 Objectives:

- Describe the process of initial planning, including identification of stakeholders, champions, management and implementation teams, and determining appropriate members for a steering committee
- Develop a timeline for choosing and implementing an electronic health record, including defining the scope of implementation, budget estimates, and additional critical steps to build a basic strategic plan for implementation
- Develop functional requirements, including a workflow analysis and a gap analysis, and recognizing when to bring in expertise
- Develop and applying criteria for selecting an appropriate vendor for the electronic health record including:
 - Generate an RFI/RFP
 - Select an appropriate system, including utilizing an appropriate ranking model
 - Generate interface requirements
 - Compare and contrast EHR solutions (e.g. locally hosted versus cloud solutions)
- Negotiate a contract
- Develop a training plan

Unit 2: Patient Care Clinical Workflow: Multiple Perspectives of Patient Care

Unit 2 Objectives:

- Register a patient in a VistA simulation EHR environment. (Lab Exercise 1)
- Enter vitals and chief complaint as a Medical Assistant in a VistA simulation EHR environment. (Lab Exercise 1)
- Enter a progress note as a Physician in a VistA simulation EHR environment. (Lab Exercise 3)
- Enter nursing notes and implement physician orders as a Registered Nurse in a VistA simulation EHR environment. (Lab Exercise 2)
- Understand the importance of clinical workflows in the functioning of EHRs. (Lecture, Lab Exercise 1,2, 3)



ONC Component 11: Configuring EHRs, Units 1-8 (cont.)

Unit 3: Implementing Clinical Decision Support

Unit 3 Objectives:

- Define and discuss clinical decision support (Lecture)
- Describe, view and create Alerts/Notifications in a VistA simulation EHR environment (Lecture, Lab exercise 1)
- Describe, view and create Order Checks in a VistA simulation EHR environment (Lecture, Lab exercise 2)
- Describe, view and resolve Reminders in a VistA simulation EHR environment (Lecture, Lab exercise 3)
- Discuss the value of these EHR functions as clinical decision support tools (Lecture)

Unit 4: Building Order Sets

Unit 4 Objectives:

- Define and describe an order set (Lecture)
- Describe the benefits and costs associated with order sets (Lecture)
- Demonstrate the ability to build a variety of order sets in VistA, a simulation EHR environment (Lab exercises 1-3)

Unit 5: Creating Data Entry Templates

Unit 5 Objectives:

- Access and use the template editor (Lab exercise 1)
- Effectively use the different field controls to promote data quality and efficiency of data entry (Lecture, Lab exercise 1)
- Design, create and view Personal and Shared Templates for data entry (Lab exercise 2 & 3)
- Describe how the effective use of data entry templates supports quality care, patient safety and efficiency (Lecture)

Unit 6: Health Summary and Clinical Reminder Reports

Unit 6 Objectives:

- Design, view and create Health Summary reports in the VistA EHR simulation environment. (Lecture & Lab exercise 1)
- Design, view and create Clinical Reminder reports in the VistA EHR simulation environment. (Lecture & Lab exercise 2)
- Design, view and create ad hoc reports. (Lecture & Lab exercise 1)



ONC Component 11: Configuring EHRs, Units 1-8 (cont.)

Unit 6: Health Summary and Clinical Reminder Reports (cont.)

Unit 6 Objectives:

- Describe how quality reporting functions in an EHR supports quality care, patient safety and efficiency. (Lecture)
- Define the attributes of quality information. (Lecture)

Unit 7: Privacy and Security in the US

Unit 7 Objectives:

- Compare and contrast the concepts of privacy and security
- List the regulatory frameworks for an EHR
- Describe the concepts and requirements for risk management
- Describe authentication, authorization and accounting
- Describe passwords and multi-factor authentication and their associated issues
- Describe issues with portable devices
- Describe elements of disaster preparedness and disaster recovery
- Describe issues of physical security
- Describe malware concepts

Unit 8: Meaningful Use and Implementation

Unit 8 Objectives:

- Describe meaningful use (MU) of health information technology in the context of the Health Information Technology for Economic and Clinical Health (HITECH) Act
- Define the criteria for Stage 1 of meaningful use for eligible professionals and eligible hospitals
- Demonstrate examples of meaningful use using the VistA Electronic Health Record (EHR)



Module 4 (cont.)

ONC Component 12: Quality Improvement

Description

Quality Improvement introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. It addresses establishing a culture that supports increased quality and safety. It also discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Component Objectives

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply of information technology and standardized practices that support safety and quality
5. Formulate activation planning that supports and maintains safety and quality
6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides. Lab activities delivered through D2L and Neehr Perfect Educational Electronic Health Record (EHR).

Component Timeline

2 weeks



ONC Component 12: Quality Improvement, Units 1-12

Unit 1: Introduction to Quality Improvement and Health Information Technology

Unit 1 Objectives:

- Identify the current challenges in healthcare quality.
- Examine the components of the healthcare system that have an impact on quality.
- Explain healthcare quality and quality improvement (QI).
- Describe quality improvement as a goal of meaningful use.
- Analyze the ways that HIT can either help or hinder quality improvement.

Unit 2: Principles of Quality and Safety for HIT

Unit 2 Objectives:

- Investigate the fallibility of people and systems.
- Describe the ways that every system is designed to achieve the results it gets.
- Apply the basic principles of safe design.
- Explain the ways that teams make wise decisions with diverse and independent input.

Unit 3: Introduction to Reliability

Unit 3 Objectives:

- Discuss the basic concepts of reliability.
- Understand what makes organizations highly reliable.

Unit 4: Reliability, Culture of Safety, and HIT

Unit 4 Objectives:

- Discuss reliability as a tool for ensuring safety.
- Examine how ultra-safe organizations operate.
- Identify how teams make wise decisions.

Unit 5: Decision Support for Quality Improvement

Unit 5 Objectives:

- Define decision support, its importance, and why it is difficult to implement.
- Compare decision support tools that help improve quality.
- Analyze the benefits and shortfalls of alerts and clinical reminders.

Unit 6: Workflow Design

Unit 6 Objectives:

- Assess decision-making requirements in health or healthcare.
- Construct a work process flowchart.
- Appraise ways to incorporate decision-making requirements into HIT design.



ONC Component 12: Quality Improvement, Units 1-12 (cont.)

Unit 7: HIT Design to Support Teamwork and Communication

Unit 7 Objectives:

- Assess the impact of teamwork and communication on care coordination.
- Investigate ways in which HIT design can serve as a barrier to effective communication.
- Describe ways in which HIT design can enhance communication and care coordination.

Unit 8: HIT and Infecting a Patient Safety Culture

Unit 8 Objectives:

- Apply QI tools to the analysis of HIT errors.
- Identify strategies for adaptive work that can be useful to HIT initiatives.

Unit 9: HIT Implementation Planning for Quality and Safety

Unit 9 Objectives:

- Critique an implementation team and the role it plays in ensuring quality.
- Analyze effective implementation planning.
- Assess the quality implications of “big-bang,” versus, “staggered,” approaches to activation.
- Discuss go-live support strategies that minimize risk.

Unit 10: Measuring Quality

Unit 10 Objectives:

- Understand the basic concept of variation.
- Explain the attributes of an effective reporting system.
- Examine the importance of having standardized and structured health information so that you can use those data to make valid reports.
- Discuss how HIT can facilitate data collection and reporting for improving quality and patient safety.

Unit 11: Data Quality Improvement

Unit 11 Objectives:

- Understand the different purposes of data.
- Discuss the impact of poor data quality on quality measurement.
- Identify ten attributes of data quality and key process recommendations.
- Explore the attributes of data quality and key process recommendations for maintaining data integrity.
- Discuss common causes of data insufficiency.
- Describe how health information technology (HIT) design can enhance quality.



ONC Component 12: Quality Improvement, Units 1-12 (cont.)

Unit 12: Learning from Mistakes: Error Reporting and Analysis and HIT

Unit 12 Objectives:

- Explain how reporting errors can help to identify HIT system issues.
- Describe ways in which HIT can facilitate error reporting and detection.
- Assess HIT for unintended negative consequences.
- Examine common themes in HIT design deficiencies.
- Apply QI tools to analyze HIT errors



Module 4 (cont.)

ONC Component 15: Usability and Human Factors

Description

This component will discuss the effects of rapid prototyping, user-centered design, and the effects of new technology workflow on downstream processes; facilitation of unit-wide focus groups or simulation.

Component Objectives

1. Articulate a systems approach to usability and human factors as it applies to health information technology.
2. Explain the cognitive consequences of health information technology on clinical performance.
3. Identify the consequences of suboptimal design in the delivery of healthcare.
4. Apply methods of cognitive research, sources of usability evidence, and principles of user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users.
5. Apply requirements engineering methods to inform design and technology selection.
6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods.
7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering.
8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase.
9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement.
10. Diagnose problems associated with a clinical decision support system.
11. Apply cognitive methods of analysis to medical device testing.
12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen's heuristic evaluation method.
13. Diagnose various types of error and create or select potential solutions.
14. Select appropriate technology input methods given different technology uses, user populations and contexts.
15. Describe how information visualization can support and enhance the representation of trends and aggregate data.



ONC Component 15: Usability and Human Factors (cont.)

Method of Delivery

Course delivered through Desire2Learn (D2L) learning management system. Lectures are comprised of ONC flash lectures; supplemental materials consist of ONC PowerPoint slides, audio transcripts, and instructor's study guides. Lab activities delivered through D2L and Neehr Perfect Educational Electronic Health Record (EHR).

Component Timeline

2 weeks



ONC Component 15: Usability and Human Factors, Units 1-12

Unit 1: People and Technology, Studies of Technology

Unit 1 Objectives:

- Explain the importance of technology in health
- Describe the contributions of Human-Computer interaction to the Health field
- Define the concept of system usability
- Patient safety issues
- Demonstrate concept knowledge of principles of user-centered design, methods of cognitive research, and sources of usability evidence
- Describe the seven stages of User Activity in Norman's Theory of Action
- Describe the role of human factors and human computer interaction concerning patient safety in the healthcare setting
- Demonstrate concept knowledge of principles of user-centered design and sources of usability evidence
- Demonstrate concept knowledge of principles of user-centered design, methods of cognitive research, and sources of usability evidence
- Describe the role of human factors and human computer interaction concerning patient safety in the healthcare setting
- Demonstrate concept knowledge of principles of user-centered design and sources

Unit 2: Requirements Engineering

Unit 2 Objectives:

- Explain the role of requirements gathering in usability evaluation
- Identify the uses, advantages, and disadvantages of data collection methods used for requirements gathering
- Demonstrate an understanding of how to conduct a workflow analysis
 - Identify contextual design principles as they apply to the healthcare setting
- Describe the methods to interpret results of data collection

Unit 3: Cognition and Human Performance

Unit 3 Objectives:

- Describe the impact of different kinds of representation on cognition as it applies to human computer interaction and web design
- Describe how humans process information and obtain skills
- Describe the Gestalt principles of perception and their relevance to human computer interaction and cognitive theory
- Describe the processes of memory and their relationship to web-design
- Describe the cognitive constructs for mental representation
- Explain how cognition and human performance models should inform iterative design processes



ONC Component 15: Usability and Human Factors, Units 1-12 (cont.)

Unit 4: Human Factors and Healthcare

Unit 4 Objectives:

- Distinguish between human factors and human computer interactions (HCI) as they apply to usability
- Explain how cognitive, physical and organization ergonomics can be applied to human factors engineering
- Describe how the concepts of mental workload, selective attention and information overload affect usability
- Describe the different dimensions of the concept of human error
- Describe a systems-centered approach to error and patient safety
- Apply methods for measuring mental workload and information overload
- Describe how human factors analysis can be applied to the study of medical devices

Unit 5: Usability Evaluation Methods

Unit 5 Objectives:

- Describe the importance of usability in relation to health information technologies
- List and describe usability evaluation methods
- Given a situation and set of goals, determine which usability evaluation method would be most appropriate and effective
- Conduct a cognitive walkthrough
- Design appropriate tasks for a usability test
- Describe the usability testing environment, required equipment, logistics, and materials

Unit 6: Electronic Health Records and Usability

Unit 6 Objectives:

- Define usability as it pertains to the EHR (*HIMSS document*)
- Challenges of EHR design and usability in typical workflow
- Identify a set of well-established principles of usability and design and describe their application to EHRs (*HIMSS document*)
- Identify and explain usability methods for enhancing efficiency of use and minimizing likelihood of user error (*HIMSS document*)
- Explain how user-centered design can enhance adoption of EHRs
- Discuss the role of usability testing, training and implementation of electronic health records
- Describe Web 2.0 and novel concepts in system design
- Identify potential methods of assessing and rating EHR usability when selecting an appropriate EHR system (*HIMSS document*)



ONC Component 15: Usability and Human Factors, Units 1-12 (cont.)

Unit 7: Decision Support Systems: a Human Factors Approach

Unit 7 Objectives:

- Discuss factors in understanding Human Decision Making
- Discuss Clinical Decision Support Systems (CDSS)
- Discuss computer provider order entry systems (CPOES) and clinical decision support systems (CDSS)

Unit 8: Approaches to Design

Unit 8 Objectives:

- Explain a user-centered design approach
- Define conceptual models
 - Explain the iterative design process
 - Describe how requirements analysis influences design
- Describe requirements analysis and cognitive task analysis
- Characterize the role of prototypes in design
- Describe the principles of participatory design
- Explain the difference between low fidelity and high fidelity prototypes
- When it would be appropriate to use one versus the other
- Explain the iterative design process
- Describe principles of sound design to support usability
- Describe how Nielsen's heuristics and design principles apply to user interface design

Unit 9: Ubiquitous Computing

Unit 9 Objectives:

- History of Ubiquitous Computing
- Basic Principles
- Examples of Ubicomp in Healthcare
- Technical Challenges

Unit 10: Designing for Safety

Unit 10 Objectives:

- Apply principles underlying the design of healthcare systems for safety
- Identify common sources of error documented in research studies in medicine
- Apply the cognitive taxonomy of errors
- Define "workflow analysis" and methods for examining and addressing human errors
- Design a workflow analysis study
- Identify common sources of error documented in research studies in medicine
- Apply principles underlying the design of healthcare systems for safety



ONC Component 15: Usability and Human Factors, Units 1-12 (cont.)

Unit 11: Input and Selection Methods

Unit 11 Objectives:

- Provide a rationale as to why input methods are an important consideration in the design process for health technology
- Compare and contrast technology input methods
- Select appropriate technology input methods given different technology uses, user populations and contexts

Unit 12: Information Visualization

Unit 12 Objectives:

- Field of Information Visualization
- Main concepts
 - Presentation
 - Interaction and dynamic queries
 - Hierarchies and trees
 - Time-series data
- Information Visualization in Medicine
- Describe how information visualization can support and enhance the representation of trends and aggregate data



Module 4: Assignments and Assessments

ONC Component 11: Configuring EHRs

- Neehr Perfect Activity: Introduction to Clinical Reminders
 - **Description:** Introduces students to the Clinical Reminder system of the EHR. Students will learn about the Clinical Reminder system, evaluate potential uses and create an example clinical reminder to solve a current healthcare problem.
- Week 18 Discussion
 - **Prompt:** Using knowledge gained from Component Quality Improvement, Unit 1, analyze the ways that HIT can either help or hinder quality improvement.
- Neehr Perfect Activity: Meaningful Use Stage 2 - Clinical Quality Measures (for Eligible Professionals)
 - **Description:** The activity uses online resources from the CMS website, patients from the Neehr Perfect EHR and content found in this activity. This Meaningful Use activity focuses on Clinical Quality Measures, Core Objectives and Menu Objectives for the eligible professional.
- Neehr Perfect Activity: Clinical Decisions through Orders
 - **Description:** In this activity the student will be introduced to the electronic health record's function in clinical decision making. The activity will explore entering orders, computerized alerts and reminders in Neehr Perfect.
- Week 19 Discussion
 - **Prompt:** Using knowledge gained from Component Quality Improvement, Unit 5, analyze the benefits and shortfalls of alerts and clinical reminders.
- Configuring EHRs Quiz

ONC Component 12: Quality Improvement

- Neehr Perfect Level Activity: Patient Problems and Communication
 - **Description:** The focus of the activity is how documenting correctly a patient's problems (or medical diagnosis) and Code status can be used for communication, continuity of care, improved patient safety, and an interdisciplinary approach.
- Week 20 Discussion
 - **Prompt:** Using knowledge gained from Component Quality Improvement, Unit 9, discuss "go live" support strategies that minimize risk.



Module 4: Assignments and Assessments (cont.)

ONC Component 12: Quality Improvement (cont.)

- Neehr Perfect Activity: Cause and Effect
 - **Description:** The student will document in a chart, run the specified report and then identify any errors. Critical thinking will be applied as the student formulates possible ways that these health information errors could be prevented with better health information technology design.
- Week 21 Discussion
 - **Prompt:** Using knowledge gained from Component Quality Improvement, Unit 8, identify patient safety issues.
- Quality Improvement Quiz

ONC Component 15: Usability and Human Factors

- Neehr Perfect Activity: Classifications and Terminology
 - **Description:** This activity explores classification and terminology systems and supports the student's current knowledge of these concepts and terms. This activity is a require pre-requisite to the SNOMED CT activity.
- Neehr Perfect Activity: SNOMED CT
 - **Description:** This activity is a continuation of the Classifications and Terminology activity and provides an in-depth look at SNOMED CT.
- Week 22 Discussion
 - **Prompt:** Using knowledge gained from Component Usability and Human Factors, Unit 2, explain the role of requirements gathering in usability evaluation.
- Neehr Perfect Activity: Reporting in the EHR
 - **Description:** The students will utilize the Reports Tab functions in the EHR to query patient information. The activity introduces the student to graphing patient chart data.
- Week 23 Discussion
 - **Prompt:** Using knowledge gained from Component Usability and Human Factors, Unit 5, list and describe usability evaluation methods.
- Week 24 Discussion
 - **Prompt:** Using knowledge gained from Component Usability and Human Factors, Unit 6C, explain how user-centered design can enhance adoption of EHRs.
- Usability and Human Factors Quiz



Module 4: Assignments and Assessments (cont.)

After students have completed the above assignments, they must complete the following:

- Module 4 Extra Credit Opportunity (optional)
- Module 4 Test
- CHTS-PW Mock Examination (Program Final Exam)

Indiana

Indiana Rural Health Information Technology Education Network (IRHITEN)
Ivy Tech Community College

ONC Focus Area:

- Clinician/Practitioner Consultant
- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Health IT Course Description and Exam Blueprints](#)

Indiana Rural Health Information Technology Education Network (IRHITEN)**HIT Course Description and Exam Blueprints**

(Revised March 1, 2016)

Certification Program Overview

As an Indiana Rural Health Information Technology Education Network (IRHITEN) partner, Ivy Tech Community College is providing a 20-week online certification training program. Ivy Tech is a two-year community college with 31 degree-granting sites across 14 regions in Indiana that serve nearly 200,000 students annually. Ivy Tech was a partner college in the Midwest Consortium's initial pilot of Office of National Coordinator (ONC)'s 20-week health IT certificate program and can serve as a natural bridge for students to continue to pursue additional educational opportunities, such as a two-year associates degree in Health Information Technology, Health Care Support, and other computer-related degrees complemented by the CHTS Credentials.

The certification program core curriculum is provided through an online program, so coursework can be completed anywhere, as long as the student has reliable broadband internet access. The 20-week certificate program of the health IT curriculum focuses on job-specific training for the two workforce roles in the field of health informatics:

- 1) Clinician/Practitioner Consultant (CPC), and
- 2) Workflow and Information Management Redesign Specialist (WIFM).

The training incorporates “hard” technical skills as well as “soft” skills such as problem solving, decision making, teamwork, time management, etc. Ivy Tech will place extra emphasis on the “application” of Lean Principles in order to maximize efficiencies that should be gained by implementing technology. The certification training incorporates engaging Lean Principles project activities to instill the value of improving processes with the use of technology. The ability to objectively analyze work processes will make trainees more successful as team members collaborate to meet the goals of Meaningful Use.

The certification program has enhanced existing ONC curriculum with interactive project management activities. Many existing health care workers were never provided project management skills as they learned the technical components of their job; however, the impact of technology drives the need for these skills – certainly for all health care leaders, but also for many midlevel positions. Individuals possessing good project management skills are better positioned to consider “big picture” perspectives, increasing the likelihood for success of health care IT initiatives.

The *HIT Workflow and Information Management Redesign* course provides foundational information about the healthcare industry and involves students in analyzing and improving workflow processes. Participants will work in the context of a medical practice, and as they learn new skills, they will become more confident about suggesting changes to administrators and providers to increase the quality and efficiency of patient care. Students should expect to dedicate 10 – 15 hours per week for the 20-week certification program for optimal success.

Indiana Rural Health Information Technology Education Network (IRHITEN)

HIT Course Description and Exam Blueprints

(Revised March 1, 2016)

Learning Format: Online

Pre-Requisite: Experience in either healthcare or information technology

Course Duration: 20 Weeks (10-15 hours/week)

Cost: \$500 for rural grant-eligible participants

The *HIT-Clinician/Practitioner Consultant* training program applies the background and experience of a licensed clinical or public health professional to skills needed to optimize electronic medical records. These members of the workforce will learn to support implementation and train practitioners in the best use of electronic health record systems, conforming to the redesigned practice workflow as needed. This program bridges the gap between the clinical and information technology sides of the house and facilitates an end-result effective for all stakeholders. Students should expect to dedicate 10 – 15 hours per week for the 20-week certification program for optimal success.

Learning Format: Online

Pre-Requisite: Healthcare Experience - Clinical

Course Duration: 20 Weeks (10-15 hours/week)

Cost: \$500 for rural grant-eligible participants

Apprenticeship Program Overview

IRHITEN has partnered with HealthLINC to provide the Apprenticeship Program. HealthLINC, an Indiana based health information exchange, has assisted rural-based providers with achieving high rates of EHR adoption since 2007; and Meaningful Use attestation since 2010; and has developed, placed, and mentored apprenticeship students in rural health care settings since 2011.

The Apprenticeship Program projects focuses on assisting rural health care providers or hospitals to achieve Meaningful Use of EHRs that, thus leads to improved health care quality, safety, and cost in the rural health care settings. Students will get “real world” experience utilizing CEHRT and applying the skills they acquired through the Certificate Program to carry out a related health IT project.

Students are placed in apprenticeships within health care locations that result in the achievement of several learning objectives, as well as the completion of a health IT related project. All efforts are made to keep the student in their community for the apprenticeship program. The IRHITEN apprenticeship program includes activities and resources that ensure the apprenticeship student a valuable, relevant, and hands-on health IT experience. Students should expect to dedicate an average of 90 hours to complete the apprenticeship program practicum and project.

CHTS Certification

Upon completion of the 20-week certificate program, students will sit for the Commission on Certification for Health Informatics and Information Management (CCHIM) CHTS exam to obtain their CHTS Certification for either a Clinician/Practitioner Consultant (CHTS-CP) or Practice Workflow and Information

Indiana Rural Health Information Technology Education Network (IRHITEN)**HIT Course Description and Exam Blueprints**

(Revised March 1, 2016)

Management Redesign Specialist (CHTS-PW). The CHTS exams assess the competency of the health IT professional related to the implementation and management of electronic health information in the same manner as the HIT Pro exams. Each step of the respective certificate programs prepares students for the exam. This certification provides employers with confidence in the student's qualifications, open up job opportunities for graduates, and demonstrate the student's commitment to their profession and their career.

<http://www.pearsonvue.com/chts>.

1. Course Descriptions**Clinician/Practitioner Consultant**

CATALOG DESCRIPTION: The **HIT – Clinician/Practitioner Consultant Certificate** training program provides the skills to support implementation and train practitioners in best use of the EHR system. This role also supports implementation efforts in the design process ensuring workflow and data collection are addressed from a clinical perspective. It combines the background and experience of a clinical or public health professional with the skills necessary for health IT implementation and its use. On the implementation side, the Clinician/Practitioner Consultant increases the clinical integrity of the system, bridging the gap between clinical and IT skills and adds expertise to the clinical team, which is expected to use the system for better patient outcomes delivered at lower cost.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course, the student will be able to:

1. Analyze and recommend solutions for health IT implementation problems in clinical and public health settings, bringing clinical expertise directly to bear.
2. Advise and assist clinicians in taking full advantage of technology, enabling them to make best use of data in electronic form, including data in registries and drive improvement in the quality, safety and efficiency of care.
3. Assist in selection of vendors and software by helping practice personnel ask the right questions and evaluate the answers they receive.
4. Advocate for users' needs, acting as a liaison between users, IT staff, and vendors.
5. Ensure that the patient/consumer perspective is incorporated into EHR deployments and that full attention is paid in the deployment to critical issues of patient privacy.
6. Train practitioners in best use of the EHR system, conforming to the redesigned practice workflow.

Indiana Rural Health Information Technology Education Network (IRHITEN)

HIT Course Description and Exam Blueprints

(Revised March 1, 2016)

Practice Workflow and Information Management Redesign Specialist

CATALOG DESCRIPTION: This course develops the **HIT –Workflow and Information Management Redesign Specialist** with particular emphasis on how to improve processes. The Specialist will learn skills to improve patient care information systems and assist in the transition from paper-based medical records to EHRs. The Community College enhanced course will incorporate lean practices exercises for students to 1) assess workflows in both the medical practice and critical access hospital environments, 2) suggest changes to increase the quality and efficiency of care, and 3) work with providers to implement changes that will lead to Meaningful Use of electronic systems.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course, the student will:

1. Document workflow and information management models of a practice.
2. Conduct analysis of user requirements to facilitate workflow design.
3. Develop revised workflow and information management models, based on meaningful use of a certified EHR product. Revised models will anticipate implementation of:
 - a. General practice automation (e.g., appointment scheduling) to the extent not yet implemented
 - b. Electronic documentation and results review
 - c. Computerized provider order entry (CPOE)
 - d. Clinical decision support (CDS)
 - e. Health information exchange to include:
 - i. Sending of lab orders and receipt of results using CPOE
 - ii. Quality improvement and reporting
 - iii. E-Prescribing
 - f. Other EHR functionalities as required by the Stage 1 Meaningful Use definition for 2011 and its evolution into Stage 2 in 2013 and Stage 3 in 2015 - 16
4. Work directly with practice personnel, as the practice implements the EHR, to implement the revised workflow and information management model.
5. Work with practice staff to develop a set of plans to keep the practice running if the EHR system fails.
6. Work with practice staff to evaluate the new processes as implemented, identify problems and changes that are needed, and implement these changes.
7. Design processes and information flows for the practice that accommodates quality improvement and reporting. These workflow analysis skills will be applicable to a variety of environments.

2. Exam Description and Blueprint

IRHITEN distributed the AHIMA endorsed resource manual to address student requests for a textbook* as an added resource to the online curriculum. Each student has received

Indiana Rural Health Information Technology Education Network (IRHITEN)

HIT Course Description and Exam Blueprints

(Revised March 1, 2016)

a copy of the *Healthcare Information Technology Exam Guide by Dr. Kathleen A. McCormick and Dr. Brian Gugerty. The ISBN is 978-0-07-180280-2.

<https://www.youtube.com/watch?v=RXfEB0Gd0zk>

Overview

The CEHRT exams were designed to assess the competency of health IT professionals who will be instrumental in the transition to electronic health records (EHRs). The CEHRT exams were developed according to industry best practices and are valid, reliable, and legally defensible assessment instruments.

Exam Blueprints and Specifications

When developing the exam blueprints and specifications, items are selected for inclusion on the CEHRT exams based on how their content maps back to, or measures, a core curriculum component learning objective and / or a task delineated from the job analysis for that respective HIT Workforce role. In the exam blueprints, the domains, which represent specific content areas tested on the exams, are comprised of the core curriculum components for that role. Additionally, the competency statements are comprised of the corresponding curriculum learning objectives.

The course outline and objectives align with the ONC approved curriculum. To view each course go to <https://www.healthit.gov/providers-professionals/health-it-curriculum-resources-educators> .

Upon successful completion of the online course and the apprenticeship, the student is eligible to sit for the CHTS certification exam. The certification exams are hosted by PearsonVue at their proprietary testing centers. In order to register for the exam, the student will be provided a 100% prepaid exam voucher number, provide through the grant award. This voucher number will be sent directly to you via email upon completion of the apprenticeship program. Once the student has the voucher number, go to the website: <http://www.pearsonvue.com/chts/> and select the “register online” option. This link will walk the student through selecting a date, time and location that will work best for the student.

Item Writing and Development

All items used on each CEHRT examination are created, reviewed, revised, and ultimately approved by item writers and item reviewers who are health IT subject matter experts (SMEs). These item writers receive extensive training in item writing best practices prior to creating any raw test items.

All draft items undergo a continuous review and revision process, where they are evaluated by SMEs on content accuracy and conformity to the item writing guidelines. Items are also reviewed for linkage or correspondence with a learning objective from a core curriculum component for that respective HIT Workforce role.

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Ongoing item management occurs through a continuous process of statistical analysis to ensure items are performing as expected. Poorly performing scored items are replaced with experimental items, which meet or exceed our performance criteria. This replacement item must be comparable to the item it is replacing with regards to item difficulty and content assignment. Poorly performing items may be salvaged and improved through item revision, review, and approval.

Exam Maintenance and Exam Scoring

Psychometric analysis of item and exam performance is conducted on a continuous basis. This data is used to determine the cut score, or passing standard, using a widely-accepted, best-practice methodology, such as the Modified Angoff method.

The passing scores for each of the CEHRT exams were determined by a panel of SMEs, including educators and practitioners, who participated in standard setting studies. These standard setting studies were convened to establish the operational definition of the minimally competent candidate, which is used to determine the passing or cut score. A candidate's performance on an exam, which meets or exceeds this cut score will be deemed competent to serve in the relevant workforce role.

To determine an exam's cut score, the SME panels first defined the minimally qualified candidate. Then, panelists practiced rating exam items for difficulty with respect to their estimation of the proportion of minimally qualified candidates who would answer each item correctly. Panelists then reviewed the entire exam individually and applied the same item evaluation process. The group's ratings were then averaged across raters and summed to reach the cut score recommendation.

Advisory Council

Twenty-two industry stakeholders have been appointed to serve on the CEHRT Advisory Council, which is responsible for advising the CEHRT exams development team and endorsing the examination blueprints, specifications, and passing standard(s). Advisory Council members bring unique perspectives to the group, as they are affiliated with primary and supporting grant partners, the Curriculum Development Centers, the Community College Consortium, Regional Extension Centers, the Department of Labor, and other industry/employer stakeholder entities.

IRHITEN Program Syllabi

1. Workflow & Information Management Redesign Specialist (WIFM)

COURSE NUMBER: HLTHHIT2 – 87120: Spring 2016

CREDIT: Non-Credit

CEUs: 0

PREREQUISITES: Individuals in this role will be licensed clinical or public health professionals; or in the case of public health, they would bring into the role significant experience in federal, state or local public health agencies.

Indiana Rural Health Information Technology Education Network (IRHITEN)

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(Revised March 1, 2016)

INSTRUCTOR CONTACT INFORMATION:

Instructor: Andrew VanZee

Phone Number: (cell) 317-696-5169

Email (IVY Tech Email): avanzee1@ivytech.edu

Email (Work Email): andrew.vanzee@fssa.in.gov

Course Description:

The HIT Practice Workflow & Information Management Redesign course teaches process improvement skills to equip individuals to serve as HIT-Practice Workflow and Information Management Redesign Specialists. The Specialist will learn techniques to improve patient care information systems and assist in the transition to of medical records to Electronic Health records (EHR), but more importantly, will become more familiar with analyzing workflow to maximize productivity and reduce waste. The course uses the context of workflows in a medical practice; however, the skills are transferrable to every healthcare position. Effective Specialists will increase the quality and efficiency of care and work with colleagues at all levels to implement changes.

MAJOR COURSE LEARNING OBJECTIVES:

At the completion of this course, the student will be able to:

- Document workflow and information management models. Conduct user requirements analysis to facilitate workflow design.
- Develop revised workflow and information management models, based on meaningful use of a certified EHR product. Revised models will anticipate implementation of automated processes; analysis of electronic documentation Meaningful Use requirements and intended outcomes; and become exposed to Health Information Exchange – with all its implications.
- Participants will become exposed to the customer service and change management skills inherent in successful project management transitions.
- Participants will get exposure to creating alternative plans to continue serving patients when and if a system goes down.
- Participants will be taught design processes and information flows in the practice setting that accommodate quality improvement and reporting

REQUIRED TEXT: All materials are online.

COURSE EVALUATION: Pass/Fail

PASS/FAIL CRITERIA

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(Revised March 1, 2016)

- **Certification Program:** This course is graded "Pass/Fail". You will earn a passing grade if you have completed 100% of the assigned quizzes in each component; AND scored at least 70% of the total points across all quizzes; AND actively participate in 4 of the 5 discussions (active participation is defined as completion of the initial post and at least one reply to a fellow student's post) ; AND your total score on the final test is 70% (2 attempts) of the total possible points; otherwise, you will earn a failing grade.
- **Apprenticeship Program:** This project is graded "Pass/Fail". To pass the project the student must complete agreed upon hours for project completion; AND complete one meaningful use project: AND submit all required paper work. If not completed, the student will receive a failing grade
- **Program Completion Requirement:** The student **MUST PASS** the 1) certification program; and 2) apprenticeship program to be eligible to receive the prepaid testing voucher for the HIT certification test. No exceptions!

ATTENDANCE POLICY: Attendance will be taken via active participation in course discussions and completion of online assignments. You are encouraged to participate in all class discussions and assignments to derive maximum benefit from the course.

REFUND POLICY: Due to the nature of this course, once you log into the system, there are no refunds. If you have not received your login, you are eligible to receive a 100% refund. Refund-eligible students may contact ITCC Program Manager, Linda Butler at 317-916-7857.

METHOD OF DELIVERY: Online Course consisting of Written and Audio Lectures, PowerPoints, Discussion Forums, Quizzes, and Assignments. Participants will experience student guided learning activities via the Internet using a virtual classroom on Blackboard. The instructor will give feedback regarding assignments through Blackboard. Participants will also use patient-protected EHR systems to gain practical learning experience.

NOTE: Each class week starts at 12:00 am Monday and runs through 11:59pm Sunday. All required work for the current week must be submitted by 11:59pm on Sunday unless otherwise noted.

BECOME A SUCCESSFUL DISTANCE LEARNER: Successful distance learners are self-disciplined, self-motivated, accountable, and have good time-management skills. There are things you can do to help ensure your success. Be realistic. You may not have to keep a class attendance schedule, but you will have to do regular academic work. Set interim goals and deadlines for yourself and stick to them. Keep a calendar showing the amount of work you need to do each week, the days when you expect to take tests, due

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dates for projects, and meetings or contacts with your instructor. Stay current on the work and don't fall behind.

- Organize a study schedule. It should be times when you are alert and attentive. Stick to those times each week. If you miss too many, revise your schedule.
- Avoid interruptions and distractions. Find a distraction-free location to study. Avoid all interruptions while viewing a video, reading, working on the computer. It will keep you focused and maximize learning and time.
- Stay in touch with the instructor. Contact him/her regularly, especially when you have questions about course content. Ask for help when needed, and be specific about difficult or unclear topics. Instructors will make themselves available by phone, e-mail, mail, or fax. He/she will share their preferred method of communication, as well as their availability schedule.
- Pay careful attention to instructions and be certain you understand what is being asked when submitting assignments.
- Self-evaluate regularly by re-reading course objectives and standards to determine how well you are progressing.

ACADEMIC HONESTY STATEMENT: The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

COPYRIGHT STATEMENT: Students shall adhere to the laws governing the use of copyrighted materials. They must insure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

WIFM Weekly Syllabus: The instructor retains the prerogative of changing or adjusting the course syllabus to best accommodate the pace of progression and the needs of the students.

Indiana Rural Health Association – HRSA-13-251
Indiana Rural Health Information Technology Education Network (IRHITEN)
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(Revised March 1, 2016)

2. CPC Course Syllabus

COURSE NUMBER: HLTHHIT2 – 101530: Spring 2016

Instructor: Andrew VanZee		CRN and Workforce Role: 87120 –Spring 2016 Non Credit Practice Workflow and Information Management Redesign Specialist		
Week	Date	Component	Units	Due Date
1-2	1/25/16	Pre-Test (*Not counted toward course grade)	Pre Test	2/7/2016
	2/1/16	Orientation 1 - Introduction to Health Care and Public Health in the U.S.	1, 6, 9, 10	
		Introduction On-Line Discussion 1	Participation	
3	2/8/16	2 - The Culture of Health Care	1-4 &7	2/14/2016
4	2/15/16	3 - Terminology in Health Care and Public Health Settings	1 & 13-16	2/21/2016
5	2/22/16	4 – Introduction to Information & Computer Science.	3 & 5-9	2/28/2016
6	2/29/16	5 - History of Health Information Technology in the U.S	3,5,9,11 & 15	3/6/2016
		On-Line Discussion 2	Participation	
7	3/7/16	6 - Health Management Information Systems	1-6	3/13/2016
8	3/14/16	Catch-up /Work Ahead		
9	3/21/16	7 - Working with Health IT Systems Lab 7	1-7	3/27/2016
10	3/28/16	9 - Networking and Health Information Exchange	1,2,5-7&9	4/3/2016
		On-Line Discussion 3	Participation	
11	4/4/16	10 - Fundamentals of Health Workflow Process Analysis and Redesign	1-4,6,10	4/10/2016
12	4/11/16	11 - Configuring EHRs Lab 11	1,2,4,&8	4/17/2016
13	4/18/16	Catch-up/Work ahead		
14	4/25/16	12 - Quality Improvement	1,3, 5-7, 11	5/1/2016
15	5/2/16	15-Usability and Human Factors	4, 5, 6 & 7	5/8/2016
		On-Line Discussion 4	Participation	
16	5/9/16	16 – Professionalism/Customer Service in the Health Environment	1, 6, 7	5/15/2016
17	5/16/16	17 - Working in Teams for Health IT	1, 2, 5, 10	5/22/2016
18	5/23/16	19 - Introduction to Project Management	1-3, 5, 7	5/29/2016
		On-Line Discussion 5	Participation	
19	5/30/16	Review for Final / Catch up		
20	6/6/16	Final Exam		6/12/2016
21	6/13/16	Wrap Up/Pass/Fail		

CREDIT: Non-Credit

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HIT Course Description and Exam Blueprints

(Revised March 1, 2016)

CEUs: 0

PREREQUISITES: Individuals in this role will be licensed clinical or public health professionals; or in the case of public health, they would bring into the role significant experience in federal, state or local public health agencies.

INSTRUCTOR CONTACT INFORMATION:

Instructor: Beth Jump

Phone Number: (work) 574-753-7541

Email (IVY Tech Email): bjump2@ivytech.edu

Email (Work Email): bjump@logansportmemorial.org

COURSE DESCRIPTION: The HIT-Clinician/Practitioner Consultant training program applies the background and experience of a licensed clinical or public health professional to skills needed to optimize electronic medical records. These members of the workforce will learn to support implementation and train practitioners in best use of the electronic health record system, conforming to the redesigned practice workflow as needed. This program bridges the gap between the clinical and IT sides of the house and facilitates an end-result effective for all stakeholders.

MAJOR COURSE LEARNING OBJECTIVES: At the completion of this component, the student will be able to:

- Analyze and recommend solutions for Health IT implementation problems in clinical and public health settings, maximizing system and process changes by integrating clinical expertise on the front end.
- Advise and assist clinicians to make best use of data in electronic form - including data in registries - and to drive improvement in the quality, safety and efficacy of care.
- Assist with vendor software selection to ensure a comprehensive review of the product is made, before investing, and that the resulting system provides the greatest value from both clinical and technology perspectives.
- Advocate for users' needs, acting as a liaison between users, IT staff, and vendors.
- Ensure that the patient/consumer perspective is incorporated into EHR deployments and that due diligence has been performed regarding patient privacy.
- Train users in best use of the EHR system, conforming to the redesigned workflow.
- Successfully manage the transition associated with major change, utilizing strong customer service skills, and projecting confidence and professionalism as a result of project management integration.

REQUIRED TEXT: All materials are online.

COURSE EVALUATION: Pass/Fail

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(Revised March 1, 2016)

PASS/FAIL CRITERIA:

- **Certification Program:** This course is graded "Pass/Fail". You will earn a passing grade if you have completed 100% of the assigned quizzes in each component; AND scored at least 70% of the total points across all quizzes; AND actively participate in 4 of the 5 discussions (active participation is defined as completion of the initial post and at least one reply to a fellow student's post); AND your total score on the final test is 70% (2 attempts) of the total possible points; otherwise, you will earn a failing grade.
- **Apprenticeship Program:** This project is graded "Pass/Fail". To pass the project the student must complete agreed upon hours for project completion; AND complete one meaningful use project; AND submit all required paper work. If not completed, the student will receive a failing grade.
- **Program Completion Requirement:** The student **MUST PASS** the 1) certification program; and 2) apprenticeship program to be eligible to receive the prepaid testing voucher for the HIT certification test.

ATTENDANCE POLICY: Attendance will be taken via active participation in course discussions and completion of online assignments. You are encouraged to participate in all class discussions and assignments to derive maximum benefit from the course.

REFUND POLICY: Due to the nature of this course once you log into the system, there are no refunds. If you have not received your login, you are eligible to receive a 100% refund. Refund-eligible students may contact ITCC Program Manager, Linda Butler at 317-916-7857.

METHOD OF DELIVERY: Online Course consisting of Written and Audio Lectures, PowerPoints, Discussion Forums, Quizzes, and Assignments. Participants will experience student guided learning activities via the Internet using a virtual classroom on Blackboard. The instructor will give feedback regarding assignments through Blackboard. Participants will also use patient-protected EHR systems to gain practical learning experience.

NOTE: Each class week starts at 12:00 am Monday and runs through 11:59pm Sunday. All required work for the current week must be submitted by 11:59pm on Sunday unless otherwise noted.

BECOME A SUCCESSFUL DISTANCE LEARNER: Successful distance learners are self-disciplined, self-motivated, accountable, and have good time-management skills. There are things you can do to help ensure your success.

- Be realistic. You may not have to keep a class attendance schedule, but you will have to do regular academic work.
- Set interim goals and deadlines for yourself and stick to them. Keep a calendar showing the amount of work you need to do each week, the days when you expect

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to take tests, due dates for projects, and meetings or contacts with your instructor. Stay current on the work and don't fall behind.

- Organize a study schedule. It should be times when you are alert and attentive. Stick to those times each week. If you miss too many, revise your schedule.
- Avoid interruptions and distractions. Find a distraction-free location to study. Avoid all interruptions while viewing a video, reading, working on the computer. It will keep you focused and maximize learning and time.
- Stay in touch with the instructor. Contact him/her regularly, especially when you have questions about course content. Ask for help when needed, and be specific about difficult or unclear topics. Instructors will make themselves available by phone, e-mail, mail, or fax. He/she will share their preferred method of communication, as well as their availability schedule.
- Pay careful attention to instructions and be certain you understand what is being asked when submitting assignments.
- Self-evaluate regularly by re-reading course objectives and standards to determine how well you are progressing.

INAPPROPRIATE USE OF COLLEGE COMPUTERS: Theft or other abuse of computer time is against college rules, which include but are not limited to:

- unauthorized entry into a file, to use, read, or change the contents or for any other purpose
- unauthorized transfer of a file
- unauthorized use of another user's identification and password
- use of computing facilities to interfere with work of students, faculty members or college officials
- use of computing facilities to send, receive, or view obscene or abusive messages
- use of computing facilities to interfere with normal operation of the college computing system
- use of computing facilities for student's personal benefit
- unauthorized use of college owned computer resources to prepare or print work for commercial use

ACADEMIC HONESTY STATEMENT: The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

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no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

CPC WEEKLY SYLLABUS: The instructor retains the prerogative of changing or adjusting the course syllabus to best accommodate the pace of progression and the needs of the students.

Instructor: Beth Jump		HLTHHIT2 - 101530 – Clinical/Practitioner Consultant Spring 2016 Non-Credit		
Week	Date	Component	Units	Due Date
1	1/25/16	Pre-Test (*Not counted toward course grade)	Pre-Test	1/31/16
		3 – Terminology in Health Care and Public Settings	13, 14, 15, 16	
		Introduction On-Line Discussion 1	Participation	
2	2/1/16	4 - Introduction to Information and Computer Science	4, 8, 10	2/7/16
		5 – History of Health Information Technology in the U.S.	3, 8, 9, 10	
3	2/8/16	6 - Health Management Information Systems	1, 2, 3, 4, 5	2/14/16
4	2/15/16	6 - Health Management Information Systems	6, 7, 8, 9	2/21/16
		On-Line Discussion 2	Participation	
5	2/22/16	9 – Networking and Health Information Exchange	3, 4, 5, 6, 10	2/28/16
6	2/29/16	10 – Fundamentals of Health Workflow Process Analysis and Redesign	1, 2, 3, 4, 5	3/6/16
7	3/7/16	10 - Fundamentals of Health Workflow Process Analysis and Redesign	6, 7, 8, 9, 11	3/13/16
8	3/14/16	7 - Working with Health IT Systems	2, 3, 5, 6	3/20/16
		Hands-On Lab 7	Vista Lab	
9	3/21/16	Spring Break / Catch-Up on Any Outstanding Work		3/27/16
10	3/28/16	7 - Working with Health IT Systems	7, 9, 10	4/3/16
		On-Line Discussion 3	Participation	
11	4/4/16	12 – Quality Improvement	1, 2, 4, 5, 6	4/10/16
12	4/11/16	12 – Quality Improvement	8, 9, 10, 11, 12	4/17/16
13	4/18/16	14 – Special Topics: Vendor-Specific Systems	1, 4, 5, 8	4/24/16
		On-Line Discussion 4	Participation	
14	4/25/16	15 - Usability and Human Factors	4, 5, 6, 7	5/1/16
15	5/2/16	Catch-Up on Any Outstanding Work		5/8/16
16	5/9/16	16 – Professionalism/Customer Service in the Health Environment	1, 5, 7, 8	5/15/16
17	5/16/16	13 – Public Health IT	1, 2, 3, 6, 7	5/22/16

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(Revised March 1, 2016)

Instructor: Beth Jump		HLTHHIT2 - 101530 – Clinical/Practitioner Consultant Spring 2016 Non-Credit		
Week	Date	Component	Units	Due Date
18	5/23/16	17 - Working in Teams for Health IT	1, 2	5/29/16
		19 – Introduction to Project Management	1, 2	
		On-Line Discussion 5	Participation	
19	5/30/16	18 – Planning, Management, and Leadership for Health IT	1, 2, 3, 4, 5	6/5/16
20	6/6/16	18 – Planning, Management, and Leadership for Health IT	6, 7, 8, 9, 10	6/12/16
21	6/13/16	Catch-Up and Prepare for Final Exam		6/19/16
22	6/20/16	Final Exam		6/26/16

Kentucky

Northeast Kentucky Regional Health Information Organization
Somerset Community College

ONC Focus Area:

- Clinician/Practitioner Consultant

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)
- CAHIMS
- CPHIMS

Curriculum Resources:

- [Curriculum Outline](#)

**Rural Health Information Technology Workforce Program
Health IT Curriculum Deliverable**

Background:

In our original Health IT Workforce Development Program application, we specified the need for three important components to establish the curriculum:

- Integration into Somerset Community College curriculum;
- Incorporation of all ONC HIT curriculum modules into the course according to their role/certification (outline by the Matrix of HIT Workforce Curriculum Components); and
- Completion of seminars, tours, and specialized topics of interest additional/supplemental to the curriculum for updates and to keep current.

These three key focus areas are still prominent in our program today but with a slight change to our Community College Integration. Initial attempts to join in partnership with Somerset Community College to incorporate our program into their offerings resulted in a surprisingly easy feat. Their interest in the program provided us with a chance to finalize the partnership and to begin the process of getting the program and courses approved for their accreditation. The process however, is not one that can be completed in a short period of time, as approval for one course can take anywhere from one to two years and sometimes more. Within this time, Somerset Community College received the Trade Adjustment Assistance Community College and Career Training (TAAACT) Grant to promote training programs that can be completed in two years or less. With this grant, they are creating courses and programs similar to ours, which decreased the need for our program. Because of this, we determined it was best to offer our program separately rather than through integration into the community college curriculum. The benefits of initiating the program through our organization have been significant. We have more control over the program and have been able to be more responsive to the needs of program participants and healthcare providers. We are able to tailor the program to individual needs, focus on retention strategies, increase employment opportunities for students, promote more one-on-one time and communication, and develop the program to meet the consistently changing needs of our region's Healthcare IT landscape.

When we began developing the program, our initial focus was on the immediate needs of our region's healthcare providers and their desire for future or current staff. Because of this, a one-track curriculum was created to help participants work towards American Health Information Management Association (AHIMA) specialty Certified Healthcare Technology Specialist (CHTS) Certification. Due to the evolving and ever-changing Health IT landscape, we made a large adaptation to the program that allowed us to incorporate all six (6) AHIMA CHTS Certification offerings. These changes allow employers or Health IT students the opportunity to choose the certification tracks that best meets their needs. We have also been able to add an additional certification through the Health Information Management Systems Society (HIMSS): Certified Associate in Health Information and

NORTHEAST KENTUCKY REGIONAL HEALTH INFORMATION ORGANIZATION
Rural Health Information Technology Workforce Program
R01RH26276

Management Systems (CAHIMS). The recent addition of the optional certification training routes will help secure sustainability for our Health IT Program and garner a potential increase in program interest and recruitment.

