

# **HIMT 370**

## **Healthcare Systems: Analysis and Design**

**3 Credits**

### **Course Description**

This is the first course in a two-course sequence that addresses methods and techniques of healthcare information system (IS) analysis and design as performed within the system development life cycle. Included will be techniques for problem definition, requirements gathering, analysis, logical design, selection, and evaluation of alternative healthcare information systems solutions from the point of view of the health provider and user. An emphasis is placed on analysis, development, selection, and evaluation of information systems as they relate to healthcare.

**Prerequisite(s):** HIMT 300

### **Course Learning Objectives**

Upon completion of this course, you will be able to:

- Explain the System Development Life Cycle (SDLC)
- Distinguish among structured, object-oriented, and agile systems development methods
- Discuss the SDLC and its role in healthcare
- Comprehend project management techniques
- Produce SDLC tools, models, and diagrams
- Apply SDLC techniques to a current healthcare problem
- Perform clinical and analytical workflows in an electronic health record

### **HIM Curriculum Competencies**

This course presents the content, knowledge, and skills required for the following 2014 AHIMA bachelor's degree competencies:

- I.D.2. – Evaluate health information systems and data storage design.
- III.A.3. – Recommend device selection based on workflow, ergonomic and human factors.
- III.B.1. – Take part in the development of information management plans that support the organization's current and future strategy and goals.
- VI.C.1. – Analyze workflow processes and responsibilities to meet organizational needs.

- VI.C.3. – Demonstrate workflow concepts.

## **Course Materials**

## **Course Organization**

The course is organized into 3 units.

### **UNIT 1: SYSTEMS PLANNING.**

Lesson 1. Course Overview & Introduction to Systems Analysis and Design

Lesson 2. Analyzing the Business Case

Lesson 3. Managing Systems Projects

Lesson 4. Communications Tools

### **UNIT 2: SYSTEMS ANALYSIS.**

Lesson 5. Requirements Modeling

Lesson 6. Data & Process Modeling

Lesson 7. Data & Process Modeling

Lesson 8. Object Modeling

Lesson 9. Object Modeling

Lesson 10. Object Modeling

Lesson 11. Financial Analysis

Lesson 12. Development Strategies

### **UNIT 3: SYSTEMS DESIGN.**

Lesson 13. Output and User Design

Lesson 14. Data Design

Lesson 15. System Architecture

Lesson 16. Course Reflection

## **Course Activities**

The course consists of the following activities and assessments.

Activity

Assessment

Reading the textbook

Viewing the videos (as available)

D2L quizzes with immediate scoring in D2L

EHR Simulation activities

Instructor evaluation

Case Simulation

Milestone assignment rubrics

Reflection Report

Reflection Report Rubric

## **Quizzes**

During the course students will complete 12 quizzes in total at the end of each lesson. Quizzes will be timed and consist of 15 multiple choice and/or true/false questions.

## **Case Simulation**

A major goal of this course is to give you the opportunity to apply your systems planning, analysis and design insights to a healthcare information systems problem. In order