Our measures of incorporating supplemental topics are still consistent within the curriculum today. We began with including 2 face-to-face conferences for updates of current Health IT trending topics. Currently, we include 1 – 2 online webinars and/or conferences for the same. Therefore, the only adjustment to our curriculum was insuring the program became fully online. We found in our first year that the fully online program better met our students' needs and addressed their barriers to completing the program.

In the following attachments you can view our current Health IT Programmatic Curriculum and the respective Health IT exam competency blueprint matrix. The ONC Blueprint Matrix was also utilized in the creation of the CAHIMS course and can be noticed through the CAHIMS schedule/lectures.

Certification Exams and Learning Objectives:

CAHIMS	<ul style="list-style-type: none"> • Present basic characteristics, interrelationships, and services of different types of healthcare organizations. • Discuss the impact of commonly accepted laws, regulations, accreditation, and other state/local rules that govern the healthcare industry, with an emphasis on privacy and security. • Identify significant business trends affecting the healthcare field and discuss their potential impact on providers and customers. • Present best practices to support ethical behaviors, communication, leadership and professionalism in healthcare organizations. • Describe the role and characteristics of various IT applications and systems commonly used in healthcare. • Discuss significant technology trends affecting the Health IT field. • Present organizational policies and procedures to ensure confidentiality, integrity, and availability of data. • Present the key steps, strategies and roles that support health information management systems: analysis design, selection and acquisition, implementation and management, and testing and evaluation. • Present the role of Health IT specialists in each phase of the health information management systems life cycle.
CHTS-CP	<ul style="list-style-type: none"> • Suggest Solutions for Health IT implementation problems in clinical and public health settings. • Address workflow and data collection issues from a clinical perspective, including quality measurement and improvement. • Assist in selection of vendors and software. • Advocate for users' needs, acting as a liaison between users, IT staff, and vendors.
CHTS-IM	<ul style="list-style-type: none"> • Apply project management and change management principles to create implementation project plans to achieve the project goals. • Interact with office/hospital personnel to ensure open communication with the support team. • Lead implementation teams consisting of workers in the roles described above. • Manage vendor relations, providing feedback to health IT vendors for product improvement
CHTS-IS	<ul style="list-style-type: none"> • Execute implementation project plans, by installing hardware (as needed) and configuring software to meet practice needs. • Incorporate usability principles into design and implementation. • Test and software against performance specifications. • Interact with vendors as needed to rectify problems that occur during the deployment process.
CHTS-PW	<ul style="list-style-type: none"> • Conduct user requirements analysis to facilitate workflow design. • Integrate information technology functions into workflow. • Document health information exchange needs. • Design processes and information flows that accommodate quality improvement and reporting. • Work with provider personnel to implement revised workflows. • Evaluate process workflows to validate or improve practice's systems.
CHTS-TS	<ul style="list-style-type: none"> • Interact with end users to diagnose IT problems and implement solutions. • Document IT problems and evaluate the effectiveness of problem resolution. • Support systems security and standards.
CHTS-TR	<ul style="list-style-type: none"> • Be able to use a range of Health IT applications, preferable at an expert level. • Communicate both health and IT concepts as appropriate. • Assess training needs and competencies of learners. • Design lesson plans, structuring active learning experience for users.

HIMSS Certified Assistant Health Information & Management Specialist (CAHIMS)

Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters: Lectures</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	15: b 16: a	1 hour
2	4: Intro. to Information and Computer Science	3: a, b, c 4: a, b, c 9: d	2 - 3 hours
3	5: History of Health Information Technology in the U.S.	2: a, b 3: a, b 9: a 10: a, b, c 11: a 12: a 16: a	3 hours
4	6: Health Management Information Systems	4: a, b 5: a, b 6: a, b 7: a	3 hours
5	6 Continued: Health Management Information Systems	8: a, b 9: a, b	3 hours
	7: Working with HIT systems	3: a 5: a, b 9: a 10: a, b	
6	8: Installation & Maintenance of HIT Systems	1: a, b 2: a 3: a 5: a 6: a, b	3 hours
7	8 Continued: Installation & Maintenance of HIT Systems	7: a 8: a, b 9: a, b, c 10: a 11: a	3 hours
8	9: Networking & Health Information Exchange	1: a, b 9: a, b	3 - 4 hours
	10: Workflow Process Analysis & Redesign	1: a, b 2: a, b 5: a, b	

9	11: Configuring EHRs	3: a 4: a 7: a, b, c, d, e, f 8: a, b	3 hours
10	12: Quality Improvement	1: a, b, c, d 2: a, b 3: a 5: a, b 7: a, b 8: a 10: a	3 - 4 hours
11	13: Public Health IT	2: a 3: a	2 - 3 hours
	14: Special Topics on Vendor-Specific Systems	2: a	
	15: Usability & Human Factors	2: a 4: a, b, c 6: a 8: a	
12	16: Professionalism/ Customer Service	1: a, b 2: a 3: a 4: a, b, c 6: a, b 8: a, b 9: a	3 hours
13	17: Working in Teams	1: a, b 8: a 9: a 10: a	3 hours
	18: Plan, Manage, Lead for Health IT	2: a, b	
14	18 Continued: Plan, Manage, Lead for Health IT	3: a, b, c 5: a, b 8: a, b	3 hours
	19: Introduction to Project Management	1: a, b	
15	19 Continued: Introduction to Project Management	4: a, b 6: a, b 8: c	3 hours
	20: Training & Instructional Design	1: a, b, c 3: a	

AHIMA Certified Healthcare Technology Specialist (CHTS)

Clinician/ Practitioner Consultant Curriculum

Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	13 – 16	4 hours
	4: Introduction to Information and Computer Science	1, 2	
2	4 Continued: Intro. to Information and Computer Science	3 – 6	4 hours
3	4 Continued: Intro. to Information and Computer Science	6 – 10	4 – 5 hours
4	5: History of Health Information Technology in the U.S.	1 – 7	4 hours
5	5 Continued: History of HIT in the U.S.	8 - 16	4 hours
6	6: Health Management Information Systems	1 – 5	4 hours
7	6 Continued: Health Management Information Systems	6 – 9	4 hours
	7: Working with HIT systems	1 – 3	
8	7: Working with HIT systems	4 – 11	4 hours
9	9: Networking & Health Information Exchange	1 – 4	5 hours
10	9 Continued: Networking & Health Information Exchange	5 - 10	5 hours
11	10: Workflow Process Analysis & Redesign	1 – 4	4 hours
12	10 Continued: Workflow Process Analysis & Redesign	6 – 11	5 hours
13	12: Quality Improvement	1 – 8	4 hours
14	12 Continued: Quality Improvement	9 – 12	4 hours
	13: Public Health IT	1 – 2	
15	13 Continued: Public Health IT	3 – 10	4 hours
16	15: Usability & Human Factors	1 – 6	4 hours
17	15 Continued: Usability & Human Factors	6 – 12	3 – 4 hours
18	17: Working in Teams	1 – 11	5 hours
19	18: Plan, Manage, and Lead for HIT	1 – 8	4 hours
20	18 Continued: Plan, Manage, and Lead for HIT (Take extra time to catch up if behind)	9 – 10	2 hours

AHIMA Certified Healthcare Technology Specialist (CHTS)

Implementation Manager Curriculum

Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	13 – 16	5 hours
	5: History of Health Information Technology in the U.S.	1 – 6	
2	5 Continued: History of Health Information Technology in the U.S.	6 – 16	5 hours
	6: Health Management Information Systems	1 – 8	
3	6 continued: Intro. to Information and Computer Science	1 – 7	5 hours
4	6 continued: Health Management Information Systems	8 – 9	5 hours
	8: Installation and Maintenance of Health IT Systems	1 – 7	
5	8 continued: Installation and Maintenance of Health IT Systems	8 - 11	5 hours
	9: Networking and Health Information Exchange	1 – 3	
6	9 continued: Networking and Health Information Exchange	3 – 7	5 hours
7	9 Continued: Networking and Health Information Exchange	7 – 10	5 hours
	10: Fundamentals of Health Workflow Process Analysis and Redesign	1 – 3	
8	10 continued: Fundamentals of Health Workflow Process Analysis and Redesign	3 – 8	5 hours
9	10 continued: Fundamentals of Health Workflow Process Analysis and Redesign	8 – 11	4-5 hours
	11: Configuring EHRs	1 – 7	
10	11 continued: Configuring EHRs	7 – 8	5 hours
	12: Quality Improvement	1 – 8	
11	12 continued: Quality Improvement	8 – 12	5 hours
	14: Special Topics Course on Vendor-Specific Systems	1 – 8	

12	16: Professionalism/Customer Service in the Health Environment	1 – 9	4-5 hours
	17: Working in Teams	1 – 2	
13	17 continued: Working in Teams	2 – 11	4 hours
14	18: Planning, Management and Leadership for Health IT	1 – 8	4 hours
15	18 continued: Planning, Management and Leadership for Health IT	9 – 10	4 hours
	19: Introduction to Project Management	1 – 3	
16	19 continued: 19: Introduction to Project Management	3 – 11	5 hours

AHIMA Certified Healthcare Technology Specialist (CHTS)

Implementation Support Specialist
Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	13 – 16	4 hours
	4: Introduction to Information and Computer Science	1, 2	
2	4 Continued: Intro. to Information and Computer Science	3 – 6	4 hours
3	4 Continued: Intro. to Information and Computer Science	6 – 10	4 – 5 hours
4	5: History of Health Information Technology in the U.S.	1 – 7	4 hours
5	5 Continued: History of HIT in the U.S.	8 - 16	4 hours
6	6: Health Management Information Systems	1 – 5	4 hours
7	6 Continued: Health Management Information Systems	6 – 9	4 hours
	7: Working with HIT systems	1 – 3	
8	7: Working with HIT systems	4 – 11	4 hours
9	8: Installation & Maintenance of HIT Systems	1 – 7	4 hours
10	8: Installation & Maintenance of HIT Systems	8 – 11	5 hours
	9: Networking & Health Information Exchange	1 – 3	
11	9 Continued: Networking & Health Information Exchange	4 – 6	4 hours
12	9 Continued: Networking & Health Information Exchange	6 – 11	4 hours
	11: Configuring EHR's	1 – 2	
13	11 Continued: Configuring EHR's	3 – 8	4 hours
14	12: Quality Improvement	1 – 8	4 hours
15	12 Continued: Quality Improvement	9 – 12	4 hours
	14: Special Topics Course on Vendor Specific Systems	1 – 4	
16	14 Continued: Special Topics on Vendor Specific Systems	5 – 8	4 hours
	15: Usability & Human Factors	1 – 5	
17	15 Continued: Usability & Human Factors	6 – 12	4 hours

AHIMA Certified Healthcare Technology Specialist (CHTS)
Practice Workflow and Information Management Redesign Specialist Curriculum
Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	13 – 16	5 hours
	4: Introduction to Information and Computer Science	1 – 3	
2	4 Continued: Introduction to Information and Computer Science	4 – 7	5 hours
3	4 continued: Introduction to Information and Computer Science	8 – 10	5 hours
	5: History of Health Information Technology in the U.S.	1 – 2	
4	5 continued: History of Health Information Technology in the U.S.	3 – 11	5 hours
5	5 continued: History of Health Information Technology in the U.S.	12 – 16	5 hours
	6: Health Management Information Systems	1 – 4	
6	6 continued: Health Management Information Systems	5 – 9	4-5 hours
	7: Working with Health IT Systems	1 – 2	
7	7 Continued: Working with Health IT Systems	3 – 11	4-5 hours
	9: Networking and Health Information Exchange	1	
8	9 continued: Networking and Health Information Exchange	2 – 5	4-5 hours
9	9 continued: Networking and Health Information Exchange	5 – 10	5 hours
10	10: Fundamentals of Health Workflow Process Analysis and Redesign	1 – 5	4-5 hours
11	10 continued: Fundamentals of Health Workflow Process Analysis and Redesign	6 – 11	4-5 hours
12	11: Configuring EHRs	1 – 8	4-5 hours

13	12: Quality Improvement	1 – 10	5 hours
14	12 continued: Quality Improvement 15: Usability and Human Factors	11 – 12 1 – 5	5 hours
15	15 continued: Usability and Human Factors 16: Professionalism/Customer Service in the Health Environment	6 – 12 1 – 3	5 hours
16	16 continued: Professionalism/Customer Service in the Health Environment 17: Working in Teams	4 – 9 1 – 4	5 hours
17	17 continued: Working in Teams 19: Introduction to Project Management	5 – 11 1 – 3	5 hours
18	19 continued: Introduction to Project Management	4 - 11	5 hours

AHIMA Certified Healthcare Technology Specialist (CHTS)

Technical/ Software Support Phase 1: Suggested Weekly Schedule

Week	Books	Chapters	Appx. Time
1	3: Terminology in Health Care and Public Health Settings	13 – 16	4 hours
	4: Introduction to Information and Computer Science	1, 2	
2	4 Continued: Intro. to Information and Computer Science	3 – 6	4 hours
3	4 Continued: Intro. to Information and Computer Science	6 – 10	4 – 5 hours
4	5: History of Health Information Technology in the U.S.	1 – 7	4 hours
5	5 Continued: History of HIT in the U.S.	8 - 16	4 hours
6	6: Health Management Information Systems	1 – 5	4 hours
7	6 Continued: Health Management Information Systems	6 – 9	4 hours
	7: Working with HIT systems	1 – 3	
8	7: Working with HIT systems	4 – 11	4 hours
9	8: Installation & Maintenance of HIT Systems	1 – 7	4 hours
10	8: Installation & Maintenance of HIT Systems	8 – 11	5 hours
	9: Networking & Health Information Exchange	1 – 3	
11	9 Continued: Networking & Health Information Exchange	4 – 6	4 hours
12	9 Continued: Networking & Health Information Exchange	6 – 11	4 hours
	11: Configuring EHR's	1 – 2	
13	14: Special Topics Course on Vendor Specific Systems	3 – 8	4 hours
14	15: Usability & Human Factors	1 – 6	4 hours
15	15 Continued: Usability & Human Factors	7 – 12	3 – 4 hours
16	16: Professionalism/ Customer Service	1 – 9	3 – 4 hours

AHIMA Certified Healthcare Technology Specialist (CHTS)

Trainer

Phase 1: Suggested Weekly Schedule

<i>Week</i>	<i>Books</i>	<i>Chapters</i>	<i>Appx. Time</i>
1	3: Terminology in Health Care and Public Health Settings	13 – 16	4 hours
	4: Introduction to Information and Computer Science	1, 2	
2	4 Continued: Intro. to Information and Computer Science	3 – 6	4 hours
3	4 Continued: Intro. to Information and Computer Science	6 – 10	4 – 5 hours
4	5: History of Health Information Technology in the U.S.	1 – 7	4 hours
5	5 Continued: History of HIT in the U.S.	8 - 16	4 hours
6	6: Health Management Information Systems	1 – 5	4 hours
7	6 Continued: Health Management Information Systems	6 – 9	4 hours
	7: Working with HIT systems	1 – 3	
8	7: Working with HIT systems	4 – 11	4 hours
9	9: Networking & Health Information Exchange	1 – 4	5 hours
10	9 Continued: Networking & Health Information Exchange	5 - 10	5 hours
11	10: Workflow Process Analysis & Redesign	1 – 4	4 hours
12	10 Continued: Workflow Process Analysis & Redesign	6 – 11	5 hours
13	12: Quality Improvement	1 – 8	4 hours
14	12 Continued: Quality Improvement	9 – 12	4 hours
	13: Public Health IT	1 – 2	
15	13 Continued: Public Health IT	3 – 10	4 hours
16	14: Special Topics on Vendor-Specific Systems	1 – 8	
	15: Usability & Human Factors	1 – 3	
17	15 Continued: Usability & Human Factors	4 – 9	4 hours
18	15 Continued: Usability & Human Factors	9 – 12	4 hours
	16: Professionalism/ Customer Service	1 – 6	

19	16 Continued: Professionalism/ Customer Service	7 – 9	5 hours
	17: Working in Teams	1 – 6	
20	17 Continued: Working in Teams	7 – 11	3 hours
	20: Training & Instructional Design	1 – 2	
21	20: Training & Instructional Design (Take extra time to catch up if behind)	3 – 8	4 hours

<p style="text-align: center;">Component Description</p> <p>(Each certification track is tailored for the exam and will only include certain components and units and you can find these on your suggested schedules)</p>	<p style="text-align: center;">Unit Topics</p>
<p>1. Introduction to Healthcare and Public Health in the U.S. This component is a survey of how healthcare and public health are organized and services delivered in the U.S. It covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. It also addresses health reform initiatives in the U.S.</p>	<ol style="list-style-type: none"> 1. Introduction and History of Modern Healthcare in the U.S. 2. Delivering Healthcare (Part 1) 3. Delivering Healthcare (Part 2) 4. Financing Healthcare (Part 1) 5. Financing Healthcare (Part 2) 6. Regulating Healthcare 7. Public Health (Part 1) 8. Public Health (Part 2) 9. Healthcare Reform 10. Meaningful Use
<p>2. The Culture of Healthcare For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.</p>	<ol style="list-style-type: none"> 1. An overview of the Culture of Healthcare 2. Health Professionals – The People in Healthcare 3. Healthcare Settings – The Places Where Care is Delivered 4. Healthcare Processes and Decision Making 5. Evidence-Based Practice 6. Nursing Care Processes 7. Quality Measurement and Performance 8. Ethics and Professionalism 9. Privacy & Security 10. Sociotechnical Aspects – Clinicians and Technology
<p>3. Terminology in Health Care and Public Health Settings – This component explains specific terminology used by workers in healthcare and public health.</p>	<ol style="list-style-type: none"> 1. Understanding Medical Words 2. Integumentary System 3. Musculoskeletal System 4. Blood, Lymphatic and Immune System 5. Cardiovascular System 6. Digestive System 7. Endocrine System 8. Ears, Nose, Throat, Eye and Vision 9. Nervous System 10. Reproductive System 11. Respiratory System 12. Urinary System 13. Public Health and Healthcare System Technology 14. What is Health Information Management and Technology? 15. Electronic Health Records 16. Standards to Promote Health Information Exchange

<p>4. Introduction to Information and Computer Science This component provides a basic overview of computer architecture; data organization, representation and structure, programming languages, networking and data communication, and basic terminology of computing.</p>	<ol style="list-style-type: none"> 1. Basic Computing Concepts, Including History 2. Internet and the World Wide Web 3. Computer Hardware 4. Computer Software 5. Computer Programming 6. Databases and SQL 7. Networks 8. Security 9. Information Systems 10. Future of Computing
<p>5 – History of Health Information Technology in the U.S. This component traces the development of IT systems in healthcare and public health, beginning with the 1950’s and 1960’s and culminating in the HITECH act, including meaningful use of EHRs.</p>	<ol style="list-style-type: none"> 1. Evolution of Health IT: The Early Years 2. Evolution of Health IT: The Modern Era 3. Evolution of Health IT: The HITECH Act 4. Evolution of Public Health Informatics 5. Evolution of Nursing Informatics and HIT Tools Used by Nursing 6. History of Electronic Health Records (EHRs) 7. History of Clinical Decision Support Systems 8. History of CPOE and E-Prescribing 9. History of Health Information Exchange 10. History of Privacy and Security Legislation 11. Software Certification and Regulation 12. History of Mobile Computing 13. History of Telemedicine 14. History of Quality Improvement and Patient Safety 15. Payment-Related Issues and the Role of HIT 16. History of Health IT Organizations
<p>6 – Health Management Information Systems Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in healthcare and public health organizations.</p>	<ol style="list-style-type: none"> 1. What is Health Informatics? 2. Health Information Systems Overview 3. Electronic Health Records 4. Computerized Provider Order Entry (CPOE) 5. Clinical Decision Support Systems 6. Patient Monitoring Systems 7. Medical Imaging Systems 8. Consumer Health Informatics 9. Administrative, Billing, and Financial Systems
<p>7 – Working with Health IT Systems Lab component where students will work with simulated systems and data. Participants will play the role of practitioners using these systems to learn what is happening “under the hood.”</p>	<ol style="list-style-type: none"> 1. Introduction & Overview: Components of HIT Systems 2. Under the Hood: Functions of HIT Systems 3. Understanding Information Exchange in HIT Systems 4. The Effective HIT System

	<ol style="list-style-type: none"> 5. Fundamentals of Usability in HIT Systems – What Does it Matter? 6. HIT Facilitated Error – Cause and Effect 7. Protecting Privacy, Security, and Confidentiality in HIT Systems 8. HIT System Planning, Acquisition, Installation, & Training: Practices to Support & Pitfalls to Avoid 9. Potential Issues with Adoption and Installation of an HIT System 10. HIT and Aspects of Patient-Centered Care 11. Health IT in the Future
<p>8 – Installation and Maintenance of Health IT Systems Instruction in installation and maintenance of health IT systems, including testing prior to implementation. Introduction to principles underlying system configuration. Hands-on experiences in computer labs and on-site in health organizations.</p>	<ol style="list-style-type: none"> 1. (Elements of a Typical EHR System) 2. (System Selection – Software and Certification) 3. (System Selection – Functional and Technical Requirements) 4. (Structured Systems Analysis and Design) 5. (Software Development Life Cycle) 6. (System Security Procedures and Standards) 7. (System Interfaces and Integration) 8. (Troubleshooting, Maintenance and Upgrades, and Interaction with Vendors, Developers, and Users) 9. (Creating Fault Tolerant System, Backups, and Decommissioning) 10. (Developing a Test Strategy and Test Plan) 11. (Pilot Testing and Full-Scale Deployment)
<p>9 – Networking and Health Information Exchange In-depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them), the ISO stack, standards, internet protocols, federations and grids, the NHIN and other nationwide approaches.</p>	<ol style="list-style-type: none"> 1. (ISO Open Systems Interconnection (OSI)) 2. (Network Media and Hardware Communication Devices) 3. (National and International Standards Developing Organizations) 4. (Basic Health Data Standards) 5. (EHR Functional Model Standards) 6. (Health Data Interchange Standards) 7. (Supporting Standards for EHR Applications) 8. (Enterprise Architecture Models) 9. (Privacy, Confidentiality, and Security Issues and Standards) 10. (Health Information Exchange)
<p>10 – Fundamentals of Health Workflow Process Analysis & Redesign Fundamentals of health workflow process analysis and redesign is a necessary component of complete practice automation and includes topics of processes validation and change management.</p>	<ol style="list-style-type: none"> 1. Concepts of Processes and Process Analysis 2. Process Mapping Theory and Rationale 3. Interpreting and Creating Process Diagrams 4. Acquiring Clinical Process Knowledge 5. Process Analysis 6. Process Redesign 7. Facilitating Meetings for Implementation Decisions 8. Quality Improvement Methods 9. Leading and Facilitating Change

	<ul style="list-style-type: none"> 10. Process Change Implementation and Evaluation 11. Maintaining and Enhancing the Improvements
<p>11 – Configuring Electronic Health Records</p> <p>Provides a practical experience with a laboratory component (utilizing VistA for Education program) that will address approaches to assessing, selecting, and configuring EHRs to meet the specific needs of customers and end-users.</p>	<ul style="list-style-type: none"> 1. Migration to an Electronic Health Record System 2. Patient Care Clinical Workflow; Multiple Perspectives of Patient Care (VistA Demo) 3. Implementing Clinical Decision Support (VistA Demo) 4. Building Order Sets (VistA Demo) 5. Creating Data Entry Templates (VistA Demo) 6. Health Summary and Clinical Reminder Reports (VistA Demo) 7. Privacy and Security in the U.S. 8. Meaningful Use and Implementation
<p>12 – Quality Improvement</p> <p>Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses patient quality and safety management through electronic systems.</p>	<ul style="list-style-type: none"> 1. Introduction to Quality Improvement and Health Information Technology 2. Principles of Quality and Safety for HIT 3. Introduction to Reliability 4. Reliability and Culture of Safety 5. Decision Support for Quality Improvement 6. Workflow Design 7. HIT Design to Support Teamwork and Communication 8. HIT and Infecting a Patient Safety Culture 9. HIT Implementation Planning for Quality and Safety 10. Measuring Quality 11. Data Quality Improvement 12. Learning from Mistakes: Error Reporting and Analysis and HIT
<p>13 – Public Health Information Technology</p> <p>Provides an overview of specialized public health applications and information exchange issues specific to public health.</p>	<ul style="list-style-type: none"> 1. Overview & Contribution to Public Health Through Electronic Health Record Use 2. Privacy, Confidentiality and Security of Public Health Information 3. Data Standards in Public Health Information Technology 4. Public Health Enabled Electronic Health Records and the Role of Public Health in Health Information Exchange 5. Epidemiological Databases and Registries – Public Health Information Tools 6. Biosurveillance, Situational Awareness and Disaster Response 7. Public Health Reporting, Alerts and Decision Support 8. The Potential of Public Health IT for Health Promotion and Chronic Disease Prevention 9. Quality Reporting 10. Encouraging Adoption/Use of Population Health Functions for EHRs and Consumer Functions for PHRs.
<p>14 – Special Topics Course on Vendor-Specific Systems</p>	<ul style="list-style-type: none"> 1. Common Commercial Electronic Health (EHR) Systems Used in Ambulatory

<p>Provides an overview of the most popular vendor systems highlighting the features of each as they would relate to practical deployments, and noting differences between the systems.</p>	<p>and Inpatient Care Settings</p> <ol style="list-style-type: none"> 2. Certification of Commercial Electronic Health Records (EHRs) 3. How do Organizations select an EHR? Lessons From the Front Lines 4. Electronic Health Record (EHR) Functionality 5. System and Database Architectures Used in Commercial EHRs 6. Vendor Strategies for Terminology, Knowledge Management, and Data Exchange 7. Assessing Decision Support Capabilities of Commercial EHRs
<p>15 – Usability and Human Factors Discussion of rapid prototyping, user-centered design and evaluation, usability; understanding effects of new technology and workflow on downstream processes; facilitation of a unit-wide focus group or simulation.</p>	<ol style="list-style-type: none"> 1. People and Technology, Studies of Technology 2. Requirements Engineering 3. Cognition and Human Performance 4. Human Factors and Healthcare 5. Usability Evaluation Methods 6. Electronic Health Records and Usability 7. Clinical Decision Support and Usability 8. Approaches to Design 9. Ubiquitous Computing 10. Designing for Safety 11. Input and Selection 12. Information Visualization
<p>16 – Professionalism/Customer Service in the Health Environment This component develops the skills necessary to communicate effectively across the full range of roles that will be encountered in healthcare and public health settings.</p>	<ol style="list-style-type: none"> 1. Customer Service in Healthcare IT 2. Professional Behavior in the Healthcare Environment 3. Overview of Communication Relevant to Health IT 4. Key Elements of Effective Communication 5. Regulatory Issues: HIPAA and Standard Precautions 6. Team and Small Group Communication (All materials for this unit are the same as those for Component 18/Unit 7) 7. Conflict Resolution (All materials for this unit are the same as those for Component 18/Unit 8) 8. Ethical and Cultural Issues Related to Communication and Customer Service 9. Personal Communications and Professionalism
<p>17 – Working in Teams An experimental course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.</p>	<ol style="list-style-type: none"> 1. Health IT Teams: Examples and Characteristics 2. Forming and Developing a Team for HIT 3. Initial Tools for Teaming: Ground Rules & Action Plans for HIT Team 4. Team Strategies and Tools to Enhance Performance and Patient Safety: TeamSTEPS 5. Leveraging Integration Techniques: Power of HIT Team Dynamics 6. Articulating Feedback and Feedforward: Tracking Success and Change

	<ul style="list-style-type: none"> 7. Leadership: All members as Leaders – Leaderful Teams 8. Sharing Resources and Information: Tools to Optimize Performance of HIT Teams 9. Positioning for High Performance Teaming: Challenges and Opportunities in the HIT Environment 10. Barriers to Success: Reading Early Warning Signs of HIT Team Failure 11. Life Cycle of HIT Teams: Reforming and Repositioning Techniques
<p>18 – Planning, Management and Leadership for Health IT This component targets those preparing for leadership roles, principles of leadership and effective management of teams. Emphasis on leadership modes and styles best suited to IT deployment.</p>	<ul style="list-style-type: none"> 1. Introduction to Leadership 2. The Management and Leadership Distinction 3. Key Concepts Associated with Leadership 4. Effective and Ineffective Leaders 5. Overview of the IT Strategic Planning Process 6. Achieving External Alignment 7. Team and Small Group Communication (All materials for this unit are the same as those for Component 16/Unit 6) 8. Conflict Resolution (All materials for this unit are the same as those for Component 16/Unit 7) 9. Purchasing and Contracting 10. Change Management
<p>19 – Introduction to Project Management An introduction and understanding of project management tools and techniques that results in the ability to create and follow a project management plan.</p>	<ul style="list-style-type: none"> 1. Overview of Health IT Projects 2. Project Life Cycles 3. Project Selection and Initiation 4. Project Planning Overview 5. Managing Project Scope 6. Managing Project Time, Cost, and Procurements 7. Managing Project Risk 8. Team Management and Communications 9. Project Monitoring and Control 10. Quality Management 11. Project Closure and Transition
<p>20 – Training and Instructional Design Overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness.</p>	<ul style="list-style-type: none"> 1. Introduction to Training and Adult Learning 2. Needs Analysis 3. Creating a Lesson Plan 4. Selecting and Working with Media 5. Building & Delivering Effective PowerPoint Presentation 6. Assessments 7. Learning Management Systems 8. Web 2.0 and Social Networking Tools

Matrix of HIT Workforce Curriculum Components by Role
"Set Table"

Curriculum Components			HIT Workforce Role											
Component #	Component Name*	Core to how many roles?	Clinician/ Practitioner Consultant		Implementation Managers		Implementation Support Specialist		Practice Workflow and Information Management Redesign Specialist		Technical/ Software Support		Trainer	
Student Background:			Health Care	IT **	Health Care	IT	Health Care	IT	Health Care	IT	Health Care	IT	Health Care	IT
Components														
1	Introduction to Health Care and Public Health in the U.S.	1	4	4	4	2	4	2	4	2	4	2	4	1
2	The Culture of Health Care	3	4	4	4	1	4	2	4	1	4	2	4	1
3	Terminology in Health Care and Public Health Settings ***	2	2	4	2	2	2	1	2	1	2	2	2	2
4	Introduction to Information and Computer Science	4	2	4	3	4	1	4	1	4	1	4	1	4
5	History of Health Information Technology in the U.S.	1	2	4	1	2	2	3	2	2	2	2	2	2
6	Health Management Information Systems	3	1	4	2	2	2	2	1	2	2	2	1	2
7	Working with Health IT Systems	3	1	4	3	3	1	1	2	2	1	1	2	3
8	Installation and Maintenance of Health IT Systems	2	3	4	2	2	1	1	3	3	1	1	3	3
9	Networking and Health Information Exchange	2	2	4	2	3	1	1	2	2	1	1	2	2
10	Fundamentals of Health Workflow Process Analysis and Redesign	3	1	4	1	1	3	2	1	1	3	3	2	2
11	Configuring EHRs	2	3	4	2	3	1	1	2	3	1	1	3	3
12	Quality Improvement	2	1	4	2	2	2	3	1	1	3	3	2	2
13	Public Health IT	0	2	4	3	3	3	3	3	3	3	3	2	2
14	Special Topics Course on Vendor-Specific Systems	2	3	4	2	2	1	1	3	3	1	1	2	2
15	Usability and Human Factors	2	2	4	3	3	2	2	1	1	2	2	1	1
16	Professionalism/ Customer Service in the Health Environment	2	3	4	2	2	3	3	2	2	1	1	1	1
17	Working in Teams	1	2	4	1	1	3	3	2	2	3	3	2	2
18	Planning, Management and Leadership for Health IT	2	1	4	1	1	4	4	3	3	4	4	3	3
19	Introduction to Project Management	1	3	4	1	1	3	3	2	2	4	4	3	3
20	Training and Instructional Design	1	4	4	3	3	4	4	4	4	4	4	1	1
Number of Core Components per Role			5	n/a	5	5	6	6	5	5	7	6	5	5
Number of Secondary Components per Role			7	n/a	8	8	5	5	8	8	4	6	9	9

Scale for weighting importance of component to role:
 1 core = all or most units required for role
 2 secondary = some units may be required for role
 3 tertiary = optional; enrichment material
 4 not relevant to role and/or student background

* Any of these components could be waived if the student can demonstrate this knowledge upon admission.
 ** The Clinician/ Practitioner Consultant requires a background in health care.
 *** For the Terminology component, the recommended units for students with a health care background are those that cover IT terminology.

Minnesota

Lac qui Parle Health Network
Normandale Community College
Madison, MN

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist
- Technical/Software Support Specialist
- Trainer

Health IT Certification:

- CAHIMS
- CPHIT
- CPEHR

Curriculum Resources:

- [Curriculum Outline for Informatics and Technical Support, Trainer, and Health IT Analyst](#)

MENTOR HEALTH IT CURRICULUM

Informatics and Technical Support Tracks

Component Number: 1

Component Title: Introduction to Healthcare and Public Health in the US

Component Description: This component is a survey of how healthcare and public health are organized and services delivered in the US. It covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. It also addresses health reform initiatives in the US.

Unit 1: Introduction and History of Modern Healthcare in the US

Description: This introductory unit covers definitions of terms used in the component, with an emphasis on paradigm shifts in healthcare, including the transition from physician-centric to patient-centric care, the transition from individual care to interdisciplinary team-based care, and the central role of technology in healthcare delivery. This unit also emphasizes the core values in US healthcare.

Unit 2: Delivering Healthcare (Part 1)

Description: This unit depicts the medical model of healthcare in the US, with an overview of the organization of healthcare and the physical structure of healthcare delivery in the outpatient, inpatient and long-term care settings, including an overview of the organization of the Veterans Affairs (VA) system. This unit is intended primarily for the student who does not have a background in healthcare, though the topics of this unit will be described at a relatively advanced level.

Unit 3: Delivering Healthcare (Part 2)

Description: This unit depicts the medical model of healthcare in the US, with an overview of the organization of healthcare and the physical structure of healthcare delivery in the outpatient setting, including an overview of the people involved in the delivery of healthcare, their education and licensing. This unit is intended primarily for the student who does not have a background in healthcare, though the topics of this unit will be described at a relatively advanced level.

Unit 4: Financing Healthcare (Part 1)

Description: This unit provides an overview of the role of healthcare in the economy and a description of various models of healthcare financing. The unit provides a history of the current US system and laws that have influenced its development. It also includes discussion of healthcare financing at the governmental, enterprise, and consumer levels.

Unit 5: Financing Healthcare (Part 2)

Description: This unit continues the discussion of healthcare financing at the governmental, organizational, and consumer levels. It describes the revenue cycle for healthcare organizations, identifies the different reimbursement methodologies and standards developed for the billing (reimbursement) process. Finally, this unit reviews

some of the factors responsible for the escalating healthcare expenditures in the US and discusses some methods for controlling rising medical costs.

Unit 6 Regulating Healthcare

Description: This unit provides an overview of the regulation of healthcare, including regulatory and professional organizations, the regulation of safety in medicine, and key legal aspects of medicine. This unit also covers compliance issues including privacy violations, reimbursement and fraud and abuse.

Unit 7: Public Health (Part 1)

Description: This unit provides a discussion of public health origins and history, the differentiation from private health, and the significant value provided by public health. It also reviews important terminology and includes an examination of the general organization of public health agencies and the flow of data within public health.

Unit 8: Public Health (Part 2)

Description: This unit provides an overview of public health topics including: important communicable diseases and public health responses; terrorism, including biological, agricultural, and chemical terrorism; and chronic diseases and environmental health.

Unit 9: Healthcare Reform

Description: This unit provides an overview of healthcare trends including evidence based medicine, quality and practice-care recommendations, comparative effectiveness research, and an overview of healthcare reform initiatives in the US.

Unit 10: Meaningful Use

Description: The Health Information Technology for Economic and Clinical Health (HITECH) Act of the American Recovery and Reinvestment Act (ARRA) legislated incentives for the meaningful use of health information technology. This unit describes the meaningful use program of HITECH, eligibility for incentive payments, and the criteria for achieving those payments in Stage 1 of the program. It also describes the standards specified for Stage 1 of meaningful use, including those devoted to privacy and security.

Component Number: 2

Component Title: The Culture of Healthcare

Component Description: For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.

Unit 1: An Overview of the Culture of Healthcare

Description: This introductory unit discusses some of the underlying concepts of health, culture, and how health informatics applications can be used to study culture.

Unit 2: Health Professionals – the People in Healthcare

Description: This unit discusses the health professionals who deliver healthcare and the training needed to work in these professions. The following professionals are described in this unit: physicians, nurses, advanced practice nurses, physician assistants, pharmacists, therapists, allied health professionals, paramedics, EMTs, dental professionals, mental health professionals, and social workers.

Unit 3: Healthcare Settings – The Places Where Care is Delivered

Description: This unit describes healthcare delivery sites including outpatient care, hospitals, tertiary care centers, academic medical centers, the VA healthcare system, the military health system, the Indian health service, and non-traditional delivery sites such as school-based, community-based, and employer-based sites. It also specifically examines the structure, function and interrelationship between healthcare settings.

Unit 6: Nursing Care Processes

Description: This unit describes the processes used by a nurse in making clinical decisions and assessing patients. It also describes how nurses are trained, where they work and the procedures that they perform.

Unit 10: Sociotechnical Aspects: Clinicians and Technology

Description: This unit looks at the challenges of adapting work processes to new technology, and the resulting impact on quality, efficiency, and safety. This unit also examines the phenomena of social and technical resistance to change, especially among clinicians.

Component Number: 5

Component Title: History of Health Information Technology in the U.S.

Component Description: This component traces the development of IT systems in health care and public health, beginning with the experiments of the 1950s and 1960s and culminating in the HITECH act, including the introduction of the concept of “meaningful use” of electronic health records.

Unit 6: History of Electronic Health Records (EHRs)

Description: This unit describes the history of electronic health records.

Unit 7: History of Clinical Decision Support Systems

Description: This unit describes the history of clinical decision support systems.

Unit 8: History of CPOE and E-Prescribing

Description: This unit describes the history of CPOE and e-prescribing.

Component Number: 3

Component Title: Terminology in Health Care and Public Health Settings

Component Description: This component explains specific terminology used by workers in health care and public health. This is NOT a course in data representation or standards.

Computer Terminology
When to call the IT Helpdesk

Unit 1: Understanding Medical Words
Description: This unit describes the meanings of medical words.

Unit 2: Integumentary System
Description: This unit describes the integumentary system.

Unit 3: Musculoskeletal System
Description: This unit describes the musculoskeletal system.

Unit 4: Blood, Lymphatic and Immune System
Description: This unit describes the blood, lymphatic and immune systems.

Unit 5: Cardiovascular System
Description: This unit describes the cardiovascular system.

Unit 6: Digestive System
Description: This unit describes the digestive system.

Unit 7: Endocrine System
Description: This unit describes the endocrine system.

Unit 8: Ears, Nose, Throat, Eye and Vision
Description: This unit describes the ears, nose, throat, eyes and vision.

Unit 9: Nervous System
Description: This unit describes the nervous system.

Unit 10: Reproductive System
Description: This unit describes the reproductive systems.

Unit 11: Respiratory System
Description: This unit describes the respiratory system.

Unit 12: Urinary System
Description: This unit describes the urinary system.

Unit 13: Public Health and Healthcare System Terminology
Description: This unit describes public health.

Unit 14: What is Health Information Management and Technology?

Description: This unit describes health information management and technology.

Unit 15: Electronic Health Records

Description: This unit describes the electronic health record (EHR).

Unit 16: Standards to Promote Health Information Exchange

Description: This unit describes standards to promote health information exchange.

Component Number: 4

Component Title: Introduction to Information and Computer Science

Component Description: For students without an IT background, this Component provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.

Unit 1: Basic Computing Concepts, Including History

Description: This unit introduces basic computing concepts and terminology. It identifies common elements of computers, both in terms of hardware and software and provides information on selecting a computer by discussing the range of computer types, from desktops to laptops to servers. Finally, it provides a history of the development of computing and healthcare information systems over time.

Unit 2: Internet and the World Wide Web

Description: This unit covers the implications, origins, and use of the Internet and the World Wide Web, including the advantages and disadvantages of this technology.

Unit 3 – Computer Hardware

Description: This unit provides a foundation on how a computer functions and how data is represented in memory, input and output devices, and the CPU, including its role in system functionality.

Unit 4 – Computer Software

Description: This unit covers application and system software, with a focus on healthcare systems. It also describes the functions of operating systems, presents different operating systems, and defines the purpose and usage of file systems.

Unit 5 – Computer Programming

Description: This unit discusses the purpose and types of programming languages from simple machine code to high level programming languages, including the process of compiling and interpreting. Students will use variables, loops and conditional statements to build a simple program. Finally, this unit presents some advanced programming concepts such as Object Oriented Programming.

Unit 6 – Databases and SQL

Description: This unit discusses the purposes of databases, a relational database, and the querying language SQL. Students will design a simple database using data modeling and normalization. This unit will define basic data operations, provide instruction on how to create common query statements, and discuss SQL implementation.

Unit 7 – Networks

Description: This unit covers the history and evolution of computer networks, including the various types of network communications. Various forms of networking addressing are also covered, including network topologies, standards and protocols, logical model concepts, network hardware, and wireless communication.

Unit 8 – Security

Description: This unit covers common security concerns and safeguards, including firewalls, encryption, virus protection software and patterns, and programming for security. Additional topics include security of wireless networks, and concerns, mitigations, and regulations related to healthcare applications.

Unit 9 – Information Systems

Description: This unit defines information systems and describes how they are used. It discusses how an information system is designed, developed, tested, supported and maintained. Finally, it explains how information systems are used in healthcare settings, including the role of specialized information systems.

Unit 10 – Future of Computing

Description: This unit covers five topics concerning the future of computing: trends in computing, interfaces used to communicate with computer systems, cloud computing, the changing social implications of the use of computer systems, and the ubiquity of computers in our daily lives.

Component Number: 6

Component Title: Health Management Information Systems

Component Description: A “theory” component, specific to health care and public health applications. Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in health care and public health organizations.

Unit 1: What is Health Informatics?

Description: Lecture a defines information management, information technology, and informatics, describe the fundamental theorem of informatics, explains the meaning of biomedical and health informatics as a field of study, and offers definitions of the major biomedical informatics areas of applications. It also provides an overview of informatics drivers and trends in the health care field. Lecture b defines the informatics team, their skills, roles and responsibilities, and identifies how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care.

Unit 2: Health Information Systems Overview

Description: Lecture a defines the concept of an information system and its characteristics, describes the different types of information systems, and describe various types of technologies that support health care information systems. Lecture b examines the challenges presented by emerging trends in information technology (e.g., mobility, web services, the Internet, Intranet, and wireless computing), social media, and global communications and discusses the advantages and disadvantages of using the Internet as a platform for health care applications.

Unit 3: Electronic Health Records

Description: Lecture a defines an electronic medical record (EMR) and electronic health record (EHR) and explains their similarities and differences, identifies attributes and functions of an EHR, discusses the issues surrounding EHR adoption and implementation, and describes the impact of EHRs on patient care. Lecture b links EHRs to the Health Information Exchange (HIE) and the Nationwide Health Information Network (NHIN) initiatives, discusses how HIE and NHIN impact health care delivery and the practice of health care providers, summarizes the governmental efforts related to EHR systems including meaningful use of interoperable health information technology and a qualified EHR, describes the Institute of Medicine's vision of a health care system and its possible impact on health management information systems, and lists examples of the effects of developments in bioinformatics on health information systems.

Unit 4: Computerized Provider Order Entry (CPOE)

Description: Lecture a defines CPOE, states the purpose of CPOE, lists attributes and functions of CPOE, and explains how CPOE is currently being used in health care. Lecture b describes the major value to adopting CPOE applications, identifies the common barriers to adoption, and summarizes the potential impact CPOE has on patient care safety, quality and efficiency, and patient outcomes.

Unit 5: Clinical Decision Support Systems

Description: Lecture a will offer a definition of clinical decision support, provide some historical context surrounding clinical decision support, describe the requirements of a clinical decision support system, and discuss the relationship of clinical practice guidelines and evidence-based practice to clinical decision support systems. Lecture b will identify the challenges and barriers in building and using clinical decision support systems, explain how legal and regulatory technologies may affect their use, and introduce the future directions for clinical decision support systems.

Unit 6: Patient Monitoring Systems

Description: Lecture a offers a definition of patient monitoring systems, describes the purpose, attributes, and functions of patient monitoring systems, discusses the primary applications and how automation can improve quality of care, and analyzes how the integration of data from many sources assists in medical decision making. Lecture b

discusses how telehealth communication technologies support clinical care, explains the effectiveness and economic benefit of telehealth, and examines the role smart technology in the home and remote links to health information systems play in enhancing the quality of patient care.

Unit 7: Medical Imaging Systems

Description: The lecture offers a definition of medical imaging, describes the purpose, processes, and management issues of medical imaging systems, analyzes the economic and technological factors that must be considered in the adoption of digital displays in radiology departments, looks at the major challenges with imaging systems faced by health care institutions and informaticians, and examines the future directions for imaging systems.

Unit 8: Consumer Health Informatics

Description: Lecture a provides a definitions of health communication, e-Health, consumer health informatics, and interactive health communication, identifies how the Internet has impacted consumer health informatics, explains how current and emerging technologies may affect consumer health informatics, and introduces the role of genomics in consumer health informatics. Lecture b offers definitions of personal health records or PHRs, describes the role of PHRs and their implications within health care, and discusses the challenges of consumerism in health information systems.

Unit 9: Administrative, Billing, and Financial Systems

Description: Lecture a examines the relationship of administrative, billing, and financial systems to the health care information system, explains applications that need to be integrated in health care information systems, explores health care organizations' integration strategies, identifies the critical elements for integration of these systems with clinical information systems, and discusses how health care organizations may gain valuable insights from integrated data through data analytics and trending. Lecture b defines a master patient index or MPI and describes its core elements and discusses current trends to establish a unique patient identifier.

Component Number: 10

Component Title: Fundamentals of Health Workflow Process Analysis & Redesign

Component Description: Fundamentals of health workflow process analysis and redesign is a necessary component of complete practice automation and includes topics of process validation and change management.

Unit 1: Concepts of Processes and Process Analysis

Description: This unit focuses on the six aims for health care process improvement. In this unit, students are helped to understand the concepts of systems, systems thinking and health care processes. Such understanding provides a foundation for the study of clinical process analysis and redesign.

Unit 2: Process Mapping Theory and Rationale

Description: In two parts, Fundamentals of Health Workflow Process Analysis and Redesign: Process Mapping Theory and Rationale, Lecture a and Process Mapping Diagramming Tools, Lecture b, covers the background necessary for graphically representing processes. It uses flowcharts and basic flowchart symbols to provide an introduction to graphical process representation, also called process diagramming. Separate units cover complete symbol sets and conventions for different types of process diagrams.

Unit 3: Interpreting and Creating Process Diagrams

Description: Unit 3 is composed of several lectures, one for each diagramming method. Lecture a, Interpreting and Creating Process Diagrams: Introduction - provides an introduction to these concepts and reviews information from Unit 2, Lecture b. Based on feedback from practitioners, we recommend using two methods (data flow diagrams in Yourdon notation, and flowcharts). In Lecture a, we review the process aspects that each diagram type covers. In separate presentations, we cover each diagram type. For the two recommended methods, the presentation covers concepts and skills from reading and interpreting the diagrams to actually creating them. For the rest of the diagrams, we cover only background, use, and notation, i.e., the presentation prepares the student to read and interpret the diagram but not to create them.

Unit 4: Acquiring Clinical Process Knowledge

Description: In three lectures, this unit covers the concepts and methods for Acquiring Clinical Process Knowledge in the health care setting needed by the health care Workflow Analysis and Redesign Specialist.

Unit 5: Process Analysis

Description: In two lectures, Fundamentals of Health Workflow Process Analysis and Redesign: Process Analysis covers the background and methodology for process analysis.

Unit 6: Process Redesign

Description: This unit, Process Design, consists of 4 lectures and covers the background and methodology for process redesign in the health care facility.

Unit 7: Facilitating Meetings for Implementation Decisions

Description: In one lecture, this unit, Facilitating Meetings for Implementation Decisions, covers a method and the associated logistics for conducting meetings in which health care facility decision makers review options for major process and implementation related decisions and make decisions. The purpose of the meetings is to outline the decisions that need to be made, to assure that decision makers have the necessary information for decision making, and to facilitate decision making. This unit provides the Practice Workflow and Information Management Redesign Specialist with tools for conducting decision making meetings. There are many methods for conducting and facilitating meetings. Here, we provide one method, discuss key concepts, and

provide references to resources that you can use as you develop your skills and portfolio of tools for meeting facilitation.

Unit 8: Quality Improvement Methods

Description: This unit covers Quality Improvement Methods recommended for use in the Health Care Setting. Many different approaches to quality improvement have been used in the health care arena. The workflow analysts will encounter organizations and people with experience with a multitude of proven methods and fads. Thus, an awareness of the history, methods, and tools of quality improvement is critical. This unit introduces students to these elements of QI, as well as categories of mistakes seen in these methods. It is not intended to teach the student how to use these methods and tools.

Unit 9: Leading and Facilitating Change

Description: This unit, Leading and Facilitating Change, introduces the concepts of change and the impact of such change on the providers and staff within a health care facility. It enhances the understanding that workflow analysts must be sensitive to the human component as they examine and propose modifications in processes. This unit prepares the student to recognize and address common change management problems, and to work with individuals and groups to facilitate change.

Unit 10: Process Change Implementation and Evaluation

Description: This unit focuses on helping students develop skills needed to implement and evaluate the effectiveness of changes designed to improve workflow processes and the quality of care in health care facility. This unit prepares the student to implement a process change by covering three key skill sets: 1) develop a process change plan (implementation plan), 2) communicate a process change plan, and 3) develop an evaluation plan.

Unit 11: Maintaining and Enhancing the Improvements

Description: This unit focuses on helping the student develop the skills to recognize and access changes that can be maintained, develop alternative processes and methods needed to keep the practice running if the EHR system fails and apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving, sustaining and enhancing meaningful use.

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

Change Management in Health IT

Component Number: 9

Component Name: Networking and Health Information Exchange

Component Description: In-depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them) , the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches.

Unit 1 (ISO Open Systems Interconnection (OSI)):

Description: This unit will address the OSI, including the purpose and content of each of its seven layers: physical, data link, network, transport, session, presentation, and application. Products, processes, protocols and tools at each level will be explained. This unit will also focus on the flow of data through the models as data is transmitted and receive by end devices.

Unit 2 (Network Media and Hardware Communication Devices):

Description: This unit is designed to help the student understand network media, hardware devices, and how to select appropriate items to meet the guidelines for usage.

Unit 3 (National and International Standards Developing Organizations):

Description: This unit introduces students to the national and international organizations that create standards used in networking and health information exchange

Unit 4 (Basic Health Data Standards):

Description: This unit provides an orientation to the important data-related standards that enable interoperable health data interchange

Unit 5 (EHR Functional Model Standards):

Description: This unit explores the functional requirements and standards for electronic health records (EHRs).

Unit 6 (Health Data Interchange Standards):

Description: This unit emphasizes the importance of adhering to health data interchange these standards in order to ensure compatibility between systems.

Unit 7 (Supporting Standards for EHR Applications):

Description: This unit presents a set of standards that support the application layer of the OSI and extend EHR functionality

Unit 8 (Enterprise Architecture Models):

Description: This unit addresses different enterprise architecture models that provide an infrastructure for healthcare networks.

Unit 9 (Privacy, Confidentiality, and Security Issues and Standards):

Description: This unit explores issues related to creating an environment in which to transport data in a secure manner that ensures privacy and confidentiality.

Unit 10 (Health Information Exchange):

Description: This unit explores the networking standards and the standards required for interoperability to enable the creation of Health Information Exchanges.

Unit 11: Introduction to Health Information Exchange

Unit 12: HIE Standards

Unit 13: Meaningful Use in HIE

Unit 14: HIE Governance

Unit 15: HIE Transport and Storage

Component Number: 7

Component Name: Working with Health IT Systems

Component Description: A laboratory component. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.

Unit 1 Introduction & Overview: Components of HIT Systems

Description: Unit 1 is an introductory unit where the core definitions and concepts of systems in general and healthcare specifically are presented. Using hands on exploratory lab exercises, students will be introduced to an example HIT system where they will learn basic navigation and gain familiarity with components common to many clinical HIT systems. Specific examples of HIT systems from a variety of settings will be discussed.

Unit 2 Under the Hood: Functions of HIT Systems

Description: Unit 2 is designed to introduce students to the generic functions of HIT systems that underpin inpatient and outpatient (ambulatory) processes. Crafted HIT lab exercises will lead the student through a complete patient encounter – both inpatient and outpatient – to highlight how HIT systems support, and sometimes thwart, information flow.

Unit 3 Understanding Information Exchange in HIT Systems

Description: Unit 3 will focus upon the functional aspects of interoperability within and between systems. Applying didactically presented concepts to hands on lab assignments, students will be challenged to locate and collate data from disparate systems, to respond to user requests for reports, and to assist users in planning for enhanced information flow in HIT systems.

Unit 4 The Effective HIT System

Description: Unit 4 is designed to emphasize the aspects of HIT that contribute to effectiveness and meaningful use. The concepts of usability, consistency, and reliability in regards to HIT systems and how each contributes to, or detracts from, effectiveness will be presented. Definitions of evidence-based practice and guideline-enhanced care will be covered in addition to how HIT can support effective, safe, and efficient patient-centered care.

Unit 5 Fundamentals of Usability in HIT Systems – What Does It Matter?

Description: Unit 5 will present the basic concepts of usability in general and HIT usability specifically. Students will be exposed to usability bottlenecks and learn to identify usability roadblocks in the EHR lab system, hypothesizing potential downstream effects of poor usability, and suggesting solutions/alternate designs. This unit will detail the relationships between usability, user satisfaction, and workarounds.

Unit 6 HIT Facilitated Error—Cause and Effect

Description: Unit 6 is a unit that will focus upon error in health and healthcare that can be facilitated and propagated by HIT. Different classes of HIT errors (slips/mistakes, omission/commission) will be discussed and differentiated. Specific scenarios that create opportunities for HIT facilitated error will be presented to students in the lab exercises. In these exercises, students will apply concepts learned in the didactic portion of this unit to identify error, classify error, analyze root cause, and propose solutions.

Unit 7 Protecting Privacy, Security, and Confidentiality in HIT Systems

Description: Unit 7 is designed to present an overview of the concepts of privacy, security, and confidentiality of protected health information (PHI) in relation to HIT systems. Threats to PHI frequently encountered in HIT environments such as password sharing, offsite access to EHR, challenges of staff turn-over and student access, unauthorized access, etc. will be detailed. Students will be exposed to simulated breeches of privacy, security and confidentiality of PHI in lab exercises, asked to identify, and propose strategies to thwart.

Unit 8 HIT System Planning, Acquisition, Installation, & Training: Practices to Support & Pitfalls to Avoid

Description: Unit 8 is a unit where the core definitions and concepts of HIT systems planning, acquisition, installation and training are presented. A variety of different settings will be used as examples in the unit, including small office practices, community clinics, acute care facilities and skilled nursing facilities. Students will conduct simulated

user needs analysis, and using the lab EHRs, will identify gaps in meeting those needs. Students will develop training plans for a variety of settings.

Unit 9 Potential Issues with Adoption and Installation of an HIT system

Description: The basics of human behavior, change, and adaptation will be discussed. Strategies for dealing with barriers to implementation (human and structural) will be covered.

Unit 10 HIT and Aspects of Patient-Centered Care

Description: Patient-centered care will be defined and explained. The aspects of HIT that support (and detract) from patient-centered care will be discussed. Specific examples will be provided. Students will explore aspects of HIT that currently support patient-centered care and will propose new methods for enhancing patient-centered care.

MENTOR HEALTH IT CURRICULUM Trainer Track

Component Number: 16

Component Title: Professionalism/Customer Service in the Health Environment

Component Description: This component develops the skills necessary to communicate effectively across the full range of roles that will be encountered in healthcare and public health settings.

Unit 1: Customer Service in Healthcare IT

Description: This unit describes Customer Service in Healthcare IT.

Unit 2: Professional Behavior in the Healthcare Environment

Description: This unit describes Professional Behavior in the Healthcare Environment.

Unit 3: Overview of Communication Relevant to Health IT

Description: This unit describes the Overview of Communication Relevant to Health IT.

Unit 4: Key Elements of Effective Communication

Description: This unit describes Key elements of effective communication.

Unit 5: Regulatory Issues: HIPAA and Standard Precautions

Description: This unit describes Regulatory Issues: Standard Precautions and HIPAA.

Unit 6: Team and Small Group Communication

Description: This unit describes Team and Small Group Communication.

Unit 7: Conflict Resolution

Description: This unit describes Handling Conflict.

Unit 8: Ethical and Cultural Issues Related to Communication and Customer Service

Description: This unit describes Ethical and Cultural Issues Related to Communication and Customer Service.

Unit 9: Personal Communications and Professionalism

Description: This unit describes Personal Communications and Professionalism.

Component Number: 17

Component Name: Working in Teams

Component Description: An experiential course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.

Unit 1: Health IT Teams: Examples and Characteristics

Description: This unit is an introductory unit designed to highlight different types of health information technology teams and the purpose and functions of its different members. Characteristics of effective teamwork will also be discussed with emphasis on the organizational structure, individual contributions, and team processes. Why teams are valued for their collaborative efforts and teamwork will be outlined in this component. Activities for the learner include a virtual hospital tour that will facilitate the learner to explore different areas where HIT teams may be used, to interview a member of a HIT team and explore their job, purpose, skills, and contributions made to the team in addition to serving as a HIT team member who needs to select HIT team members to build an effective team for the work outlined in the case.

Unit 2: Forming and Developing a Team for HIT

Description: This unit is designed to introduce students to the stages of team development: forming, storming, norming, and performing with the needs of the team identified at each stage. Common goals and purposes will be described in addition to information on key factors needed to maintain an effective team.

Unit 3: Initial Tools for Teaming: Ground Rules & Action Plans for HIT Team

Description: This unit is designed to introduce learners to specific guidelines and rules that may be associated with teams and working on a HIT team. A realistic learning activity that focuses on the learner developing a team action plan will bring this unit to the forefront for application and understanding of the team plan. Two major communication strategies, active listening and assertive communication techniques will be included in this component and demonstrated through selected exercises in the module.

Unit 4

Team Strategies and Tools to Enhance Performance and Patient Safety: TeamSTEPPS

Description: This unit is focused upon the, "TeamSTEPPS," methodology. This methodology, initially used by the Department of Defense to assist with coordination of military teams, was adapted (with the assistance of the Agency for Healthcare Quality & Research) for use in clinical environments. The goal of TeamSTEPPS is to improve teaming skills, enhance communication across provider teams, and to seed a fundamental culture change – all in the quest to improve patient outcomes. The material in this unit is based very heavily on the TeamSTEPPS materials which can be found on the Agency for Healthcare Quality and Research website. Some adaptation has been made (and noted) in order to apply TeamSTEPPS more directly to health IT teams. The point made repeatedly in this unit is that even though TeamSTEPPS is focused upon clinical teams in clinical environments, these techniques were conceived on the battlefield. Therefore, many of the concepts and skills learned in prior units will reappear in TeamSTEPPS, reinforcing the point that the foundations of high performing teams are similar regardless of where they are applied. Various tools and techniques are presented from the TEAMSTEPPS toolkit with suggestions for how these approaches can be adapted for use in health IT teams.

Unit 5: Leveraging Integration Techniques: Power of HIT Team Dynamics

Description: This unit will discuss techniques for team members to problem solve within their teams so the team can be more effective. Activities will include how to conduct a SWOT analysis and mind maps within this component. Different activities described within the module will be differentiated between team or individual task. Activities will include a SWOT analysis of a case-based team and other experiential activities associated with team tasks and specific roles within the team.

Unit 6: Articulating Feedback and Feedforward: Tracking Success and Change

Description: This unit will provide information to the learner on tools and techniques for giving and receiving feedback regarding HIT team performance. Elements introduced include the use of formative and summative evaluations, conflict management, and appropriate communication channels. Participants will evaluate individual behaviors regarding stated ground rules for functioning as a member of an HIT team. The difference between feedback and feedforward will be clarified as students will incorporate the seminal elements of positive change into their dealings with others. Tools for serving as a change agent and tracking success will also be practiced by students in team exercises. Based upon the belief that we can change the future but we cannot change the past, participants will practice the steps to both delivering and receiving feedforward information. Also based on the belief that it can be more productive to help people be right than to prove they are wrong, participants will be challenged with developing strategies for applying feedforward mechanisms within HIT team involvement.

Unit 7: Leadership: All Members as Leaders – Leaderful Teams

Description: This unit will challenge participants to critically evaluate elements that lead to success in the field of HIT. The changing role of leadership will be explored. Leadership has taken on new requirements as we have moved through the information and biotech ages into the conceptual age where the knowledge worker is being continually replaced by the conceptual leadership at every level in organizations. The expansive role of leadership that requires each team player to be prepared to “carry the torch” and lead others is a fundamental building block for HIT teams. Participants will investigate leadership behavior across HIT platforms, identify key leadership skills, and demonstrate personal abilities across those skill areas as related to HIT teams.

Unit 8: Sharing Resources and Information: Tools to Optimize Performance of HIT Teams

Description: This unit will equip participants with a working appreciation for tools and techniques that enable HIT teams to optimize performance both within their team and in collaboration with other teams, units, and organizations. Specific technologies and methods will be introduced and applied to HIT team settings. Participants will be provided an opportunity to use several of these tools and techniques as they simulate HIT team functions. Outdated views on how people share information will be highlighted. New frameworks in thinking regarding information access and decision making activities for successful HIT teams will be discussed. Meeting to share information will be discouraged as participants will become adept using some basic tools for collaboration. Meeting for purposes of clarifying options and making decisions

will be encouraged along with applying tools and techniques to facilitate such meetings. Participants will select appropriate structural components to enable greater efficiencies of information sharing and decision making by HIT teams.

Unit 9: Positioning for High Performance Teaming: Challenges and Opportunities in the HIT Environment

Description: This unit provides participants an opportunity to gain insights into the criteria, processes, and structures that support the development of high performance for HIT teams. As Observations from various industries, sports, and military examples will be compared with HIT team environments. Participants will draw from personal experiences in developing criteria for providing the requisite structure to support high performance teaming.

Unit 10: Barriers to Success: Reading Early Warning Signs of HIT Team Failure

Description: This unit prepares participants to recognize elements that lead to HIT team failures and provides several frameworks that can serve to maintain appropriate monitoring of more typical symptoms of team dysfunction. Elements of selfish behaviors, tool seduction, lack of confidence, arrogance, lone heroism, cowardice, and comfort will be examined along with appropriate responses to each. Effects such as common knowledge, in-group bias, false consensus, and transactive memory will be investigated along with proper mechanisms to alleviate negative consequences and mitigate further damage. Lessons will be gained by inspecting case histories of HIT teams involved in each of these elements. Participants will explore frameworks to heighten awareness and early diagnosis of symptoms that lead to HIT team failures.

Unit 11: Life Cycle of HIT Teams: Reforming and Repositioning Techniques

Description: This unit introduces participants to the natural stages in team development and the normative life cycles of teams. The process of handling change will be investigated as participants work through understanding the elements of immobilization, denial of change, incompetence, acceptance of reality, frustration, understanding, and integration. Participants will be introduced to techniques employed to structure HIT teams for specific purposes and repurposing teams for new tasks.

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

Component Number: 20

Component Name: Training and Instructional Design

Component Description: Overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness.

Unit 1: Introduction to Training and Adult Learning

Description: Apply the Instructional Systems Design method and the phases of the ADDIE model of instruction design, to a given population of adult learners.

Unit 2: Needs Analysis

Description:

Plan and implement an instructional needs assessment, given a specific population of users in a health care setting.

Unit 3: Creating a Lesson Plan

Description: Construct a lesson plan using appropriate instructional methods and approaches, given a specific population of learners.

Unit 4: Selecting and Working with Media

Description: Construct an instructional product (simple online tutorial) using appropriate media, such as customized images, customized video (e.g., EHR screen captures).

Unit 5: Building & Delivering Effective PowerPoint Presentation

Description: Create a custom PowerPoint presentation using the principles of effective PowerPoint design, given a particular training program and learner population.

Unit 6: Assessments

Description: Conduct student outcome assessments and program evaluations in given training contexts.

Unit 7: Learning Management Systems

Description: Design a training program in Learning Management Systems (LMS) that adhere to the standards and open source initiatives in online learning.

Unit 8: Web 2.0 and Social Networking Tools

Description: Select and implement Web 2.0 technologies as instructional technologies given a specific platform and training program.

Training Presentation Final

MENTOR HEALTH IT CURRICULUM Analyst Track

Component Number: 18

Component Title: Planning, Management and Leadership for Health IT

Component Description: This component targets those preparing for leadership roles, principles of leadership and effective management of teams. Emphasis on the leadership modes and styles best suited to IT deployment.

Unit 1: Introduction to Leadership

Description: This unit describes leadership styles and theories of leadership.

Unit 2: The Management and Leadership Distinction

Description: This unit describes the management and leadership distinction.

Unit 3: Key Concepts Associated with Leadership

Description: This unit describes keys concepts associated with leadership, including creativity and emotional intelligence.

Unit 4: Effective and Ineffective Leaders

Description: This unit describes the traits of effective and ineffective leaders.

Unit 5: Overview of the IT Strategic Planning Process

Description: This unit provides a high level of overview of the IT Strategic Planning Process.

Unit 6: Achieving External Alignment

Description: This unit describes achieving external alignment among various stakeholders.

Unit 7: Team and Small Group Communication

Description: This unit describes Team and Small Group Communication.

Unit 8: Conflict Resolution

Description: This unit describes Handling Conflict.

Unit 9: Purchasing and Contracting

Description: This unit describes Purchasing and Contracting.

Unit 10: Change Management

Description: This unit describes change management.

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

Unit 3: Project Selection and Initiation

Description: Students learn what is necessary to get projects off to a strong start. Critical activities are to prepare a project charter and to identify and engage the project stakeholders.

Unit 4: Project Planning Overview

Description: In this unit, students will learn how to effectively plan projects and to develop a project management plan. Several key documentation components will be introduced.

Unit 5: Managing Project Scope

Description: This unit addresses a critical determinant of project success: defining and managing the scope of the project. Students learn the importance of eliciting stakeholder requirements and developing effective work breakdown structures.

Unit 6: Managing Project Time, Cost, and Procurements

Description: In this unit, students will gain an understanding of how to manage project schedules and spending. The unit will cover broad topics such as purchasing, procurement, cost estimation and scheduling.

Unit 7: Managing Project Risk

Description: A key to successful health IT projects is the pro-active management of risks: beginning with the preparation of a risk management plan. Risk management will be a continuing activity throughout the project, to identify risks and to plan and implement risk responses.

Unit 8: Team Management and Communications

Description: Whatever role you play on a project team, it is essential to understand basic concepts of team management and communications. This unit covers key elements of managing and communicating in a team, including the development of an HR and communications plan.

Unit 9: Project Monitoring and Control

Description: Project managers use monitoring and control tools and techniques to assess plans and deliverables, evaluate progress against plans, manage change requests, and review all project activities. It is critically important to keep the project within scope, budget, and schedule to meet stakeholder expectations.

Unit 10: Quality Management

Description: Quality is an elusive but essential component and consideration in any project. This unit will cover quality management planning and key characteristics of quality assurance and its impact on project management.

Unit 11: Project Closure and Transition

Description: It is essential that project managers know all the processes required to bring a project to a successful conclusion. Key steps include completing all deliverables on time, gaining customer acceptance, documenting the project lessons learned, and managing the transition to operations.

Component Number: 12

Component Name: Quality Improvement

Component Description: Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Unit 1 Introduction to Quality Improvement and Health Information Technology

Description: This unit will introduce the learner to the concept of health care quality and the importance of meaningful use of health information technology in improving health care quality. The Institute of Medicine aims of quality improvement and the Institute of Healthcare Improvement's triple aim are used to frame a discussion of the role of health information technology in leading to improvement of patient safety, efficiency, effectiveness, equity, timeliness, and patient-centeredness. The learner is also provided with examples of how health IT can facilitate quality improvement as well as unintended consequences of health IT that can be byproducts of poor system design and user work-arounds.

Unit 2 Principles of Quality and Safety for HIT

Description: This unit is designed to introduce the learner to the magnitude of the problem of medical error in the US. Health care system and the role of the learner in helping to make our system safer. Emphasis is placed on how the science of safety can be applied to health care and the impact of system factors on patient safety. Three principles of safe design are introduced (eliminate steps, create independent checks, and learn from mistakes).

Unit 3 Introduction to Reliability

Description: This unit introduces the learner to the notion of high reliability organizations. Reliability principles, used to design systems that compensate for the limits of human ability, can improve safety and the rate at which a system consistently produces desired outcomes.

Unit 4 Reliability and Culture of Safety

Description: This unit introduces the learner to the notion of high reliability organizations, and the importance of transparency and speaking up to a culture of safety. Characteristics of a culture of safety are outlined and the role of the HIT professional in this culture is defined. Strategies and tactics for communicating risks and advocating for resolution in a resistant culture are discussed.

Unit 5 Decision Support for Quality Improvement

Description: This unit presents an in depth review of ways in which decision support can enhance quality and safety in patient care. Definitions of decision support are provided.

Unit 6 Workflow Design

Description: This unit introduces the learner to good practices for determining current workflow design and whether this design can be supported by HIT. It also presents ways of assisting users to redesign clinical work-flow as needed without loss of quality and safety in the clinical environment. Discussion of questions to ask when determining hard-wired and mobile technology placement is included.

Unit 7 HIT Design to Support Teamwork and Communication

Description: The unit focuses on ways in which HIT can be designed to support care coordination. The focus is on electronic tools to support communication and teamwork during hand-off, care planning, and care transitions. Incorporation of automatic referral requests, data transfer to longitudinal records, and shared problem lists and daily goal forms into the EHR is discussed as well as the utility of electronic whiteboards and clipboard tools.

Unit 8 HIT and Infecting a Patient Safety Culture

Description: This unit dives into the specifics of how poor design and misuse of technology can place patients and organizations at risk. A strong case is made for the responsibility of users to monitor information systems for risks and to ensure that they use these systems appropriately. Examples of poor design are provided, as well as their impact on patient care. The HIT professional's role in ensuring attention to usability and compatibility with workflow during the design and testing phase of implementation is discussed.

Unit 9 HIT Implementation Planning for Quality and Safety

Description: This unit focuses the attention of the learner on ways in which HIT implementation can be managed to ensure the quality and safety are maintained during the transition period. Use of internal support pools, super-users, and front-line clinical experts to provide at-the-elbow support during the transition period is discussed. Emphasis is placed on the need for local adaptation and ongoing development of skills

so that users can gain expertise in safe use of electronic health records and other information technology.

Unit 10 Measuring Quality

Description: This unit we will discuss the basics of measurement for quality. We will introduce the concepts of understanding variation. We will also discuss the fact that the design of electronic documents and flow sheets have a significant impact on the ability to extract quality measures from the resulting database. The importance of rigorous design and testing of system reports used for quality purposes is emphasized. Sample quality measures that are frequently requested of HIT systems are identified, and questions that guide data extraction are suggested.

Unit 11 Data Quality Improvement

Description: This unit will introduce the learner to the importance of data quality and the role of the HIT professional in monitoring and ensuring the quality of data in clinical information systems. The theme of this unit is "beginning with the end in mind" and a review of both measurable and intangible dimensions of data quality is provided. Examples of each dimension are reviewed and a business case for quality is presented.

Unit 12 Learning from Mistakes: Error Reporting and Analysis and HIT

Description: This unit is designed to assist the learner in understanding the role of HIT in error detection and reporting and analysis of errors. The unit pulls together the links between learning from mistakes and the science of safety and safe culture. It includes a review of three tools for error detection and reporting: automated surveillance systems, error reporting systems, and predictive analytics and modeling. Examples of two powerful quality improvement tools (root cause analysis and failure mode effects analysis) are provided and the role of HIT professional in contributing to these efforts is discussed.

- **Analyst Skills & Techniques**
- **Introduction to Analytics**
- **Key Concepts of Analytics**
- **Analytical Thinking and Problem Solving**
- **Behavioral Characteristics of an Analyst**
- **Business Knowledge**
- **Analyst Techniques**
- **Technology and Tools**

Montana

Montana State University
Bozeman, MT

ONC Focus Area:

- Clinician/Practitioner Consultant

Health IT Certification:

- CAHIMS
- CPHIMS

Curriculum Resources:

- [Curriculum Outline](#)

HIT Curriculum Update
Montana Rural Health IT Network
Grant #: R01RH26275
Primary Contact: Kristin Juliar

The Montana Rural Health IT Network originally worked with four colleges in our state: Montana Tech, Great Falls College, Flathead Valley Community College and Missoula College. These four colleges each offered specific Health IT certificates, and all certificates were offered online. Over the course of the grant, the curriculum has not changed for any of the programs. Unfortunately, however, Great Falls College and Flathead Valley Community College have discontinued their certificate offerings completely (although they still continue HIT in some fashion through their Associate degree programs).

The majority of our students have participated in the Montana Tech program. Tech was the Montana participant in the Community College Consortium project through the ONC from 2010 through 2013 (Region A with Bellevue College). The curriculum was already in place for the certificate program, as well as AS and BS before participation in the Consortium. The curriculum fit with the Consortium model. As the ONC efforts continued, Tech assisted Missoula College and Flathead Valley Community College to develop their course offerings. Tech also developed articulation agreements with Missoula and Flathead so that Associate degree students could transfer to Tech to complete a BS program. The Tech curriculum (at all levels) is consistent with CAHIMS and CPHIMS certifications. As noted, the overall curriculum has not changed over the course of the Rural HIT grant. Tech does have an industry review board (of which Cindra Stahl is a member) and does review/update courses as recommended. Recently (2016), Miles City Community College has begun to offer an Associate degree in HIT. All HIT specific courses are offered through Montana Tech via distance learning.

Additionally, Montana Tech offers a graduate level certificate which is geared to current healthcare professionals. Courses are intended to advance the skills required for leadership in health care informatics.

Great Falls College has aligned their courses to be consistent with the AHIMA model. Students who complete full Associate degrees can sit for RHIT/RHIA certifications. We had several participants in the Great Falls program, many of whom did specifically intend to continue with courses to achieve the RHIT/RHIA credentials.

Education Partner	Program Offerings	Credential / Exam
Montana Tech	<ul style="list-style-type: none"> Healthcare Information Technology: Computing Track (15 Credits) Healthcare Informatics Technology: Health Professions Track (17 Credits) Healthcare Informatics Graduate Certificate (15 Credits) 	<ul style="list-style-type: none"> ONC HIT Pro: Clinician/Practitioner Consultant or Implementation Manager Certified Associate in Healthcare Information and Management Systems (CAHIMS) Certified Professional in Healthcare Information Systems (CPHIMS)
Great Falls College	Healthcare Informatics Tech Professional Certificate (24 Credits)	<ul style="list-style-type: none"> Certificate ONC HIT Pro: Practice Workflow & Information Management Redesign Specialist
Missoula College	<ul style="list-style-type: none"> Health Information Technology: Computing Track (13 Credits) Health Information Technology: Health Professions Track (18 Credits) 	<ul style="list-style-type: none"> ONC HIT Pro: Implementation Support Specialist ONC HIT Pro: Technical/Software Support Staff CompTIA Healthcare IT Technician
Flathead Valley Community College	Health Information Technology: Implementation and Maintenance Specialist: <ul style="list-style-type: none"> Information Technology Option (18 Credits) Health Care Option (19 Credits) 	<ul style="list-style-type: none"> Certified Associate in Healthcare Information and Management Systems (CAHIMS) ONC HIT Pro: Implementation Support Specialist

Montana Tech—Health Information Technology Certificates

Track 1--Information Technology Professionals (15 Credits)

AHMS 144 Medical Terminology: Designed to familiarize the student with modern health care terminology and taxonomies. Concepts related to the storage and retrieval of health care information, including provisions for privacy and security are also presented. This is a web-based course delivered via Moodle.

AHMS 252 Computerized Medical Billing: This course presents computerized accounting as it applies to health care environments. Instruction includes the application of accounting software for hospitals, doctor's offices, and dentist offices. Medisoft software is used.

HIT 101 Intro to Health Care Informatics: Introduce the discipline of health care informatics. An overview of the subject including the history, basic knowledge of health care informatics and tools as applied in support of health care delivery. Students will understand an introductory level about the complexities of health care and how informatics fits within the US Health Care System.

HCI 215 Healthcare Facility Procedures: This course introduces the student to common procedures and practices found in health care settings and the information systems that support such procedures/practices. This course focuses on the major functional areas of the acute care setting, providing an overview of how individual departments operate and interact.

HIT 265 EHR in Medical Practice: Students will learn the personnel functions and associated workflows required in an ambulatory care physician clinic and how to prepare for, implement and use an electronic health record (EHR) to achieve a paperless office environment and improved quality of care. Office function, associated workflow and EHR use will include all office personnel roles from receptionist through nurse and physician. EHR use will include both in-office functions and its role in Health Information Exchange (HIE) with other health care providers and organizations including laboratories, pharmacies, consulting physicians and payers.

Track 2--Allied Health and Medical Professionals (17 Credits)

HIT 101 Intro to Health Care Informatics: Introduce the discipline of health care informatics. An overview of the subject including the history, basic knowledge of health care informatics and tools as applied in support of health care delivery. Students will understand an introductory level about the complexities of health care and how informatics fits within the US Health Care System.

HIT 260 Data, Information, & Knowledge: Provides students with the opportunity to examine three concepts that are fundamental to the field of informatics - data, information and knowledge. The course focuses in database principles, health care classification systems and concepts of data set.

HIT230 Overview of HCI Systems: Course introduces the student to health information systems concepts, components, processes, and design. Topics include implementation of health information systems and the use of information systems technologies in a health care setting, including clinical applications systems, electronic medical records, and administrative and management applications. Opportunities for hands-on experiences with software products are provided.

HIT 265 EHR in Medical Practice: Students will learn the personnel functions and associated workflows required in an ambulatory care physician clinic and how to prepare for, implement and use an electronic health record (EHR) to achieve a paperless office environment and improved quality of care. Office function, associated workflow and EHR use will include all office personnel roles from receptionist through nurse and physician. EHR use will include both in-office functions and its role in Health Information Exchange (HIE) with other health care providers and organizations including laboratories, pharmacies, consulting physicians and payers.

HCI 410 Project & System Management: Students learn to design health care informatics applications from “the ground up.” Methodologies for analyzing information needs and

determining information requirements will be examined. A systematic evaluation process will be introduced which includes economics and technology assessments.

Healthcare Informatics, Graduate Certificate (15 Credits)

HCI 5100 Health Care Informatics: The course is designed to provide future managers with the knowledge, skills, and competencies necessary to effectively manage healthcare information systems. Topics include an overview of strategic planning, including the importance of system integration and IM/IT governance; project management, including information on establishing a centralized IM/IT portfolio management office (PMO) to improve project success rates; the government's role in IM/IT, including the impact of HIPAA and other legislation; how IM/IT investments are evaluated and provides a framework for conducting these analyses; the electronic health record and other clinical and administrative applications used in healthcare enterprises; and a comprehensive profile of hospital IM/IT leadership, including the role of the Chief Information Officer (CIO).

HCI 5220 Health Care Systems Administration (elective): The course is designed to provide professionals with the knowledge, skills, and competencies necessary to understand the broad scope of health care operations that are essential to become an effective health care systems manager. Topics include operations management and financial health, process engineering and optimization, and logistics and supply chain management.

HCI 5350 Health Care Decision Support: Explore the principles of evidence-based medicine and the role of decision support tools in bringing informatics to the bedside. Learn about clinical decision support systems, common data sources and medical algorithms, and the applications and limitations of decision support as a supplement to clinical judgment. Gain hands-on practice with a variety of proprietary and open source systems, and evaluate their strengths and weaknesses.

HCI 5370 Health Information Analysis and Design: With an emphasis on the role of the informaticist, apply systems analysis and design theory to the development of health information systems. Learn basic principles of object-oriented programming and relational databases; the processes for assessing and modeling user requirements and data structures; the role of data standards in systems designs; and basic data warehousing strategies. Explore a variety of applications in clinical and public health, learn to identify system strengths and weaknesses and gain hands-on practice in data modeling approaches to translate user requirements to system specifications.

HCI 5150 EHR in Clinical and Public Health Practice: Learners will understand and be able to apply the fundamental concepts used to create and maintain Electronic Medical Records in the ambulatory/public health setting. The course will provide a "how to" for the conduct of a workflow analysis within a medical practice. Learners will also create electronic records and progress notes for a variety of patient types. The course will emphasize features common to virtually all EMR software applications including electronic telephone notes and management of patient appointments, development of

electronic templates, the creation electronic patient history forms, Clinical Provider Order Entry (CPOE) and e-prescribing.

HCI 5230 Health Care I.T. Management (elective): Examines the environment and activities necessary to plan, develop system requirements, select systems, contract for services, and implement HIT applications and systems from Health Information Technology industry suppliers. The course also examines the impact of information systems on the health care organization and applies theory using case study analysis.

Great Falls College—Healthcare Informatics Tech Certificate (24 credits) (Program no longer offered)

AHMS 105 HEALTHCARE DELIVERY - Credits: 2

This introductory course acquaints students with an overall view of the healthcare system. Topics include organization, financing, and delivery of healthcare through various types of facilities, agencies, health organizations, and hospitals. Medical ethics, professional behavior, and patient rights are also covered.

AHMS 144 MEDICAL TERMINOLOGY - Credits: 3

The goals of this course are to promote knowledge of the elements of medical terminology for professional and personal development, the ability to spell and pronounce medical terms, an understanding of medical abbreviations, and an appreciation of the logical method found in medical terminology. This includes word analysis and word building. Knowledge of terms relating to body structures, positions, directions, divisions and planes will be required. An awareness of current health events is encouraged, as is knowledge of basic scientific and specialty areas in healthcare practice.

CAPP 120 INTRODUCTION TO COMPUTERS - Credits: 3

Using both lecture and lab experience, this course introduces the technology and terminology of computer systems and demonstrates how computers have impacted individuals and society. The course also provides instruction in the basics of the operating system and word processing, spreadsheet, database, and presentation software.

HIT 101 Introduction to Health Care Information - Credits: 3

This introduction to the discipline of health care informatics provides an overview of the subject including the history, basic knowledge of health care informatics and tools as applied in support of health care delivery. Students will understand an introductory level about the complexities of health care and how informatics fits within the US Health Care System. This course covers the different sectors of health care delivery in the United States today. The student will learn about the various aspects of the US delivery system and how the system functions on different levels from an industry and economic perspective.

AHMS 108 HEALTH DATA CONTENT AND STRUCTURE - Credits: 3

This course provides orientation to the health information department and its organization interrelationships in healthcare facilities. This course also covers the content and format of the health record (both conventional and alternative formats), quantitative and qualitative analysis of the record according to regulatory and accreditation standards, numbering, filing, retention, storage, and destruction of records. Application will be provided using extensive discussion and assignments designed to approximate real life situations.

AHMS 280 OVERVIEW OF HEALTH INFORMATICS SYSTEMS - Credits: 4

This course will cover the principles of analysis, design, evaluation, selection, acquisition, and utilization of information systems in healthcare. Also included in this course are the technical specifications of computer hardware, software, networks, and telecommunications. Furthermore, this course will provide an understanding of technology's role in healthcare. The course will emphasize the intellectual use of information strategic planning, decision support, program management, high quality patient care, and continuous quality improvement. Application will be provided using extensive discussion and assignments designed to approximate real life situations.

AH 260 Workflow Analysis & Redesign - Credits: 3

This course covers fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation. Process validation and change management are also covered to include workflow analysis and process mapping to support an EHR that will lead to quality and performance improvement.

AH 265 Electronic Health Record in Medical Practice - Credits: 3

Students will learn the personnel functions and associated workflows required in an ambulatory care physician clinic and how to prepare for, implement and use an electronic health record (EHR) to achieve a paperless office environment and improved quality of care. Office function, associated workflow and EHR use will include all office personnel roles from receptionist through nurse and physician. EHR use will include both in-office functions and its role in Health Information Exchange (HIE) with other health care providers and organizations including laboratories, pharmacies, consulting physicians and payers.

Missoula College

Health Information Technology: Computing Track (13 Credits)

AHMS 156 Medical Billing Fundamentals – 3 Credits

An introduction to insurance claim processing for the major medical insurance programs. Students will be provided with a basic knowledge of CPT and ICD-9 procedural and diagnostic coding. Emphasis on completing universal insurance forms to maximize reimbursement as well as trouble shoot denied or underpaid claims.

NRGS 101 Introduction to Nursing – 1 Credit

Student will be presented with an introductory level of the core concepts of nursing practice and other issues such as the legal concerns and ethical/cultural issues that face professional nurses on a consistent basis.

AHMS 144 Medical Terminology - 3 Credits

Introduction to a medical word building system using Greek and Latin word roots, combining forms, suffixes, and prefixes.

HIT 101 Introduction to Health IT – 3 Credits

An overview of the subject including history, basic knowledge of health care informatics and tools as applied in support of health care delivery. Students will gain an introductory level about the complexities of health care and how informatics fits within the US Health Care System.

HIT 265 Electronic Health Records in Medical Practice – 3 Credits

Students will study the use of the EHR in improving healthcare quality, accessibility, and cost-effectiveness. EHR implementation and its use within the internal clinical office will be examined. The EHR will be studied in the context of a comprehensive Health Information System (HIS) supporting our society's interdisciplinary clinical healthcare system.

Health Information Technology: Health Professions Track (18 Credits)

CSCI 172 Computer Modeling – 3 Credits

Problem solving and data modeling using computer productivity software. Emphasis using spreadsheets and database for data analysis.

ITS 150 CCNA I : Exploration – 3 Credits

Introduction to networking field including terminology; protocols; local-area and wide-area networks; the OSI model; topologies; IP addressing; cabling and cabling tools; routers and router programming. Ethernet and network standards; and wireless technologies

CSCI 240 Databases & SQL – 3 Credits

Relational database design including: requirements analysis, data structure, entity relationships, normalization, relational algebra and integrity. Physical implementation focusing on data storage; retrieval and modification; concurrency; optimization; security; SQL; and XML.

HIT 101 Introduction to Health IT – 3 Credits

An overview of the subject including history, basic knowledge of health care informatics and tools as applied in support of health care delivery. Students will gain an introductory level about the complexities of health care and how informatics fits within the US Health Care System.

ITS 210 Network Operating Systems: Desktop – 3 Credits

In-depth study of a secure, multi-user, client-based network operating system. Topics include installation, administration of resources, performance, network services, and security.

HIT 265 Electronic Health Records in Medical Practice – 3 Credits

Students will study the use of the EHR in improving healthcare quality, accessibility, and cost-effectiveness. EHR implementation and its use within the internal clinical office will be examined. The EHR will be studied in the context of a comprehensive Health Information System (HIS) supporting our society's interdisciplinary clinical healthcare system.

Flathead Valley Community College
Health Information Technology: Implementation and Maintenance Specialist
(Program no longer offered)

Technology Option (18 credits)

AH 120 Configuring Electronic Health Records - 3 credits

A practical experience with a laboratory component, addressing approaches to assessing, selecting and configuring EHRs to meet the specific needs of customers and end users.

AH 140 Installation and Maintenance of Health IT Systems - 3 credits

This course focuses on the installation and maintenance of health IT systems, including testing prior to implementation including introduction to principles underlying system configuration with hands on experiences in computer labs and on site in health organizations.

AHMS 108 Health Data Content and Structure - 3 credits

This course offers an in depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them), the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches.

AHMS 280 Overview of Health Informatics Systems - 4 credits

This course provides an overview of the most popular EHR vendor systems highlighting the features of each, as they would relate to practical deployments and noting the differences between the systems. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening under the hood. They will experience threats to security and appreciate the need for standards, high levels of usability and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.

CAPP 116 MS Access short course - 1 credit

This course is intended to help develop the skills necessary to work with spreadsheets. Topics include entering and manipulating different types of data, formatting basics, using functions to analyze information, making decisions with IF functions and formulas, sorting and filtering information and creating charts.

CAPP 118 MS Access short course – 1 credit

This course is intended to help develop the skills necessary to work with databases. Topics include creating tables, queries, forms and reports.

CS 140 Introduction to Information and Computer Science - 3 credits

For students without an IT background, this course provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. Includes basic terminology of computing.

Health Care Option (19 Credits)

AH 120 Configuring Electronic Health Records - 3 credits

A practical experience with a laboratory component, addressing approaches to assessing, selecting and configuring EHRs to meet the specific needs of customers and end users.

AH 140 Installation and Maintenance of Health IT Systems - 3 credits

This course focuses on the installation and maintenance of health IT systems, including testing prior to implementation including introduction to principles underlying system configuration with hands on experiences in computer labs and on site in health organizations.

AH 260 Practice and Information Management and Redesign - 3 credits

Fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation; includes topics of process validation and change management.

AHMS 108 Health Data Content and Structure - 3 credits

This course offers an in depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them), the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches

AHMS 144 Medical Terminology - 3 credits

A systematic approach to scientific terminology in order to prepare students to function properly in fields related to the medical profession. Familiarity with word elements and competent use of a medical dictionary are emphasized.

AHMS 280 Overview of Health Informatics Systems - 4 credits

This course provides an overview of the most popular EHR vendor systems highlighting the features of each, as they would relate to practical deployments and noting the differences between the systems. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening under the hood. They will experience threats to security and appreciate the need for standards, high levels of usability and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.

New York

Fort Drum Regional Health Planning Organization
Watertown, NY

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Curriculum Outline](#)

Introduction to Health Information Technology
Course B: Health IT Workflow Specialist

Curriculum Outline

Pat Fontana
Fort Drum Regional Health Planning Organization
Rural Health IT Workforce Training Program
Grant Period: 09/15/2013 – 08/31/2016
Grant #: R01RH26269

Organization: Fort Drum Regional Health Planning / Jefferson Community College

Course: Introduction to Health Information Technology – Course B: Health IT Workflow Specialist

Certifications: AHIMA CHTS-PW and CHTS-CP

The [Certified Healthcare Technology Specialist \(CHTS\)](#) exams will confirm that a student's experience and skills are ready to meet the nation's need for health information technology workers. Workers in this role maintain systems in clinical and public health settings, including patching and upgrading of software. They will interact with end users to diagnose IT problems and implement solutions, document IT problems and evaluate the effectiveness of problem resolution, and support systems security and standards. As the healthcare industry transitions to electronic health records (EHRs), a nationwide need emerges for skilled specialists trained in Health IT. Individuals who hold national CHTS credentials demonstrate a commitment to the profession and competency in the field.

This certification training course helps to prepare students for up to two CHTS exams:

1. **CHTS-PW:** *Practice Workflow and Information Management Redesign Certification*
2. **CHTS-CP:** *Practitioner Consultant Certification*

Workers in these roles will have the skills needed to reorganize a provider's work to effectively use health IT to improve health care. They may have backgrounds in health care or information technology. Workers in this role assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. Individuals in this role may have backgrounds in health care (for example, as a practice administrator) or in information technology, but are not licensed clinical professionals.

Workers in this role will:

- Conduct user requirements analysis to facilitate workflow design.
- Integrate information technology functions into workflow and document health information exchange needs.
- Design processes and information flows that accommodate quality improvement and reporting.
- Work with provider personnel to implement revised workflows.
- Evaluate process workflows to validate or improve practice's systems.
- Suggest solutions for health IT implementation problems in clinical and public health settings.
- Assist in selection of vendors and software and advocate for users' needs, acting as a liaison between users, IT staff, and vendors.

Most of the information and curriculum materials are taken from the Office of the National Coordinator (ONC). The ONC has organized the curriculum into a series of components. This course organizes the curriculum material into separate Modules which will closely mirror the ONC Components. Where appropriate the Module name and number will be followed by the matching ONC Component.

- [Our course naming convention: "Module"](#)
- [ONC's naming convention: "Component"](#)

Module 1: Fundamentals of Health Workflow Process Analysis & Redesign

(Module 1 = Component 10 and sections of Component 18)

This Module is estimated to provide 15-20 instructional hours, not including activities, assessments, and study time for the CHTS exam. The information contained in this study guide was taken from Component 10 of the Health IT Workforce Curriculum, Version 3.0/Spring 2012.

Component 10	Component Objectives
<p>Title: Workflow Process Analysis and Redesign</p> <p>Description: Includes topics on workflow redesign, process analysis and change management. Attention is given to the effect of workflow on patient care, Quality Improvement and safety.</p>	<ul style="list-style-type: none">• C10.1 Identify how workflow processes effect elements involved in providing patient care.• C10.2 Create process diagrams that support workflow analysis and re-design.• C10.3 Conduct a process analysis to determine effectiveness.• C10.4 Apply quality improvement methods to improve workflow processes in a healthcare setting.• C10.5 Suggest appropriate methods of workflow re-design to improve quality and achieve meaningful use.• C10.6 Describe the benefits and challenges of workflow redesign in healthcare settings.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Access to *Lucid Chart* online flowchart creator (www.lucidchart.com free version is sufficient)
- Account with *NEEHR Perfect* Online Learning EHR and *NEEHR Perfect* EHR Activities
- Account with *Practice Fusion* free online EHR
- Account with *Kareo* free online EHR (optional)
- Account with *Open Learning Initiative (OLI)*, health IT course.

Timeline:

- 3 weeks

Assignments: Module 1

	Assignment Title	Description	Est. time for Completion	Intended User
NEEHR Perfect	Level I Scavenger Hunt – EHR Orientation	Introduction to Neehr Perfect, navigating the EHR and beginner level use of an EHR.	45 minutes	Beginner
NEEHR Perfect	Level II Scavenger Hunt – Essential Skills & Usability	Essential skills needed to navigate the EHR, using filters, setting preferences and more detailed aspects of the electronic chart.	1 hour	Beginner
NEEHR Perfect	Scavenger Hunt IV – Final Evaluation	Summarization of the skills learned in Scavenger Hunts I-III.	1 hour	Beginner, Intermediate
ONC Assignment Modified	Listing Processes Assignment	Watch video and list processes.	45 minutes	Beginner
ONC Assignment Modified	Listing Processes Assignment	Read a scenario. Create an inventory of the processes, both explicit and implicit.	45 minutes	Beginner

Readings:

1. [Crossing the Quality Chasm: a New Health System for the 21st Century](#) by the Institute of Medicine (IOM), 2001.
2. [Just Enough Structured Analysis](#) by Edward Yourdon.
3. OLI – Module 13, all pages. Complete activities, also.

Unit 01	Objectives	Key Concepts
Title: Process Analysis	<ul style="list-style-type: none"> • U10.1.1 Describe the reason for process analysis in healthcare. • U10.1.2 Describe the role of a Workflow Redesign Specialist • U10.1.3 Describe the relationship between process redesign and Meaningful Use. • U10.1.4 Identify the components, roles and responsibilities of a clinical workflow. • U10.1.5 Identify differences in workflow processes between different facility types. 	<ul style="list-style-type: none"> • IOM and Quality • Meaningful Use • Processes and Workflow • EMR and EHR

Unit 02	Objectives	Key Concepts
Title: Process Mapping	<ul style="list-style-type: none"> • U10.2.1 Articulate the value of process mapping. • U10.2.2 Describe standard process mapping symbols and conventions. • U10.2.3 Analyze an existing workflow process chart and the sequence of steps. • U10.2.4 Choose an appropriate process mapping method and detail level. • U10.2.5 Create a process map for a health care system. 	<ul style="list-style-type: none"> • Process Mapping • Flowchart • ERDs

Unit 03	Objectives	Key Concepts
Title: Interpreting and Creating Process Diagrams	<ul style="list-style-type: none"> • U10.3.1 Create flowcharts using ISO 5807 symbols. • U10.3.2 Interpret Yourdon, Gane Sarsen, and UML diagrams. • U10.3.3 Analyze and interpret Entity Relationship Diagrams. • U10.3.4 Determine an appropriate detail level for diagramming. 	<ul style="list-style-type: none"> • ISO 5807 • Data Flow Diagrams • Cardinality & Modality • Normalization • Yourdon, UML, Gane Sarsen

Unit 04	Objectives	Key Concepts
Title: Knowledge Acquisition	<ul style="list-style-type: none"> • U10.4.1 Identify how the strategic goals influence workflow processes. • U10.4.2 Describe the importance of agendas for workflow meetings. • U10.4.3 Compare and contrast different types of knowledge in the workplace. • U10.4.4 Analyze a health care scenario according to CMMI levels. • U10.4.5 Identify processes likely to be used by a health care facility, • U10.4.6 Identify high-level processes and determine how to streamline operations. • U10.4.7 Identify key individuals in to help the Specialist acquire knowledge. • U10.4.8 Create questions to facilitate a productive workflow discussion. • U10.4.9 Choose an appropriate knowledge acquisition method. 	<ul style="list-style-type: none"> • Knowledge Acquisition • Maturity Models • Knowledge Sources • Knowledge Types • Process Inventory

Unit 05	Objectives	Key Concepts
Title: Process Analysis	<ul style="list-style-type: none"> • U10.5.1 Describe the purpose of Process Analysis. • U10.5.2 Describe the skills necessary for Process Analysis. • U10.5.3 Read and Interpret a Process Analysis for a given scenario. • U10.5.4 Identify desired EHR functionality given a Process Analysis. 	<ul style="list-style-type: none"> • Process Analysis Objectives • Variations and Exceptions • EHR functionality

Unit 06	Objectives	Key Concepts
Title: Process Redesign	<ul style="list-style-type: none"> • U10.6.1 Identify the factors that optimize workflow processes. • U10.6.2 Describe how technology can increase efficiency of workflow in healthcare. • U10.6.3 Identify aspects of clinical workflow that are improved by EHR. • U10.6.4 Propose workflow redesigns to ensure safety and efficiency. • U10.6.5 Use EHR functionality and meaningful use objectives to determine a redesign. 	<ul style="list-style-type: none"> • Process Redesign • EHR functionality • Process problems • Human-Centered Design • Meaningful Use (MU)

Unit 07	Objectives	Key Concepts
Title: Meeting Facilitation	<ul style="list-style-type: none"> • U10.7.1 Describe major decisions in process redesign that includes EHR technology. • U10.7.2 Draft an agenda and facilitation plan for a decision making meeting. • U10.7.3 Critique a decision making meeting agenda to identify problems. 	<ul style="list-style-type: none"> • Decision Making • Computer-Aided processes • Implementation Planning • Redesigning for MU

Unit 08	Objectives	Key Concepts
Title: Quality Improvement	<ul style="list-style-type: none"> • U10.8.1 Describe strategies for quality improvement. • U10.8.2 Describe the role of Leadership in Quality Improvement. • U10.8.3 Describe the local clinic improvement capabilities. • U10.8.4 Describe and recommend tools for quality improvement. • U10.8.5 Compare and contrast the quality improvement methodologies. 	<ul style="list-style-type: none"> • Quality Improvement • Proactive & Reactive QI • QI Tools and Charts • Quality Culture

Unit 09	Objectives	Key Concepts
Title: Facilitating and Leading Change	<ul style="list-style-type: none"> • U10.9.1 Explain possible change concerns in a process analysis & redesign scenario. • U10.9.2 Propose strategies to gain acceptance of changes in work processes. • U10.9.3 Create and critique a facilitation plan, including tools. • U10.9.4 Given a change management scenario, explain potential outcomes. • U18.10.1 Understand the effects of introducing change in an organization. • U18.10.2 Understand the risks and causes of implementation failures. 	<ul style="list-style-type: none"> • Change Management • Change Tools • Planning for Change

Unit 10	Objectives	Key Concepts
Title: Process Change Implementation and Evaluation	<ul style="list-style-type: none"> • U10.10.1 Develop a Process Change Implementation Plan for a health care facility. • U10.10.2 Identify management tracking and measurement opportunities for the process change. • U18.10.3 Outline elements of an evaluation plan that will help determine the success of change. • U18.10.4 Describe how an analyst helps a health care facility continually improve workflow processes. 	<ul style="list-style-type: none"> • Common process changes • Communication • Change Problems • Evaluating Change

Unit 11	Objectives	Key Concepts
Title: Maintaining and Enhancing Improvements	<ul style="list-style-type: none"> • U10.11.1 Design control strategies to maintain performance of clinic processes • U10.11.2 Develop and present a sustainability and continuous improvement plan. • U10.11.3 Develop plans to keep the practice running if the EHR system fails. • U10.11.4 Work with practice staff to evaluate new processes. 	<ul style="list-style-type: none"> • Performance gains • Business Continuity Plans • Contingencies • EHR Failure

Module 2: Introduction to Computer Programming and Databases

(Module 2 = Component 4)

Component 04	Component Objectives
<p>Title: Computer Programming and Databases</p> <p>Description: This component provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.</p>	<ul style="list-style-type: none">• C4.1 Learn correct terminology for computing and technology including for hardware, software, networks, Internet and databases• C4.2 Identify commonly used hardware components.• C4.3 Identify commonly used software applications and operating systems.• C4.4 explain the function and use of programming languages and identify commonly used languages.• C4.5 Define what a database is, explain what querying languages are and identify commonly used database systems.• C4.6 Describe network computing, its benefits and risks, and identify commonly used communications hardware and software components.• C4.7 Identify security risks for computing systems and discuss potential solutions.• C4.8 Explain the design and development process of a software information system such as an EHR.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Access to a typical home style wireless router/switch
- Microsoft Excel
- Ethernet Cable, 2 RJ-45 clips, Ethernet Crimpers, Cable Tester (On-Campus)
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 2 weeks

Assignments: Module 2

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
	The SHIN-NY (New York Information Exchange)	Watch a two minute video on the SHIN-NY (NY Information Exchange) and describe what it is, it's potential benefits and possible challenges.	1 hour	Beginner, Intermediate
	Home Router Configuration	Log into home router and configure it according to the directions.	45 minutes	Beginner, Intermediate
On-Campus	Create Ethernet Cable	Create a 3-6 foot Ethernet cable by terminating both ends using a T568B configuration. Test the cable.	45 minutes	Beginner, Intermediate
Excel Programming Project	Meaningful Use Spreadsheet and Dashboard	Create a Meaningful Use Spreadsheet and Dashboard in Excel according to the assignment guidelines.	3-5 hours	Intermediate

Readings:

OLI – Module 8, page 74 / Module 9, page 81 / Module 11, all pages.

Unit 1	Objectives	Key Concepts
Title: Computing Concepts	<ul style="list-style-type: none"> • U4.1.1 Define what a computer is. • U4.1.2 Describe different types of computers, including PCs, mobile devices and embedded computers. • U4.1.3 Define the common elements of computer systems. • U4.1.4 Describe the various hardware and software options for typical desktop, laptop and server systems for home and business use with a focus on healthcare systems. • U4.1.5 Explain the development of computers and the Internet, including healthcare systems, up until the present time. 	<ul style="list-style-type: none"> • Hardware • File Systems • Acquisitions

Unit 2	Objectives	Key Concepts
Title: The Internet	<ul style="list-style-type: none"> • U4.2.1 Define the Internet and how to connect to it. • U4.2.2 Define the World Wide Web and how to access it • U4.2.3 Write queries for Internet search engines, filter the results and evaluate credibility of information. • U4.2.4 Discuss security and privacy concerns on the Internet. • U4.2.5 Describe ethical issues for the Internet. • U4.2.6 Explore online healthcare applications and associated security and privacy issues including HIPAA. 	<ul style="list-style-type: none"> • Internet • Standards • Protocols • Privacy • Security • HIPAA

Unit 3	Objectives	Key Concepts
Title: Computer Hardware	<ul style="list-style-type: none"> • U4.3.1 List the major elements of a computer. • U4.3.2 Describe how data is stored in memory and in secondary storage. • U4.3.3 Describe how data is represented in binary notation. • U4.3.4 Describe the function of the central processing unit (CPU) of the computer. • U4.3.5 Describe how data is input/output from a computer. • U4.3.6 Describe how the elements of a computer system work together. • U4.3.7 Explain how specialized architectures and embedded systems are used in healthcare settings. 	<ul style="list-style-type: none"> • Memory • Storage • Network

Unit 4	Objectives	Key Concepts
Title: Computer Software	<ul style="list-style-type: none"> • U4.4.1 Define application vs. system software. • U4.4.2 Give examples of application software focusing on healthcare systems. • U4.4.3 Describe the functions of system software. • U4.4.4 List different types of operating systems. • U4.4.5 Explain the purpose and usage of file systems. 	<ul style="list-style-type: none"> • Application Software • Software • File systems

Unit 5	Objectives	Key Concepts
Title: Computer Programming	<ul style="list-style-type: none"> • U4.5.1 Define the purpose of programming languages. • U4.5.2 Differentiate between different types of programming languages and list commonly used ones. • U4.5.3 Explain the compiling and interpreting process for computer programs. • U4.5.4 Learn basic programming concepts including variable declarations, assignment statements, expressions, conditional statements and loops. • U4.5.5 Describe advanced programming concepts including objects and modularity. 	<ul style="list-style-type: none"> • Programming • Algorithm • Java, C++ • Control Structures • OOP • Compilers and Interpreters

Unit 6	Objectives	Key Concepts
Title: Databases	<ul style="list-style-type: none"> • U4.6.1 Define and describe the purpose of databases. • U4.6.2 Define a relational database. • U4.6.3 Describe data modeling and normalization. • U4.6.4 Describe the structured query language (SQL). • U4.6.5 Define the basic data operations for relational databases and how to implement them in SQL. • U4.6.6 Design a simple relational database and create corresponding SQL commands. • U4.6.7 Examine the structure of a healthcare database component. 	<ul style="list-style-type: none"> • Data • Normalization • Tables • Relational DBs • SQL

Unit 7	Objectives	Key Concepts
Title: Networks	<ul style="list-style-type: none"> • U4.7.1 List and describe the various types of communications and network addressing. • U4.7.2 List and define the different types of networks. • U4.7.3 Describe different network topologies. • U4.7.4 List and describe different network standards and protocols. • U4.7.5 Describe wireless communication. • U4.7.6 List and describe network hardware. 	<ul style="list-style-type: none"> • IP Address • Wi-Fi, Ethernet • Bandwidth • LAN, WAN • DNS, ISP • DHCP • OSI Model • Topologies

Unit 8	Objectives	Key Concepts
Title: Security	<ul style="list-style-type: none"> • U4.8.1 List and describe common security concerns. • U4.8.2 Describe safeguards against common security concerns. • U4.8.3 Describe security concerns for wireless networks and how to address them. • U4.8.4 List security concerns/regulations for health care applications. • U4.8.5. Describe security safeguards used for health care applications. 	<ul style="list-style-type: none"> • Threats and Viruses • Security • Federal Regulations

Unit 9	Objectives	Key Concepts
Title: Information Systems	<ul style="list-style-type: none"> • U4.9.1 Define an information system, how one is used and list examples. • U4.9.2 Describe the components of an information system. • U4.9.3 Describe the process for developing an information system. • U4.9.4 Describe the different types of testing and when testing should occur. • U4.9.5 Describe how information systems are supported and maintained over time. • U4.9.6 Describe specialized information systems. • U4.9.7 Explain how information systems are used in healthcare. 	<ul style="list-style-type: none"> • System • Systems Development • Testing

Unit 10	Objectives	Key Concepts
Title: The Future of Computing	<ul style="list-style-type: none"> • U4.10.1 Describe the latest advances in technology. • U4.10.2 Discuss the implications of advances in technology for healthcare systems, including potential risks. 	<ul style="list-style-type: none"> • Computing Trends • Interfaces • The cloud • Social Implications • Ubiquitous Computing

Module 3: Health Management Information Systems

(Module 3 = Component 06)

Component 06	Component Objectives
<p>Title: Health Management Information Systems</p> <p>Description: This component is an introduction to health IT standards, health-related data structures, and software applications. There is also a brief overview of enterprise architectures and public health organizations.</p>	<ul style="list-style-type: none">• C6.1 Describe general functions, purposes and benefits of health information systems in various settings.• C6.2 Describe initiatives and developments that have influenced the adoption of health information systems.• C6.3 Compare/Contrast different types of health information systems.• C6.4 Explain how electronic health records affect patient safety, quality care, efficiency, productivity, etc.• C6.5 Propose strategies to minimize major barriers to the adoption of electronic health records.• C6.6 Explain how principles of data exchange and standards relate to patient care, productivity and data analysis.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 3 weeks

Assignments: Module 3

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
	Federated vs. Centralized HIE	Complete the HIE assignment.	1 hour	Beginner, Intermediate
NEEHR Perfect	Scavenger Hunt III – Meaningful Use	Coded and non-coded data, health factors, purpose of meaningful use.	1 hour	Beginner, Intermediate
NEEHR Perfect	Implementing Clinical Decision Support (CDS)	Introduces and demonstrates Clinical Decision Support (CDS) by simulating parts of the <i>CDS Starter Kit: Smoking Cessation</i> in the EHR. In completing the Critical Thinking Questions the student will develop their own clinical decision support plan. <i>This could be used as a small project.</i>	1-2 hours	Intermediate
NEEHR Perfect	Clinical Decision through Orders	In this activity the student will be introduced to and explore order checks in the EHR and their role in clinical decision making	1 hour	Intermediate

Readings:

OLI – pages 68-90

Unit 1	Objectives	Key Concepts
Title: Health Informatics	<ul style="list-style-type: none"> • U6.1.1 Define information management, information system (technology) and informatics • U6.1.2 Explain the basic theoretical concept that underlies informatics practice • U6.1.3 Define the meaning of biomedical and health informatics as a field of study • U6.1.4 Describe the biomedical informatics areas of applications • U6.1.5 Summarize the informatics drivers and trends • U6.1.6 State the professional roles and skills of health informaticians • U6.1.7 Identify how health informaticians process data into information and knowledge. 	<ul style="list-style-type: none"> • Data • Information • Knowledge • Informatician • Biomedical Informatics

Unit 2	Objectives	Key Concepts
Title: HIS Overview	<ul style="list-style-type: none"> • U6.2.1 Define the concept of an information system and its characteristics. • U6.2.2 Describe the different types of information systems. • U6.2.3 Describe various types of technologies that support health care information systems. • U6.2.4 Examine the challenges presented by emerging trends. • U6.2.5 Discuss the advantages and disadvantages of the Internet as a platform for health care apps. 	<ul style="list-style-type: none"> • Emerging Trends

Unit 3	Objectives	Key Concepts
Title: Electronic Health Records (EHRs)	<ul style="list-style-type: none"> • U6.3.1 State the similarities and differences between an EMR and EHR. • U6.3.2 Identify attributes and functions of an EHR. • U6.3.3 Describe perspectives of EHRs which could influence adoption. • U6.3.4 Explain how the use of an EHR can affect outcomes. • U6.3.5 Discuss how Health Information Exchange (HIE) and eHealth Exchange impact health care. • U6.3.6 Outline issues regarding governmental regulation of EHRs. • U6.3.7 Summarize how the IOM Vision for 21st Century Health Care and Wellness may impact HIMs. • U6.3.8 Identify how biomedical informatics can affect future uses of health information systems. 	<ul style="list-style-type: none"> • External Influences • IOM • eHealth Exchange • Direct • CONNECT

Unit 4	Objectives	Key Concepts
Title: Computerized Provider Order Entry (CPOE)	<ul style="list-style-type: none"> • U6.4.1 Describe the purpose, attributes and functions of CPOE. • U6.4.2 Explain ways in which CPOE is currently being used in health care. • U6.4.3 Discuss the major value to CPOE adoption. • U6.4.4 Identify common barriers to CPOE adoption. • U6.4.5 Identify how CPOE can affect patient care safety, quality, efficiency, and patient outcomes. 	<ul style="list-style-type: none"> • CPOE • Pros and Cons

Unit 5	Objectives	Key Concepts
Title: Clinical Decision Support Systems (CDS)	<ul style="list-style-type: none"> • U6.5.1 Describe the history and evolution of clinical decision support. • U6.5.2 Describe the fundamental requirements of effective clinical decision support systems. • U6.5.3 Discuss how clinical practice guidelines and evidence-based practice affect CDS. • U6.5.4 Identify challenges and barriers to building and using clinical decision support systems. • U6.5.5 Discuss legal and regulatory considerations related to the distribution of CDS. • U6.5.6 Describe current initiatives that will impact the future and effectiveness of CDS. 	<ul style="list-style-type: none"> • Evidence Based Medicine • Clinical Practice Guidelines • Perspectives

Unit 6	Objectives	Key Concepts
Title: Patient Monitoring Systems	<ul style="list-style-type: none"> • U6.6.1 Describe the purpose, attributes, and functions of patient monitoring systems. • U6.6.2 Discuss ways in which automation can improve the quality of patient care. • U6.6.3 Analyze how the integration of data from many sources assists in making clinical decisions. • U6.6.4 Discuss how telehealth communication technologies support clinical care. • U6.6.5 Discuss the effectiveness and economic benefit of telehealth. • U6.6.6 Examine how smart technology in the home can enhance the quality of patient care. 	<ul style="list-style-type: none"> • Telehealth • Telemedicine • Patient Monitoring Systems

Unit 7	Objectives	Key Concepts
Title: Medical Imaging	<ul style="list-style-type: none"> • U6.7.1 Examine the purposes, processes, and management issues • U6.7.2 Understand the economic and technological factors associated with digital displays • U6.7.3 Describe the major challenges • U6.7.4 Describe the future directions 	<ul style="list-style-type: none"> • MIS • PACS • DICOM • CT Scan • PET Scan • MRI

Unit 8	Objectives	Key Concepts
Title: Consumer Health Informatics	<ul style="list-style-type: none"> • U6.8.1 Explain how current and emerging technologies have impacted consumer health informatics. • U6.8.2 Describe the role of genomics in consumer health informatics. • U6.8.3 Describe the emergence of personal health records and their implications. • U6.8.4 Discuss how consumerism influences the health information systems. 	<ul style="list-style-type: none"> • Personal Health Records • Patient Portal • Consumerism

Unit 9	Objectives	Key Concepts
Title: Administrative, Billing, Financial Systems	<ul style="list-style-type: none"> • U6.9.1 Explain applications that need to be integrated in health care information systems • U6.9.2 Describe the strategies used by health care organizations to ensure integration of functions • U6.9.3 Discuss the critical elements needed to integrate billing, financial, and clinical systems • U6.9.4 Discuss the core elements of a Master Patient Index (MPI) • U6.9.5 Describe current trends to establish a Unique Patient Identifier (UPI) 	<ul style="list-style-type: none"> • MPI and ADT • UPI • Ancillary Systems

Module 4: Usability and Human Factors

(Module 4 = Component 15)

Component 15	Component Objectives
<p>Title: Usability and Human Factors</p> <p>Description: Discussion of rapid prototyping, user-centered design and evaluation, usability; understanding effects of new technology and workflow on downstream processes; facilitation of a unit-wide focus group or simulation.</p>	<ul style="list-style-type: none"> • C15.1 Articulate a systems approach to usability and human factors. • C15.2 Explain the cognitive consequences of health information technology on clinical performance. • C15.3 Evaluate key factors into workplace decisions for selecting vendor-specific systems. • C15.4 Identify the consequences of suboptimal design in the delivery of healthcare. • C15.5 Apply different methods to decisions regarding systems evaluation. • C15.6 Apply requirements engineering methods to inform design and technology selection. • C15.7 Demonstrate concept knowledge of cognition and human performance models. • C15.8 Apply concept knowledge of ergonomics to human factors engineering. • C15.9 Select the most appropriate usability evaluation methods. • C15.10 Apply principles of usability and design to critiquing EHR systems. • C15.11 Diagnose problems associated with a clinical decision support system. • C15.12 Apply cognitive methods of analysis to medical device testing. • C15.13 Evaluate user interface designs using various methods. • C15.14 Diagnose various types of errors and create or select potential solutions. • C15.15 Select appropriate technology input methods given different technology uses. • C15.16 Describe how information visualization can support and enhance data representation. • C15.17 Describe the role of mobile and ubiquitous computing in healthcare.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 3 weeks

Assignments: Module 4

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
NEEHR Perfect	Assessing Commercial Vendors Part I	Learn about the different ways to assess EHR vendors, an introduction to five specific vendors and some of the important factors associated with choosing an EHR.	1 ½ hours	Beginner, Intermediate
NEEHR Perfect	Assessing Commercial Vendors Part II	Learn about the different ways to assess EHR vendors, an introduction to important factors associated with choosing an EHR, such as certification and meaningful use.	1 ½ hours	Beginner, Intermediate
NEEHR Perfect	EHR Evaluation	Students will utilize their knowledge of the EHR to complete an evaluation of the EHR. <i>This could be used as a small group project.</i>	2 ½ hours	Intermediate
NEEHR Perfect, Practice Fusion, Kareo	Practice Fusion vs. Kareo vs. NEEHR Perfect (VistA CPRS)	Students will utilize their knowledge of EHRs to complete a comparison two EHRs in terms of usability. <i>This could be used as a small group project.</i>	2 ½ hours	Intermediate

Readings:

OLI – Module 15, all pages (all activities).

Unit 1	Objectives	Key Concepts
Title: People and Technology	<ul style="list-style-type: none"> • U15.1.1 Explain the importance of technology in health. • U15.1.2 Describe the contributions of Human-Computer interaction to the Health field. • U15.1.3 Define the concept of system usability. • U15.1.4 Describe the seven stages of User Activity in Norman’s Theory of Action. • U15.1.5 Demonstrate concept knowledge of principles of user-centered design. • U15.1.6 Describe the role of human factors and human computer interaction concerning patient safety. • U15.1.7 Demonstrate principles of user-centered design and sources of usability evidence. • U15.1.8 Identify the various types of errors in medicine. • U15.1.9 Identify patient safety issues. 	<ul style="list-style-type: none"> • Human Centered Design • Human Computer Interaction • IOM Reports • Medical Errors • Patient Safety

Unit 2	Objectives	Key Concepts
Title: Requirements Engineering	<ul style="list-style-type: none"> • U15.2.1 Explain the role of requirements gathering in usability evaluation. • U15.2.2 Identify the uses, advantages, and disadvantages of data collection methods. • U15.2.3 Demonstrate an understanding of how to conduct a workflow analysis. • U15.2.4 Identify contextual design principles as they apply to the healthcare setting. • U15.2.5 Describe the methods to interpret results of data collection. 	<ul style="list-style-type: none"> • Requirements Gathering • Contextual Design • Analyzing Methods

Unit 3	Objectives	Key Concepts
Title: Cognition and Human Performance	<ul style="list-style-type: none"> • U15.3.1 Define the concept of cognitive engineering. • U15.3.2 Describe representational effect as it applies to human computer interaction and web design. • U15.3.3 Describe how humans process information and obtain skills. • U15.3.4 Describe Gestalt principles of perception and their relevance. • U15.3.5 Describe the processes of memory and their relationship to web-design. • U15.3.6 Describe the cognitive constructs for mental representation. • U15.3.7 Explain how performance models should inform iterative design processes. 	<ul style="list-style-type: none"> • Human Cognition • Mental Models • Representational Effects • Distributed Cognition • Skills Acquisition • Iterative Design

Unit 4	Objectives	Key Concepts
Title: Human Factors and Healthcare	<ul style="list-style-type: none"> • U15.4.1 Distinguish between human factors and human computer interactions (HCI). • U15.4.2 Explain how ergonomics can be applied to human factors engineering. • U15.4.3 Describe how mental workload, selective attention, information overload affect usability. • U15.4.4 Describe the different dimensions of the concept of human error. • U15.4.5 Describe a systems-centered approach to error and patient safety. • U15.4.6 Apply methods for measuring mental workload and information overload. • U15.4.7 Describe how human factors analysis can be applied to the study of medical devices. 	<ul style="list-style-type: none"> • Human Factors Engineering • Ergonomics • Mental Workload • Selective Attention • Human Error

Unit 5	Objectives	Key Concepts
Title: Usability Evaluation	<ul style="list-style-type: none"> • U15.5.1 Describe the importance of usability in relation to health information technologies. • U15.5.2 List and describe usability evaluation methods. • U15.5.3 Determine which usability evaluation method would be most appropriate and effective. • U15.5.4 Describe the appropriate tasks for a usability test. • U15.5.5 Describe the usability testing environment, required equipment, logistics, and materials. • U15.5.6 Conduct a cognitive walkthrough. 	<ul style="list-style-type: none"> • Focus Groups • Interviews • Cognitive Task Analysis • Usability Inspection • Heuristic Evaluation • Usability Testing

Unit 6	Objectives	Key Concepts
Title: EHR Usability	<ul style="list-style-type: none"> • U15.6.1 Discuss the role of usability testing, training and implementation of EHRs. • U15.6.2 Describe and define usability as it pertains to the EHR (HIMSS document). • U15.6.3 Explain the challenges of EHR design and usability in typical workflow. • U15.6.4 Identify principles of usability/design & describe their application to EHRs (HIMSS). • U15.6.5 Identify usability methods for enhancing efficiency and minimizing error (HIMSS). • U15.6.6 Explain how user-centered design can enhance adoption of EHRs. • U15.6.7 Describe Web 2.0 and novel concepts in system design. • U15.6.8 Identify methods of rating EHR usability (HIMSS document). 	<ul style="list-style-type: none"> • Usability Inspection • Focus Groups • Web 2.0

Unit 7	Objectives	Key Concepts
Title: Usability and CDS	<ul style="list-style-type: none"> • U15.7.1 Understand the cognitive basis for decision making and its effect on clinical errors. • U15.7.2 Discuss the role of usability testing, training and implementation of clinical decision support. • U15.7.3 Describe and define usability as it pertains to clinical decision support. • U15.7.4 Identify examples of usability barriers to adoption of clinical decision support. • U15.7.5 Identify a set of well-established principles of usability and design with CDS. 	<ul style="list-style-type: none"> • Human Decision Making • CDSS and Human Decisions • Factors and Barriers • Design Improvement

Unit 8	Objectives	Key Concepts
Title: Approaches to Design	<ul style="list-style-type: none"> • U15.8.1 Explain a user-centered design approach. • U15.8.2 Define conceptual models. • U15.8.3 Explain the iterative design process. • U15.8.4 Describe requirements analysis and cognitive task analysis. • U15.8.5 Characterize the role of prototypes in design • U15.8.6 Describe the principles of participatory design. • U15.8.7 Describe principles of sound design to support usability. • U15.8.8 Describe how Nielsen’s heuristics and design principles apply to user interface design. • U15.8.9 Explain the difference between low fidelity and high fidelity prototypes. 	<ul style="list-style-type: none"> • Nielsen’s Heuristics • Card Sorting • Prototypes • Participatory Design • Iterative Design

Unit 9	Objectives	Key Concepts
Title: Ubiquitous Computing	<ul style="list-style-type: none"> • U15.9.1. History of Ubiquitous computing and basic principles. • U15.9.2. Describe the role of mobile and ubiquitous computing in healthcare. • U15.9.3 Describe some of the technical Challenges. 	<ul style="list-style-type: none"> • Context-Sensitive Applications • Mobile Platforms • Mobile EHRs

Unit 10	Objectives	Key Concepts
Title: Designing for Safety	<ul style="list-style-type: none"> • U15.10.1 Define “workflow analysis” and methods for examining and addressing human errors. • U15.10.2 Design a workflow analysis study. • U15.10.3 Identify common sources of error documented in research studies in medicine. • U15.10.4 Apply the cognitive taxonomy of errors. • U15.10.5 Apply principles underlying the design of healthcare systems for safety. 	<ul style="list-style-type: none"> • Workflow Analysis • Cognitive Taxonomy of Errors

Unit 11	Objectives	Key Concepts
Title: Input and Selection	<ul style="list-style-type: none"> • U15.11.1 Provide a rationale as to why input methods are important in designing. • U15.11.2 Compare and contrast technology input methods. • U15.11.3 Select appropriate technology input methods given different technology. 	<ul style="list-style-type: none"> • Context-Sensitive Menus • Menu Structures

Unit 12	Objectives	Key Concepts
Title: Information Visualization	<ul style="list-style-type: none"> • U15.12.1 Identify/describe the role of information visualization and describe its purpose. • U15.12.2 Describe how information visualization can support and enhance representations. 	<ul style="list-style-type: none"> • Information Visualization • Scientific Visualization • Aggregate data and trends

Module 5: Quality Improvement

(Module 5 = ONC Component 12 and sections of Component 18)

Component 12	Component Objectives
<p>Title: Quality Improvement</p> <p>Description: Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.</p>	<ul style="list-style-type: none">• C12.1 Analyze clinical decision-making requirements.• C12.2 Design and implement information technology that supports effective teamwork.• C12.3 Analyze workflows to design technology that supports clinical decision-making and care coordination.• C12.4 Design and apply of information technology and practices that support safety and quality.• C12.5 Formulate activation planning that supports and maintains safety and quality.• C12.6 Select and apply quality measures for incorporation into information systems.• C12.7 Assess findings from quality reviews to implement clinical information system improvements.• C12.8 Select improvement tools to assist clinical teams in improving the quality and safety of EHRs.• C12.9 Monitor use of information technology for inappropriate use leading to hazards and errors.• C12.10 Design a culture conducive to reliable processes built on human factors research.• C12.11 Implement effective strategies to use information technology to decrease reliance on memory.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 3 weeks

Assignments: Module 5

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
NEEHR Perfect	Quality Improvement Utilizing the EHR	This activity involves using the electronic health record as a resource to analyze and learn about quality management and performance improvement within the healthcare system.	1 ½ hours	Intermediate
NEEHR Perfect	Cause and Effect	Introduces a facilitated error and where HIT systems could increase potential user error	1 ½ hours	Intermediate
NEEHR Perfect	Case Study Review	A detailed review of a chart and its contents to determine what is present, or not present, in the chart.	1 hour	Beginner, Intermediate

Readings:

OLI – Module 28, all pages (all activities)

Unit 1	Objectives	Key Concepts
Title: Intro to Quality Improvement	<ul style="list-style-type: none"> • U12.1.1 Identify the current challenges in health care quality. • U12.1.2 Examine the components of the health care system that have an impact on quality. • U12.1.3 Describe QI as a goal of meaningful use of HIT. • U12.1.4 Analyze the ways that HIT can either help or hinder quality improvement. • U12.1.5 Explain health care quality and quality improvement (QI). 	<ul style="list-style-type: none"> • Quality Improvement
Unit 2	Objectives	Key Concepts
Title: Principles of Quality and Safety	<ul style="list-style-type: none"> • U12.2.1 Investigate the fallibility of people and systems. • U12.2.2 Describe the ways that every system is designed to achieve the results it gets. • U12.2.3 Apply the basic principles of safe design. • U12.2.4 Explain the ways that teams make wise decisions with diverse and independent input. 	<ul style="list-style-type: none"> • Improving Patient Safety
Unit 3	Objectives	Key Concepts
Title: Reliability	<ul style="list-style-type: none"> • U12.3.1 Discuss the basic concepts of reliability. • U12.3.2 Understand what makes organizations highly reliable. 	<ul style="list-style-type: none"> • Reliability and HIT
Unit 4	Objectives	Key Concepts
Title: Reliability and a Culture of Safety	<ul style="list-style-type: none"> • U12.4.1 Discuss reliability as a tool for ensuring safety. • U12.4.2 Examine how ultra-safe organizations operate. • U12.4.3 Identify how teams make wise decisions. 	<ul style="list-style-type: none"> • Safety Culture
Unit 5	Objectives	Key Concepts
Title: Decision Support and Quality Improvement	<ul style="list-style-type: none"> • U12.5.1 Define decision support, its importance and why it is difficult to implement. • U12.5.2 Compare decision support tools that help improve quality. • U12.5.3 Analyze the benefits and shortfalls of alerts and clinical reminders. 	<ul style="list-style-type: none"> • CDSS Basics • Alerts and Reminders

Unit 6	Objectives	Key Concepts
Title: Workflow Design	<ul style="list-style-type: none"> • U12.6.1 Assess decision-making requirements in health or health care. • U12.6.2 Construct a work process flow chart. • U12.6.3 Appraise ways of incorporating decision-making requirements into HIT design. 	<ul style="list-style-type: none"> • Workflow Assessments • Work Process Flow Charts

Unit 7	Objectives	Key Concepts
Title: Leadership, Teamwork and Communication	<ul style="list-style-type: none"> • U12.7.1 Assess the impact of teamwork and communication on patient safety and care coordination. • U12.7.2 Investigate ways in which HIT design can serve as a barrier to effective communication. • U12.7.3 Describe ways in which HIT design can enhance communication and care coordination. • U18.5.1 Describe an IT Strategic Plan and a typical planning scenario. • U18.5.2 Recognize common IT governance structures. 	<ul style="list-style-type: none"> • Care Coordination • HIT Barriers • Strategic Planning

Unit 8	Objectives	Key Concepts
Title: Patient Safety Culture and HIT	<ul style="list-style-type: none"> • U12.8.1 Apply QI Tools to analyze HIT errors. • U12.8.2 Strategies for HIT initiatives. 	<ul style="list-style-type: none"> • Adaptive Work • QI Tools

Unit 9	Objectives	Key Concepts
Title: Implementation Planning for Quality and Safety	<ul style="list-style-type: none"> • U12.9.1 Critique an implementation team and the roles they play in ensuring quality. • U12.9.2 Analyze effective implementation planning. • U12.9.3 Assess the quality implications of “big bang” versus “staggered” approaches to activation. • U12.9.4 Discuss “go live” support strategies that minimize risk. 	<ul style="list-style-type: none"> • Implementation Team • Go-Live

Unit 10	Objectives	Key Concepts
Title: Measuring Quality	<ul style="list-style-type: none"> • U12.10.1 Understand the basic concepts of variation. • U12.10.2 Explain the attributes of an effective reporting system. • U12.10.3 Examine the importance of having standardized and structured health information. • U12.10.4 Discuss how HIT can facilitate data collection and reporting for improving quality of care. 	<ul style="list-style-type: none"> • Patient Safety

Unit 11	Objectives	Key Concepts
Title: Data Quality Improvement	<ul style="list-style-type: none"> • U12.11.1 Understand different purposes of data. • U12.11.2 Discuss the impact of poor data quality on quality measurement. • U12.11.3 Identify ten attributes of data quality and key process recommendations. • U12.11.4 Explore the attributes of data quality and key processes for maintaining data integrity. • U12.11.5 Discuss common causes of data insufficiency. • U12.11.6 Describe how health information technology design can enhance data quality. 	<ul style="list-style-type: none"> • Use Data • Insufficient Data Quality • Design Recommendations

Unit 12	Objectives	Key Concepts
Title: Learn from Mistakes by Analyzing Reporting Errors	<ul style="list-style-type: none"> • U12.12.1 Explain how reporting errors can help to identify HIT system issues. • U12.12.2 Describe ways in which HIT can facilitate error reporting and detection. • U12.12.3 Assess HIT for unintended negative consequences. • U12.12.4 Examine common themes in HIT design deficiencies. • U12.12.5 Apply QI tools to examine HIT errors. 	<ul style="list-style-type: none"> • Error Detection • QI Tools

Module 6: Terminology in Healthcare

(Module 6 = ONC Component 3)

Component 3	Component Objectives
<p>Title: Terminology in Healthcare</p> <p>Description: This component explains specific terminology used by workers in health care and public health.</p>	<ul style="list-style-type: none">• C.3.1 Define, understand and correctly pronounce medical terms related to each of the major body systems.• C.3.2 Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.• C.3.3 Identify the purpose and uses of pertinent health care terminologies in the electronic health record.• C.3.4 Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 2 weeks

Assignments: Module 6

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
NEEHR Perfect	Data Entry with note	Beginning documenting skills in the electronic health record focusing on the entering of problems, diagnosis and patient reporting.	45 minutes	Beginner
NEEHR Perfect	Data Entry without a note	Beginning documenting skills in the electronic health record: entering a problem, entering orders and documenting vital signs in a chart.	45 minutes	Beginner

Readings:

OLI – Module 30, all pages.

Unit 1	Objectives	Key Concepts
Title: Medical Words	<ul style="list-style-type: none"> • U3.1.1 Discuss the four parts of medical terms. • U3.1.2 Recognize word roots and combining forms. • U3.1.3 Identify the most common prefixes and suffixes. • U3.1.4 Describe the anatomical positions. • U3.1.5 Define the body planes. • U3.1.6 Identify regions of the body. • U3.1.7 Define directional and positional terms. • U3.1.8 Build, divide, spell and pronounce common medical words. 	<ul style="list-style-type: none"> • Medical terminology • Root, suffix, prefix • Regions of the body

Units 2 - 12	Objectives	Key Concepts
Title: Medical Words	<ul style="list-style-type: none"> • U3.2-12.1 Define, understand medical terms related to Various Systems of the Body. • U3.2-12.2 Describe common conditions related to Various Systems of the Body. 	<ul style="list-style-type: none"> • Overview of the systems of the body

Unit 13	Objectives	Key Concepts
Title: Public Health	<ul style="list-style-type: none"> • U3.13.1 Define frequently used public health terms. • U3.13.2 Identify distinguishing features of public health. • U3.13.3 Identify categories and factors that influence health. • U3.13.4 Identify terms commonly used as measures of health status. • U3.13.5 Define frequently used healthcare systems terms. • U3.13.6 Identify and define types of patients in various healthcare settings. • U3.13.7 Identify and define the healthcare professions. 	<ul style="list-style-type: none"> • Public Health Definitions • Services • Professionals

Unit 14	Objectives	Key Concepts
Title: Health Information Management	<ul style="list-style-type: none"> • U3.14.1 Explain concepts used in the field of Health Information Management and HIT. • U3.14.2 Understand the terms that frame HIM and HIT practice. • U3.14.3 Describe health IT hardware and software. • U3.14.4 Define acronyms and abbreviations. 	<ul style="list-style-type: none"> • HIM • Networks • Data Entry Devices • Acronyms in HIT • Agencies • HITECH • Standard Orgs.

Unit 15	Objectives	Key Concepts
Title: EHRs	<ul style="list-style-type: none"> • U3.15.1 Identify the function of the health record. • U3.15.2 Describe ARRA the HITECH Act of 2009. • U3.15.3 Define meaningful use (MU). • U3.15.4 Discuss the difference between an EHR, EMR, and PHR. • U3.15.5 Define functional requirements of an electronic health record (EHR). • U3.15.6 Identify the purposes of EHR components. • U3.15.7 Describe methods to ensure data security and confidentiality. 	<ul style="list-style-type: none"> • Functions of the Health Record • Data and Information • Rights of info • Regulations • ARRA • HITECH • MU • RECs

Unit 16	Objectives	Key Concepts
Title: Health Information Exchange Standards	<ul style="list-style-type: none"> • U3.16.1 Define terms related to standardized terminologies. • U3.16.2 Identify and define HIPAA standard code sets. • U3.16.3 Identify and define terminologies and vocabularies that represent nursing care. • U3.16.4 Define and give examples of data interchange standards. 	<ul style="list-style-type: none"> • Messaging Standards • DICOM • HL7 • HIPAA Standard Code Sets • NDC • ICD • HCPCS • Nursing Standards, NAND • NIC, NOC, PNDS • SNOMED CT • LOINC

Module 7: Culture of Healthcare

(Module 7 = ONC Component 2)

Component 2	Component Objectives
<p>Title: The Culture of Healthcare</p> <p>Description: For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.</p>	<ul style="list-style-type: none">• C2.1 Describe the major types of clinical personnel involved in healthcare and typical roles.• C2.2 Describe the major types of settings in which healthcare occurs.• C2.3 Describe the major processes of information gathering, analysis, and documentation used by clinicians.• C2.4 Give examples and explain the differences between common forms of care delivery.• C2.5 Describe the role of community health and public health in managing outbreaks, epidemics, pandemics.• C2.6 Understand the basic principles of evidence-based practice.• C2.7 Describe common forms of quality measurement, performance improvement, and incentive payments.• C2.8 Discuss the role of medical ethics and professional values in care delivery.• C2.9 Understand the concepts underlying the application of privacy, confidentiality, and security.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 2 weeks

Readings:

OLI - Module 3, all pages / Module 5, all pages / Module 6, all pages

Assignments: Module 7

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
NEEHR Perfect	Health Information Terminology Activity	Introduces health information terminology and tests the user's knowledge by documenting in a templated note the answers to 25 questions.	1 hour 15 min	Beginner
NEEHR Perfect	Introducing HITECH and the History of EHRs	Introduction to the HITECH Act, ARRA, IOM, the evolution of electronic health records and how Neehr Perfect incorporates these pieces of healthcare information technology	1 ½ hours	Beginner
NEEHR Perfect	Health Information Exchange	Explores health information exchange, what it is and how it is used. The student will use the HealthIT.gov website, VistA Health Data Systems and apply what they learn to using Neehr Perfect.	1 ½ hours	Beginner
NEEHR Perfect	Introduction to Privacy, Security and Confidentiality in the EHR	Introduction to the basic aspects related to privacy, security and confidentiality for both the consumer and the healthcare worker.	1 hour	Beginner

Readings:

Unit 1	Objectives	Key Concepts
Title: Customer Service	<ul style="list-style-type: none"> • U2.1.1 Define terms used in healthcare: disease, syndrome, etc. • U2.1.2 Describe the education, training, certification, licensure and roles of physicians. • U2.1.3 Describe the education, training, certification, licensure and roles of healthcare workers. 	<ul style="list-style-type: none"> • Cultural Competence • Safety Culture

Unit 2	Objectives	Key Concepts
Title: Healthcare Professionals	<ul style="list-style-type: none"> • U2.2.1 Define contextual norms expected in healthcare organizations. • U2.2.2 Discuss the importance of dress, deportment, demeanor, and grooming. 	<ul style="list-style-type: none"> • Care Coordinators

Unit 3	Objectives	Key Concepts
Title: Healthcare Settings	<ul style="list-style-type: none"> • U2.3.1 Explain the various forms of care delivery (primary, specialty, etc.) • U2.3.2 Understand the meaning of “continuum of care”. • U2.3.3 Evaluate the similarities and differences of hospital types. • U2.3.4 Describe the various departments and services offered by various facilities. • U2.3.5 Explain the ways in which these departments interact and the services relate. • U2.3.6 Speculate on the information that is created and used by people in healthcare. • U2.3.7 Describe ways in which technology has improved communication. 	<ul style="list-style-type: none"> • Continuum of care • Patient Experience

Unit 4	Objectives	Key Concepts
Title: Healthcare Processes and Decision Making	<ul style="list-style-type: none"> • U2.4.1 Describe the elements of the 'classic paradigm' of the clinical process. • U2.4.2 List the types of information used by clinicians when they care for patients. • U2.4.3 Describe the steps required to manage information during the patient interaction. • U2.4.4 List the different formats used to organize clinical information. • U2.4.5 Explain what is meant by the 'hypothetico-deductive' reasoning process. • U2.4.6 Explain the difference between observations, findings, syndromes, and diseases. • U2.4.7 Describe techniques or approaches used by clinicians to reach a diagnosis. • U2.4.8 List the major types of factors that clinicians consider when devising a management plan. 	<ul style="list-style-type: none"> • Diagnosis and Findings • Classic Paradigm

Unit 5	Objectives	Key Concepts
Title: Evidence Based Medicine (EBM)	<ul style="list-style-type: none"> • U2.5.1 Define the key tenets of evidence-based medicine (EBM). • U2.5.2 Understand EBM for intervention studies. • U2.5.3 Discuss the benefits and limitations to summarizing evidence. • U2.5.4 Describe how to implement EBM in clinical settings through clinical practice guidelines. 	<ul style="list-style-type: none"> • EBM • Prognosis and Diagnosis • Summarizing Evidence

Unit 6	Objectives	Key Concepts
Title: Nursing Care Processes	<ul style="list-style-type: none"> • U2.6.1 Learn what nurses do and how they are trained (Lecture a) • U2.6.2 Learn how nurses make clinical decisions and assess patients (Lecture b) • U2.6.3 Learn about the settings where nurses work (Lecture a, c) • U2.6.4 Learn about the procedures that nurses perform (Lecture c) 	<ul style="list-style-type: none"> • Nursing Roles and Responsibilities • Documenting Procedures

Unit 7	Objectives	Key Concepts
Title: Quality Measurement and Performance	<ul style="list-style-type: none"> • U2.7.1 Define healthcare quality and the major types of quality measures. • U2.7.2 Describe the current state of healthcare quality in the United States. • U2.7.3 Discuss the current healthcare quality measures used in various healthcare settings. • U2.7.4 Describe the role of information technology in measuring and improving healthcare quality • U2.7.5 Describe the results of current healthcare quality efforts in the US. 	<ul style="list-style-type: none"> • Quality Measures • Quality Assessment

Unit 8	Objectives	Key Concepts
Title: Ethics and Professionalism	<ul style="list-style-type: none"> • U2.8.1 Provide an orientation to ideas about medical ethics and professionalism. • U2.8.2 Explore the relationships among ethical ideals, professionalism, and legal duties. • U2.8.3 Apply the general principles of ethics and professionalism to specific topics. • U2.8.4 Examine ethical issues in health informatics. 	<ul style="list-style-type: none"> • Medical Ethics • Health Informatics

Unit 9	Objectives	Key Concepts
Title: Privacy and Security	<ul style="list-style-type: none"> • U2.9.1 Define and discern the differences between privacy, confidentiality, and security. • U2.9.2 Discuss the major methods for protecting privacy and confidentiality. • U2.9.3 Describe and apply privacy, confidentiality, and security under the tenets of HIPAA Privacy. • U2.9.4 Describe and apply privacy, confidentiality, and security under the tenets of the HIPAA Security. 	<ul style="list-style-type: none"> • HIPAA • Privacy and Confidentiality

Unit 10	Objectives	Key Concepts
Title: Sociotechnical Aspects	<ul style="list-style-type: none"> • U2.10.1 Describe the concepts of medical error and patient safety. • U2.10.2 Discuss error as an individual and as a system problem. • U2.10.3 Compare and contrast social and technical “resistance to change”. • U2.10.4 Discuss the challenges inherent with adapting work processes to new technology. • U2.10.5 Discuss the downside of adapting technology to work practices and why this is not desirable. • U2.10.6 Discuss the impact of changing sociotechnical processes on quality, efficiency, and safety. 	<ul style="list-style-type: none"> • Medical Errors • Patient Safety • Sociotechnical Aspects of Healthcare

Module 8: Working with HIT Systems

(Module 8 = ONC Component 7)

Component 7	Component Objectives
<p>Title: Working with HIT Systems</p> <p>Description: Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.</p>	<ul style="list-style-type: none">• C7.1. Identify common components of an HIT system and types of HIT applications (E-Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, and acute care, community health, public health, small provider practices, etc.)• C7.2. Describe data flows across HIT systems and implication of standards.• C7.3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.• C7.4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system)• C7.5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 2 weeks

Assignments: Module 7

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate
NEEHR Perfect	Chart Abstracting	Student abstracts the contents of an electronic health record. Substantial knowledge of the details of each tab and the location of information in the patient chart is necessary to complete this activity in a timely manner.	1 ½-2 hours	Intermediate
NEEHR Perfect	Reporting in the EHR	Utilizing the report functions in the EHR to query patient information.	1 hour	Intermediate
NEEHR Perfect	Retrieval of Data	Involves data retrieval within the electronic health record focusing on finding key information from a patient's chart to be used in a research study. The activity uses the chart of Susan Bowers.	45 minutes	Intermediate

Unit 1	Objectives	Key Concepts
Title: HIT System Components	<ul style="list-style-type: none"> • U7.1.1 Define a system and relate systems concepts to HIT • U7.1.2 Discuss specific examples of settings where Health IT is used (acute, rural, public health, clinic, office, patient home, etc.) • U7.1.3 Identify common components of a clinical HIT system • U7.1.4 Demonstrate beginning level competency in maneuvering the demonstration EHRS 	<ul style="list-style-type: none"> • Understanding Systems - Conceptualizing HIT Use • HIT Systems • Big Picture of HIT Systems • Common Aspects of Clinical HIT Systems

Unit 2	Objectives	Key Concepts
Title: HIT Functions	<ul style="list-style-type: none"> • U7.2.1 Identify the health IT functions that support a generic ambulatory patient care process. • U7.2.2 Identify the health IT functions that support a generic inpatient care process. 	<ul style="list-style-type: none"> • Inpatient and Ambulatory • Supporting Care Processes using HIT

Unit 3	Objectives	Key Concepts
Title: Information Exchange	<ul style="list-style-type: none"> • U7.3.1 Identify common elements of the HIT system. • U7.3.2 Explain the need for standards and why they exist. • U7.3.3 Define and differentiate between messaging standards and terminology standards. • U7.3.4 Compare current efforts to facilitate health information exchange between providers, communities, regions, & nation. (A basic level – eHealthExchange, HIEs, etc.) 	<ul style="list-style-type: none"> • Types of Exchange • Exchange and Meaningful Use • Standard Types • Initiatives of HIE

Unit 4	Objectives	Key Concepts
Title: Effective Systems in HIT	<ul style="list-style-type: none"> • U7.4.1 Identify characteristics of an effective HIT system. • U7.4.2 Define and provide examples of how evidence-based practice can be supported in HIT Systems. • U7.4.3 Define and cite examples of usability / configurability / scalability and reliability in HIT Systems. • U7.4.4 Contrast different types of reports/queries required for internal and external reporting. 	<ul style="list-style-type: none"> • Characteristics of Effective HIT • Supporting Workflows

Unit 5	Objectives	Key Concepts
Title: Usability	<ul style="list-style-type: none"> • U7.5.1 Define usability in relation to HIT systems. • U7.5.2 Explain the impact of HIT usability on user satisfaction. • U7.5.3 Provide alternatives to HIT usability bottlenecks. 	<ul style="list-style-type: none"> • User Centered design • Poor Usability • Bottlenecks

Unit 6	Objectives	Key Concepts
Title: HIT Facilitated Error	<ul style="list-style-type: none"> • U7.6.1 Explain the concept of facilitated error in HIT. • U7.6.2 Cite examples of situations where HIT systems could increase the potential for user error. • U7.6.3 Analyze sources of HIT facilitated errors and suggest realistic solutions. 	<ul style="list-style-type: none"> • Error in Healthcare • Error Vocabulary • Technology Induced Error

Unit 7	Objectives	Key Concepts
Title: Privacy, Security and Confidentiality	<ul style="list-style-type: none"> • U7.7.1 Explain and illustrate privacy, security, and confidentiality in HIT settings. • U7.7.2 Identify common threats encountered when using HIT. • U7.7.3 Formulate strategies to minimize threats to privacy, security, and confidentiality in HIT systems. 	<ul style="list-style-type: none"> • Safeguards

Unit 8	Objectives	Key Concepts
Title: Planning, Acquiring, Installing, and Training	<ul style="list-style-type: none"> • U7.8.1 Conduct a basic user needs analysis for a given example situation • U7.8.2 Create a plan for training users in various practice settings • U7.8.3 Identify several challenges that may emerge during installation and generate solution strategies. 	<ul style="list-style-type: none"> • System Development Process • Business Processes • Training

Unit 9	Objectives	Key Concepts
Title: Installation and Adoption Issues	<ul style="list-style-type: none"> • U7.9.1 Identify frequently encountered challenges to adoption and implementation of HIT systems • U7.9.2 Design an action plan to address barriers to implementation of an HIT system. • U7.9.3 Propose solutions to common problems in the implementation of HIT systems. 	<ul style="list-style-type: none"> • Reasons for System Failure • Critical factors for Success • Challenges • Strategies

Unit 10	Objectives	Key Concepts
Title: Patient-centered care and HIT	<ul style="list-style-type: none"> • U10.1.1 Define patient-centered care. • U10.1.2 Suggest HIT-enabled solutions/strategies to enhance patient involvement in healthcare • U10.1.3 Assess the effectiveness of HIT systems in supporting patient-centered care. • U10.1.4 Perform self-assessment of personal beliefs related to HIT and patient-centered care. 	<ul style="list-style-type: none"> • Patient-centered care • Measuring effectiveness of patient care

Unit 11	Objectives	Key Concepts
Title: The Future of HIT	<ul style="list-style-type: none"> • U11.1.1 Speculate the relationship between HIT and health reform. • U11.1.2 Suggest alternative design for usable & supportive H.IT • U11.1.3 Hypothesize how HIT may intersect with publicly available data to improve health (i.e. point of sale, weather, GIS, foods, etc.). • U11.1.4 Predict avenues of future innovations in HIT. 	<ul style="list-style-type: none"> • Future Designs • Infodemiology

Module 9: Meaningful Use

(Module 9 = Component 21, which is not an official ONC component)

Component 21 (<i>not ONC</i>)	Component Objectives
<p>Title: Meaningful Use and The HITECH Act</p> <p>Description: This component provides a basic overview of The HITECH Act and Meaningful Use requirements for both Eligible Professionals and Eligible Hospitals. This is not an ONC Component. It is a separate component developed by staff members at FDRHPO.</p>	<ul style="list-style-type: none"> • C.21.1 Explain key elements of The HITECH Act. • C.21.2 Explain the key elements of Meaningful Use. • C.21.3 Know the proper resources to obtain current MU information. • C.21.4 Differentiate between Meaningful Use Stages 1, 2, and 3 and their effect on healthcare organizations.

No Units	Objectives	Key Concepts

Requirements:

- Access to SUNY Jefferson Online Blackboard: Health IT Course B
 - Component Slide Deck Notes or Videos
 - Component Study Guide
 - Component and Unit Test Questions and Answers
- Account with *NEEHR Perfect* Online Learning EHR
- Account with Practice Fusion free online EHR
- Account with Kareo free online EHR (optional)
- Account with Open Learning Initiative (OLI), health IT course.

Timeline:

- 1 week (and continual throughout the course)

Assignments: Module 7

	Assignment Title	Description	Est. time for Completion	Intended User
	Practice Test Questions	Complete all assigned practice questions.	2 hours	Beginner, Intermediate

North Carolina

McDowell Technical Community College
Marion, NC

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS-PW (No longer offered by AHIMA, as of 5/31/19)
- RHIT
- CAHIMS

Curriculum Resources:

- [Curriculum Outline](#)

McDowell Technical Community College

HIT Curriculum Course Descriptions and ONC HIT Professional Exam Competency Exam Blueprints (Practice Workflow Role)

Currently Existing HIT Course	ONC Module Component	Topics Covered by Components
<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 110 Fundamentals of HIM This course introduces Health Information Management (HIM) and its role in healthcare delivery systems. Topics include standards, regulations, and initiatives; payment and reimbursement systems and healthcare providers and disciplines; and Electronic Health Records (EHRs). Upon completion, students should be able to demonstrate an understanding of health information management and healthcare organizations, professions, and trends.</p> <p>HIT 112 Health Law & Ethics This course covers legislative and regulatory processes, legal terminology, and professional-related and practice-related ethical issues. Topics</p>	<p>Comp 4 – Introduction to Information and Computer Science This unit introduces basic computing concepts and terminology. It identifies common elements of computers, both in terms of hardware and software and provides information on selecting a computer by discussing the range of computer types, from desktops to laptops to servers. Finally, it provides a history of the development of computing and healthcare information systems over time.</p> <p>Comp 5 – History of Health Information Technology in the US This component traces the development of IT systems in health care and public health, beginning with the experiments of</p>	<ul style="list-style-type: none"> • Basic Computing Concepts, Including History • Internet and World Wide Web • Computer Hardware • Computer Software • Computer Programming • Databases and SQL • Networks • Security • Information Systems • Future of Computing <ul style="list-style-type: none"> • Evolution of Health IT • Evolution of Health IT: Modern Era • Evolution of Health IT: The HITECH Act

<p>include confidentiality; privacy and security policies, procedures and monitoring; release of information policies and procedures; and professional-related and practice-related ethical issues. Upon completion, students should be able to apply policies and procedures for access and disclosure of Protected Health Information and apply and promote ethical standards. This course is also available through the Virtual Learning Community (VLC).</p> <p>HIT 122 Professional Practice Experience I This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 124 Professional Practice Experience II This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 222 Professional Practice Experience III This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the</p>	<p>the 1950s and 1960s and culminating in the HITECH act, including the introduction of the concept of “meaningful use” of electronic health records.</p>	<ul style="list-style-type: none"> • Evolution of Public Health Informatics • History of Electronic Health Records • History of Clinical Decision Support • History of CPOE and E-Prescribing • History of HIE • History of Privacy and Security Legislation • Software Certification and Regulation • History of Mobile Computing • History of Telemedicine • History of Quality Improvement and Patient Safety • Payment-Related Issues and the Role of HIT • History of Health IT Organizations
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<p>healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p>		
<p>MED 121 Medical Terminology I This course introduces prefixes, suffixes, and word roots used in the language of medicine. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders. (*VLC)</p> <p>MED 122 Medical Terminology II This course is the second in a series of medical terminology courses. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders. (*VLC)</p> <p>BIO 168 Anatomy and Physiology I This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology,</p>	<p>Comp 3 - Terminology in Healthcare and Public Health Settings Explanation of specific terminology used by workers in healthcare and public health. Note that is NOT a course in data representation or standards</p>	<ul style="list-style-type: none"> • Understanding Medical Words • Integumentary system • Musculoskeletal system • Blood, Lymphatic and Immune system • Cardiovascular System • Endocrine System • Ears, Nose, Throat, Eye and Vision • Nervous System • Reproductive System • Respiratory System • Urinary System • Public Health and Healthcare System Terminology • What is Health information Management and Technology? • Electronic Health Records • Standards to promote Health Information Exchange

histology, and the integumentary, skeletal, muscular, and nervous systems and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.

BIO 169 Anatomy and Physiology II

This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement

HIT 226 Principles of Disease

This course covers disease etiology and organ system involvement, including physical signs and symptoms, prognoses, and common complications and their management. Topics include basic

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<p>microbiology, basic pharmacology, and principles of disease. Upon completion, students should be able to relate disease processes to etiology, physical signs and symptoms, prognosis, and common complications and their management.</p>		
<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 221 Lifecycle of EHR This course covers the system selection, design and implementation of an electronic health record (EHR) in integrated delivery networks. Topics include the system development life cycle, analysis of existing systems, required resources, and common resource constraints. Upon completion, students should be able to understand system development life cycles, analyze design and engineering, and make recommendations to improve efficiency of operations.</p>	<p>Comp 6 - Health Management Information Systems A “theory component, specific to healthcare and public health applications. Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in health care and public health organizations</p>	<ul style="list-style-type: none"> • What is Health Informatics • Health Information Systems Overview • Electronic Health Records • Computerized Provider Order Entry (CPOE) • Clinical Decision Support Systems • Patient monitoring Systems • Medical Imaging Systems • Consumer Health Informatics • Administrative, Billing, and Financial Systems

<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 221 Lifecycle of EHR This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p> <p>HIT 227 Informatics Proj. Management This course covers the required skills needed for implementing healthcare IT applications, with</p>	<p>Comp 7 - Working with Health IT Systems A laboratory component. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “Under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site health organizations.</p>	<ul style="list-style-type: none"> • Introduction & Overview: Components of HIT Systems • Under the Hood • Understanding Information Exchange in HIT Systems • The Effective IT system • Fundamentals of Usability in HIT Systems – What Does It Matter? • HIT Facilitated Error – Cause and Effect • Protecting Privacy, Security, and Confidentiality in HIT Systems • HIT System Planning, Acquisition, Installation & Training: Practices to Support & Pitfalls to Avoid • Potential Issues with Adoption and Installation of an HIT system • HIT Aspects of patient-centered care • Health IT in the Future
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McDowell Technical Community College

HIT Curriculum Course Descriptions and ONC HIT Professional Exam Competency Exam Blueprints (Practice Workflow Role)

<p>emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p>		
<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p>	<p>Comp 9 - Networking and Health Information Exchange</p>	<ul style="list-style-type: none"> • ISO Open Systems Interconnection (OSI) • Network Media and Hardware Communication Devices • National and International Standards Developing Organizations • Basic Health Data Standards • EHR Functional Model Standards • Health Data Interchange Standards • Supporting Standards for EHR Applications • Enterprise Architecture Models

		<ul style="list-style-type: none"> • Privacy, Confidentiality, and Security Issues and Standards • Health Information Exchange
<p>HIT 227 Informatics Project Management This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p>	<p>Comp 10 - Fundamentals of Health Workflow Process Analysis & Redesign Fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation; includes topics of process validation and change management.</p>	<ul style="list-style-type: none"> • Concepts of Processes and Process Analysis • Internet and the World Wide Web • Computer Hardware • Computer Software • Computer Programming • Databases and SQL • Networks • Security • Information Systems • Future of Computing
<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare</p>	<p>Comp 11 - Configuring EHRs A practical experience with a laboratory component, addressing approaches to assessing, selecting, and configuring EHRs to meet the specific needs of customers and end-users.</p>	<ul style="list-style-type: none"> • Migration to an Electronic Health Record System • Patient Care Clinical Workflow; Multiple Perspectives of Patient Care (VistA Demo) • Implementing Clinical Decision Support (VistA Demo)

<p>settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 221 Lifecycle of EHR This course covers the system selection, design and implementation of an electronic health record (EHR) in integrated delivery networks. Topics include the system development life cycle, analysis of existing systems, required resources, and common resource constraints. Upon completion, students should be able to understand system development life cycles, analyze design and engineering, and make recommendations to improve efficiency of operations.</p> <p>HIT 227 Informatics Project Management This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p>		<ul style="list-style-type: none">• Building Order Sets (VistA Demo)• Templates• Health Summary and Clinical Reminder Reports (VistA Demo)• Privacy and Security in the US• Meaningful Use and Implementation
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<p>HIT 216 Quality Management This course introduces principles of quality assessment and improvement, and utilization, risk, and case management, in healthcare. Topics include Continuous Quality Improvement, and case management processes, data analysis/reporting techniques, credentialing, regulatory quality monitoring requirements, and outcome measures and monitoring. Upon completion, students should be able to abstract, analyze, and report clinical data for facility-wide quality management/performance improvement programs and monitor compliance measures.</p> <p>HIT 227 Informatics Project Management This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p>	<p>Comp 12 - Quality Improvement Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.</p>	<ul style="list-style-type: none"> • Introduction to Quality Improvement and Health Information Technology • Principles of Quality and Safety for HIT • Introduction to Reliability • Reliability and Culture of Safety • Decision Support for Quality Improvement • Workflow Design • HIT Design to Support Teamwork and Communication • HIT and Infecting a Patient Safety Culture • HIT Implementation Planning for Quality and Safety • Measuring Quality • Data Quality Improvement • Learning from Mistakes: Error Reporting and Analysis and HIT
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<p>HIT 218 Management Principles in HIT This course covers organizational management concepts as applied to healthcare settings. Topics include roles/functions of teams/committees, leadership, communication and interpersonal skills, designing and implementing orientation/training programs, monitoring workflow, performance standards, revenue cycles, and organizational resources. Upon completion, students should be able to apply management, leadership, and supervisory concepts to various healthcare settings.</p> <p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 122 Professional Practice Experience I This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should</p>	<p>Comp 15 - Usability and Human Factors Discussion of rapid prototyping, user-centered design and evaluation, usability; understanding effects of new technology and workflow on downstream processes; facilitation of a unit-wide focus group or simulation.</p>	<ul style="list-style-type: none"> • People and Technology, Studies of Technology • Requirements Engineering • Cognition and Human Performance • Human Factors and Healthcare • Usability evaluation methods • Electronic Health Records and Usability • Clinical Decision Support and Usability • Approaches to Design • Ubiquitous Computing • Designing for Safety • Designing for Safety • Information Visualization
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<p>be able to apply health information theory to healthcare facility practices.</p> <p>HIT 124 Professional Practice Experience II This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 222 Professional Practice Experience III This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p>		
<p>HIT 218 Management Principles in HIT This course covers organizational management concepts as applied to healthcare settings. Topics include roles/functions of teams/committees, leadership, communication and interpersonal skills, designing and implementing orientation/training programs, monitoring workflow, performance standards, revenue cycles, and organizational resources. Upon completion, students should be able to apply management, leadership, and supervisory concepts to various healthcare settings.</p>	<p>Comp 16 - Professionalism/Customer Service in the Health Environment Development of skills necessary to communicate effectively across the full range of roles that will be encountered in healthcare and public health settings.</p>	<ul style="list-style-type: none"> • Customer Service in Healthcare IT • Professional Behavior in the Healthcare Environment • Overview of Communication Relevant to Health IT • Key Elements of Effective Communication • Regulatory Issues: HIPAA and Standard Precautions

<p>HIT 122 Professional Practice Experience I This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 124 Professional Practice Experience II This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 222 Professional Practice Experience III This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p>		<ul style="list-style-type: none"> • Team and Small Group Communication • Conflict Resolution • Personal Communications and Professionalism
<p>HIT 218 Management Principles in HIT This course covers organizational management concepts as applied to healthcare settings. Topics include roles/functions of teams/committees, leadership, communication and interpersonal skills,</p>	<p>Comp 17 - Working in Teams An experiential course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.</p>	<ul style="list-style-type: none"> • Health IT Teams: Examples and Characteristics • Forming and Developing a Team for HIT

<p>designing and implementing orientation/training programs, monitoring workflow, performance standards, revenue cycles, and organizational resources. Upon completion, students should be able to apply management, leadership, and supervisory concepts to various healthcare settings.</p> <p>HIT 216 Quality Management This course introduces principles of quality assessment and improvement, and utilization, risk, and case management, in healthcare. Topics include Continuous Quality Improvement, and case management processes, data analysis/reporting techniques, credentialing, regulatory quality monitoring requirements, and outcome measures and monitoring. Upon completion, students should be able to abstract, analyze, and report clinical data for facility-wide quality management/performance improvement programs and monitor compliance measures</p> <p>HIT 122 Professional Practice Experience I This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to</p>		<ul style="list-style-type: none"> • Initial Tools for Teaming: Ground Rules & Action Plans for HIT Teams • Team Strategies and Tools to Enhance Performance and Patient Safety: TeamSTEPPS • Leveraging Integration Techniques: Power of HIT Team Dynamics • Articulating Feedback and Feedforward: Tracking Success and Change • Leadership: All Members as Leaders—Leaderful Teams • Sharing Resources and Information: Tools to Optimize Performance of HIT Teams • Positioning for High Performance Teaming: Challenges and Opportunities in the HIT Environment • Barriers to Success: Reading Early Warning Signs of HIT Team Failure • Life Cycle of HIT Teams:
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<p>healthcare facility practices.</p> <p>HIT 124 Professional Practice Experience II This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p> <p>HIT 222 Professional Practice Experience III This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.</p>		<p>Reforming and Repositioning Techniques</p>
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<p>HIT 225 Healthcare Informatics This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.</p> <p>HIT 227 Informatics Project Management This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.</p>	<p>Comp 19 - Introduction to Project Management An understanding of project management tools and techniques that results in the ability to create and follow a project management plan</p>	<ul style="list-style-type: none"> • An Overview of Health IT Projects • Project Life Cycles • Project Selection and Initiation • Project Planning Overview • Managing Project Scope • Managing Project Time, Cost, and Procurements • Managing Project Risk • Team Management and Communications • Project Monitoring and Control • Quality Management • Project Closure and Transition
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Pennsylvania

Pennsylvania Mountains Healthcare Alliance
Penn State University

ONC Focus Area:

- Clinician/Practitioner Consultant
- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CAHIMS
- CPHIMS

Curriculum Resources:

- [Curriculum Outline](#)

Penn State's Healthcare Information Technology Certificate

	ONC HIT modules
IST 110 Information, People, and Technology	Component 4: Introduction to Information and Computer Science Component 15: Usability and Human Factors
IST 210 Organization of Data	Component 8: Installation and Maintenance of Health IT Systems Component 4: Introduction to Information and Computer Science
IST 220 Networking and Telecommunications	Component 9: Networking and Health Information Exchange Component 4: Introduction to Information and Computer Science
IST 260W (To be added to certificate)	Component 17: Working in Teams Component 10: Covers topics but without the focus on healthcare Component 15: Usability and Human Factors Component 19: Project Management
HPA 101 Introduction to Health Services Organization	Component 1: Introduction to Healthcare and Public Health in the US Component 2: The Culture of Healthcare
HPA 332 Health Systems Management	Component 18: Planning, Management and Leadership for Health IT
HPA 470 Health Care Information Management	Component 3: Terminology in Health Care and Public Health Settings Component 5: History of Health Information Technology in the U.S. Component 6: Health Management Information Systems Component 13: Public Health Information Technology
MEDITECH vendor training	Component 14: Special Topics Course on Vendor-Specific Systems
Apprenticeship	Component 7: Working with Health IT Systems Component 11: Configuring Electronic Health Records Component 16: Professionalism/Customer Service in the Health Environment

The program was able to address approximately 90% of the ONC components. Only Component 12 (Quality) and 20 (Instruction) were not included in the certification program. The additional prerequisites for the inclusion of coursework in these two areas was prohibitive.

Where available, we have included course summaries below:

- **Information Sciences and Technology 110:
Introduction to Information, People and Technology
(3 credits)**

Information, People and Technology presents the high points of an education in the College of Information Sciences and Technology. It opens an intellectual journey through the ideas and challenges that IT professionals face in the world. It will address major questions such as: How can we use technology to organize and integrate human enterprises? How can technology help people and organizations adapt rapidly and creatively? What can we do about information overload?

Three perspectives (or facets) address the core issues: information or the basic science of data encoding, transmission and storage; people or the interactions among technologies, institutions, regulations and users; and technology or the design and operation of basic information technology devices. Students completing the course will be confident users and consumers of information technology. Students will develop research and analytical skills to evaluate specific devices and understand how those devices function in larger socio-technical systems. Students will be able to predict and anticipate the impact of new technologies on human institutions as well as understand the potential impact of institutions on the use and design of information technologies.

The course employs an action-oriented approach. Students learn by doing—formulating and solving problems drawn from professional contexts, detecting and recovering from errors related to technology use, and locating, reading and studying materials that support their analysis and problem-solving. Students will accomplish this by participating in team-based learning. The course provides students with the opportunity to use, modify, and evaluate software to search for, frame, and express ideas with fluency. A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, group projects, and peer and self-assessments.

IST 110 is the introductory course in IST, and, as such, serves as a prerequisite for 200-level (intermediate) IST courses. It is a required course for all majors and minors in IST, and meets requirements for a General Education or Bachelor of Arts Social Science (GS) course.

- **Information Science and Technology 220:
Networking and Telecommunications
(3 Credits)**

The course includes an introduction to: telecommunications history; telecommunications transmission media (conducted and radiated); transmission characteristics (including an introduction to coding and modulation techniques); error characteristics, detection, and correctional; local and wide area networking applications, hardware, and software; the OSI models; industry standards; topologies; protocols; internetworking devices; communications management; security and recovery; information system applications; and the selection of telecommunications and networking systems. Special attention will be paid to evolving Internet Protocol (IP) technologies, e.g., Internet2.

IST 220 is an introduction to digital networking and telecommunications and their applications in information systems. IST 110 is the only prerequisite. It is a required core course for both the two-year and four-year Information Sciences and Technology degrees, and is a critical part of the curriculum. Its objective is to provide the students with a basic understanding of the working of digital networks and the ability to apply this knowledge to specific applications and situations. Evaluation of knowledge objectives will be by examination; and of application (i.e., selection and management) objectives by grading of group and individual projects and case studies.

While the course is about digital technology and how it works, it is not a "hands on" course, or a training course in particular equipment and/or applications. While there will be demonstrations of relevant technologies, the course is not equipment-intensive and will not involve special technology needs beyond the normal access to computing and the Internet.

- **Information, Sciences and Technology 260W:
Introduction to Systems Analysis and Design
(3 Credits)**

IST 260W is an introductory course to system analysis and design. It covers the process and is intended to be independent of the specific system, whether it be a hardware, software, telecommunication, logistics, or information system. This course can be used as a prerequisite to specific Associate degree system design courses. It can also be used for breadth for those IST students who do not pursue technical emphases. It serves as a writing across the curriculum course for the Information Sciences and Technology Associate degree. The course looks at two design paradigms. A small design project is included in the course.

The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; (2) teaching students a systems design strategy that emphasizes customer requirements at all stages of the process; (3) introducing students to the object oriented design process; (4) giving students a full design experience on a small project such as designing an e-Commerce system; and (5) showing students examples of the writing required for systems design and requiring them to write individual and team reports as well as give oral presentations on their designs.

Students will be evaluated by examinations and by grading of their written reports and oral presentations.

System design courses are taught at the upper-division level in Engineering and Business departments. This is a lower-division course that serves as an introduction for Associate degree students to give them a background for project-level courses in their fourth semester. It will serve as a core requirement in the Associate degree program and act as a prerequisite for the design courses that are capstone courses in many of the Associate degree options. The course will be offered one semester each academic year.

Prerequisite: IST 110, IST 210, IST 220 and ENGL 015

- **Health Policy and Administration 470:
Health Care Information Management
(3 credits)**

This course introduces the student to information systems terminology, structures, specific applications, and their relationships to management functions in health services organizations. Health providers and health systems are continuing to make multi-million dollar investments in information systems in order to meet new market and regulatory requirements. All health services managers will play a role in the analysis, design, acquisition, installation, operation and ultimate success of information systems necessary to meet organizational goals and objectives. This course exposes students to the IS/IT applications used to support management functions. Further, applications and management issues unique to industry segments (e.g., long-term care, home care, hospital administration, physician practice management) will also be explored.

The goal of the course is to ensure that students are schooled in the terminology, conceptual models, applications and opportunities and limitations of information systems in health services to the point that

they can ask appropriate questions, recognize and state significant issues, and participate in the discussion and analysis of information systems development and application.

The course is one of several elective courses in the Health Policy Administration major that students can complete and is also a required part of the Information Sciences and Technology/Health Policy Administration Minor providing students with an understanding of the basic structures of information systems in health administration; the relationship of these systems to managerial functions such as communications, coordination, control strategic and process planning and decision making, and the important policy and ethical issues associated with privacy, confidentiality, and security in information systems. Since the course represents the capstone of the Information Sciences and Technology/Health Policy Administration minor, it is important for students to have the pre-requisites for the course (H P A 332, IST 210, and IST 220), including an understanding of major issues in the health care system, health care management and information systems.

Student's attainment of educational objectives will be assessed through a variety of evaluation methods. Understanding and appropriate application of terminology, management issues, and ethical/privacy concerns will be assessed through examination. Concept integration will be assessed through case-study analysis and project papers. Data presentation and training communication issues will be assessed through individual application projects and presentations.

Prerequisite: HPA 332, IST 210, IST 220

South Dakota

Horizon Healthcare
Dakota State University, SD

ONC Focus Area:

- Clinician/Practitioner Consultant
- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)

Curriculum Resources:

- [Curriculum Outline and Apprenticeship Training Outline](#)

“It’s a HIT!” Workforce Training Program

Horizon Health Care, Inc. – Howard, SD

HRSA Grant Number: R01RH26270



HIT Course Descriptions and Changes

The foundation for the HIT curriculum used for the “It’s a HIT!” Program was developed through a collaborative agreement funded by the ONC through the Curriculum Development Centers Program. Two HIT Training Certificates have been identified for the proposed Program: Workflow Redesign Specialist and Clinician/Practitioner Support.

The first track, “Workflow Redesign Specialist” will target those employees with interest in information technology, health information management, allied health or health care and are seeking to gain new skills and knowledge in order to play a pivotal role assisting rural healthcare providers make the transition to Meaningful Use. The “HIT Clinician/ Practitioner Consultant” is the second option in the “It’s a HIT!” Program. Staff interested in the HIT Clinician/Practitioner Consultant role will assist in reorganizing the work of a rural provider to take full advantage of the features of HIT in pursuit of meaningful use to improve health and care.

Just shortly after our first cohort of students completed the curriculum portion of the training, PHIT Network staff met with members of Dakota State University to revisit the current “It’s a Hit” Curriculum. A primary barrier to completion was time. Students found it difficult to fit the coursework into the allotted work day period. Employers of the incumbent workers had difficulties covering the positions in lower staffed facilities to a lot the students time to complete their coursework. As a Network, the project was centered around training our own rural, incumbent workforce. It was important that the curriculum was tailored to accommodate existing knowledge the current healthcare workforce had to ensure that it could be completed in a timely manner by those already working full time in a clinic setting. The original ONC coursework was modified in the following ways:

- The number of content hours were reduced from 180 hours to around 40 hours.
- Significant enhancement of presentation materials such as adding color and graphics to engage the students.
- Incorporated videos, check your understanding questions and scenarios to the curriculum.

During our discussion sessions with Dakota State University shortly before our second cohort, it was decided that each course would contain the following elements:

Pre-test: Each pre-test contains 15-20 questions designed to cover each competency statement and provide a measure of baseline knowledge. These are then covered again in the post-test.

Key Terms: The terms will be consolidated into a master glossary for the student to reference. Key terms may also be made available in the coursework.

Check Your Understanding: Each course section will include several check your understanding questions. We utilized a variety of question interactions to keep the courses varied and interesting.

Scenarios: In addition to the standard multiple choice questions included in the check your understanding; students will now be presented two or three scenarios in each course. The scenarios are

designed to provide a real world scenario with an opportunity for students to select a correct response/answer.

You Tube Videos: Short video clips were incorporated into the curriculum to provide timely updates or additional information about various topics. These videos were demonstrated on a specific slide in the presentations.

Discussion Questions: Discussion questions were utilized in the online discussion boards or live in the phone discussion groups that were led by the faculty.

Activities/Assignments: One or two activities were given at each course. They will drive towards application of knowledge gained in the respective course.

Post-test: A robust post-test for each course was developed to ensure that each objective was matched with an appropriate question. It was decided that students must receive a 70% to pass the course; each student will get up to 3 attempts.

Health Information Technology Clinician/Practitioner Consultant

Overview

- Individuals in this role assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. The knowledge and skills learned will prepare individuals to:
 - Conduct user requirements analysis to facilitate workflow design;
 - Integrate information technology functions into workflow;
 - Design processes and information flows that accommodate quality improvement and reporting;
 - Work with provider personnel to implement revised workflows;
 - Evaluate process workflows to validate or improve practice's systems;
 - Suggest solutions for health IT implementation problems in clinical and public health settings;
 - Address workflow and data collection issues from a clinical perspective, including quality measurement and improvement;
 - Assist in selection of vendors and software and advocate for users' needs, acting as a liaison between users, IT staff, and vendors.
- Class delivery is via distance education, using the Internet and Web-based learning tools.
- **Supports ONC Role: Clinician/Practitioner Consultant**

Audience/Required Background

- This certification is targeted to individuals who are seeking to update or gain new skills and knowledge in order to play a leadership role in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care.
- The Clinician/Practitioner Professional track is for individuals (licensed clinician or public health professionals) who possess a demonstrated background in health care and are seeking knowledge and skills in information technology.

Classes/Hours

- The certificate program consists of six classes equaling around 40 hours of training plus additional time to complete homework.
- ONC Components included are:
 - Introduction to Information and Computer Science
 - Health Management Information Systems
 - Working with Health IT Systems
 - Fundamentals of Health Workflow Process Analysis and Redesign
 - Quality Improvement
 - Planning, Management and Leadership for Health IT

Estimated Completion

- The certificate program course work must be completed within a six month period.

ONC HIT Exam Blueprint

The HIT Pro Exam consists of 125 multiple choice questions, with an exam duration time of 3 hours. Students who receive Clinical/Practitioner Consult HIT Training will be prepared to take the HIT Pro Clinician/Practitioner Consultant Examination. The examination contains questions on the following Domains:

- **Domain I:** Fundamentals of Health Workflow Process Analysis and Redesign (20%)
- **Domain II:** Quality Improvement (20%)
- **Domain III:** Working with HIT Systems (20%)
- **Domain IV:** Health Information Management Systems (20%)
- **Domain V:** Planning, Management and Leadership for Health IT (20%)

Contact Us!

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Certificate of Completion

- A certificate of completion is awarded to students who successfully complete the training and associated class work.

Workflow Redesign Specialist

Overview

- The Health Information (HIT) Workflow Redesign Specialist program addresses the critical components of supporting HIT and electronic health records (EHRs) in health care provider settings. The knowledge and skills learned prepared individuals to provide technical support expertise.
- Individuals are prepared to provide support services beyond vendor training and ensure the EHR functions properly and are configured to meet the needs of the new electronic processes. The program goal is to develop highly skilled health IT employees to support clinic staff in the adoption, implementation, and meaningful use of the EHR.
- Class delivery is via distance education, using the Internet and Web-based learning tools.
- **Supports ONC Role: Technical/Software Support Staff**

Audience/Required Background

- Individuals with experience in information technology, health information management, allied health or health care and are seeking to update or gain new skills and knowledge in order to play a **pivotal role** assisting health care providers make the transition to meaningful use and participation in health information exchanges.
- General background in information technology, health information management, allied health, or health care

Classes/Hours

- The certificate program consists of seven classes equaling in 225 hours of training plus additional time to complete homework.
- ONC Components included are:
 - Introduction to Information & Computer Science
 - Introduction to Healthcare and Public Health in the US
 - Terminology in Health Care and Public Health Settings
 - Health Management Information Systems
 - Fundamentals of Health Workflow Process Analysis and Redesign
 - Usability and Human Factors
 - Quality Improvement

ONC HIT Exam Blueprint

The HIT Pro Exam consists of 125 multiple choice questions, with an exam duration time of 3 hours. Students who receive Technical/Software Support HIT Training will be prepared to take the HIT Pro Technical/Software Support Program Examination. The examination contains questions on the following Domains:

- **Domain I:** Networking and Health Information Exchange (15%)
- **Domain II:** Special Topics Course on Vendor-Specific Systems (15%)
- **Domain III:** Introduction to Information and Computer Science (14%)
- **Domain IV:** Working with Health IT Systems (14%)
- **Domain V:** Installation and Maintenance of Health IT Systems (14%)
- **Domain VI:** Configuring EHR's (14%)

- **Domain VII:** Professionalism/Customer Service in the Health IT Environment (14%)

Estimated Completion

- All courses will be offered as open entry/open exit. The certificate program course work must be completed within a six month period.

Certificate of Completion

- A certificate of completion is awarded to students who successfully complete the training and associated class work.

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Health Information Technology

Clinician/Practitioner Consultant

Overview

- Individuals in this role assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. The knowledge and skills learned will prepare individuals to:
 - Conduct user requirements analysis to facilitate workflow design;
 - Integrate information technology functions into workflow;
 - Design processes and information flows that accommodate quality improvement and reporting;
 - Work with provider personnel to implement revised workflows;
 - Evaluate process workflows to validate or improve practice's systems;
 - Suggest solutions for health IT implementation problems in clinical and public health settings;
 - Address workflow and data collection issues from a clinical perspective, including quality measurement and improvement;
 - Assist in selection of vendors and software and advocate for users' needs, acting as a liaison between users, IT staff, and vendors.
- Class delivery is via distance education, using the Internet and Web-based learning tools.
- **Supports ONC Role: Clinician/Practitioner Consultant**

Audience/Required Background

- This certification is targeted to individuals who are seeking to update or gain new skills and knowledge in order to play a leadership role in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care.
- The Clinician/Practitioner Professional track is for individuals (licensed clinician or public health professionals) who possess a demonstrated background in health care and are seeking knowledge and skills in information technology.

Classes/Hours

- The certificate program consists of five classes equaling 40 hours of training plus additional time to complete homework.
- ONC Components included are:
 - Introduction to Information and Computer Science
 - Health Management Information Systems
 - Planning Management and Leadership for Health IT
 - Fundamentals of Health Workflow Process Analysis and Redesign
 - Quality Improvement

Estimated Completion

- All courses will be offered as open entry/open exit. The certificate program course work must be completed within a six month period.

ONC HIT Exam Blueprint

The HIT Pro Exam consists of 125 multiple choice questions, with an exam duration time of 3 hours. Students who receive Clinical/Practitioner Consult HIT Training will be prepared to take the HIT Pro Clinician/Practitioner Consultant Examination. The examination contains questions on the following Domains:

- **Domain I:** Fundamentals of Health Workflow Process Analysis and Redesign (20%)
- **Domain II:** Quality Improvement (20%)
- **Domain III:** Working with HIT Systems (20%)
- **Domain IV:** Health Information Management Systems (20%)
- **Domain V:** Planning, Management and Leadership for Health IT (20%)

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HIT Clinician/Practitioner Consultant: Course Descriptions

- ***Introduction to Information & Computer Science:***
This class provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.
- ***Health Management Information Systems:***
This class covers the general functions, purposes and benefits of health information systems. Federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems are also covered.
- ***Planning Management and Leadership for Health IT:***
This class targets those preparing for leadership roles, principles of leadership and effective management teams. Emphasis on the leadership modes and styles best suited to IT deployment.
- ***Fundamentals of Health Workflow Process Analysis and Redesign:***
This class covers fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation. Process validation and change management are also covered.
- ***Quality Improvement:***
This class introduces quality improvement (QI) concepts of health IT and practice workflow redesign as instruments of QI. It addresses establishing a culture that supports increased quality and safety. It also discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Workflow Redesign Specialist

Overview

- The Health Information (HIT) Workflow Redesign Specialist program addresses the critical components of supporting HIT and electronic health records (EHRs) in health care provider settings. The knowledge and skills learned prepared individuals to provide technical support expertise.
- Individuals are prepared to provide support services beyond vendor training and ensure the EHR functions properly and are configured to meet the needs of the new electronic processes. The program goal is to develop highly skilled health IT employees to support clinic staff in the adoption, implementation, and meaningful use of the EHR.
- Class delivery is via distance education, using the Internet and Web-based learning tools.
- **Supports ONC Role: Technical/Software Support Staff**

Audience/Required Background

- Individuals with experience in information technology, health information management, allied health or health care and are seeking to update or gain new skills and knowledge in order to play a **pivotal role** assisting health care providers make the transition to meaningful use and participation in health information exchanges.
- General background in information technology, health information management, allied health, or health care

Classes/Hours

- The certificate program consists of seven classes equaling in 40 hours of training plus additional time to complete homework.
- ONC Components included are:
 - Introduction to Information & Computer Science
 - Introduction to Healthcare and Public Health in the US
 - Terminology in Health Care and Public Health Settings
 - Health Management Information Systems
 - Fundamentals of Health Workflow Process Analysis and Redesign
 - Usability and Human Factors
 - Quality Improvement

ONC HIT Exam Blueprint

The HIT Pro Exam consists of 125 multiple choice questions, with an exam duration time of 3 hours. Students who receive Technical/Software Support HIT Training will be prepared to take the HIT Pro Technical/Software Support Program Examination. The examination contains questions on the following Domains:

- **Domain I:** Networking and Health Information Exchange (15%)
- **Domain II:** Special Topics Course on Vendor-Specific Systems (15%)
- **Domain III:** Introduction to Information and Computer Science (14%)
- **Domain IV:** Working with Health IT Systems (14%)
- **Domain V:** Installation and Maintenance of Health IT Systems (14%)
- **Domain VI:** Configuring EHR's (14%)
- **Domain VII:** Professionalism/Customer Service in the Health IT Environment (14%)

Estimated Completion

- All courses will be offered as open entry/open exit. The certificate program course work must be completed within a six month period.

Certificate of Completion

- A certificate of completion is awarded to students who successfully complete the training and associated class work.

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HIT Workflow Redesign Specialist: Course Description

- ***Introduction to Information & Computer Science:***
This class provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.
- ***Introduction to Healthcare and Public Health in the US:***
This class is a survey of how healthcare and public health are organized and services delivered in the US. It covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. It also addresses health reform initiatives in the US.
- ***Terminology in Health Care and Public Health Settings:***
This component explains specific terminology used by workers in health care and public health. This is NOT a course in data representation or standards.
- ***Health Management Information Systems:***
This class covers the general functions, purposes and benefits of health information systems. Federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems are also covered.
- ***Fundamentals of Health Workflow Process Analysis and Redesign:***
This class covers fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation. Process validation and change management are also covered.
- ***Usability and Human Factors:***
This class cover rapid prototyping, user-centered design understanding effects of new technology workflow on downstream processes; facilitation of unit-wide focus groups or simulation.
- ***Quality Improvement:***
This class introduces quality improvement (QI) concepts of health IT and practice workflow redesign as instruments of QI. It addresses establishing a culture that supports increased quality and safety. It also discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

Additional Course Materials



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“It’s a HIT!” Training Program Training Schedule

HIT Workflow Redesign Specialist	
Introduction to Information and Computer Science	September 9 – September 25
Introduction to Healthcare and Public Health in the US	September 28 – October 9
Terminology in Healthcare and Public Health Settings	October 12 – October 23
Health Management Information Systems	October 26 – November 6
Fundamentals of Health Workflow Process Analysis and Redesign	November 9 – November 20
Quality Improvement	November 23 – December 4
Usability and Human Factors	December 7 – December 18



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BETTER TOGETHER.

“It’s a HIT!” CEHRT Training Overview

Success EHS Training:

Success EHS Training was delivered by Allen Cochran and Jennifer St. Romain, a SuccessEHS trainer through a contract with Greenway’s SuccessEHS. Students participated in 8 weekly sessions each with two hour durations.

Weekly training topics included the following:

- Week One: Practice Overview/Clinical Overview
- Week Two: Practice Workflow/Clinical Workflow
- Week Three: Chart Overview
- Week Four: Patient Portal
- Week Five: Meaningful Use
- Week Six: Medcin and Forms Management
- Week Seven: Orders Management
- Week Eight: User Preferences and Tips and Tricks

Meditab – Intelligent Medical Software (IMS) Training:

Meditab – Intelligent Medical Software (IMS) Training was delivered by Barbara Leigh-Meyers, a Client Implementation Specialist, through contract with Meditab Software. Students participated in 13 weekly/biweekly sessions over the course of ten weeks.

Weekly training topics included the following:

- Week One: Practice Management Configuration – Office, Employee and Security Setup
Practice Management Configuration – Schedule Setup
- Week Two: Practice Management Configuration – Letter Templates and Forms

- Week Three: Practice Management Configuration – Health Maintenance Setup
- Week Four: Practice Management Workflow Training – Patient Master/Scheduler
- Week Five: Practice Management Workflow Training – Check In/Check Out; Faxing and Scanning
- Week Six: Clinical Configuration – Visit Note Overview, and Left Panel Detail
- Week Seven: Clinical Configuration – Customizing Rx, Dx and Lab Templates; Office and Lab Test Results
- Week Eight: Clinical Configuration – ePrescribing; Visit Note Template Customization
- Week Nine: Clinical Configuration – Link with and Global Template Customization
- Week Ten: Meaningful Use



“It’s a HIT!” EHR Training Overview

Course Overview:

The EHR Training is the second phase of the “It’s a HIT!” training program. During this time, you will become a Meditab super user, learning both the Practice Management and Clinical portions of the software. Over ten weeks, we’ll cover each of the topics listed below.

Week One 2/10/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)	Practice Management Configuration - Super User Training Students will work to complete schedule setups for the practice. In this session, students will setup and create letter templates and forms, including document categories, scheduler and visit note letters, forms to be filled and care plans.
Week Two 2/17/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT))	Practice Management Configuration Check-In/Check-Out /Visit Note Overview In our second practice management session, students will learn how to complete the full check in and check out process, including entering insurance information, scanning, filling out forms, obtaining patient signature, scanning, printing required items and making the next appointment.
Week Three 2/24/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)	Practice Management Configuration – Billing Overview and Charge Posting In this session, students will receive a comprehensive overview of the billing side of the EHR. They will also learn how to post the charges once the encounter note has been signed off by the clinical team.
Week Four 3/2/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)	Practice Management Configuration – CPT, ICD, Fee Schedule, & Other Billing Setups, UB Setup (if time allows) In this session, students will review the creation of CPT and ICD codes. They will learn how to build a Fee Schedule and other setups around the billing platform. If time allows we will move into the setup of the UB04 forms.

<p>Week Five 3/9/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CST)</p>	<p>Practice Management Configuration – Insurance/Hospital/Facility Referral & Authorization Setup In this session, students will review the creation of Insurance Plans and Carriers. We will also cover Hospital, Facility, and Referral setups.</p>
<p>Week Six 3/16/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)</p>	<p>Practice Management Workflow Training – Reminders/Notes/My Tasks Setup/Faxing & Scanning In this session, students will review creation of reminders, patient notes, patient alerts and My Tasks. This session will also review setup of referral tracking responses, a review of the types of authorizations and appropriate responses for status. During the second hour, students will review the workflow for faxing and scanning documents, including how to access, forward, split and assign faxed and scanned items. Students will also learn how to approve refills, and utilize the authorizations/referral tracking icons.</p>
<p>Week Seven 3/23/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)</p>	<p>Practice Management Workflow Training – Claims Processing & Insurance Payment Posting/Patient Payment Posting In session seven, students will learn to process insurance claims, post incoming insurance and patient payments.</p>
<p>Week Eight 3/30/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)</p>	<p>Clinical Configuration – EMR Customization/Lab/Diagnostics, eRx, & Dx Templates In this session, students will learn how to create Rx, Dx, CPT and Lab Templates. Students will also review how to enter lab/diagnostic facilities, create lab/diagnostic templates, lab orders and enter results.</p>
<p>Week Nine 4/6/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT)</p>	<p>Clinical Configuration – Live Payment Posting & Claims, Patient Ledger and A/R Collections During week nine students will receive an overview of the patient’s general ledger. Students will also learn how to post payments to patient accounts. Students will also receive an overview of how the AR activities work in the EHR.</p>
<p>Week Ten 4/13/2016 11:00 – 1:00 pm MT (12:00 pm – 2:00pm CT))</p>	<p>Clinical Configuration – MU Stage 2, Patient Special Search, and Reports In our final EHR training session, we will review the Meaningful Use program and how to view the Meaningful Use Dashboard in IMS. We will also review new measures and corresponding workflows for Stage 2 core and menu measures. We will also cover reporting in the EHR by reviewing the Patient Special Search area and Customized Reporting.</p>

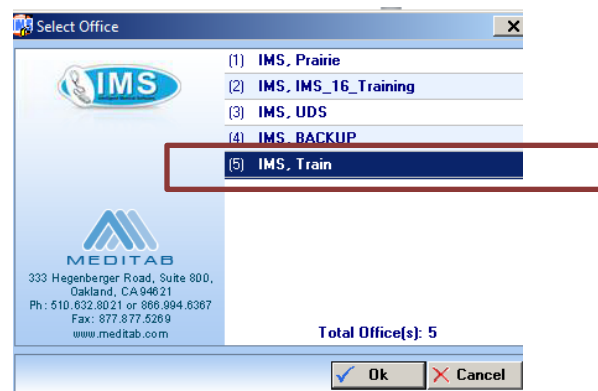
Training Information:

The EHR training phase of the training program will be a bit different than the first training phase. Training sessions will be delivered live, via Go to Meeting technology by a designated Meditab trainer.

Training Database:

Most training sessions will take place using the IMS Training Database platform, rather than the live database. This is to ensure that we have ample room to practice without concern about impacting patient data.

To access the training database, you will select option 5, “IMS, Train” when logging into IMS-Prairie. Your login credentials were sent out in the first calendar invitation.



A few additional reminders:

We hope that the EHR training phase of the “It’s a HIT!” training program will be an excellent way for you to grow your skills. The training sessions will include a lot of important content. In order for you to make the most of these sessions, we encourage you to:

- Bring your laptop
- Follow along with workflows when directed to
- Minimize distractions by closing Outlook email and silencing your cell phone
- Ask questions!
- Share your experiences and ideas with others



“It’s a HIT!” Training Program - Student Apprenticeship

“It’s a HIT!” Training Program Apprenticeship

The Apprenticeship Project is an opportunity for you to apply what you’ve learned during the “It’s a HIT!” Training Program for the benefit of your local clinic. The Apprenticeship Project will include the following elements:

- **IDENTIFY IT** - Identify a problem related to use of Health IT at your local clinic.
- **RESEARCH IT** - Identify potential solution(s) to the problem.
- **DESCRIBE IT** - Develop a *draft project summary* that outlines the problem and your proposed solution, including a description of the intended outcome of your project.
- **DO IT** - Implement your identified solution.
- **SHARE IT** – Develop a one page summary that describes your Apprenticeship Project to share with your preceptor, the “It’s a HIT!” program staff and your fellow students. The summary should include the problem, your solution and a description of the outcome of your work.

What kind of projects are you looking for?

Our goal is for you to identify a project related to Health IT that needs improvement in your local clinic. Projects may be related to developing or implementing a workflow, training staff on an element of the EHR, or facilitating a staff meeting among other things.

If you have difficulty identifying a project, please reach out to your preceptor or to the “It’s a HIT!” program staff.

How long should this take me?

We anticipate that students will spend 6-8 hours in development and implementation of their Apprenticeship Project.

When does the Apprenticeship Project need to be completed?

The Apprenticeship Project needs to be completed by Friday, May 6th. There are three separate elements that need to be submitted as a part of your Apprenticeship Project, including:

- **Draft Project Summary.** A draft project summary should be submitted to your preceptor and Lacey Finkbeiner (lfinkbeiner@horizonhealthcare.org) by **Friday, April 29th**. This summary should answer three specific questions:
 - What HIT problem you are trying to solve?
 - How do you intend to address the problem during your Apprenticeship Project (i.e. what are you going to do)?
 - What is the anticipated outcome of your project? What do you hope to achieve?

- **Final Project Summary.** A final project summary describing your Apprenticeship Project should be submitted to your preceptor and Lacey Finkbeiner (lfinkbeiner@horizonhealthcare.org) by **Friday, May 6th**. This should include the items identified in your draft project summary in addition to a description of what you did and the outcome of your work.

- **Presentation.** Each student will be asked to give an 8-10 minute presentation about their Apprenticeship Project during the “It’s a HIT!” Student Celebration on May 11th via Adobe Connect. Students may choose to utilize their Final Project Summary, or may develop other tools to share about their project.

Texas

AHEC of the Plains
Plainview, TX

ONC Focus Area:

- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- CHTS (No longer offered by AHIMA, as of 5/31/19)
- RHIT
- CAHIMS

Curriculum Resources:

- [Curriculum Outline](#)

Rural Health IT Workforce Program

Curriculum Outline

Organization: Midland College

Course: Data Quality Manager and IT Liaison

Certifications: AHIMA CHTS---PW, CHTS---IM, CHTS---IS and CHTS---TS

The Certified Healthcare Technology Specialist (CHTS) exams will confirm that a candidate’s experience and skills are ready to meet the nation’s need for health information technology workers. As the healthcare industry transitions to electronic health records (EHRs), CHTS credential holders show a commitment to their profession and their career. They are eager to demonstrate competency in this evolving field and are excited to work on the leading edge of health IT. The future of health IT starts with the (CHTS) competency exams.

Practice Workflow & Information Management Redesign Specialist

Workers in this role assist in reorganizing the work of a provider to take full advantage of the features of health IT in pursuit of meaningful use of health IT to improve health and care. Individuals in this role may have backgrounds in health care (for example, as a practice administrator) or in information technology, but are not licensed clinical professionals. Workers in this role will:

- Conduct user requirements analysis to facilitate workflow design.
- Integrate information technology functions into workflow.
- Document health information exchange needs.
- Design processes and information flows that accommodate quality improvement and reporting.
- Work with provider personnel to implement revised workflows.
- Evaluate process workflows to validate or improve practice’s systems.

Domain/Percentage	Competency Statements:
Domain I: Fundamentals of Health Workflow Process Analysis and Redesign 15%	<ol style="list-style-type: none"> 1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes. 2. Document clinic processes to facilitate workflow analysis and redesign. 3. Develop a process map for given clinical process workflows within a complex health care system. 4. Facilitate decision---making necessary for optimizing health care processes. 5. Critically analyze the workflow processes in a selected clinical setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time. 6. Design processes and information flows for the practice that accommodate quality improvement and reporting. 7. Develop a plan for a revised and optimized clinical workflow within a

	<p>health care system that integrates meaningful use of information technology.</p> <p>8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.</p> <p>9. Develop and present an implementation plan for a process change.</p> <p>10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.</p> <p>11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.</p> <p>12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.</p>
<p>Domain II: Usability and Human Factors 15%</p>	<ol style="list-style-type: none"> 1. Articulate a systems approach to usability and human factors as it applies to health information technology. 2. Explain the cognitive consequences of health information technology on clinical performance. 3. Identify the consequences of suboptimal design in the delivery of healthcare. 4. Apply methods of cognitive research, sources of usability evidence, and principles of user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users. 5. Apply requirements engineering methods to inform design and technology selection. 6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods. 7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering. 8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase. 9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement. 10. Diagnose problems associated with a clinical decision support system. 11. Apply cognitive methods of analysis to medical device. 12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen's heuristic evaluation method. 13. Diagnose various types of error and create or select potential solutions. 14. Select appropriate technology input methods given different

	<p>technology uses, user populations and contexts.</p> <p>15. Describe how information visualization can support and enhance the representation of trends and aggregate data.</p> <p>16. Describe the role of mobile and ubiquitous computing in healthcare.</p>
<p>Domain III: Health Management Information Systems 14%</p>	<ol style="list-style-type: none"> 1. Describe general functions, purposes and benefits of health information systems, why they are needed, and the benefits they provide in different healthcare and public health settings. 2. Describe the significant developments and federal initiatives that have influenced the evolution and adoption of health information systems. 3. Compare/Contrast different types of health information systems in terms of their ability to support the requirements of a health care enterprise. 4. Understand how electronic health records affect patient safety, quality, efficiency and patient care, productivity, and reporting outcomes. 5. Propose strategies to minimize major barriers to the adoption of electronic health records. 6. Understand the principles of healthcare data exchange and standards, workflow design and assessment, and their relationship to patient care.
<p>Domain IV: Quality Improvement 14%</p>	<ol style="list-style-type: none"> 1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed. 2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care. 3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination. 4. Design and apply information technology and standardized practices that support safety and quality. 5. Formulate activation planning that supports and maintains safety and quality. 6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities. 7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements. 8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record. 9. Monitor use of information technology for inappropriate use leading to hazards and errors.

	<p>10. Design an information technology culture conducive to highly reliable processes built on human factors research.</p> <p>11. Design and implement effective strategies to use information technology to decrease reliance on memory.</p>
<p>Domain V: Introduction to Information and Computer Science 14%</p>	<p>1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.</p> <p>2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc.</p> <p>3. Design a simple database and develop querying statements for it.</p> <p>7</p> <p>4. Describe network computing, its benefits and risks, and identify commonly---used communications hardware and software components.</p> <p>5. Identify security risks for computing systems and discuss potential solutions.</p> <p>6. Explain the design and development process of a large system such as an EHR.</p>
<p>Domain VI: Terminology in Health Care and Public Health Settings 14%</p>	<p>1. Define, understand and correctly pronounce medical terms related to each of the major body systems.</p> <p>2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.</p> <p>3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.</p> <p>4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.</p>
<p>Domain VII: The Culture of Health Care 14%</p>	<p>1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.</p> <p>2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.</p> <p>3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent or treat diseases.</p> <p>4. Give examples and explain the differences between common forms of care delivery including episodic one---on---one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long---term care, end of life care.</p> <p>5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.</p> <p>6. Discuss the role of medical ethics and professional values in care</p>

	<p>delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.</p> <p>7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.</p>
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Implementation Manager

Workers in this role provide on-site management of mobile adoption support teams for the period of time before and during implementation of health IT systems in clinical and public health settings. Workers in this role will, prior to training, have experience in health and/or IT environments as well as administrative and managerial experience. Workers in this role will:

- Apply project management and change management principles to create implementation project plans to achieve the project goals.
- Interact with office/hospital personnel to ensure open communication with the support team.
- Lead implementation teams consisting of workers in the roles described above.
- Manage vendor relations, providing feedback to health IT vendors for product improvement.

Domain/Percentage	Competency Statements:
Domain I: Project Management 17%	<ol style="list-style-type: none"> 1. Describe factors that are critical to project success. 2. Develop a comprehensive project management plan. 3. Define project scope that reflects stakeholder perspectives and project requirements. 4. Prepare an effective work breakdown structure. 5. Differentiate project life cycle models based on project characteristics. 6. Develop estimates for project cost and schedule. 7. Apply tools and techniques to manage project scope, time, and budget. 8. Plan and implement effective communications with the project team and stakeholders. 9. Differentiate roles of project team members.
Domain II: Fundamentals of Health Workflow Process Analysis and Redesign 17%	<ol style="list-style-type: none"> 1. Given a scenario, outline the elements involved in providing care within a complex health care system that reflect an understanding of workflow processes. 2. Document clinic processes to facilitate workflow analysis and redesign. 3. Develop a process map for given clinical process workflows within a complex health care system. 4. Facilitate decision-making necessary for optimizing health care processes. 5. Critically analyze the workflow processes in a selected clinical

	<p>setting, taking into account potential gaps, areas of redundancy, delays, manual work, work volume, task time, and elapsed time.</p> <p>6. Design processes and information flows for the practice that accommodate quality improvement and reporting.</p> <p>7. Develop a plan for a revised and optimized clinical workflow within a health care system that integrates meaningful use of information technology.</p> <p>8. Propose ways in which quality improvement methods and tools can be applied in order to improve workflow processes in a health care setting.</p> <p>9. Develop and present an implementation plan for a process change.</p> <p>10. Working with practice staff, develop a set of plans to keep the practice running if the EHR system fails.</p> <p>11. Working with practice staff, evaluate the new processes as implemented, identify problems and changes that are needed, and develop and present plans for these process changes.</p> <p>12. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.</p>
<p>Domain III: Working in Teams 17%</p>	<p>1. Establish and monitor ground rules, or rules of engagement, that serve as behavioral guidelines for members of teams involved in HIT.</p> <p>2. Develop an HIT action plan that can be easily adapted to changing situations, environments, and goals across a variety of health and healthcare settings.</p> <p>3. Communicate a clearly articulated position in writing and speech.</p> <p>4. Incorporate diversity in values, critical thinking, and judgments that amplifies the best of individual performance toward the HIT team mission.</p> <p>5. Provide leadership for continuous assessment and learning on practices, processes, and outcomes of the HIT team mission.</p> <p>6. Develop a sustaining framework that maximizes the integrated power of teams while recognizing excellence in individual performance of various stakeholders involved in HIT (patients, families, communities, nation, etc.).</p>
<p>Domain IV: The Culture of Health Care 17%</p>	<p>1. Describe the major types of clinical personnel involved in health care, including their education and training, certification and licensure, and typical roles in health care.</p> <p>2. Describe the major types of settings in which health care occurs including ambulatory care, acute and emergency care, hospital based and critical care, and community health and public health settings.</p> <p>3. Describe the major processes of information gathering, analysis, and documentation used by clinicians to detect, understand, and prevent</p>

	<p>or treat diseases.</p> <p>4. Give examples and explain the differences between common forms of care delivery including episodic one---on---one care, multidisciplinary care, interdisciplinary care, care of chronic conditions, population based care, disease management, long---term care, end of life care.</p> <p>5. Describe the role of community health and public health in managing illness outbreaks, epidemics, and pandemics.</p> <p>6. Discuss the role of medical ethics and professional values in care delivery including such issues as privacy (including HIPAA), ethical conflicts, and health disparities.</p> <p>7. Describe common forms of quality measurement, performance improvement, and incentive payment schemes meant to influence care delivery.</p>
<p>Domain V: Planning, Management, and Leadership for Health IT 16%</p>	<p>1. Explain leadership traits and theories.</p> <p>2. Recognize leadership’s role in IT and EHR project success and project failure.</p> <p>3. Describe importance of effective leadership of teams.</p> <p>4. Demonstrate team leadership competencies.</p>
<p>Domain VI: History of Health Information Technology in the U.S. 16%</p>	<p>Competency Statements:</p> <p>1. Explain the rationale for elements of the HITECH Act in terms of the history of health IT.</p> <p>2. Describe the background of today’s health IT landscape including EHR, HIE, CDS, applications in Public Health, relevant professional organizations.</p> <p>3. Describe the history of regulation of Health IT in the U.S.</p> <p>4. Describe how legislation related to privacy and security of electronic health information has evolved in the US.</p> <p>5. Discuss how financial incentives for use of HIT have changed over time.</p>

Implementation Support Specialist

Workers in this role provide on---site user support for the period of time before and during implementation of health IT systems in clinical and public health settings. The previous background of workers in this role includes information technology or information management. Workers in this role will:

- Execute implementation project plans, by installing hardware (as needed) and configuring software to meet practice needs.
- Incorporate usability principles into design and implementation.
- Test the software against performance specifications.

- Interact with the vendors as needed to rectify problems that occur during the deployment process.

Domain/Percentage	Competency Statements:
Domain I: Networking and Health Information Exchange 15%	<ol style="list-style-type: none"> 1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported. 2. Recommend components of networking hardware that meet standards and support information exchange. 3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements. 4. Explain the process and value of EHR certification. 5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards. 6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders. 7. Examine additional standards related to shared and effective use of data, including clinical decision support. 8. Describe enterprise architecture models, including centralization vs federation and grids, service oriented architectures, and local implementations with respect to systems from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN). 9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.
Domain II: Configuring EHRs 15%	<ol style="list-style-type: none"> 1. Describe the process of migration to an electronic health record (EHR) from organizational strategy, planning, analysis of EHR options, decision-making techniques, training, and implementation strategies. 2. Given a case study of a facility moving from a paper health record to an EHR, discuss the migration path from organizational strategy to implementation, including meaningful use criteria. 3. Discuss the importance and use of clinical decision support systems for clinical and administrative use. 4. Given an EHR system, configure the system to achieve features required for meaningful use, including labs for: <ol style="list-style-type: none"> a. Building of order sets b. Data entry templates c. Generate quality reports d. Implementation of clinical decision support 5. Understand data infrastructure including data architecture, data sets, data repositories, data standards, data types and data

	<p>dictionaries.</p> <p>6. Write an RFI/RFP using stated criteria.</p> <p>7. Evaluate EHR systems to select an EHR most appropriate to an organization and clinical setting.</p>
<p>Domain III: Vendor--- Specific Systems 14%</p>	<ol style="list-style-type: none"> 1. Assess and compare common commercial EHR systems using KLAS ratings in training and organizational decision---making contexts. 2. Apply CCHIT, meaningful use, Joint Commission and National Patient Safety Goals to decisions about commercial EHR vendor selection, when given typical workplace scenarios. 3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor---specific systems. 4. Analyze the functionality of a vendor EHR system, given a set of user needs. 5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility. 6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange. 7. Compare decision support capabilities and customizability, given different vendor EHRs. 8. Evaluate training and go---live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.
<p>Domain IV: Working with Health IT Systems 14%</p>	<ol style="list-style-type: none"> 1. Identify common components of an HIT system and types of HIT applications (E---Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.). 2. Describe data flows across HIT systems and implication of standards. 3. Identify root causes of HIT---induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions. 4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system). 5. Define usability, describes general usability principles, and relates usability to adoption in relation to HIT. 6. Define and differentiate security, confidentiality, and privacy and identify common threats. 7. Demonstrate beginning level competency in general HIT system use.
<p>Domain V: Installation and Maintenance of</p>	<ol style="list-style-type: none"> 1. Articulate the elements of Health IT systems, including their advantages and disadvantages. 2. Justify criteria to be considered when recommending vendors and

Health IT Systems 14%	software. 3. Design a comprehensive plan to install a health IT system. 4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback. 5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed. 6. Verify plan implementation.
Domain VI: Information and Computer Science 14%	1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications. 2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc. 3. Design a simple database and develop querying statements for it. 4. Describe network computing, its benefits and risks, and identify commonly--used communications hardware and software components. 5. Identify security risks for computing systems and discuss potential solutions. 6. Explain the design and development process of a large system such as an EHR.
Domain VII: Terminology in Health Care and Public Health Settings 14%	1. Define, understand and correctly pronounce medical terms related to each of the major body systems. 2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records. 3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record. 4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles

Technical/Software Support Staff

Workers in this role maintain systems in clinical and public health settings, including patching and upgrading of software. The previous background of workers in this role includes information technology or information management. Workers in this role will:

- Interact with end users to diagnose IT problems and implement solutions.
- Document IT problems and evaluate the effectiveness of problem resolution.
- Support systems security and standards.

Domain/Percentage	Competency Statements:
Domain I: Networking and Health Information	1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported. 2. Recommend components of networking hardware that meet

<p>Exchange 15%</p>	<p>standards and support information exchange.</p> <ol style="list-style-type: none"> 3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements. 4. Explain the process and value of EHR certification. 5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards. 6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders. 7. Examine additional standards related to shared and effective use of data, including clinical decision support. 8. Describe enterprise architecture models, including centralization vs. federation and grids, service oriented architectures, and local implementations with respect to systems from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN). 9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.
<p>Domain II: Special Topics Course on Vendor---Specific Systems 15%</p>	<ol style="list-style-type: none"> 1. Assess and compare common commercial EHR systems using KLAS ratings in training and organizational decision---making contexts. 2. Apply CCHIT, meaningful use, Joint Commission and National Patient Safety Goals to decisions about commercial EHR vendor selection, when given typical workplace scenarios. 3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor---specific systems. 4. Analyze the functionality of a vendor EHR system, given a set of user needs. 5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility. 6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange. 7. Compare decision support capabilities and customizability, given different vendor EHRs. 8. Evaluate training and go---live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.
<p>Domain III: Introduction to</p>	<ol style="list-style-type: none"> 1. Use proper hardware, network, Internet and software computer terminology in written and verbal communications.

<p>Information and Computer Science 14%</p>	<ol style="list-style-type: none"> 2. Write simple computer programs including constructs such as conditional statements, loops, functions, objects, simple data structures, etc. 3. Design a simple database and develop querying statements for it. 4. Describe network computing, its benefits and risks, and identify commonly---used communications hardware and software components. 5. Identify security risks for computing systems and discuss potential solutions. 6. Explain the design and development process of a large system such as an EHR.
<p>Domain IV: Working with Health IT Systems 14%</p>	<ol style="list-style-type: none"> 1. Identify common components of an HIT system and types of HIT applications (E---Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.). 2. Describe data flows across HIT systems and implication of standards. 3. Identify root causes of HIT---induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions. 4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system). 5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT. 6. Define and differentiate security, confidentiality, and privacy and identify common threats. 7. Demonstrate beginning level competency in general HIT system use.
<p>Domain V: Installation and Maintenance of Health IT Systems 14%</p>	<ol style="list-style-type: none"> 1. Articulate the elements of Health IT systems, including their advantages and disadvantages. 2. Justify criteria to be considered when recommending vendors and software. 3. Design a comprehensive plan to install a health IT system. 4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback. 5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed. 6. Verify plan implementation.
<p>Domain VI: Configuring EHRs 14%</p>	<ol style="list-style-type: none"> 1. Describe the process of migration to an electronic health record (EHR) from organizational strategy, planning, analysis of EHR options, decision---making techniques, training, and implementation strategies. 2. Given a case study of a facility moving from a paper health record to an EHR, discuss the migration path from organizational strategy to implementation, including meaningful use criteria.

	<ol style="list-style-type: none"> 3. Discuss the importance and use of clinical decision support systems for clinical and administrative use. 4. Given an EHR system, configure the system to achieve features required for meaningful use, including labs for: <ol style="list-style-type: none"> a. Building of order sets b. Data entry templates c. Generate quality reports d. Implementation of clinical decision support 5. Understand data infrastructure including data architecture, data sets, data repositories, data standards, data types and data dictionaries. 6. Write an RFI/RFP using stated criteria. 7. Evaluate EHR systems to select an EHR most appropriate to an organization and clinical setting.
<p>Domain VII: Professionalism/ Customer Service in the Health Environment 14%</p>	<ol style="list-style-type: none"> 1. Explain key elements of customer service in health IT. 2. Demonstrate appropriate behaviors in simulations of health IT customer service. 3. Demonstrate effective written and oral communication approaches to common communication interactions. 4. Identify core elements of effective communication and techniques to resolve conflicts. 5. Identify ethical and cultural aspects of communication.

HITT 1204 IT for Health Professionals - - - ONC Component 4

Course Description:

IT for Health Professions is for students without an IT background. It provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. Includes basic terminology of computing. There are no pre---requisites for this course.

Component Objectives:

At the completion of this component, the student will be able to:

1. Learn correct terminology for computing and technology including for hardware, software, networks, Internet and databases
2. Identify commonly used hardware components.
3. Identify commonly used software applications and operating systems.
4. Explain the function and use of programming languages and identify commonly used languages.
5. Define what a database is, explain what querying languages are and identify commonly used database systems.
6. Describe network computing, its benefits and risks, and identify commonly used communications hardware and software components.
7. Identify security risks for computing systems and discuss potential solutions.
8. Explain the design and development process of a software information system such as an EHR.

	Course Objectives:
Unit 1:	<ul style="list-style-type: none">• Define what a computer is.• Describe different types of computers, including PCs, mobile devices and embedded computers.

	<ul style="list-style-type: none"> • Define the common elements of computer systems. • Describe the various hardware and software options for typical desktop, laptop and server systems for home and business use with a focus on healthcare systems. • Explain the development of computers and the Internet, including healthcare systems, up until the present time.
Unit 2:	<ul style="list-style-type: none"> • Define the Internet and how to connect to it. • Define the World Wide Web and how to access it • Write effective search queries for Internet search engines, filter the results and evaluate credibility of information. Discuss security and privacy concerns on the Internet. • Describe ethical issues for the Internet. • Explore online healthcare applications and associated security and privacy issues including HIPAA.
Unit 3:	<ul style="list-style-type: none"> • List the major elements of a computer • Describe how data is stored in memory and in secondary storage • Describe how data is represented in binary notation • Describe the function of the central processing unit (CPU) of the computer • Describe how data is input/output from a computer • Describe how the elements of a computer system work together • Explain how specialized architectures and embedded systems are used in healthcare settings
Unit 4:	<ul style="list-style-type: none"> • Define application vs. system software. • Give examples of application software focusing on healthcare systems. • Describe the functions of system software. • List different types of operating systems. • Explain the purpose and usage of file systems.
Unit 5:	<ul style="list-style-type: none"> • Define the purpose of programming languages. • Differentiate between the different types of programming languages and list commonly used ones. • Explain the compiling and interpreting process for computer programs. • Learn basic programming concepts including variable declarations, assignment statements, expressions, conditional statements and loops. • Describe advanced programming concepts including objects and modularity.
Unit 6:	<ul style="list-style-type: none"> • Define and describe the purpose of databases • Define a relational database • Describe data modeling and normalization • Describe the structured query language (SQL) • Define the basic data operations for relational databases and how to implement them in SQL

	<ul style="list-style-type: none"> • Design a simple relational database and create corresponding SQL commands • Examine the structure of a healthcare database component • Design a simple database and develop querying statements (WECM)
Unit 7:	<ul style="list-style-type: none"> • List and describe the various types of network communications and network addressing • List and define the different types of networks • Describe different network topologies • List and describe different network standards and protocols • Describe wireless communication • List and describe network hardware • Write simple computer programs including constructs such as conditional statements, loops, functions, objects and simple data structures (WECM)
Unit 8:	<ul style="list-style-type: none"> • List and describe common security concerns • Describe safeguards against common security concerns • Describe security concerns for wireless networks and how to address them • List security concerns/regulations for health care applications • Describe security safeguards used for health care applications • Identify IT security risks and potential solutions. (WECM)
Unit 9:	<ul style="list-style-type: none"> • Define an information system, how one is used and list examples. • Describe the components of an information system. • Describe the process developing an information system. • Describe the different types of testing and when testing should occur. • Describe how information systems are supported and maintained over time. • Describe specialized information systems. • Explain how information systems are used in healthcare. • Explain the design and development process of a large system integrating an EHR (WECM) • Use IT terminology in communications (WECM)
Unit 10:	<ul style="list-style-type: none"> • Describe the latest advances in technology. • Discuss the implications of advances in technology for healthcare systems, including potential risks.

Most recent highlights and updates to this course include the addition of SQL fundamentals, updates on software packages and programming languages, security issues for health information, embedded and mobile computing, ubiquitous computing, latest toolkit from HealthcareIT.gov.

**HITT 1205 Language of Healthcare and Public Health / Medical Terminology – ONC
 Component 3**

Course Description:

An explanation of specific medical terminology used by workers in health care and public health. This is NOT a course in data representation or standards.

Component Objectives:

At the completion of this component, the student will be able to:

1. Define, understand and correctly pronounce medical terms related to each of the major body systems.
2. Define commonly used terms in public health, nursing, health information technology, and clinical vocabularies & terminologies related to the implementation of electronic health records.
3. Identify the purpose and uses of pertinent health care terminologies in the electronic health record.
4. Demonstrate the ability to integrate and use health care terminology in the various health information technology roles.

	Course Objectives:
Unit 1:	<ul style="list-style-type: none"> • Recognize prefixes, suffixes, word roots, and combining forms
Unit 2:	<ul style="list-style-type: none"> • Write the meanings of Chapter 2 word parts, or match word parts with their meanings. • Match medical specialists with the areas in which they specialize. • Identify the common medical conditions associated with each specialty.
Unit 3:	<ul style="list-style-type: none"> • Write the meaning of Chapter 3 word parts, or match word parts with their meanings. • Use prefixes for numbers, quantities, position, and direction to write medical terms.
Unit 4:	<ul style="list-style-type: none"> • Identify the difference between signs and symptoms. • List the vital signs and the four basic examination procedures. • Match diagnostic terms with their meanings.
Unit 5:	<ul style="list-style-type: none"> • Recognize the relationship of cells, tissues, and organs. • List four types of tissue and the major body systems, and recognize terms for their abnormal development.
Unit 6:	<ul style="list-style-type: none"> • Recognize or write the functions of the musculoskeletal system. • Recognize or write the meanings of Chapter 6 word parts and use them to build and analyze medical terms. • Write terms for selected structures of the musculoskeletal system, or match terms with their descriptions.
Unit 7:	<ul style="list-style-type: none"> • Recognize or write the functions of the circulatory system. • Recognize or write meanings of Chapter 7 word parts and use them to

	<p>build and analyze medical terms. Write terms for selected structures of the cardiovascular system, or match terms with their description.</p>
Unit 8:	<ul style="list-style-type: none"> • Recognize or write the functions of the respiratory system. • Recognize or write the meanings of Chapter 8 word parts and use them to build and analyze terms. • Write terms for selected structures of the respiratory system, or match them with their descriptions.
Unit 9:	<ul style="list-style-type: none"> • Recognize or write the functions of the digestive system. • Recognize or write the meanings of Chapter 9 word parts and use them to build and analyze terms. Write terms for selected structures of the digestive system, or match them with their descriptions.
Unit 10:	<ul style="list-style-type: none"> • Recognize or write the functions of the urinary system. • Recognize or write the meanings of Chapter 10 word parts and use them to build and analyze terms. Write terms for selected structures of the urinary system, or match them with their descriptions.
Unit 11:	<ul style="list-style-type: none"> • Recognize or write the functions of the reproductive system. • Recognize or write the meanings of Chapter 11 word parts and use them to build and analyze terms. Write terms for selected structures of the female reproductive system and their associated functions, or match them with their descriptions.
Unit 12:	<ul style="list-style-type: none"> • Recognize or write the functions of the integumentary system. • Recognize or write the meanings of Chapter 12 word parts and use them to build and analyze terms. Write terms for selected structures of the integumentary system, or match them with their descriptions.
Unit 13:	<ul style="list-style-type: none"> • Recognize or write the functions of the nervous system. • Recognize or write the meanings of Chapter 13 word parts and use them to build and analyze terms. Write terms for select structures of the nervous system, or match them with their descriptions.
Unit 14:	<ul style="list-style-type: none"> • Recognize or write the function of the peripheral nervous system. • List or recognize the names of the special sense organs. • Write or recognize the brain's interpretation(s) of the special sense organs. • Recognize or write the meanings of Chapter 14 word parts and use them to build or analyze terms. • Write terms for selected structures of the sense organs or match terms with their descriptions. • Write the names of the diagnostic terms and pathologies related to the special sense organs. • Match surgical and therapeutic interventions in Chapter 14, or write the names of the interventions when given their descriptions. • Spell terms pertaining to the special senses Lesson Preparation Checklist.
Unit 15:	<ul style="list-style-type: none"> • Recognize or write the functions of the endocrine system.

	<ul style="list-style-type: none"> Recognize or write the meanings of Chapter 15 word parts and use them to build and analyze terms. Write terms for selected structures of the endocrine system and their associated hormones and functions, or match them with their descriptions.
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Most recent highlights and updates to this course include updates on discussion boards pertaining to building medical terminology from parts, pathogenic microorganisms, accessory organs of digestion, and irregularities in vision.

HITT 1212 History of Health IT – ONC Component 5

Course Description:

This course traces the development of IT in health care and public health, beginning with the experiments of the 1950’s and 1960’s and accumulating in the HITECH Act of 2009, including the introduction of the concept of “meaningful use” of electronic health records.

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain the rationale for elements of the HITECH Act in terms of the history of health IT
2. Describe the background of today’s health IT landscape including EHR, HIE, CDS, applications in Public Health, relevant professional organizations
3. Describe the history of regulation of Health IT in the U.S.
4. Describe how legislation related to privacy and security of electronic health information has evolved in the US.
5. Discuss how financial incentives for use of HIT have changed over time.

	Course Objectives:
Unit 1:	<ul style="list-style-type: none"> Discuss the enduring values that have been foci for HIT stakeholders from the perspectives of healthcare organizations, community and practicing physicians, and academic physicians, information systems personnel, and medical informaticians. Discuss how the social, educational, and professional environments in healthcare influence these values. Discuss the impact of key developments in the 1950’s and 1960’s including Sputnik, Medicare/Medicaid legislation, medical research, and the Civil Rights legislation on healthcare. Describe the characteristics of the healthcare environment and the use of computers in healthcare in the 50’s and 60’s. Discuss how the problem---oriented medical record changed the structure of medical records. Discuss the impact that increased access to healthcare had on the use of

	<p>computers in healthcare in the 1970's.</p> <ul style="list-style-type: none"> • Describe how key informatics innovations such as the problem---oriented medical record, Medline, early EMRs and CDSS relate to the general healthcare environment of the 1970's. • Describe some of the early forerunners of today's EHR including OSTAR, TMR, and the Regenstried CPRS. • Describe early clinical decision support systems including Internist---1, Mycin and the HELP system. • Discuss the impact that the cost containment focus of the 1980's had on the use of health information technology. • Discuss the healthcare environment of the 1980's and its impact on the types of informatics applications developed during this time period. • Discuss the increasing professionalization of informaticians and HIT professionals in the 1980's including training programs and professional organizations.
Unit 2:	<ul style="list-style-type: none"> • Discuss factors that led to increasing clinical use of computers from 1990---2009. • Discuss key influences on health IT developments including the Internet, HIPAA, the Human Genome project, and the Institute of Medicine Quality Chasm series • Discuss the focus of health IT in the late 90's up to the present • Discuss the role of health IT in clinical and translational research and personalized medicine. • Discuss why there is more receptivity to the use of Health IT now than during the previous 50 years.
Unit 3:	<ul style="list-style-type: none"> • Discuss the barriers to adoption of Health IT that the HITECH Act is designed to address. • Discuss how the following ARRA/HITECH requirements relate to previous development in health IT <ul style="list-style-type: none"> • Certified electronic health records • Concept of meaningful use including e---prescribing, clinical decision support, interoperability and HIE, structured documentation of quality measures • Incentives to providers. • Education of clinicians • Workforce development • Give examples of how the HITECH provisions support healthcare reform efforts
Unit 4:	<ul style="list-style-type: none"> • Discuss how the sub---discipline of public health informatics has evolved over time • Describe how HIT can be used to enhance public health practice • List potential ethically, social, and political issues associated with the

	development of HIT applications for public health purposes
Unit 5:	<ul style="list-style-type: none"> • Discuss how HIT tools have evolved to support the practice of nursing • List common nursing HIT applications and describe how they have evolved over time.
Unit 6:	<ul style="list-style-type: none"> • Name some early examples of electronic medical records. • Discuss lessons learned from the early EHR implementations • Discuss how the attributes that were identified for a computer---based patient record in the 1991 Institute of Medicine Report relate to the concept of meaningful use.
Unit 7:	<ul style="list-style-type: none"> • Describe various types of clinical decision support (CDS) systems. • Discuss the evolution of clinical decision support from expert system research. • Discuss the changes in focus of clinical decision support from the 1980’s to the present. • Discuss the change in architecture and mode of access of clinical decision support systems from the 1980’s to the present.
Unit 8:	<ul style="list-style-type: none"> • Explain how the evolving capabilities of CPOE systems impact quality and patient safety in the hospital setting • Explain how the evolving capabilities of e---prescribing systems impact quality and patient safety in the ambulatory setting
Unit 9:	<ul style="list-style-type: none"> • Describe historical U.S. efforts at realizing health information exchange • Define community health information networks (CHINs) and regional health information organizations (RHIOs) • Describe why CHINs failed in the 1990’s • Describe the concept of RHIOs and articulate how they relate to National Health Information Network (NHIN)
Unit 10:	<ul style="list-style-type: none"> • Discuss the reasons why the administrative simplification provisions were attached to the original HIPAA legislation. • Explain the five principles underlying the HIPAA privacy rule. • Discuss the reasons why the privacy rule was an action of the executive, not the legislative branch of Congress. • Describe security recommendations in the 1997 report “For the Record.” • Describe the major changes in privacy and security requirements as a result of HITECH and the reasons why the changes were needed.
Unit 11:	<ul style="list-style-type: none"> • Discuss the history of FDA involvement in the regulation of clinical software. • Describe the origins, focus and activities of CCHIT. • Discuss the changes in the EHR certification process as a result of the HITECH Act. • Discuss the recent efforts to improve the safety of EHRs
Unit 12:	<ul style="list-style-type: none"> • Discuss the developments in mobile computing that have enabled portable

	<p>computers to be used in health care settings.</p> <ul style="list-style-type: none"> • List the benefits of using mobile computers in the clinical setting, and discuss how these benefits have developed over time. • Give examples of three applications for mobile computers in healthcare
Unit 13:	<ul style="list-style-type: none"> • Define telemedicine. • Describe the differences between telemedicine and telehealth. • Discuss key developments in the history of telemedicine. • Identify and describe at least two current applications of telemedicine.
Unit 14:	<ul style="list-style-type: none"> • Describe conditions and notable publications concerning patient safety and quality improvement from 1959 to the present. • Describe the background to the Institute of Medicine reports on Patient Safety • Summarize the main findings from several Institute of Medicine reports on quality, patient safety, and health information technology (HIT). • Describe various ways in which HIT has evolved to improve quality or enhance patient safety.
Unit 15:	<ul style="list-style-type: none"> • Discuss the evolution of incentives for adoption of HIT. • Discuss direct and indirect ways in which health care payors can influence the adoption of HIT. • Describe past and current strategies employed by payors to influence HIT adoption.
Unit 16:	<ul style="list-style-type: none"> • Describe the background and original constituencies of AMIA, HIMSS, and AHIMA. • Describe the changes in major interests that have occurred at AMIA, HIMSS, and AHIMA over time. • Describe the origins, current focus, and relationships among the following standards development organizations: HL---7, HITSP, ONC Health IT Standards Committee.

Most recent highlights and updates to this course includes Health Information Exchange (HIE), addition of nursing informatics research and HIPAA and Meaningful Use reporting.

HITT 1271 Professionalism/Customer Service in the Health Environment – ONC Component 16

Course Description:

Development of skills necessary to communicate effectively across the full range of roles that will be encountered in health care and public health settings. There are no pre---requisites for this course.

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain key elements of customer service in health IT.
2. Demonstrate appropriate behaviors in simulations of health IT customer service.
3. Demonstrate effective written and oral communication approaches to common communication interactions.
4. Identify core elements of effective communication and techniques to resolve conflicts.
5. Identify ethical and cultural aspects of communication.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Describe the definitions of customer service • Identify customers’ needs based on context • Discuss different metrics to measure customer service in Healthcare IT
Unit 2:	<ul style="list-style-type: none"> • Define contextual norms expected in healthcare organizations • Discuss the importance of dress, deportment, demeanor, and grooming
Unit 3:	<ul style="list-style-type: none"> • Explain the purpose and goal of professional communication • Describe what is meant by effective communication • Discuss what is meant by ineffective communication • Identify communication needs of common roles in healthcare • Describe Disability Etiquette’s contribution to professional communication
Unit 4:	<ul style="list-style-type: none"> • Discuss the definition of communication • Discuss assumptions used in communication • Discuss the communication models from general to health---specific • Discuss variables used in communication • Define nonverbal communications • Describe how nonverbal communication functions in the human communication process • Describe specific dimensions and give examples of nonverbal communication • Discuss communication in paper---based and electronic formats • Discuss personal communication in the work setting • Discuss listening skills • Discuss diversity
Unit 5:	<ul style="list-style-type: none"> • Characterize the importance of and guidelines associated with infection control. • Relate protecting yourself and others with standard precautions • Explain HIPAA and communication
Unit 6:	<ul style="list-style-type: none"> • Define Group communication and tiered characteristics • Categorize goals, norms and cohesiveness of groups • Explain Stages of team communication • Understand Communication networks and sociograms
Unit 7:	<ul style="list-style-type: none"> • Describe Dimensions of conflict • Define conflict

	<ul style="list-style-type: none"> • Explain approaches used in conflict resolution • Discuss conflict resolution styles • Describe communication strategies to resolve conflict • Discuss sources and strategies addressing technical implementation conflict
Unit 8:	<ul style="list-style-type: none"> • Characterize dimensions of Ethics • Identify major characteristics of Culture • Distinguish elements in intercultural communication • Perform effective intercultural communication
Unit 9:	<ul style="list-style-type: none"> • Describe appropriate use of personal communication devices in the healthcare workplace • Discuss the impact of inappropriate use of personal communication devices in the healthcare workplace • Identify the differences between personal and professional communications

Most recent highlights and updates to this course include HIPAA privacy regulations and release of information, team building and behavioral modification and inter---cultural communications.

HITT 1280 Cooperative Education / Apprenticeship – No ONC Component

Course Description:

Career---related supervised activities at site in an affiliated health care facility where students may achieve stated competency levels in basic health information management functions. The activities are in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. The two specializations are either Data Quality Manager or Information Technology Liaison.

Course Objectives/Goals:

As outlined in the learning plan, apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry and will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry. Focus of activities will be based on competencies associated with the CHTS examination.

Most recent highlights and updates to this course include separating the courses into sections of data quality management and Information Technology Liaison and capstone project reassessment.

HITT 1311 Health Information Systems – ONC Component 6

Course Description:

Introduction to health IT standards, health-related data structures, software applications, and enterprise architecture in health care and public health. No pre-requisites required.

Component Objectives:

At the completion of this component, the student will be able to:

1. Describe general functions, purposes and benefits of health information systems in various health care settings
2. Describe the federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems
3. Compare/Contrast different types of health information systems in terms of their ability to meet the needs of various types of health care enterprises
4. Explain how electronic health records affect patient safety, quality care, efficiency, productivity, and reporting/documentation mechanisms
5. Propose strategies to minimize major barriers to the adoption of electronic health records
6. Explain how the principles of health care data exchange and health care data standards relate to patient care, productivity and data analysis

	Course Objectives:
Unit 1:	<ul style="list-style-type: none"> • Define information management, information system (technology) and informatics • Explain the basic theoretical concept that underlies informatics practice • Define the meaning of biomedical and health informatics as a field of study • Describe the biomedical informatics areas of applications • Summarize the informatics drivers and trends • State the professional roles and skills of health informaticians • Identify how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care
Unit 2:	<ul style="list-style-type: none"> • Define the concept of an information system and its characteristics • Describe the different types of information systems • Describe various types of technologies that support health care information systems • Examine the challenges presented by emerging trends in information technology, social media, and global communications • Discuss the advantages and disadvantages of using the Internet as a platform for health care applications
Unit 3:	<ul style="list-style-type: none"> • State the similarities and differences between an electronic medical record (EMR) and electronic health record (EHR)

	<ul style="list-style-type: none"> • Identify attributes and functions of an EHR • Describe the perspectives of health care providers and the public regarding acceptance of or issues with an EHR, which can serve as facilitators of or major barriers to its adoption • Explain how the use of an EHR can affect patient care safety, efficiency of care practices, and patient outcomes • Discuss how Health Information Exchange (HIE) and Nationwide Health Information Network (NHIN) impact health care delivery and the practice of health care providers • Outline issues regarding governmental regulation of EHR systems, such as meaningful use of interoperable health information technology and a qualified EHR • Summarize how the Institute of Medicine’s Vision for 21st Century Health Care and Wellness may impact health management information systems • Identify how ongoing developments in biomedical informatics can affect future uses and challenges related to health information systems
Unit 4:	<ul style="list-style-type: none"> • Describe the purpose, attributes and functions of CPOE • Explain ways in which CPOE is currently being used in health care • Discuss the major value to CPOE adoption • Identify common barriers to CPOE adoption • Identify how CPOE can affect patient care safety, quality and efficiency, as well as patient outcomes
Unit 5:	<ul style="list-style-type: none"> • Describe the history and evolution of clinical decision support • Describe the fundamental requirements of effective clinical decision support systems • Discuss how clinical practice guidelines and evidence---based practice affect clinical decision support systems • Identify the challenges and barriers to building and using clinical decision support systems • Discuss legal and regulatory considerations related to the distribution of clinical decision support systems • Describe current initiatives that will impact the future and effectiveness of clinical decision support systems
Unit 6:	<ul style="list-style-type: none"> • Describe the purpose, attributes, and functions of patient monitoring systems • Discuss ways in which automation can improve the quality of patient care • Analyze how the integration of data from many sources assists in making clinical decisions • Discuss how telehealth communication technologies support clinical care • Discuss the effectiveness and economic benefit of telehealth • Examine how smart technology in the home and remote links to health

	information systems can enhance the quality of patient care
Unit 7:	<ul style="list-style-type: none"> • Examine the purposes, processes, and management issues • Understand the economic and technological factors associated with digital displays • Describe the major challenges • Describe the future directions
Unit 8:	<ul style="list-style-type: none"> • Explain how current and emerging technologies have impacted and may continue to affect consumer health informatics • Describe the role of genomics in consumer health informatics • Describe the emergence of personal health records and their implications • Discuss how consumerism influences the ongoing development and use of health information systems
Unit 9:	<ul style="list-style-type: none"> • Explain applications that need to be integrated in health care information systems • Describe the strategies used by health care organizations to ensure integration of functions • Discuss the critical elements needed to integrate billing, financial, and clinical systems • Discuss the core elements of a Master Patient Index (MPI) • Describe current trends to establish a Unique Patient Identifier (UPI)

Most recent highlights and updates to this course include the addition more information of health informatics, CPOE best practices, status of telemedicine, top ten medical technologies 2015, social media and healthcare, health information exchanges, best practices on security and updates on the current status of meaningful use.

HITT 2222 Working in Teams – ONC Component 17

Course Description:

An experiential course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.

Component Objectives:

At the completion of this component, the student will be able to:

1. Establish and monitor ground rules, or rules of engagement, that serve as behavioral guidelines for members of teams involved in HIT.
2. Develop an HIT action plan that can be easily adapted to changing situations, environments, and goals across a variety of health and healthcare settings.
3. Communicate a clearly articulated position in writing and speech.
4. Incorporate diversity in values, critical thinking, and judgments that amplifies the best of individual performance toward the HIT team mission.

5. Provide leadership for continuous assessment and learning on practices, processes, and outcomes of the HIT team mission.
 Develop a sustaining framework that maximizes the integrated power of teams while recognizing excellence in individual performance of various stakeholders involved in HIT (patients, families, communities, nation, etc.).

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> Describe the characteristics of an effective team and work group. Describe and differentiate roles of IT health care professionals in teams. Describe the value of teams and the importance of collaboration for the HIT professional in teams.
Unit 2:	<ul style="list-style-type: none"> Describe stages of team development. Identify the needs of the team at each described stage. Establish and clarify common goals and purpose for a team. Relate key characteristics of effective team members. List key factors to maintain HIT teams.
Unit 3:	<ul style="list-style-type: none"> Create and describe SMART ground rules. Develop and refine a team action plan. Establish ground rules and an initial action plan for an HIT team.
Unit 4:	<ul style="list-style-type: none"> Clarify individual roles relative to the tasks and processes assigned to a team Identify strengths and limitations relative to the tasks and process when developing a team Define specific roles and responsibilities for the fulfillment of the team mission Define expectations to support the team action plan
Unit 5:	<ul style="list-style-type: none"> Compare problem-solving techniques (mind maps, SWOT analysis, swim lanes, fish bones diagrams) when developing teams. Differentiate between a team task versus an individual task.
Unit 6:	<ul style="list-style-type: none"> Develop skills for clear communication and understanding of others Provide appropriate feedback to others Develop and deliver appropriate feedforward Communicate in ways that help promote positive change for your team.
Unit 7:	<ul style="list-style-type: none"> Develop and implement standards for shared leadership roles in complex, stressful, and often hierarchical health related environments. Differentiate progression from self-awareness to self-leadership to team leadership. Demonstrate collective, concurrent, collaborative, and compassionate activity.
Unit 8:	<ul style="list-style-type: none"> Demonstrate skillful use of collaborative tools and techniques. Develop a system to provide full transparency of key information related

	<p>to actions of the HIT team.</p> <ul style="list-style-type: none"> • Design an information sharing structure that supports high performance and knowledge exchange.
Unit 9:	<ul style="list-style-type: none"> • Select appropriate communication tools available for global and diverse team collaboration. • Predict future tools that could be used in the healthcare arena to collaborate and connect health professionals. • Infer the future face of the healthcare field where team collaboration and patient---centeredness is a fundamental practice.
Unit 10:	<ul style="list-style-type: none"> • Team Dysfunction • Organizational Structure and Culture • Symptoms of Dysfunction • Strategies to Manage Dysfunctional Teams
Unit 11:	<ul style="list-style-type: none"> • Develop a working knowledge of high performance. • Identify key criteria for high performance. • Propose a team structure that enables high performance.
Unit 12:	<ul style="list-style-type: none"> • Classify the formative stage of a team. • Apply strategies to move a team into the next formative stage. • Reposition a team for a new challenge.

Most recent highlights and updates to this course include the addition of supplemental learning activities on adult learning principles, common instructional design problems, how to create lesson plans and unique presentations, different forms of assessment and how to create assessments, training methods for the workplace, instructional media and design.

HITT 2224 Usability and Human Factors in Health Professions – ONC Component 15

Course Description:

Discussion of rapid prototyping, user---centered design and evaluation and usability. Includes effects of new technology and workflow on downstream processes. No pre---requisites are required.

Component Objectives:

Upon completion of this component, the student will be able to:

1. Articulate a systems approach to usability and human factors as it applies to health information technology.
2. Explain the cognitive consequences of health information technology on clinical performance.

3. Identify the consequences of suboptimal design in the delivery of healthcare.
4. Apply methods of cognitive research, sources of usability evidence, and principles of user-centered design to decisions regarding systems evaluation, technology evaluation, and iterative design, given a population of users.
5. Apply requirements engineering methods to inform design and technology selection.
6. Demonstrate concept knowledge of cognition and human performance models in their relevance to systems evaluation methods.
7. Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering.
8. Select the most appropriate usability evaluation method, given particular system, setting, and development phase.
9. Apply principles of usability and design to critiquing EHR systems and to making recommendations for iterative improvement.
10. Diagnose problems associated with a clinical decision support system.
11. Apply cognitive methods of analysis to medical device testing.
12. Evaluate user interface designs using cognitive methods of analysis, usability testing, and Nielsen’s heuristic evaluation method.
13. Diagnose various types of error and create or select potential solutions.
14. Select appropriate technology input methods given different technology uses, user populations and contexts.
15. Describe how information visualization can support and enhance the representation of trends and aggregate data.
16. Describe the role of mobile and ubiquitous computing in healthcare.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Explain the importance of technology in health. • Describe the contributions of Human-Computer interaction to the Health field • De scribe the seven stages of User Activity in Norman’s Theory of Action • Demonstrate concept knowledge of principles of user-centered design, methods of cognitive research, and sources of usability evidence. • Apply the principles of user-centered design to address the challenges to effective design • Compare and contrast usability evaluation methods. • Select the most appropriate usability evaluation method (WECM) • Apply methods of cognitive and human performance models in their relevance to systems evaluation methods (WECM) • Identify and differentiate various types of errors in medicine • Identify patient safety issues in the workplace and at home
Unit 2:	<ul style="list-style-type: none"> • Explain the role of requirements gathering in usability evaluation. • Identify the uses, advantages, and disadvantages of data collection • Methods used for requirements gathering

	<ul style="list-style-type: none"> • Identify contextual design principles as they apply to the healthcare setting • Describe the methods to interpret results of data collection
Unit 3:	<ul style="list-style-type: none"> • Define the concept of cognitive engineering • Describe the representational effect as it applies to human computer interaction and web design • Describe how humans process information and obtain skills • Describe the Gestalt principles of perception and their relevance to human computer interaction and cognitive theory • Describe the processes of memory and their relationship to web---design • Describe the cognitive constructs for mental representation • Explain how cognition and human performance models should inform iterative design processes
Unit 4:	<ul style="list-style-type: none"> • Distinguish between human factors and human computer interactions (HCI) as they apply to usability • Explain how cognitive, physical and organization ergonomics can be applied to human factors engineering • Select technology input methods given different technology uses, user populations and contexts (WECM) • Apply concept knowledge of cognitive, physical and organization ergonomics to human factors engineering (WECM) • Describe how the concepts of mental workload, selective attention and information overload affect usability • Describe the different dimensions of the concept of human error • Describe a systems---centered approach to error and patient safety • Apply methods for measuring mental workload and information overload • Describe how human factors analysis can be applied to the study of medical devices
Unit 5:	<ul style="list-style-type: none"> • Describe the importance of usability in relation to health information technologies • Articulate a systems approach to usability and human factors as it applies to health information technology (WECM) • List and describe usability evaluation methods • Given a situation and set of goals, determine which usability evaluation method would be most appropriate and effective • Describe the appropriate tasks for a usability test • Describe the usability testing environment, required equipment, logistics, and materials • Conduct a cognitive walkthrough
Unit 6:	<ul style="list-style-type: none"> • Discuss the role of usability testing, training and implementation of electronic health records • Describe and define usability as it pertains to the EHR (HIMSS document)

	<ul style="list-style-type: none"> • Explain the challenges of EHR design and usability in typical workflow • Identify a set of well-established principles of usability and design and describe their application to EHRs (HIMSS document) • Identify and explain usability methods for enhancing efficiency of use and minimizing likelihood of user error (HIMSS document) • Explain how user-centered design can enhance adoption of EHRs • Describe Web 2.0 and novel concepts in system design • Identify potential methods of assessing and rating EHR usability when selecting an appropriate EHR system (HIMSS document) • Apply principles of usability and design to critiquing EHR systems (WECM)
Unit 7:	<ul style="list-style-type: none"> • Understand the cognitive basis for decision making and its effect on clinical errors • Discuss the role of usability testing, training and implementation of clinical decision support • Describe and define usability as it pertains to clinical decision support • Identify examples of usability barriers to adoption of clinical decision support • Identify a set of well-established principles of usability and design and describe their application to clinical decision support • Explain the impact of health information technologies on clinical performance (WECM) • Diagnose problems associated with clinical decision support systems (WECM)
Unit 8:	<ul style="list-style-type: none"> • Explain a user-centered design approach • Define conceptual models • Explain the iterative design process • Make recommendations for iterative movement (WECM) • Describe requirements analysis and cognitive task analysis • Characterize the role of prototypes in design • Describe the principles of participatory design • Describe principles of sound design to support usability • Describe how Nielsen’s heuristics and design principles apply to user interface design • Explain the difference between low fidelity and high fidelity prototypes and when it would be appropriate to use one versus the other • Evaluate user interface designs using cognitive methods of analysis, usability testing and heuristic evaluation (WECM) • Unit Topics <ul style="list-style-type: none"> • Translating requirements into design • Nielsen’s heuristics and design principles • Classification exercise (card sorting)

	<ul style="list-style-type: none"> • Participatory design • Low fidelity prototypes • High fidelity prototypes • Iterative design
Unit 9:	<ul style="list-style-type: none"> • History of Ubiquitous computing and basic principles • Describe the role of mobile and ubiquitous computing in healthcare • Describe some of the technical Challenges
Unit 10 and Unit 11:	<ul style="list-style-type: none"> • Define “workflow analysis” and methods for examining and addressing human errors • Design a workflow analysis study • Identify common sources of error documented in research studies in medicine • Apply the cognitive taxonomy of errors • Apply principles underlying the design of healthcare systems for safety
Unit 12:	<ul style="list-style-type: none"> • Identify/describe the role of information visualization and describe its purpose in enhancing usability of health technology. • Describe how information visualization can support and enhance the representation of trends and aggregate data (WECM) • Describe how information visualization can support and enhance the representation of trends and aggregate data

Most recent highlights and updates to this course include the addition of AHRQ safety tool kit, data visualization tools, guidelines for usability, quantitative and qualitative statistics, workflow and electronic health records and the status of mobile computing.

HITT 2311 Configuring Electronic Health Records – ONC Component 11

Course Description:

This class provides a practical experience with a laboratory component (utilizing Neehr Perfect) that will address approaches to accessing, selecting and configuring EHRs to meet the specific needs of customers and end users.

Component Objectives:

At the completion of this component, the student will be able to:

1. Describe the process of migration to an electronic health record (EHR) from the perspectives of organizational strategy, planning, analysis of EHR options, decision-making techniques, training, and implementation strategies.
2. Discuss the migration path from a paper to an electronic health record with an emphasis on organizational strategy to implementation, including meaningful use criteria.
3. Discuss the importance and use of clinical decision support systems for clinical and administrative use.

4. Given an EHR system, configure the system to achieve features required for meaningful use. The course includes VistA simulation EHR environment lab exercises for:
 - a. Patient care clinical workflow
 - b. Implementing clinical decision support
 - c. Building order sets
 - d. Utilizing data entry templates
 - e. Health summary and clinical reminder reports
5. Understand clinical workflows from multiple clinician perspectives, and in different clinical settings.
6. Understand concepts of privacy and security as applied to the EHR, including regulatory frameworks, risk management, authentication and authorization, user passwords, and physical security of systems.
7. Describe security issues with mobile and medical devices, and elements of disaster preparedness and disaster recovery.
8. Discuss the migration path from a paper to an electronic health record with an emphasis on organizational strategy to implementation, including meaningful use criteria.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Describe the process of initial planning, including identification of stakeholders, champions, management and implementation teams, and determining appropriate members for a steering committee (Lecture a) • Develop a timeline for choosing and implementing an electronic health record, including defining the scope of implementation, budget estimates, and additional critical steps to build a basic strategic plan for implementation (Lecture a, b) • Develop functional requirements, including a workflow analysis and a gap analysis, and recognizing when to bring in expertise (Lecture a) • Develop and applying criteria for selecting an appropriate vendor for the electronic health record including (Lecture b) • Generate an RFI/RFP • Select an appropriate system, including utilizing an appropriate ranking model • Generate interface requirements • Compare and contrast EHR solutions (e.g. locally hosted versus cloud solutions) • Negotiate a contract • Develop a training plan
Unit 2:	<ul style="list-style-type: none"> • Register a patient in a VistA simulation EHR environment • Enter vitals and chief complaint as a Medical Assistant in a VistA simulation EHR environment • Enter a progress note as a Physician in a VistA simulation EHR environment • Enter nursing notes and implement physician orders as a Registered Nurse

	<p>in a VistA simulation EHR environment</p> <ul style="list-style-type: none"> • Understand the importance of clinical workflows in the functioning of EHRs
Unit 3:	<ul style="list-style-type: none"> • Define and discuss clinical decision support • Describe, view and create Alerts/Notifications in a VistA simulation EHR environment • Describe, view and create Order Checks in a VistA simulation EHR environment • Describe, view and resolve Reminders in a VistA simulation EHR environment • Discuss the value of these EHR functions as clinical decision support tools
Unit 4:	<ul style="list-style-type: none"> • Define and describe an order set • Describe the benefits and costs associated with order sets • Demonstrate the ability to build a variety of order sets in the VistA simulation EHR environment
Unit 5:	<ul style="list-style-type: none"> • Access and use the template editor • Effectively use the different field controls to promote data quality and efficiency of data entry • Design, create and view Personal and Shared Templates for data entry • Describe how the effective use of data entry templates supports quality care, patient safety and efficiency
Unit 6:	<ul style="list-style-type: none"> • Design, view and create Health Summary reports in the VistA simulation EHR environment • Design, view and create Clinical Reminder reports in the VistA simulation EHR environment • Design, view and create ad hoc reports • Describe how quality reporting functions in an EHR supports quality care, patient safety and efficiency • Define the attributes of quality information
Unit 7:	<ul style="list-style-type: none"> • Compare and contrast the concepts of privacy and security • List the regulatory frameworks for an EHR • Describe the concepts and requirements for risk management • Describe authentication, authorization and accounting • Describe passwords and multi-factor authentication and their associated issues • Describe issues with portable devices • Describe elements of disaster preparedness and disaster recovery • Describe issues of physical security • Describe malware concepts
Unit 8:	<ul style="list-style-type: none"> • Describe meaningful use (MU) of health information technology in the context of the Health Information Technology for Economic and Clinical Health (HITECH) Act

	<ul style="list-style-type: none"> • Define the criteria for Stage 1 of meaningful use for eligible professionals and eligible hospitals • Demonstrate examples of meaningful use using the Neehr Perfect Electronic Health Record (EHR)
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Most recent highlights and updates to this course include updates each semester taught to all Neehr Perfect assignments (8---different activities for each class) which simulate an electronic health record and its functionalities, as well as Meaningful Use Stage 2 and 3 requirements and forecast.

HITT 2313 Working with Health IT Systems – ONC Component 7

Course Description:

A laboratory component. Students will work with simulated systems using Neehr Perfect with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands---on experience in computer labs and on---site in health organizations.

Component Objectives:

At the completion of this component, the student will be able to:

1. Identify common components of an HIT system and types of HIT applications (E---Mar, POE, PACS, ADT, Lab, DSS, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.)
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT---induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system)
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use

	Course Objectives:
Unit 1:	<ul style="list-style-type: none"> • Define a system and relate systems concepts to Health IT (HIT) • Discuss specific examples of settings where HIT is used (acute, rural, public health, clinic, office, patient home, etc.)

	<ul style="list-style-type: none"> • Identify common components of a clinical HIT system • Demonstrate beginning level competency in maneuvering the demonstration EHRs
Unit 2:	<ul style="list-style-type: none"> • Identify the health IT functions that support a generic ambulatory patient care process • Identify the health IT functions that support a generic inpatient care process
Unit 3:	<ul style="list-style-type: none"> • Identify common elements of the HIT system • Explain the need for standards and why they exist • Define and differentiate between messaging standards and terminology standards. (transmission VS meaning – very basic) • Compare current efforts to facilitate health information exchange between providers, communities, regions, & nation. (Basic level definitions/descriptions – NHIN, HIEs, etc.)
Unit 4:	<ul style="list-style-type: none"> • Identify characteristics of an effective HIT system • Define and provide examples of how evidence-based practice can be supported in HIT Systems • Define and cite examples of usability / configurability / scalability and reliability in HIT Systems • List and contrast different types of reports/queries (predefined vs. ad hoc) required for internal and external reporting
Unit 5:	<ul style="list-style-type: none"> • Define usability in relation to HIT systems • Explain the impact of HIT usability on user satisfaction, adoption, and workarounds in error rates or unintended consequences • Provide alternatives to HIT usability bottlenecks
Unit 6:	<ul style="list-style-type: none"> • Explain the concept of facilitated error in HIT • Cite examples of situations where HIT systems could increase the potential for user error • Analyze sources of HIT facilitated errors and suggest realistic solutions
Unit 7:	<ul style="list-style-type: none"> • Explain and illustrate privacy, security, and confidentiality in HIT settings. • Identify common threats encountered when using HIT • Formulate strategies to minimize threats to privacy, security, and confidentiality in HIT systems.
Unit 8:	<ul style="list-style-type: none"> • Conduct a basic user needs analysis for a given example situation • Create a plan for training users in a small office practice, a large community clinic, or a single unit in an ambulatory care setting • Identify several potential challenges that may emerge during installation and generate a strategy to solve. (Space, wiring, lack of basic computer literacy in staff, etc.)
Unit 9:	<ul style="list-style-type: none"> • Identify frequently encountered challenges to adoption and implementation of HIT systems

	<ul style="list-style-type: none"> • Design an action plan to address barriers to implementation of an HIT system • Propose solutions to common problems in the implementation of HIT systems.
Unit 10:	<ul style="list-style-type: none"> • Define patient---centered care • Suggest HIT---enabled solutions/strategies to enhance patient involvement in health and healthcare • Assess the effectiveness of HIT systems in supporting patient---centered care • Perform self---assessment of personal beliefs related to HIT and patient---centered care.
Unit 11:	<ul style="list-style-type: none"> • Speculate the relationship between HIT and health reform • Suggest alternative design for usable & supportive HIT • Hypothesize how HIT may intersect with publicly available data to improve health (i.e. point of sale, weather, GIS, foods, etc) • Predict avenues of future innovations in HIT.

Most recent highlights and updates to this course include updates each semester taught to all Neehr Perfect assignments (4---different for each class) which simulate an electronic health record and its functionalities as updates to EHRs and user errors and Health Insurance Portability and Accountability Act (HIPAA) updates.

HITT 2323 Health IT Leadership – ONC Component 18

Course Description:

For those preparing for leadership roles, principles of leadership and effective management of teams. Emphasis on the leadership modes and styles best suited to IT deployment. No pre---requisites are required.

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain leadership traits and theories
2. Recognize leadership’s role in IT and EHR project success and project failure
3. Describe importance of effective leadership of teams
4. Demonstrate team leadership competencies.

	Course Objectives:
Unit 1:	<ul style="list-style-type: none"> • Define leadership • Distinguish between leadership styles in the Blake and Mouton’s Managerial Grid • Define and describe classic leadership theories

	<ul style="list-style-type: none"> • Describe characteristics of classic leaders • Explain leadership traits and theories (WECM)
Unit 2:	<ul style="list-style-type: none"> • Compare and contrast concepts of leadership and management • Describe the concept and importance of developing followership • Discuss challenges of leading in a hybrid HIT organization • Define and discuss the Project Management Institute’s (PMI) three types of organizations • Discuss pros and cons of temporary leadership
Unit 3:	<ul style="list-style-type: none"> • Describe and discuss the role of authority in the HIT environment • Compare and contrast recognized vs. expert authority in context with the healthcare environment • Explain creativity’s role in healthcare • Explain the importance of recognizing and managing the cross---cultural organization • Define emotional intelligence • List and describe the four competencies in social intelligence • Define motivation in the context of the current HIT environment • Distinguish between intrinsic and extrinsic motivation • Describe the role of motivation in group dynamics
Unit 4:	<ul style="list-style-type: none"> • Describe the common traits of effective leaders • Describe skills needed in order for HIT leaders to be effective • Describe the common traits of ineffective leaders • Distinguish between de---motivating and motivating leaders • Discuss ineffective leadership’s role on stress in the work environment
Unit 5:	<ul style="list-style-type: none"> • Describe the importance of an Information Technology Strategic Plan. • Describe a typical IT Planning scenario. • Describe the importance of prioritizing HIT goals. • Recognize leadership’s role in IT and EHR project success and failure (WECM) • List common pitfalls in prioritizing IT investments. • Recognize common IT governance structures.
Unit 6:	<ul style="list-style-type: none"> • Describe the importance of connecting with our external stakeholders • Describe a typical Health Information Exchange (HIE).
Unit 7:	<ul style="list-style-type: none"> • Explore the phenomena of teams in our culture and look at the popularity and necessity of teams in delivering quality healthcare services • Describe the importance of effective team leadership (WECM) • Define a team as compared to a group • Identify the stages of team development • Identify the characteristics of successful teams and team members • Analyze team conflict and performance • Define what we mean by virtual teams

	<ul style="list-style-type: none"> • Explore the guidelines for building and leading successful teams
Unit 8:	<ul style="list-style-type: none"> • Define conflict. • Explore historical views of conflict • Explore conflict as a positive/negative force • Study various styles for handling conflict. • Review ways to promote positive conflict in a group.
Unit 9:	<ul style="list-style-type: none"> • Understand the process for selecting new technology • Understand when to employ some of the most common tools of the trade for evaluating and selecting software • Learn about evaluation aids and how they can affect an evaluation project • Understand some of the accounting basics for software purchases • Understand the process for gathering a team to negotiate a contract • Understand the need for documenting contract goals and objectives • Understand the purpose of a contract and how to participate in negotiation • Understand the process for gathering a team to negotiate a contract • Understand the need for documenting contract goals and objectives • Understand the purpose of a contract and how to participate in negotiation.
Unit 10:	<ul style="list-style-type: none"> • Define change management • Discuss the importance of change management to the success of Healthcare IT system implementations • Describe the effects of introducing or changing information technology in a group or organization • Identify elements critical to successful management of change

Most recent highlights and updates to this course include the addition of the theories of leadership versus management, the importance of emotional intelligence, health information exchanges, principles of leading change, change management, personal leadership styles and the Institute for Healthcare Improvement.

HITT 2326 Project Management for Health Professions – ONC Component 19

Course Description:

General principles of project management tools and techniques that results in the ability to create and follow a project management plan.

Component Objectives:

Upon completion of this component, the student will be able to:

1. Describe factors that are critical to project success.
2. Develop a comprehensive project management plan.
3. Define project scope that reflects stakeholder perspectives and project requirements.
4. Prepare an effective work breakdown structure.
5. Differentiate project life cycle models based on project characteristics.
6. Develop estimates for project cost and schedule.
7. Apply tools and techniques to manage project scope, time, and budget.
8. Plan and implement effective communications with the project team and stakeholders.
9. Differentiate roles of project team members.
10. Select and apply appropriate tools and techniques for risk management, quality management, and change management.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Review the history of project management. • Define what a project is. • Define project management. • Identify reasons that more organizations are implementing HIT projects. • Identify key characteristics for project success and failure. • Describe the range and characteristics of health IT projects. • Analyze project requirements (WECM)
Unit 2:	<ul style="list-style-type: none"> • Identify process groups and knowledge areas used in project management. • Differentiate linear, iterative, adaptive, and agile project life cycles. • Relate life cycle phases to reviews, milestones, and deliverables. • Compare various organizational structures as contexts for managing projects. • Define project life cycles (WECM)
Unit 3:	<ul style="list-style-type: none"> • Identify the key elements of a project environment and HIT landscape. • Outline the needs for projects, how and why they are selected and initiated. • Construct a project charter. • Identify project stakeholders. • Generate a stakeholder register.
Unit 4:	<ul style="list-style-type: none"> • Identify the importance and purpose of effective planning. • Identify and describe each component of the project management plan. • Define and prepare project planning documents.
Unit 5:	<ul style="list-style-type: none"> • Analyze scope to develop the project scope statement. • Elicit stakeholder requirements for the project. • Create a Work Breakdown Structure (WBS).

	<ul style="list-style-type: none"> • Create implementation plans to achieve project requirements (WECM)
Unit 6:	<ul style="list-style-type: none"> • Define project management time activities. • Define project cost management activities. • Define project procurement activities. • Apply project management and change management principles (WECM)
Unit 7:	<ul style="list-style-type: none"> • Assess project risks. • Plan project responses. • Prepare and maintain a risk register. • Develop and execute a risk management plan. • Use tools and techniques for project planning, monitoring, risk management and control (WECM)
Unit 8:	<ul style="list-style-type: none"> • Identify and describe roles of project team members. • Develop the human resources plan. • Acquire, develop, manage, and lead the project team. • Identify project communications responsibilities. • Develop a communications plan. • Discuss team dynamics in relation to project management techniques (WECM)
Unit 9:	<ul style="list-style-type: none"> • Direct project execution. • Track, review, and report project progress and performance. • Monitor and control project baselines. • Manage stakeholder expectations and change requests.
Unit 10:	<ul style="list-style-type: none"> • Develop a quality management plan. • Perform quality assurance • Apply quality control techniques.
Unit 11:	<ul style="list-style-type: none"> • Bring project activities to a close. • Conclude the customer acceptance process. • Document and archive lessons learned. • Update and close out project documents. • Manage transition to operations.

Most recent highlights and updates to this course include Meaningful Use 2015, implementing Meaningful Use Stage 2 and creating Gantt chart to accomplish this, creating stakeholder registries, security risk analysis, project communication and building quality into projects.

HITT 2327 Vendor Specific HIT Systems – ONC Component 14

Course Description:

This course provides an overview of the most popular vendor specific systems highlighting features of each as they would relate to practical deployments, and noting differences between the systems.

Component Objectives:

Upon completion of this component, the student will be able to:

1. Assess and compare common commercial Electronic Health Record (EHR) systems using KLAS ratings in training and organizational decision-making contexts.
2. Apply Certification Commission for Health Information Technology (CCHIT), meaningful use, Joint Commission and National Patient Safety Goals to decisions about commercial EHR vendor selection, when given typical workplace scenarios.
3. Evaluate key factors (costs of an EHR, including capital, licensing, maintenance and staffing, and stakeholder needs) into workplace decisions for selecting vendor-specific systems.
4. Analyze the functionality of a vendor EHR system, given a set of user needs.
5. Compare database architectures employed by different vendor applications to evaluate how these impact performance and extensibility.
6. Evaluate EHR systems based on vendor strategies for terminology management, knowledge management and data exchange.
7. Compare decision support capabilities and customizability, given different vendor EHRs.
8. Evaluate training and go-live strategies of different EHR vendors in terms of impact on cost, workflow, and patient safety.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Describe the most common commercial electronic health record (EHR) systems used in ambulatory and inpatient care settings • List HIMSS resources available on EHR systems • Describe functions and applications of HIMSS resources available on EHR systems • Describe functions and applications of KLAS ratings available on EHR systems • Apply KLAS rating system to evaluate software selections for ambulatory and acute care EHRs.
Unit 2:	<ul style="list-style-type: none"> • Describe the Certification Commission for Health Information Technology (CCHIT) and its role in the certification of commercial EHRs • Describe or give examples illustrating how CCHIT criteria are used for certification of EHR systems • Identify the benefits of ‘meaningful use’ of EHRs and identify examples of ‘meaningful use’ of EHRs in given scenarios • Identify the three stages of implementation requirements for ‘meaningful use’ of EHRs

	<ul style="list-style-type: none"> Identify the role of governing bodies certifying commercial EHRs, including FDA oversight, the Joint Commission, and National Patient Safety Goals
Unit 3:	<ul style="list-style-type: none"> Demonstrate concept knowledge of the RFP process Identify the key stakeholders involved in EHR selection and the roles they each play Identify and give examples of the categories of project costs when selecting vendor---specific EHR systems Analyze the financial courses that strengthen an EHR vendor Identify the key steps in the selection process for choosing a vendor EHR
Unit 4:	<ul style="list-style-type: none"> Describe EHR functionality of Results Review Describe the EHR functionality of Computerized Provider Order Entry (CPOE) Describe the EHR functionality of Messaging among different vendor systems Describe the procedures for billing supported by EHR vendor systems
Unit 5:	<ul style="list-style-type: none"> Demonstrate concept knowledge of system and database architectures used in commercial EHRs Describe the health information systems landscape, including CPOE, Pharmacy, Lab, etc. Identify the different EHR hardware platforms Compare different EHR operating systems and databases Explain the importance of security, privacy, auditing and performance monitoring in EHRs
Unit 6:	<ul style="list-style-type: none"> Define interoperability Describe vendor strategies for terminology and knowledge management and how these impact interoperability Describe processes and requirements for exchanging data with personal health records
Unit 7:	<ul style="list-style-type: none"> Understand the importance of clinical decision support systems Describe decision support capabilities and customizability of different vendor EHRs
Unit 8:	<ul style="list-style-type: none"> Describe characteristics of training and go---live strategies that would facilitate implementation of a new Electronic Health Record (EHR) system Compare the advantages and disadvantages of a big---bang roll---out versus a phased roll---out and vice---versa Identify staffing, command center and on---site consultant considerations Compare strategies for monitoring system usage and change management

Most recent highlights and updates to this course include updates each semester taught to all Neehr Perfect assignments (4---different activities for each class) which simulate an electronic

health record and its functionalities, updates for privacy and security rulings as well as evaluation and selections of Electronic Health Record vendors.

HITT 2329 Installation and Maintenance of IT Systems – ONC Component 8

Course Description:

This course covers fundamentals of selection, installation and maintenance of typical Electronic Health Records (EHR) systems. Students will be introduced to the principles underlying system configuration including basic hardware and software components, principles of system selection, planning, testing, troubleshooting, and final deployment. System security and procedures will also be introduced in this component.

Component Objectives:

At the completion of this component, the student will be able to:

1. Articulate the elements of Health IT systems, including their advantages and disadvantages.
2. Justify criteria to be considered when recommending vendors and software
3. Design a comprehensive plan to install a health IT system
4. Design a comprehensive plan to maintain and troubleshoot a health IT system, incorporating system updates and user feedback
5. Implement project plans by installing and configuring hardware and software, interacting with vendors and users as needed
6. Verify plan implementation

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Describe the use of client and server hardware for access to and storage of EHRs • Describe network needs for access to and storage of EHRs • Identify the application software and back---end data storage software needed for a comprehensive, effective Health IT System
Unit 2:	<ul style="list-style-type: none"> • Compare and contrast COTS (Commercial Off---The---Shelf) and in---house/homegrown systems and describe their relative advantages and disadvantages. • Verify system compliance with ONC---ATCB certification • Identify purpose and categories of ARRA “Meaningful Use” criteria
Unit 3:	<ul style="list-style-type: none"> • Identify 12 possible steps to choosing an EHR system • Gather functional requirements from institution and users • Document use---cases and relate them to functional requirements
Unit 4:	<ul style="list-style-type: none"> • Identify the 8 basic components to a project plan • Define the role of a project manager • Equate the basic project plan components to a typical EHR implementation

	<p>plan</p> <ul style="list-style-type: none"> • Create a project plan for system design and implementation
Unit 5:	<ul style="list-style-type: none"> • Define the steps of the Software Development Life Cycle, or SDLC, and the purpose and importance of each • Describe different models of the SDLC and their key differences • Describe how and why an HIT software application would go through the SDLC
Unit 6:	<ul style="list-style-type: none"> • Identify regulatory requirements for EHRs • Provide training for system users regarding the methods and importance of security compliance • Identify administrative, physical, and technical safeguards for system security and regulatory compliance • Identify best practices for system security • Identify best practices for risk / contingency management
Unit 7:	<ul style="list-style-type: none"> • Determine and document system interfaces and integration requirements • Describe the pitfalls associated with installing a new application in an environment of pre---existing applications • Give examples of interfacing modalities
Unit 8:	<ul style="list-style-type: none"> • Identify and implement an effective troubleshooting procedure for reporting, evaluating, fixing, deploying, and follow---up of errors, problems, or limitations for the system • Integrate downtime schedule for OS, network, database, and client application maintenance and updates

Most recent highlights and updates to this course include updates each semester taught to all Neehr Perfect assignments (3---different activities for each class) which simulate an electronic health record and its functionalities as well as updates in privacy, security and confidentiality activities. In addition HIE nationwide updates.

HITT 2343 Quality Assessment and Performance Improvement – ONC Component 12

Course Description:

Study of the quality standards and methodologies in the health information management environment. Topics include licensing, accreditation, compilation and presentation of data in statistical formats, quality management and performance improvement functions, utilization management, risk management, and medical staff data quality issues. Approaches to assessing patient safety issues and implementation of quality management and reporting through electronic systems and approaches to assessing patient safety issues and implementation of quality management and reporting through electronic systems. No pre---requisites required.

Component Objectives:

At the completion of this component, the student will be able to:

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply of information technology and standardized practices that support safety and quality
5. Formulate activation planning that supports and maintains safety and quality
6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Identify the current challenges in health care quality. • Examine the courses of the health care system that have an impact on quality. • Describe QI as a goal of meaningful use of HIT. • Analyze the ways that HIT can either help or hinder quality improvement. • Explain health care quality and quality improvement (QI). • Define utilization and resource management functions (WEEM)
Unit 2:	<ul style="list-style-type: none"> • Investigate the fallibility of people and systems. • Describe the ways that every system is designed to achieve the results it gets. • Apply the basic principles of safe design. • Explain the ways that teams make wise decisions with diverse and independent input.
Unit 3:	<ul style="list-style-type: none"> • Discuss the basic concepts of reliability. • Understand what makes organizations highly reliable.
Unit 4:	<ul style="list-style-type: none"> • Discuss reliability as a tool for ensuring safety. • Examine how ultra-safe organizations operate.

	<ul style="list-style-type: none"> Identify how teams make wise decisions.
Unit 5:	<ul style="list-style-type: none"> Define decision support, its importance and why it is difficult to implement. Compare decision support tools that help improve quality. Analyze the benefits and shortfalls of alerts and clinical reminders.
Unit 6:	<ul style="list-style-type: none"> Assess decision-making requirements in health or health care. Construct a work process flow chart. Appraise ways of incorporating decision-making requirements into HIT design.
Unit 7:	<ul style="list-style-type: none"> Assess the impact of teamwork and communication on patient safety and care coordination. Investigate ways in which HIT design can serve as a barrier to effective communication. Describe ways in which HIT design can enhance communication and care coordination.
Unit 8:	<ul style="list-style-type: none"> Apply QI tools to the analysis of HIT errors. Identify strategies for adaptive work that can be useful to HIT initiatives. identify potential risk management issues (WECM) Use tools to perform quality assessment and improvement (WECM)
Unit 9:	<ul style="list-style-type: none"> Critique an implementation team and the roles they play in ensuring quality Analyze effective implementation planning Assess the quality implications of “big bang” versus staggered approaches Discuss “go live” support strategies that minimize risk
Unit 10:	<ul style="list-style-type: none"> Understand the basic concepts of variation. Explain the attributes of an effective reporting system. Examine the importance of having standardized and structured health information so that you can use those data to make valid reports. Discuss how HIT can facilitate data collection and reporting for improving quality of care and patient safety. Assist in medical staff quality improvement functions (WECM)
Unit 11:	<ul style="list-style-type: none"> Understand the different purposes of data. Discuss the impact of poor data quality on quality measurement. Identify ten attributes of data quality and key process recommendations. Explore the attributes of data quality and key process recommendations for maintaining data integrity. Discuss common causes of data insufficiency. Describe how health information technology design can enhance data quality.
Unit 12:	<ul style="list-style-type: none"> Explain how reporting errors can help to identify HIT system issues. Describe ways in which HIT can facilitate error reporting and detection.

	<ul style="list-style-type: none">• Assess HIT for unintended negative consequences.• Examine common themes in HIT design deficiencies.• Apply QI tools to examine HIT errors.• Monitor compliance with governmental and organizational regulations and accreditation standards (WECM)• Apply policies and procedures to ensure the accuracy and integrity of health data both internal and external to the health system (AHIMA D III H.)
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Most recent highlights and updates to this course include the addition of the impact of meaningful use on quality, fallibility and the workplace, attributes of highly reliable organization, workplace safety, work processes and data collection, risk management and AHRQ.gov.

HITT 2351 Networking and Health Information Exchange – ONC Component 9

Course Description:

This continuing education or credit course is an In---depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them), the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches.

Component Objectives:

At the completion of this component, the student will be able to:

1. Explain the functions of all layers of the ISO OSI models, including how they are interconnected and supported.
2. Recommend components of networking hardware that meet standards and support information exchange.
3. Analyze standards associated with the EHR functional model, the PHR functional model, and the family of profiles associated with specific domain functional requirements
4. Explain the process and value of EHR certification.
5. Describe data standards required for the interoperable exchange of health care data, including terminology, data elements, document standards, imaging standards, and medical device standards.
6. Describe components of health IT standards (including HL7 and TC215) for health information exchange used by various stakeholders.
7. Examine additional standards related to shared and effective use of data, including clinical decision support.
8. Describe enterprise architecture models, including centralization vs federation and grids, service oriented architectures, and local implementations with respect to systems

from single units to organizations, regions (RHIOS and HIEs), states, and nationwide healthcare information systems (NHIN).

9. Incorporate professional and regulatory standards related to privacy, confidentiality, and security when implementing and maintaining networks and health information exchange systems, including NHIN.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Explain the OSI representation of the various layers involved in networking, including the general functions of each layer and their interconnections • Explain the concept of the Application layer • Explain the concept of the Presentation layer • Explain the concept of the Session Layer • Explain the concept of the Transport layer • Explain the concept of the Network layer • Explain the concept of the Data Link layer • Explain the concept of the Physical layer • Explain connection---oriented versus connectionless communication • Explain the use of network addressing including security considerations and vulnerabilities
Unit 2:	<ul style="list-style-type: none"> • Select appropriate network media types (such as Ethernet and Wireless) to facilitate networking and data exchange, taking into account access and regulatory requirements • Select appropriate hardware devices (such as routers, switches, and access points) to facilitate networking and data exchange, taking into account access and regulatory requirements
Unit 3:	<ul style="list-style-type: none"> • Explain why standards related to networking and health information exchange are important, particularly in the current environment. • Component 9 Networking and Health Information Exchange 15 Version 1.0/Fall 2010 • Describe how standards are developed, who develops them, and how they are selected and accredited. • Explain the most common categories of standards (e.g., basic networking, application). • Demonstrate how to find, obtain, and use standards that are needed to facilitate networking and health information exchange.
Unit 4:	<ul style="list-style-type: none"> • Identify the set of standards necessary to establish semantic interoperability. • Describe the use, purpose and interrelation among sets of controlled vocabularies in use today (e.g., SNOMED – CT, ICD---9 and ICD 10, LOINC, RxNorm, nursing terminologies, UMLS). • Understand data elements; attributes of data elements, the relevant standard --- ISO 11179, creation and purpose.

	<ul style="list-style-type: none"> • Explain how templates and archetypes facilitate networking and information exchange. • Discuss Clinical Data Architecture, Continuity of Care Record, Continuity of Care Document standards and describe the relationship among these standards.
Unit 5:	<ul style="list-style-type: none"> • Understand linking and aggregating data at all levels, • Understand how data may be interchanged among heterogeneous settings without loss of information, • Understand HL7 v2.x messaging communication standards, • Understand HL7 v3.0 messaging standards, and • Understand other data interchange standards including DICOM for imaging standards, NCPDP for prescriptions and medication reimbursement, IEEE for device interface standards, ASC X12N for claims and reimbursement standards, ASTM for document exchange, and IHE for profiles and registry standards. • Explain how model---based standards are created, • Define the methodology development framework, • Describe HL7 v3.0 messaging standards, • Imaging standards, • Standards for pharmacy services, • Interface standards for medical devices, • Claims and reimbursement standards, • Concept of profiling , and • Use and value of implementation guides
Unit 6:	<ul style="list-style-type: none"> • Understand the definition(s) of an Electronic Health Record • Understand architecture for an EHR • Identify and understand key standards for the EHR • Understand the HL7 EHR Functional Model Standards • Understand functional profiles • Understand the standards for Functional Models for the PHR • Understand the certification requirements for the EHR, PHR and functional profile
Unit 7:	<ul style="list-style-type: none"> • Understand the clinical decision support standard Arden Syntax, • Understand standards for clinical guidelines, • Understand object---oriented expression language for clinical decision support – GELLO, • Understand the clinical decision support standard Infobutton, • Understand disease management, and • Understand other clinical decision support applications. • Understand other standards that help to support networking and reporting requirements as well as functionality to optimize the connectivity among

	<p>heterogeneous systems deployed within a single enterprise,</p> <ul style="list-style-type: none"> • Understand single sign-on standards and the HL7 Clinical Context Object Workgroup (CCOW) standard, • Understand regulatory standards, and Understand issues relating to person identifiers, master patient indices, and record locator services
Unit 8:	<ul style="list-style-type: none"> • Explain regional healthcare networks – policy and implementation strategies • Explain the concept of a Nationwide Healthcare Information network • Explain the significance of Service Oriented Architecture in networking and health information exchange networks • Explain the value of an Enterprise Architecture in networking and health information exchange networks • Describe key elements of various service oriented architecture platforms and infrastructure options
Unit 9:	<ul style="list-style-type: none"> • Explain the concepts of privacy and confidentiality requirements and policies and learn how to implement the requirements • Describe how to secure data storage and transmission using data encryption, signatures, validation, non-repudiation, and integrity (PKI, certificates, and security protocols) • Define access control methods • Analyze access restrictions to data storage and retrieval (physical and software)
Unit 10:	<ul style="list-style-type: none"> • Understand the purpose and importance of a Health Information Exchange strategy, • Understand what an HIE is, • Understand the components of an HIE, and • Explore some examples of HIEs

Most recent highlights and updates to this course include Health Information Exchange (HIE), Texas Space, HL7 standards and clinical decision support systems, information governance, and standard on admission (SOA) guidelines.

HITT 2353 Workflow Process Analysis and Redesign – ONC Component 10

Course Description:

Fundamentals of health workflow process analysis and redesign as a necessary component of complete practice automation. Includes topics of process validation and change management.

Component Objectives:

At the completion of this component, the student will be able to:

1. Identify the elements involved in providing patient care within a complex health care setting that must be taken into consideration when examining and proposing changes in workflow processes.
2. Create a diagram of processes in the health care setting that support workflow analysis and re---design.
3. Critically analyze the workflow processes in a selected health care setting to determine their effectiveness from the perspective of those being served (i.e., patients), those providing the services (i.e., professional and non---professional staff), and the organization’s leadership (i.e., decision makers).
4. Propose ways in which quality improvement methods, tools and health IT can be applied within a health care setting to improve workflow processes.
5. Suggest approaches that would ensure the success of workflow re---design from development and presentation of the implementation plan, to facilitation of decision making meetings, implementation of the changes, evaluation of the new processes, sustainability of new workflow processes, and continuous quality improvement efforts to achieve meaningful use.
6. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Course Objectives:	
Unit 1:	<ul style="list-style-type: none"> • Describe the purpose for process analysis and redesign in the clinical setting • Describe the role of a Practice workflow and information management redesign specialist and contrast it with other roles such as technical support and implementation management • Explain how health care process analysis and redesign and meaningful use are related • Analyze a health care scenario and identify the components of clinical workflow. • Given a scenario of a health care analysis and redesign, analyze the responsibilities of each participant in the process and how the roles complement or overlap with one another • Describe how the workflow processes used by a health care facility might differ depending on the type of facility • Outline elements within a complex healthcare system (WECM)
Unit 2:	<ul style="list-style-type: none"> • Articulate the value of process mapping. • Describe standard process mapping symbols and conventions. • Analyze an existing workflow process chart in terms of the information that could be generated, and the sequence of steps that are being communicated. • Choose the correct scope and detail level for a process map. • Choose an appropriate process mapping methodology.

	<ul style="list-style-type: none"> • Create a process map for a health care system (or system component) using correct symbols and conventions. • Develop a process map for given clinical process workflows. (WECM)
Unit 3:	<ul style="list-style-type: none"> • Create a process flowchart for a health care system (or system component) using appropriate ISO 5807 symbols and conventions, • Create context and data flow diagrams for a health care system (or system component) using appropriate Yourdon symbols and conventions, • Choose the correct scope and detail level for a process flowchart and data flow diagram, • Read and interpret Gane---Sarson data flow diagram, • Read and interpret an entity relationship diagram in crow’s foot notation, and • Read and interpret UML class, activity, and state diagrams
Unit 4:	<ul style="list-style-type: none"> • Identify how the strategic goals and stakeholders for a given health care facility can influence workflow processes in that facility, • Create an agenda for an opening meeting to discuss workflow processes in a health care facility, in light of that facility’s strategic goals and stakeholders, • Compare and contrast different types of knowledge and their impact on organizations, • Analyze a health care scenario according to CMMI levels, • Identify the workflow processes that are likely to be used by a health care facility, • Identify the workflow processes that are essential to observe in order to determine how best to streamline the operations in a given health care facility, and • Identify key individuals with whom the Practice Workflow and Information Management Redesign Specialist should meet or observe in order to gain an understanding of the nature and complexity of their work. • Given a process observation scenario, formulate the questions that would facilitate a productive discussion of the workflow of information, activities and roles within that facility, • Suggest ways to successfully respond to common challenges encountered in knowledge acquisition, • Given a practice scenario, choose an appropriate knowledge acquisition method, • Given a process analysis scenario including list of observations, create agenda for visit closing meeting and an initial meeting report, and • Given a set of diagrams and observations from an information gathering meeting, draft a summary report
Unit 5:	<ul style="list-style-type: none"> • Describe the purpose of process analysis,

	<ul style="list-style-type: none"> • Describe skills and knowledge necessary for process analysis, • Perform a process analysis for a given clinic scenario, • Given results of a process analysis draft a summary report, and • Given results of a process analysis, identify desired EMR functionality • Analyze the workflow processes (WECM)
Unit 6:	<ul style="list-style-type: none"> • Identify the factors that optimize workflow processes in health care settings. • Describe how information technology can be used to increase the efficiency of workflow in health care settings. • Identify aspects of clinical workflow that are improved by EHR. • Propose ways in which the workflow processes in health care settings can be re---designed to ensure patient safety and increase efficiency in such settings. • Use knowledge of common software functionality and meaningful use objectives to inform a process redesign for a given clinic scenario • Document clinical processes to facilitate workflow analysis and redesign (WECM) • Develop a workflow plan that integrates meaningful use criteria (WECM)
Unit 7:	<ul style="list-style-type: none"> • Describe major health care facility decisions in process redesign that includes EHR technology • Draft an agenda and facilitation plan for a decision making meeting, • Prepare a presentation to communicate findings of a workflow analysis or process redesign to health care facility decision makers, • Document those decisions that are made and actions identified in a decision making meeting, and • Critique a decision making meeting agenda, facilitation plan or scenario to identify problems and how they could have been prevented
Unit 8:	<ul style="list-style-type: none"> • Describe strategies for quality improvement • Describe the role of Leadership in Quality Improvement • Describe the local clinic improvement capabilities • Describe and recommend tools for quality improvement • Compare and contrast the quality improvement methodologies and tools and their appropriate uses in the health care setting • Design processes to improve quality reporting. (WECM) • Demonstrate decision---making necessary for optimizing healthcare processes. (WECM)
Unit 9:	<ul style="list-style-type: none"> • Explain concerns expressed by participants in a process analysis & redesign scenario in terms of common change management concepts. • Propose strategies to gain acceptance of changes in work processes. • Create and critique a facilitation plan, including appropriate facilitation tools for a given process analysis & redesign scenario, and

	<ul style="list-style-type: none"> Given a health care change management scenario, explain outcomes in terms of common change management concepts
Unit 10:	<ul style="list-style-type: none"> Develop a Process Change Implementation Plan for a health care facility that includes tasks to be accomplished, responsible parties for various tasks, a timeline, and the human and material resources needed Identify management tracking and measurement opportunities for the process change Outline elements of an evaluation plan that will help determine the success of a workflow process change implemented in a health care facility Describe how the workflow analyst can help a health care facility continually improve its workflow processes, based on results of ongoing evaluations
Unit 11:	<ul style="list-style-type: none"> Design control strategies to maintain performance of clinic processes Develop and present a sustainability and continuous improvement plan for a health care setting Work with practice staff to develop a set of plans to keep the practice running (to the extent necessary and practical) if the EHR system fails Work with practice staff to evaluate the new processes as implemented and identify problems and changes that are needed Develop a contingency plan for EHR system failure. (WECM)

Most recent highlights and updates to this course include rework or process mapping and efficiency, paper to paperless workflow redesign, managing construction and IT projects and contingency work plans.

Virginia

Mountain Empire Community College
Big Stone Gap, VA

Health IT Certification:

- CEHRS
- CPC
- RHIT (pending)

Curriculum Resources:

- [Curriculum Outline](#)

Associate of Applied Science - Health Information Management (152)

Registered Health Information Technician Certification

Mountain Empire Community College

HRSA

Rural Health Information Technology Workforce Grant

Curriculum Outline

April 1, 2016



3441 Mountain Empire Road
Big Stone Gap, Va, 24219
Grant Period September 15, 2013-August 31, 2015
Grant #: R01RH2651
MECC Account #: 218106

Organization: Mountain Empire Rural Health Network / Mountain Empire Community College

Course: Associates of Applied Science – Health Information Management

Certifications: AAPC, Certified Professional Coder, (CPC), NHA, Certified Electronic Health Record Specialist (CEHRS)

In process: AHIMA Registered Health Information Management Technician (RHIT)

Program Description:

The Health Information Management (HIM) degree provides students the opportunity to gain knowledge and skills required to perform a variety of specialized duties in a non-clinical healthcare setting. Graduates may seek position as medical records technician, medical records coders, health information specialists, health information management manager/director, electronic health record implementation consultant or practice management consultant. The HIM Program is designed to reflect the requirements of CAHIIM for Associates Degree Program for Registered Health Information Management Technician.

Opportunities for Employment:

HIM graduates will be able to work at acute care hospitals, ambulatory urgent care centers, critical access hospitals and regional clinics, behavioral healthcare facilities, hospice, home care, healthcare government agencies, EHR vendors, insurance companies and Managed Care Organizations. Opportunities for professional associations and certifications include: Certified Professional Coder (CPC), Certified Professional Coder – Hospital Outpatient (CPC-H) and Certified Electronic Health Records Specialists (CEHRS). MECC is in the process of obtaining accreditation from CAHIIM to offer the AHIMA Registered Health Information Management Technician (RHIT)

Program Requirements:

Students entering the HIM program must meet the college’s general admission requirements, as well as program specific admission requirements. Program specific admission requirements include:

- Completion of the Health Information Management Application for Admission packet including criminal background check.
- Completion of the Virginia Placement Tests (VPT) with demonstrated proficiency in MTE 1-3 or SAT math score of 520/ACT math score of 22 or completion of college-level math equivalent to MTH 151 or higher with a grade of “C” or higher.
- General education requirements include completion English 111, 3 credit hours of General Studies Elective, 3 credit hours of Social Science Elective and 3 credit hours of Humanities Elective are requirements for completion of the HIM program. Student Development Skills training, SDV 100, College Success Skills Training and SDV 106, Preparation for Employment are also requirement for completion of the HIM program.

NAS 171 First Year – Fall Semester Credit: 4	Core Learning Objectives	Key Concepts
Title: Anatomy and Physiology		
	<ol style="list-style-type: none"> 1. Chemistry of Living Things 2. Cells 3. Tissues and Membranes 4. Integumentary Systems 5. Skeletal Systems 6. Muscular System 7. Central Nervous System 8. Peripheral and Autonomic Nervous System 9. Special Senses 10. Endocrine System 11. Blood 12. Heart 13. Circulation and blood Vessels 14. Lymphatic System and Immunity 15. Infection Control 16. Respiratory System 17. Digestive System 18. Urinary/Excretory System 19. Reproductive System 20. Genetics and Genetically Linked Diseases 	<ul style="list-style-type: none"> • Understanding of basic gross anatomy and function of the human body • Apply terminology related to body systems and function <p>*Requirements and Prerequisites: None Lecture 3 hours/Lab 3 hours: Total: 6 hours Credit: 4</p>

HIM 130 First Year – Fall Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Health Care Information Systems	<ol style="list-style-type: none"> 1. Use technology, including hardware and software, to ensure data collection, storage, and analysis and reporting of information. 2. Use common software applications such as spreadsheets, databases, word processing, graphics, presentation, e-mail, and so on in the execution of work processes. 3. Use specialized software in the completion of HIM processes such as record tracking, release of information, coding, grouping, registries, billing, quality improvement and imaging. 4. Apply policies and procedures to the use of networks, including intranet and internet applications, to facilitate the electronic health record (EHR), personal health record (PHR), public health and other administrative applications. 5. Participate in the planning, design, selection, implementation, integration, testing, evaluation and support for EHRs. 	<ul style="list-style-type: none"> • Computer concepts (hardware components, systems architectures, operating systems and languages and software packages and tools) • Communication and internet technologies (such as networks, intranet and standards) • Common software applications (such as word processing, spreadsheet, database and graphics) • Health information systems (such as administrative, patient registration, ADT, EHR, PHR, lab, radiology and pharmacy) • Voice recognition technology • Health information specialty systems (such as ROI, coding and registries) • Application of systems and policies to health information systems and functions and health care data requests <p>*Requirements and Prerequisites: ENF 2 Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 113 First Year Fall Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Medical Terminology and Disease Process I & II		
	<ol style="list-style-type: none"> 1. Apply medical terminology to understanding patient health records 2. Demonstrated understanding of basic human organ system nomenclature and related pathophysiology 3. Identify and use of practical application of root words prefixes, suffixes and technical terms as they relate to causes and treatment of disease process 4. Identify the pathogenesis, clinical manifestations and therapeutic modalities as they relate to disease of each body system. 	<ul style="list-style-type: none"> • Definition of medical terms used in reference to each organ system and specialty • Correct spelling of medical terms • Identification of acceptable abbreviations used in referring to each organ system and specialty • Identify selected anatomy and physiology of each system • Comprehend selected drugs highlighted that relate to each system and disease • Describe diagnostic and laboratory test related to each system <p>*Requirements and Prerequisites: None Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 260 First Year – Fall Semester Credits: 2	Core Learning Objectives	Key Concepts
Title: Pharmacology	<ol style="list-style-type: none"> 1. Identify and apply consumer safety and drug regulations 2. Describe drug classifications systems 3. Identify sources and bodily effects of drugs 4. Identify contraindications, side effects and interactions of drugs 5. Identify drugs by chemical, generic and brand name 6. Understand drug sale restrictions 7. Understand and apply principles of drug administration including the moral, ethical and legal responsibility relating to medical errors. 	<ul style="list-style-type: none"> • Identify medication name brand and generic names • Identify classification and category of drugs • Identify medication delivery routes • Identify adverse reactions, indications and contraindications of drugs <p>*Requirements and Prerequisites: ENF 2 Lecture: 2 hours Total: 2 hours Credit: 2</p>

HIM 114 First Year Spring Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Medical Terminology and Disease Process I & II		
	<ol style="list-style-type: none"> 1. Apply medical terminology to understanding patient health records 2. Demonstrated understanding of basic human organ system nomenclature and related pathophysiology 3. Identify and use of practical application of root words prefixes, suffixes and technical terms as they relate to causes and treatment of disease process 4. Identify the pathogenesis, clinical manifestations and therapeutic modalities as they relate to disease of each body system. 	<ul style="list-style-type: none"> • Definition of medical terms used in reference to each organ system and specialty • Correct spelling of medical terms • Identification of acceptable abbreviations used in referring to each organ system and specialty • Identify selected anatomy and physiology of each system • Comprehend selected drugs highlighted that relate to each system and disease • Describe diagnostic and laboratory test related to each system <p>*Requirements and Prerequisites: None Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 150 First Year – Spring Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Health Records Management		
	<ol style="list-style-type: none"> 1. Collect and maintain health data (such as data elements, data sets and databases). 2. Conduct analysis to ensure that documentation in the health record supports the diagnosis and reflects the patient’s progress, clinical findings and discharge status. 3. Apply policies and procedures to ensure the accuracy of health data. 4. Verify timelines, completeness, accuracy and appropriateness of data and data sources for patient care, management, billing reports, registries and/or databases. 	<ul style="list-style-type: none"> • Data versus information • Health information media (such as paper, computer and web-based) • Structure and use of health information (individual, comparative and aggregate) • Health record data collection tools (forms, screens etc.) • Data sources (primary/secondary) • Data storage and retrieval • Healthcare data sets (such as OASIS, HEDIS, DEEDS and UHDDS) <p>*Requirements and Prerequisites: ENF 2 Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 230 First Year –Spring Semester – 2nd 8 weeks Credits: 3	Core Learning Objectives	Key Concepts
Title: Information Systems & Technology in Healthcare		
Data storage and retrieval and Data security	<ol style="list-style-type: none"> 1. Use appropriate electronic or imaging technology for data/record storage. 2. Query and generate reports to facilitate information retrieval using appropriate software. 3. Apply retention and destruction policies for health information. 1. Apply confidentiality and security measures to protect electronic health information. 2. Protect data integrity and validity using software or hardware technology. 3. Apply departmental and organizational data and information system security policies. 4. Use and summarize data compiled from audit trails and data quality monitoring programs. 	<ul style="list-style-type: none"> • Document archival and imaging systems • Maintenance and monitoring of data storage systems • System architecture and design • Screen design • Data retrieval and maintenance • Data security concepts • Data integrity concepts • Data integrity and security processes and monitoring <p>*Requirements and Prerequisites: ENF 2 Lecture: 2 hours Labs: 3 Hours Total: 3 hours Credit: 3</p>

HIM 253 First Year – Spring Semester Credits: 4	Core Learning Objectives	Key Concepts
Title: Health Records Coding		
	<ol style="list-style-type: none"> 1. Support accurate billing through coding, charge master, claims management and bill reconciliation processes. 2. Monitor and apply organization-wide health record documentation guidelines. 3. Apply classification standards to ensure coding compliance with regulations and standards. 4. Maintain the accuracy and completeness of the patient record as defined by HIM policy and external regulations and standards. 	<ul style="list-style-type: none"> • Type and content of health record (paper, electronic, computer-based) • Health record documentation requirements (such as accreditation, certification, licensure) • Data quality and integrity • ICD 10 CM Guidelines, Alphabetical Listing, Tabular <p>*Requirements and Prerequisites: ENF 2 Lecture: 3-4 hours Lab – 1-3 hours Total: 4 hours Credit: 4</p>

HIM 149 Second Year Fall Semester – 2nd 8 weeks Credits: 2	Core Learning Objectives	Key Concepts
Title: Introduction to Medical Practice		
	<ol style="list-style-type: none"> 1. Apply current laws, accreditation, licensure and certification standards related to health information initiatives from the national, state, local and facility levels. 2. Differentiate the roles of various providers and disciplines throughout the continuum of healthcare and respond to their information needs. 3. Examines office administration, patient scheduling, records management, financial systems/procedures. 	<ul style="list-style-type: none"> • Organization of healthcare delivery in the United States • Healthcare organizations structure, administration and operation • External standards, regulations and initiatives (such as licensure, certification, accreditation, HIPAA, ARRA) • Healthcare providers and disciplines <p>*Requirements and Prerequisites: ENF 2 Lecture 2hours Total: 2 hours Credit: 2</p>

HIM 251 Second Year Fall Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Clinical Experience I		
	<ol style="list-style-type: none"> 1. Construct Health Information Management resume, cover letter and develop interviewing skills. 2. Develop hands on practice skills for Electronic Health Record 3. Develop working knowledge of Master Patient Index – MPI 4. Develop hands on working knowledge of 3M encoder 5. Develop a working of Electronic Document Management System – EDMS 6. Speech Recognition 	<ul style="list-style-type: none"> • Cerner Academic EHR – registration, customization, chart tracking and deficiency management • Healthport eSmartlog – Release of Information • Quadramed MPI – Duplicates reporting, registering patients with Smart ID, Merging duplicates • Nuance Quantim Encoder, encoder references, assigning MS-DRG and POA designations, Quantim ICD 10 lab activity, Quantim physician query <p>*Requirements and Prerequisites: ENF 2 Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 151 Second Year – Fall Semester 1st 8 weeks Credits: 2	Core Learning Objectives	Key Concepts
Title: Reimbursement Issues in Medical Practice Management		
	<ol style="list-style-type: none"> 1. Apply policies and procedures for the use of clinical data required in reimbursement and prospective payment systems (PPS) in healthcare delivery. 2. Apply policies and procedures to comply with the changing regulations among various payment systems for healthcare services such as Medicare, Medicaid, managed care and so forth. 3. Support accurate billing through coding, chargemaster, claims management and bill reconciliation processes. 4. Use established guidelines to comply with reimbursement and reporting requirements such as the National Correct Coding Initiative. 5. Compile patient data and perform data quality reviews to validate code assignment and compliance with reporting requirements, such as outpatient prospective payment systems. 6. Ensure accuracy of diagnostic/procedural groupings such as DRG, APC and so on. 	<ul style="list-style-type: none"> • Commercial, managed care and federal insurance plans • Compliance strategies and reporting. • Payment methodologies and systems (such as capitation, prospective payment systems and RBRVS) • Billing processes and procedures (such as claims, EOB, ABN, electronic data interchange) • Charge master maintenance • Regulatory guidelines (NCDs and QIOs) • Reimbursing monitoring and reporting <p>*Requirements and Prerequisites: ENF 2 Lecture 2 hours Total: 2 hours Credit: 2</p>

HIM 254 Second Year – Fall Semester Credits: 3	Core Learning Objectives	Key Concepts
Title: Advanced Coding and Reimbursement Methods		
	<ol style="list-style-type: none"> 1. Support accurate billing through coding, charge master, claims management and bill reconciliation processes. 2. Monitor and apply organization-wide health record documentation guidelines. 3. Apply classification standards to ensure coding compliance with regulations and standards. 4. Maintain the accuracy and completeness of the patient record as defined by HIM policy and external regulations and standards. 	<ul style="list-style-type: none"> • Type and content of health record (paper, electronic, computer-based) • Health record documentation requirements (such as accreditation, certification, licensure) • Data quality and integrity • Integrated knowledge of CPT4, ICD 10CM and ICD 10PCS <p>*Requirements and Prerequisites: ENF 2 Lecture 3 hours Total: 3 hours Credit: 3</p>

HIM 249 Second Year – Fall Semester - 2nd 8 weeks Credits: 2	Core Learning Objectives	Key Concepts
Title: Supervision and Management Practices		
	<ol style="list-style-type: none"> 1. This course will reflect on the areas of Health Information Management that has been covered in other HIM courses and will focus on applying supervision and management principles. 2. Demonstrate and apply knowledge of cost benefit analysis techniques 3. How to manage organization-wide coding and revenue cycle process 4. Develop strategic and operational plans for facility-wide information systems 5. Demonstrate and apply principles of organizational behavior to facilitate team building, negotiation and change management 	<ul style="list-style-type: none"> • Health Data Management • Clinical Classification Systems and Reimbursement Methods • Healthcare Statistics • Quality Improvement • Healthcare Privacy, Confidentiality, Legal and Ethical Issues • Information Technology Systems • Management and Information Services • Project and Operations Management <p>*Requirements and Prerequisites: ENF 2 Lecture 2 hours Total: 2 hours Credit: 2</p>

HIM 220 Second Year – Spring Semester or Summer Semester Credits: 2	Core Learning Objectives	Key Concepts
Title: Health Statistics	<ol style="list-style-type: none"> 1. Collect, maintain and report data for clinical indices/databases/registries to meet specific organization needs such as medical research and disease registries. 2. Collect, organize and present data for quality management, utilization management, risk management and other related studies. 3. Comprehend basic descriptive, institutional and healthcare vital statistics. 	<ul style="list-style-type: none"> • Indices, databases and registries • Vital statistics • Healthcare statistics • Descriptive statistics (such as means, frequencies, ranges, percentiles and standard deviations) • Statistical applications with healthcare data • Data selection, interpretation and presentation • Knowledge-based research techniques (such as library, MEDLINE, web-based) <p>*Requirements and Prerequisites: ENF 2 and MTE 1,2 & 3 Lecture: 2 hours Total: 2 hours Credit: 2</p>

HIM 226 – Second Year – Spring Semester 1st 8 weeks Credits: 2	Core Learning Objectives	Key Concepts
Title: Legal Aspects of Health Record Documents		
	<ol style="list-style-type: none"> 1. Adhere to the legal and regulatory requirements related to the health information infrastructure. 2. Apply policies and procedures for access and disclosure of personal health information. 3. Release patient-specific data to authorized users. 4. Maintain user access logs/systems to track access to and disclosure of identifiable patient data. 5. Apply and promote ethical standards of practice. 	<ul style="list-style-type: none"> • Legislative and regulatory processes • Legal terminology • Health information/record laws and regulations (such as retention, patient rights/advocacy, advanced directives, privacy) • Confidentiality, privacy and security policies, procedures and monitoring • Release of information policies and procedures • Professional and practice related ethical issues <p>*Requirements and Prerequisites: ENF 2 Lecture: 2 hours Total: 2 hours Credit: 2</p>

HIM 229 Second Year – Spring Semester 2nd 8 weeks Credits: 2	Key Learning Objectives	Key Concepts
Title: Performance Improvement in Healthcare		
	<ol style="list-style-type: none"> 1. Abstract and report data for facility-wide quality management and performance improvement programs. 2. Analyze clinical data to identify trends that demonstrate quality, safety and effectiveness of healthcare. 	<ul style="list-style-type: none"> • Quality assessment and improvement (such as process, collection tools, data analysis, reporting techniques) • Utilization management, risk management and case management • Regulatory quality monitoring requirements • Outcomes measures and monitoring <p>*Requirements and Prerequisites: ENF 2 Lecture: 2 hours Total: 2 hours Credit: 2</p>

HIM 230 Second Year – Spring Semester 2nd 8 weeks Credits: 3	Key Learning Objectives	Key Concepts
Title: Electronic Health Records Management		
	<ol style="list-style-type: none"> 1. Manage EHR system lifecycle 2. Translating paper records to electronic medical records. 3. Understanding when a medical record is complete 4. Develops skills for HIM manager 5. Develop skills for HIM/EHR readiness 6. Analyze the impact of the electronic record health record on HIM functions 	<ul style="list-style-type: none"> • Introduction to EHR • Information Systems Theory and Systems Development Life Cycle • Challenges to EHR Adoption • EHR Project Management/EHR Implementation • Roles in Design, Development and Implementation • EHR Goal Setting and Impact on Quality Care • Healthcare workflow and process mapping • EHR selection and process mapping • Data Infrastructure <p>*Requirements and Prerequisites: ENF 2 Lecture: 3 hours Total: 3 hours Credit: 3</p>

HIM 252 Second Year – Spring Semester Credits: 3	Key Learning Objectives	Key Concepts
Title: Clinical Experience II	<ol style="list-style-type: none"> 1. Under the guidance of the HIM Project Director and the direct supervision of the internship host, the student will experience the real world of health information management. 2. The internship is project based and therefore is subject to be project specific to billing, EHR customization, scanning, registering birth or death certificates, release of information or patient registration or scheduling. 	<ul style="list-style-type: none"> • Students will select the site in which they would like to intern • Develop learning objectives • Classroom discussion of experience • Final report summarizing internship. <p>*Requirements and Prerequisites: ENF 2 Lecture: 3 hours Total: 3 hours Credit: 3</p>

HIM 280 Second Year – Spring Semester Credits: 1	Key Learning Objectives	Key Concepts
Title: Capstone	<ol style="list-style-type: none"> Integrates and applies knowledge and skills learned in prior HIM courses, focusing on those required to prepare for national certification in American Health Information Management Association's Domains, Subdomain and Tasks. 	<ul style="list-style-type: none"> AHIMA – RHIT preparation AAPC – CPC Certification NHA – CEHRS Certification <p>*Requirements and Prerequisites: ENF 2 Lecture: 1 hours Total: 1 hours Credit: 1</p>

Wisconsin

Southwest Technical College
Fennimore, WI

ONC Focus Area:

- Clinician/Practitioner Consultant
- Practice Workflow & Information Management Redesign Specialist

Health IT Certification:

- RHIT (pending)

Curriculum Resources:

- [Curriculum Outline](#)

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HRSA – Rural Health Information Technology Workforce Program
Southwest Technical College, Fennimore, WI
Darnell Hendricks, Primary Contact

Item 1 – Narrative Describing Change in Curriculum

Health Information Technology 2016 Program Design Summary—Southwest Technical College Southwest Health Network

Program Information

Organization Wisconsin Technical College System
Program Number 10-530

Description

This field is where healthcare meets the cutting edge of technology! Health Information Technicians are specialists in great demand! The HIM professionals can expect to be in high demand as the health sector expands into the century. In fact, the Bureau of Labor Statistics cites health information technology as one of the fastest growing occupations in the U.S. Health Information Technicians contribute to the quality of care by collecting, analyzing, and reporting health care data. This requires knowledge of disease, treatments, computer systems, and organizational skills.

Program Outcomes

- A. HIT: Manage health data
 - 1. Collect and maintain health data
 - 2. Apply policies and procedures to ensure accuracy, timeliness and completeness of health data in accordance with current regulations and standards
 - 3. Analyze and report health data
- B. HIT: Apply coding and reimbursement systems
 - 1. Assign ICD diagnosis and procedure codes using current regulations and established guidelines
 - 2. Assign CPT and HCPCS codes using current regulations and established guidelines
 - 3. Determine reimbursement for a variety of healthcare settings (e.g. MS-DRG, APC, RBRVS etc.)
 - 4. Monitor coding and revenue cycle processes
- C. HIT - Model professional behaviors and ethics
 - 1. Adhere to security, privacy, and confidentiality policies, laws and regulations in the execution of work processes
 - 2. Apply and promote ethical standards of practice
 - 3. Demonstrate reliability, dependability, and initiative
- D. HIT - Maintain electronic applications to manage health information
 - 1. Use common software applications in the execution of work processes
 - 2. Use specialized software in the completion of HIM processes

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Item 1 – Narrative Describing Change in Curriculum

- 3. Support implementation and use of the EHR
- 4. Design and query databases
- 5. Adhere to security measures to protect electronic health information
- E. HIT - Apply organizational management techniques
 - 1. Work cooperatively in a team environment
 - 2. Contribute to management functions such as training, staffing, performance monitoring, budgeting, planning
 - 3. Comply with accreditation, licensure, and certification standards

External Standards

Domain I.A.1. Apply diagnosis/procedure codes according to current guidelines
Domain I.A.2. Evaluate the accuracy of diagnostic and procedural coding
Domain I.A.3 Apply diagnostic/procedural groupings
Domain I.A.4. Evaluate the accuracy of diagnostic/procedural groupings
Domain I.B.1. Analyze the documentation in the health record to ensure it supports the diagnosis and reflects the patient’s progress, clinical findings, and discharge status
Domain I.B.2. Verify the documentation in the health record is timely, complete, and accurate
Domain I.B.3. Identify a complete health record according to, organizational policies, external regulations, and standards
Domain I.B.4. Differentiate the roles and responsibilities of various providers and disciplines, to support documentation requirements, throughout the continuum of healthcare
Domain 1.C.1 Apply policies and procedures to ensure the accuracy and integrity of health data
Domain 1.D.1 Collect and maintain health data
Domain 1.D. 2 Apply graphical tools for data presentations
Domain I.E.1. Identify and use secondary data sources
Domain I.E.2 Validate the reliability and accuracy of secondary data sources
Domain II.A.1. Apply healthcare legal terminology
Domain II.A.2. . Identify the use of legal documents
Domain II.A.3. Apply legal concepts and principles to the practice of HIM
Domain II.B.1. Apply confidentiality, privacy and security measures and policies and procedures for internal and external use and exchange to protect electronic health information
Domain II.B.2. Apply retention and destruction policies for health information
Domain II.B.3 Apply system security policies according to departmental and organizational data/information standards

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Domain II.C.1. Apply policies and procedures surrounding issues of access and disclosure of protected health information
Domain III.A.1. Utilize software in the completion of HIM processes
Domain III.A.2 Explain policies and procedures of networks, including intranet and Internet to facilitate clinical and administrative applications
Domain III.B.1. Explain the process used in the selection and implementation of health information management systems
Domain III.B.2 Utilize health information to support enterprise wide decision support for strategic planning
Domain III.C.1. Explain analytics and decision support
Domain III.C.2. Apply report generation technologies to facilitate decision-making
Domain III.D.1. Utilize basic descriptive, institutional, and healthcare statistics
Domain III.D.2. Analyze data to identify trends
Domain III.E.1. Explain common research methodologies and why they are used in healthcare
Domain III.F.1. Explain common research methodologies and why they are used in healthcare
Domain III.G.1 Explain current trends and future challenges in health information exchange
Domain III.H.1 Apply policies and procedures to ensure the accuracy and integrity of health data both internal and external to the health system
Domain IV.A.1. Apply policies and procedures for the use of data required in healthcare reimbursement
Domain IV.A.2. Evaluate the revenue cycle management processes
Domain V.A.1. Analyze policies and procedures to ensure organizational compliance with regulations and standards
Domain V.A.2. Collaborate with staff in preparing the organization for accreditation, licensure, and/or certification
Domain V.A.3. Adhere to the legal and regulatory requirements related to the health information management
Domain V.B.1. Analyze current regulations and established guidelines in clinical classification systems
Domain V.B.2. Determine accuracy of computer assisted coding assignment and recommend corrective action
Domain V.C.1. Identify potential abuse or fraudulent trends through data analysis
Domain V.D.1. Identify discrepancies between supporting documentation and coded data
Domain V.D.2 Develop appropriate physician queries to resolve data and coding discrepancies
Domain VI.A.1. Summarize health information related leadership roles
Domain VI.A.2. Apply the fundamentals of team leadership

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Domain VI.A.3. Organize and facilitate meetings
Domain VI.B.1. Recognize the impact of change management on processes, people and systems
Domain VI.C.1. Utilize tools and techniques to monitor, report, and improve processes
Domain VI.C.2. Identify cost-saving and efficient means of achieving work processes and goals
Domain VI.C.3. Utilize data for facility-wide outcomes reporting for quality management and performance improvement
Domain VI.D.1. Report staffing levels and productivity standards for health information functions
Domain VI.D.2. Interpret compliance with local, state, federal labor regulations
Domain VI.D.3. Adhere to work plans, policies, procedures, and resource requisitions in relation to job functions
Domain VI.E.1. Explain the methodology of training and development
Domain VI.E.2. Explain return on investment for employee training/development
Domain VI.F.1. Summarize a collection methodology for data to guide strategic and organizational management
Domain VI.F.2. Understand the importance of healthcare policy-making as it relates to the healthcare delivery system
Domain VI.F.3. Describe the differing types of organizations, services, and personnel and their interrelationships across the health care delivery system
Domain VI.F.4. Apply information and data strategies in support of information governance initiatives
Domain VI.F.5. Utilize enterprise-wide information assets in support of organizational strategies and objectives
Domain VI.G.1. Plan budgets
Domain VI.G.2. Explain accounting methodologies
Domain VI.G.3. Explain budget variances
Domain VI.H.1. Comply with ethical standards of practice
Domain VI.H.2. Evaluate the consequences of a breach of healthcare ethics
Domain VI.H.3. Assess how cultural issues affect health, healthcare quality, cost, and HIM
Domain VI.H.4. Create programs and policies that support a culture of diversity
Domain VI.I.1. Summarize project management methodologies
Domain VI.J.1. Explain Vendor/Contract Management
Domain VI.K.1. Apply knowledge of database architecture and design

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Item 1 – Narrative Describing Change in Curriculum

Course Configuration		
Course #	Course Title	Credits
10-530-199	ICD Procedure Coding	2
10-530-160	Healthcare Informatics	4
10-530-184	CPT Coding	3
10-530-161	Health Quality Management	3
10-530-176	Health Data Management	2
10-530-177	Healthcare Stats & Research	2
10-530-178	Healthcare Law & Ethics	2
10-530-181	Intro to the Health Record	1
10-530-182	Human Disease for the Health Professions	3
10-530-185	Healthcare Reimbursement	2
10-530-194	HIM Organizational Resources	2
10-530-195	Applied Coding	2
10-530-196	Professional Practice 1	3
10-530-197	ICD Diagnosis Coding	3
10-530-198	Professional Practice 2	3

Program Course Detail

Course A -- ICD Procedure Coding

Course Number 10-530-199

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Credits	2
Course Description	Prepares students to assign ICD procedure codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD procedure codes to case studies and actual medical record documentation.
Linked Program Outcomes	A. HIT: Manage health data B. HIT: Apply coding and reimbursement systems C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information

Course B -- Healthcare Informatics

Course Number	10-530-160
Credits	4
Course Description	Emphasizes the role of information technology in healthcare through an investigation of the electronic health record (EHR), business, and health information software applications. Learners will develop skills to assist in information systems design and implementation.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

Course C -- CPT Coding

Course Number	10-530-184
Credits	3
Course Description	Prepares learners to assign CPT codes, supported by medical documentation, with entry level proficiency. Learners apply CPT instructional notations, conventions, rules, and official coding guidelines when assigning CPT codes to case studies and actual medical record documentation.
Linked Program Outcomes	A. HIT: Manage health data B. HIT: Apply coding and reimbursement systems C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information

Course D -- Health Quality Management

Course Number	10-530-161
Credits	3
Course Description	Explores the programs and processes used to manage and improve healthcare quality. Addresses regulatory requirements as related to

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performance measurement, assessment, and improvement, required monitoring activities, risk management and patient safety, utilization management, and medical staff credentialing. Emphasizes the use of critical thinking and data analysis skills in the management and reporting of data.

Linked Program Outcomes

- A. HIT: Manage health data
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques
- C. HIT - Model professional behaviors and ethics

Course E -- Health Data Management

Course Number 530-176

Credits 2

Course Description Introduces the use and structure of health care data elements, data sets, data standards, their relationships to primary and secondary record systems and health information processing.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques

Course F -- Healthcare Stats & Research

Course Number 10-530-177

Credits 2

Course Description Explores the management of medical data for statistical purposes. Focuses on descriptive statistics, including definitions, collection, calculation, compilation, and display of numerical data. Vital statistics, registries, and research are examined.

Linked Program Outcomes

- A. HIT: Manage health data
- D. HIT - Maintain electronic applications to manage health information
- C. HIT - Model professional behaviors and ethics

Course G -- Healthcare Law & Ethics

Course Number 10-530-178

Credits 2

Course Description Examines regulations for the content, use, confidentiality, disclosure, and retention of health information. An overview of the legal system and ethical issues are addressed.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

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information
E. HIT - Apply organizational management techniques

Course H -- Intro to the Health Record

Course Number 10-530-181
Credits 1
Course Description Prepares learners to illustrate the flow of health information in various health care delivery systems and within the health information department. Prepares learners to retrieve data from health records. Professional ethics, confidentiality and security of information are emphasized.
Linked Program Outcomes
A. HIT: Manage health data
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course I -- Human Disease for the Health Professions

Course Number 10-530-182
Credits 3
Course Description Prepares learners to interpret clinical documentation that they will encounter in a variety of healthcare settings. Emphasis is placed on understanding the common disorders and diseases of each body system to include the etiology (cause), signs and symptoms, diagnostic tests and results, and medical treatments and surgical procedures.
Linked Program Outcomes B. HIT: Apply coding and reimbursement systems

Course J -- Healthcare Reimbursement

Course Number 10-530-185
Credits 2
Course Description Prepares learners to compare and contrast health care payers, illustrate the reimbursement cycle, and to comply with regulations related to fraud and abuse. learners assign Diagnosis Related Groups (DRGs), Ambulatory Payment Classifications (APCs) and Resource Utilization Groups (RUGs) with entry-level proficiency using computerized encoding and grouping software.
Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course K -- HIM Organizational Resources

Course Number 10-530-194

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Credits 2
Course Description Examines the principles of management to include planning, organizing, human resource management, directing, and controlling as related to the health information department.
Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information
E. HIT - Apply organizational management techniques

Course L -- Applied Coding

Course Number 10-530-195
Credits 2
Course Description Prepares students to assign ICD and CPT/HCPCS codes supported by medical documentation with intermediate level of proficiency. Students will prepare appropriate physician queries in accordance with compliance guidelines and will assign codes to optimize appropriate reimbursement.
Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
D. HIT - Maintain electronic applications to manage health information

Course M -- Professional Practice 1

Course Number 10-530-196
Credits 3
Course Description Applies previously acquired skills and knowledge by means of clinical experiences in the technical procedures of health record systems and discussion of clinical situations. This is the first of a two-semester sequence of supervised clinical experiences in health care facilities.
Linked Program Outcomes
A. HIT: Manage health data
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course N -- ICD Diagnosis Coding

Course Number 10-530-197
Credits 3
Course Description Prepares students to assign ICD diagnosis codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD diagnosis codes to case studies and

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HRSA – Rural Health Information Technology Workforce Program
Southwest Technical College, Fennimore, WI
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Item 1 – Narrative Describing Change in Curriculum

Linked Program Outcomes actual medical record documentation.
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course O -- Professional Practice 2

Course Number 10-530-198

Credits 3

Course Description Applies previously acquired skills and knowledge and discussion of clinical situations. Prepares for the certification examination and pre-graduation activities. This is the second of a two-semester sequence of supervised technical and managerial clinical experiences in health care facilities.

Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information
E. HIT - Apply organizational management techniques

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HRSA – Rural Health Information Technology Workforce Program
Southwest Technical College, Fennimore, WI
Darnell Hendricks, Primary Contact

Item 2 – Current Curriculum

Health Information Technology 2016 Program Design Summary—Southwest Technical College Southwest Health Network

Program Information

Organization Wisconsin Technical College System
Program Number 10-530

Program Outcomes

- A. HIT: Manage health data
 - 1. Collect and maintain health data
 - 2. Apply policies and procedures to ensure accuracy, timeliness and completeness of health data in accordance with current regulations and standards
 - 3. Analyze and report health data
- B. HIT: Apply coding and reimbursement systems
 - 1. Assign ICD diagnosis and procedure codes using current regulations and established guidelines
 - 2. Assign CPT and HCPCS codes using current regulations and established guidelines
 - 3. Determine reimbursement for a variety of healthcare settings (e.g. MS-DRG, APC, RBRVS etc.)
 - 4. Monitor coding and revenue cycle processes
- C. HIT - Model professional behaviors and ethics
 - 1. Adhere to security, privacy, and confidentiality policies, laws and regulations in the execution of work processes
 - 2. Apply and promote ethical standards of practice
 - 3. Demonstrate reliability, dependability, and initiative
- D. HIT - Maintain electronic applications to manage health information
 - 1. Use common software applications in the execution of work processes
 - 2. Use specialized software in the completion of HIM processes
 - 3. Support implementation and use of the EHR
 - 4. Design and query databases
 - 5. Adhere to security measures to protect electronic health information
- E. HIT - Apply organizational management techniques
 - 1. Work cooperatively in a team environment
 - 2. Contribute to management functions such as training, staffing, performance monitoring, budgeting, planning
 - 3. Comply with accreditation, licensure, and certification standards

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 HRSA – Rural Health Information Technology Workforce Program
 Southwest Technical College, Fennimore, WI
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Item 2 – Current Curriculum

External Standards

Domain I.A.1. Apply diagnosis/procedure codes according to current guidelines
Domain I.A.2. Evaluate the accuracy of diagnostic and procedural coding
Domain I.A.3 Apply diagnostic/procedural groupings
Domain I.A.4. Evaluate the accuracy of diagnostic/procedural groupings
Domain I.B.1. Analyze the documentation in the health record to ensure it supports the diagnosis and reflects the patient's progress, clinical findings, and discharge status
Domain I.B.2. Verify the documentation in the health record is timely, complete, and accurate
Domain I.B.3. Identify a complete health record according to, organizational policies, external regulations, and standards
Domain I.B.4. Differentiate the roles and responsibilities of various providers and disciplines, to support documentation requirements, throughout the continuum of healthcare
Domain 1.C.1 Apply policies and procedures to ensure the accuracy and integrity of health data
Domain 1.D.1 Collect and maintain health data
Domain 1.D. 2 Apply graphical tools for data presentations
Domain I.E.1. Identify and use secondary data sources
Domain I.E.2 Validate the reliability and accuracy of secondary data sources
Domain II.A.1. Apply healthcare legal terminology
Domain II.A.2. . Identify the use of legal documents
Domain II.A.3. Apply legal concepts and principles to the practice of HIM
Domain II.B.1. Apply confidentiality, privacy and security measures and policies and procedures for internal and external use and exchange to protect electronic health information
Domain II.B.2. Apply retention and destruction policies for health information
Domain II.B.3 Apply system security policies according to departmental and organizational data/information standards
Domain II.C.1. Apply policies and procedures surrounding issues of access and disclosure of protected health information
Domain III.A.1. Utilize software in the completion of HIM processes
Domain III.A.2 Explain policies and procedures of networks, including intranet and Internet to facilitate clinical and administrative applications
Domain III.B.1. Explain the process used in the selection and implementation of health information management systems
Domain III.B.2 Utilize health information to support enterprise wide decision support

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for strategic planning
Domain III.C.1. Explain analytics and decision support
Domain III.C.2. Apply report generation technologies to facilitate decision-making
Domain III.D.1. Utilize basic descriptive, institutional, and healthcare statistics
Domain III.D.2. Analyze data to identify trends
Domain III.E.1. Explain common research methodologies and why they are used in healthcare
Domain III.F.1. Explain common research methodologies and why they are used in healthcare
Domain III.G.1 Explain current trends and future challenges in health information exchange
Domain III.H.1 Apply policies and procedures to ensure the accuracy and integrity of health data both internal and external to the health system
Domain IV.A.1. Apply policies and procedures for the use of data required in healthcare reimbursement
Domain IV.A.2. Evaluate the revenue cycle management processes
Domain V.A.1. Analyze policies and procedures to ensure organizational compliance with regulations and standards
Domain V.A.2. Collaborate with staff in preparing the organization for accreditation, licensure, and/or certification
Domain V.A.3. Adhere to the legal and regulatory requirements related to the health information management
Domain V.B.1. Analyze current regulations and established guidelines in clinical classification systems
Domain V.B.2. Determine accuracy of computer assisted coding assignment and recommend corrective action
Domain V.C.1. Identify potential abuse or fraudulent trends through data analysis
Domain V.D.1. Identify discrepancies between supporting documentation and coded data
Domain V.D.2 Develop appropriate physician queries to resolve data and coding discrepancies
Domain VI.A.1. Summarize health information related leadership roles
Domain VI.A.2. Apply the fundamentals of team leadership
Domain VI.A.3. Organize and facilitate meetings
Domain VI.B.1. Recognize the impact of change management on processes, people and systems
Domain VI.C.1. Utilize tools and techniques to monitor, report, and improve processes
Domain VI.C.2. Identify cost-saving and efficient means of achieving work processes and goals
Domain VI.C.3. Utilize data for facility-wide outcomes reporting for quality

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management and performance improvement
Domain VI.D.1. Report staffing levels and productivity standards for health information functions
Domain VI.D.2. Interpret compliance with local, state, federal labor regulations
Domain VI.D.3. Adhere to work plans, policies, procedures, and resource requisitions in relation to job functions
Domain VI.E.1. Explain the methodology of training and development
Domain VI.E.2. Explain return on investment for employee training/development
Domain VI.F.1. Summarize a collection methodology for data to guide strategic and organizational management
Domain VI.F.2. Understand the importance of healthcare policy-making as it relates to the healthcare delivery system
Domain VI.F.3. Describe the differing types of organizations, services, and personnel and their interrelationships across the health care delivery system
Domain VI.F.4. Apply information and data strategies in support of information governance initiatives
Domain VI.F.5. Utilize enterprise-wide information assets in support of organizational strategies and objectives
Domain VI.G.1. Plan budgets
Domain VI.G.2. Explain accounting methodologies
Domain VI.G.3. Explain budget variances
Domain VI.H.1. Comply with ethical standards of practice
Domain VI.H.2. Evaluate the consequences of a breach of healthcare ethics
Domain VI.H.3. Assess how cultural issues affect health, healthcare quality, cost, and HIM
Domain VI.H.4. Create programs and policies that support a culture of diversity
Domain VI.I.1. Summarize project management methodologies
Domain VI.J.1. Explain Vendor/Contract Management
Domain VI.K.1. Apply knowledge of database architecture and design

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Course Configuration		
Course #	Course Title	Credits
10-530-199	ICD Procedure Coding	2
10-530-160	Healthcare Informatics	4
10-530-184	CPT Coding	3
10-530-161	Health Quality Management	3
10-530-176	Health Data Management	2
10-530-177	Healthcare Stats & Research	2
10-530-178	Healthcare Law & Ethics	2
10-530-181	Intro to the Health Record	1
10-530-182	Human Disease for the Health Professions	3
10-530-185	Healthcare Reimbursement	2
10-530-194	HIM Organizational Resources	2
10-530-195	Applied Coding	2
10-530-196	Professional Practice 1	3
10-530-197	ICD Diagnosis Coding	3
10-530-198	Professional Practice 2	3

Program Course Detail

Course A -- ICD Procedure Coding

Course Number 10-530-199

Credits 2

Course Description Prepares students to assign ICD procedure codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD procedure codes to case studies and actual medical record documentation.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics

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D. HIT - Maintain electronic applications to manage health information

Course B -- Healthcare Informatics

Course Number 10-530-160

Credits 4

Course Description Emphasizes the role of information technology in healthcare through an investigation of the electronic health record (EHR), business, and health information software applications. Learners will develop skills to assist in information systems design and implementation.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques

Course C -- CPT Coding

Course Number 10-530-184

Credits 3

Course Description Prepares learners to assign CPT codes, supported by medical documentation, with entry level proficiency. Learners apply CPT instructional notations, conventions, rules, and official coding guidelines when assigning CPT codes to case studies and actual medical record documentation.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

Course D -- Health Quality Management

Course Number 10-530-161

Credits 3

Course Description Explores the programs and processes used to manage and improve healthcare quality. Addresses regulatory requirements as related to performance measurement, assessment, and improvement, required monitoring activities, risk management and patient safety, utilization management, and medical staff credentialing. Emphasizes the use of critical thinking and data analysis skills in the management and reporting of data.

Linked Program Outcomes

- A. HIT: Manage health data
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques
- C. HIT - Model professional behaviors and ethics

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Course E -- Health Data Management

Course Number	530-176
Credits	2
Course Description	Introduces the use and structure of health care data elements, data sets, data standards, their relationships to primary and secondary record systems and health information processing.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

Course F -- Healthcare Stats & Research

Course Number	10-530-177
Credits	2
Course Description	Explores the management of medical data for statistical purposes. Focuses on descriptive statistics, including definitions, collection, calculation, compilation, and display of numerical data. Vital statistics, registries, and research are examined.
Linked Program Outcomes	A. HIT: Manage health data D. HIT - Maintain electronic applications to manage health information C. HIT - Model professional behaviors and ethics

Course G -- Healthcare Law & Ethics

Course Number	10-530-178
Credits	2
Course Description	Examines regulations for the content, use, confidentiality, disclosure, and retention of health information. An overview of the legal system and ethical issues are addressed.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

Course H -- Intro to the Health Record

Course Number	10-530-181
Credits	1
Course Description	Prepares learners to illustrate the flow of health information in various health care delivery systems and within the health information department. Prepares learners to retrieve data from

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health records. Professional ethics, confidentiality and security of information are emphasized.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

Course I -- Human Disease for the Health Professions

Course Number 10-530-182

Credits 3

Course Description Prepares learners to interpret clinical documentation that they will encounter in a variety of healthcare settings. Emphasis is placed on understanding the common disorders and diseases of each body system to include the etiology (cause), signs and symptoms, diagnostic tests and results, and medical treatments and surgical procedures.

Linked Program Outcomes

- B. HIT: Apply coding and reimbursement systems

Course J -- Healthcare Reimbursement

Course Number 10-530-185

Credits 2

Course Description Prepares learners to compare and contrast health care payers, illustrate the reimbursement cycle, and to comply with regulations related to fraud and abuse. learners assign Diagnosis Related Groups (DRGs), Ambulatory Payment Classifications (APCs) and Resource Utilization Groups (RUGs) with entry-level proficiency using computerized encoding and grouping software.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

Course K -- HIM Organizational Resources

Course Number 10-530-194

Credits 2

Course Description Examines the principles of management to include planning, organizing, human resource management, directing, and controlling as related to the health information department.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

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E. HIT - Apply organizational management techniques

Course L -- Applied Coding

Course Number 10-530-195

Credits 2

Course Description Prepares students to assign ICD and CPT/HCPCS codes supported by medical documentation with intermediate level of proficiency. Students will prepare appropriate physician queries in accordance with compliance guidelines and will assign codes to optimize appropriate reimbursement.

Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
D. HIT - Maintain electronic applications to manage health information

Course M -- Professional Practice 1

Course Number 10-530-196

Credits 3

Course Description Applies previously acquired skills and knowledge by means of clinical experiences in the technical procedures of health record systems and discussion of clinical situations. This is the first of a two-semester sequence of supervised clinical experiences in health care facilities.

Linked Program Outcomes
A. HIT: Manage health data
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course N -- ICD Diagnosis Coding

Course Number 10-530-197

Credits 3

Course Description Prepares students to assign ICD diagnosis codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD diagnosis codes to case studies and actual medical record documentation.

Linked Program Outcomes
A. HIT: Manage health data
B. HIT: Apply coding and reimbursement systems
C. HIT - Model professional behaviors and ethics
D. HIT - Maintain electronic applications to manage health information

Course O -- Professional Practice 2

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Credits	3
Course Description	Applies previously acquired skills and knowledge and discussion of clinical situations. Prepares for the certification examination and pre-graduation activities. This is the second of a two-semester sequence of supervised technical and managerial clinical experiences in health care facilities.
Linked Program Outcomes	A. HIT: Manage health data B. HIT: Apply coding and reimbursement systems C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

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Appendix A

Health Information Technology 2011 Program Design Summary—Southwest Technical College

Southwest Health Network

Program Information

Organization	Wisconsin Technical College System
Program Number	10-530
Program Manager	Kathy Loppnow kathy.loppnow@wtcsystem.org
Last Revision Date	3/1/2011

Description

This field is where healthcare meets the cutting edge of technology! Health Information Technicians are specialists in great demand! The HIM professionals can expect to be in high demand as the health sector expands into the century. In fact, the Bureau of Labor Statistics cites health information technology as one of the fastest growing occupations in the U.S. Health Information Technicians contribute to the quality of care by collecting, analyzing, and reporting health care data. This requires knowledge of disease, treatments, computer systems, and organizational skills.

Program Outcomes

- A. HIT: Manage health data
 - 1. Collect and maintain health data
 - 2. Apply policies and procedures to ensure accuracy, timeliness and completeness of health data in accordance with current regulations and standards
 - 3. Analyze and report health data
- B. HIT: Apply coding and reimbursement systems
 - 1. Assign ICD diagnosis and procedure codes using current regulations and established guidelines
 - 2. Assign CPT and HCPCS codes using current regulations and established guidelines
 - 3. Determine reimbursement for a variety of healthcare settings (e.g. MS-DRG, APC, RBRVS etc.)
 - 4. Monitor coding and revenue cycle processes
- C. HIT - Model professional behaviors and ethics
 - 1. Adhere to security, privacy, and confidentiality policies, laws and regulations in the execution of work processes
 - 2. Apply and promote ethical standards of practice
 - 3. Demonstrate reliability, dependability, and initiative
- D. HIT - Maintain electronic applications to manage health information
 - 1. Use common software applications in the execution of work processes
 - 2. Use specialized software in the completion of HIM processes

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3. Support implementation and use of the EHR
 4. Design and query databases
 5. Adhere to security measures to protect electronic health information
- E. HIT - Apply organizational management techniques
1. Work cooperatively in a team environment
 2. Contribute to management functions such as training, staffing, performance monitoring, budgeting, planning
 3. Comply with accreditation, licensure, and certification standards

External Standards

Domain I.A.1. Collect and maintain health data (such as data elements, data sets, and databases). (Domain: Health Data Management; Subdomain: Health Data Structure, Content and Standards)

Domain I.A.2. Conduct analysis to ensure that documentation in the health record supports the diagnosis and reflects the patient's progress, clinical findings, and discharge status. (Domain: Health Data Management; Subdomain: Health Data Structure, Content and Standards)

Domain I.A.3. Apply policies and procedures to ensure the accuracy of health data. (Domain: Health Data Management; Subdomain: Health Data Structure, Content and Standards)

Domain I.A.4. Verify timeliness, completeness, accuracy, and appropriateness of data and data sources for patient care, management, billing reports, registries, and/or databases. (Domain: Health Data Management; Subdomain: Health Data Structure, Content and Standards)

Domain I.B.1. Monitor and apply organization-wide health record documentation guidelines. (Domain: Health Data Management; Subdomain: Healthcare Information Requirements and Standards)

Domain I.B.2. Apply policies and procedures to ensure organizational compliance with regulations and standards. (Domain: Health Data Management; Subdomain: Healthcare Information Requirements and Standards)

Domain I.B.3. Maintain the accuracy and completeness of the patient record as defined by organizational policy and external regulations and standards. (Domain: Health Data Management; Subdomain: Healthcare Information Requirements and Standards)

Domain I.B.4. Assist in preparing the organization for accreditation, licensing, and/or certification surveys. (Domain: Health Data Management; Subdomain: Healthcare Information Requirements and Standards)

Domain I.C.1. Use and maintain electronic applications and work processes to support clinical classification and coding. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.C.2. Apply diagnosis/procedure codes according to current nomenclature. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.C.3. Ensure accuracy of diagnostic/procedural groupings such as DRG, MS DRG, APC, and so on. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.C.4. Adhere to current regulations and established guidelines in code assignment. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.C.5. Validate coding accuracy using clinical information found in the health record. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.C.6. Use and maintain applications and processes to support other clinical classification and nomenclature systems (ex. DSM IV, SNOMED-CT) . (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

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Domain I.C.7. Resolve discrepancies between coded data and supporting documentation. (Domain: Health Data Management; Subdomain: Clinical Classification Systems)

Domain I.D.1. Apply policies and procedures for the use of clinical data required in reimbursement and prospective payment systems (PPS) in healthcare delivery. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain I.D.2. Apply policies and procedures to comply with the changing regulations among various payment systems for healthcare services such as Medicare, Medicaid, managed care, and so forth. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain I.D.3. Support accurate billing through coding, chargemaster, claims management, and bill reconciliation processes. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain I.D.4. Use established guidelines to comply with reimbursement and reporting requirements such as the National Correct Coding Initiative. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain I.D.5. Compile patient data and perform data quality reviews to validate code assignment and compliance with reporting requirements such as outpatient prospective payment systems. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain I.D.6. Ensure accuracy of diagnostic/procedural groupings such as DRG, APC and so on. (Domain: Health Data Management; Subdomain: Reimbursement Methodologies)

Domain II.A.1. Collect, maintain and report data for clinical indices/databases/registries to meet specific organization needs such as medical research and disease registries. (Domain: Health Statistics, Biomedical Research and Quality Management; Subdomain: Healthcare Statistics and Research)

Domain II.A.2. Collect, organize and present data for quality management, utilization management, risk management, and other related studies. (Domain: Health Statistics, Biomedical Research and Quality Management; Subdomain: Healthcare Statistics and Research)

Domain II.A.3. Comprehend basic descriptive, institutional and healthcare vital statistics. (Domain: Health Statistics, Biomedical Research and Quality Management; Subdomain: Healthcare Statistics and Research)

Domain II.B.1. Abstract and report data for facility-wide quality management and performance improvement programs. (Domain: Health Statistics, Biomedical Research and Quality Management; Subdomain: Quality Management and Performance Improvement)

Domain II.B.2. Analyze clinical data to identify trends that demonstrate quality, safety, and effectiveness of healthcare. (Domain: Health Statistics, Biomedical Research and Quality Management; Subdomain: Quality Management and Performance Improvement)

Domain III.A.1. Apply current laws, accreditation, licensure, and certification standards related to health information initiatives from the national, state, local and facility levels. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Delivery Systems)

Domain III.A.2. Differentiate the roles of various providers and disciplines throughout the continuum of healthcare and respond to their information needs. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Delivery Systems)

Domain III.B.1. Adhere to the legal and regulatory requirements related to the health information infrastructure. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Privacy, Confidentiality, Legal, and Ethical Issues)

Domain III.B.2. Apply policies and procedures for access and disclosure of personal health information. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Privacy, Confidentiality, Legal, and Ethical Issues)

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Domain III.B.3. Release patient-specific data to authorized users. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Privacy, Confidentiality, Legal, and Ethical Issues)

Domain III.B.4. Maintain user access logs/systems to track access to and disclosure of identifiable patient data. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Privacy, Confidentiality, Legal, and Ethical Issues)

Domain III.B.5. Apply and promote ethical standards of practice. (Domain: Health Services Organization and Delivery; Subdomain: Healthcare Privacy, Confidentiality, Legal, and Ethical Issues)

Domain IV.A.1. Use technology, including hardware and software, to ensure data collection, storage, analysis, and reporting of information. (Domain: Information Technology & Systems; Subdomain: Information and Communication Technologies)

Domain IV.A.2. Use common software applications such as spreadsheets, databases, word processing, graphics, presentation, e-mail, and so on in the execution of work processes. (Domain: Information Technology & Systems; Subdomain: Information and Communication Technologies)

Domain IV.A.3. Use specialized software in the completion of HIM processes such as record tracking, release of information, coding, grouping, registries, billing, quality improvement, and imaging. (Domain: Information Technology & Systems; Subdomain: Information and Communication Technologies)

Domain IV.A.4. Apply policies and procedures to the use of networks, including intranet and Internet applications to facilitate the electronic health record (EHR), personal health record (PHR), public health, and other administrative applications. (Domain: Information Technology & Systems; Subdomain: Information and Communication Technologies)

Domain IV.A.5. Participate in the planning, design, selection, implementation, integration, testing, evaluation, and support for EHRs. (Domain: Information Technology & Systems; Subdomain: Information and Communication Technologies)

Domain IV.B.1. Apply knowledge of database architecture and design (such as data dictionary) to meet departmental needs. (Domain: Information Technology & Systems; Subdomain: Data, Information, and File Structures)

Domain IV.C.1. Use appropriate electronic or imaging technology for data/record storage. (Domain: Information Technology & Systems; Subdomain: Data Storage and Retrieval)

Domain IV.C.2. Query and generate reports to facilitate information retrieval using appropriate software. (Domain: Information Technology & Systems; Subdomain: Data Storage and Retrieval)

Domain IV.C.3. Apply retention and destruction policies for health information. (Domain: Information Technology & Systems; Subdomain: Data Storage and Retrieval)

Domain IV.D.1. Apply confidentiality and security measures to protect electronic health information. (Domain: Information Technology & Systems; Subdomain: Data Security)

Domain IV.D.2. Protect data integrity and validity using software or hardware technology. (Domain: Information Technology & Systems; Subdomain: Data Security)

Domain IV.D.3. Apply departmental and organizational data and information system security policies. (Domain: Information Technology & Systems; Subdomain: Data Security)

Domain IV.D.4. Use and summarize data compiled from audit trails and data quality monitoring programs. (Domain: Information Technology & Systems; Subdomain: Data Security)

Domain V.A.1. Apply the fundamentals of team leadership. (Domain: Organizational Resources; Subdomain: Human Resources)

Domain V.A.2. Participate in and work in teams and committees. (Domain: Organizational Resources; Subdomain: Human Resources)

Domain V.A.3. Conduct orientation and training programs. (Domain: Organizational Resources;

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Subdomain: Human Resources)

Domain V.A.4. Monitor and report staffing levels and productivity standards for health information functions. (Domain: Organizational Resources; Subdomain: Human Resources)

Domain V.A.5. Use tools and techniques to monitor, report and improve processes. (Domain: Organizational Resources; Subdomain: Human Resources)

Domain V.A.6. Comply with local, state and federal labor regulations. (Domain: Organizational Resources; Subdomain: Human Resources)

Domain V.B.1. Make recommendations for items to include in budgets and contracts. (Domain: Organization and Management; Subdomain: Financial and Resource Management)

Domain V.B.2. Monitor and order supplies needed for work processes. (Domain: Organization and Management; Subdomain: Financial and Resource Management)

Domain V.B.3. Monitor coding and revenue cycle processes. (Domain: Organization and Management; Subdomain: Financial and Resource Management)

Domain V.B.4. Recommend cost-saving and efficient means of achieving work processes and goals. (Domain: Organization and Management; Subdomain: Financial and Resource Management)

Domain V.B.5. Contribute to work plans, policies, procedures, and resource requisitions in relation to job functions. (Domain: Organization and Management; Subdomain: Financial and Resource Management)

Course Configuration		
Course #	Course Title	Credits
10-530-199	ICD Procedure Coding	2
10-530-160	Healthcare Informatics	4
10-530-184	CPT Coding	3
10-530-161	Health Quality Management	3
530-176	Health Data Management	2
10-530-177	Healthcare Stats & Research	2
10-530-178	Healthcare Law & Ethics	2
10-530-181	Intro to the Health Record	1
10-530-182	Human Disease for the Health Professions	3
10-530-185	Healthcare Reimbursement	2
10-530-194	HIM Organizational Resources	2
10-530-195	Applied Coding	2
10-530-196	Professional Practice 1	3
10-530-197	ICD Diagnosis Coding	3
10-530-198	Professional Practice 2	3

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Appendix A

Program Course Detail

Course A -- ICD Procedure Coding

Course Number 10-530-199

Credits 2

Course Description Prepares students to assign ICD procedure codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD procedure codes to case studies and actual medical record documentation.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

Course B -- Healthcare Informatics

Course Number 10-530-160

Credits 4

Course Description Emphasizes the role of information technology in healthcare through an investigation of the electronic health record (EHR), business, and health information software applications. Learners will develop skills to assist in information systems design and implementation.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques

Course C -- CPT Coding

Course Number 10-530-184

Credits 3

Course Description Prepares learners to assign CPT codes, supported by medical documentation, with entry level proficiency. Learners apply CPT instructional notations, conventions, rules, and official coding guidelines when assigning CPT codes to case studies and actual medical record documentation.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

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Course D -- Health Quality Management

Course Number	10-530-161
Credits	3
Course Description	Explores the programs and processes used to manage and improve healthcare quality. Addresses regulatory requirements as related to performance measurement, assessment, and improvement, required monitoring activities, risk management and patient safety, utilization management, and medical staff credentialing. Emphasizes the use of critical thinking and data analysis skills in the management and reporting of data.
Linked Program Outcomes	A. HIT: Manage health data D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques C. HIT - Model professional behaviors and ethics

Course E -- Health Data Management

Course Number	530-176
Credits	2
Course Description	Introduces the use and structure of health care data elements, data sets, data standards, their relationships to primary and secondary record systems and health information processing.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

Course F -- Healthcare Stats & Research

Course Number	10-530-177
Credits	2
Course Description	Explores the management of medical data for statistical purposes. Focuses on descriptive statistics, including definitions, collection, calculation, compilation, and display of numerical data. Vital statistics, registries, and research are examined.
Linked Program Outcomes	A. HIT: Manage health data D. HIT - Maintain electronic applications to manage health information C. HIT - Model professional behaviors and ethics

Course G -- Healthcare Law & Ethics

Course Number	10-530-178
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Credits	2
Course Description	Examines regulations for the content, use, confidentiality, disclosure, and retention of health information. An overview of the legal system and ethical issues are addressed.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques

Course H -- Intro to the Health Record

Course Number	10-530-181
Credits	1
Course Description	Prepares learners to illustrate the flow of health information in various health care delivery systems and within the health information department. Prepares learners to retrieve data from health records. Professional ethics, confidentiality and security of information are emphasized.
Linked Program Outcomes	A. HIT: Manage health data C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information

Course I -- Human Disease for the Health Professions

Course Number	10-530-182
Credits	3
Course Description	Prepares learners to interpret clinical documentation that they will encounter in a variety of healthcare settings. Emphasis is placed on understanding the common disorders and diseases of each body system to include the etiology (cause), signs and symptoms, diagnostic tests and results, and medical treatments and surgical procedures.
Linked Program Outcomes	B. HIT: Apply coding and reimbursement systems

Course J -- Healthcare Reimbursement

Course Number	10-530-185
Credits	2
Course Description	Prepares learners to compare and contrast health care payers, illustrate the reimbursement cycle, and to comply with regulations related to fraud and abuse. learners assign Diagnosis Related Groups (DRGs), Ambulatory Payment Classifications (APCs) and Resource Utilization Groups (RUGs) with entry-level proficiency using computerized encoding and grouping software.
Linked Program Outcomes	A. HIT: Manage health data

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- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

Course K -- HIM Organizational Resources

Course Number 10-530-194

Credits 2

Course Description Examines the principles of management to include planning, organizing, human resource management, directing, and controlling as related to the health information department.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information
- E. HIT - Apply organizational management techniques

Course L -- Applied Coding

Course Number 10-530-195

Credits 2

Course Description Prepares students to assign ICD and CPT/HCPSCS codes supported by medical documentation with intermediate level of proficiency. Students will prepare appropriate physician queries in accordance with compliance guidelines and will assign codes to optimize appropriate reimbursement.

Linked Program Outcomes

- A. HIT: Manage health data
- B. HIT: Apply coding and reimbursement systems
- D. HIT - Maintain electronic applications to manage health information

Course M -- Professional Practice 1

Course Number 10-530-196

Credits 3

Course Description Applies previously acquired skills and knowledge by means of clinical experiences in the technical procedures of health record systems and discussion of clinical situations. This is the first of a two-semester sequence of supervised clinical experiences in health care facilities.

Linked Program Outcomes

- A. HIT: Manage health data
- C. HIT - Model professional behaviors and ethics
- D. HIT - Maintain electronic applications to manage health information

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Course N -- ICD Diagnosis Coding

Course Number	10-530-197
Credits	3
Course Description	Prepares students to assign ICD diagnosis codes supported by medical documentation with entry level proficiency. Students apply instructional notations, conventions, rules, and official coding guidelines when assigning ICD diagnosis codes to case studies and actual medical record documentation.
Linked Program Outcomes	A. HIT: Manage health data B. HIT: Apply coding and reimbursement systems C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information

Course O -- Professional Practice 2

Course Number	10-530-198
Credits	3
Course Description	Applies previously acquired skills and knowledge and discussion of clinical situations. Prepares for the certification examination and pre-graduation activities. This is the second of a two-semester sequence of supervised technical and managerial clinical experiences in health care facilities.
Linked Program Outcomes	A. HIT: Manage health data B. HIT: Apply coding and reimbursement systems C. HIT - Model professional behaviors and ethics D. HIT - Maintain electronic applications to manage health information E. HIT - Apply organizational management techniques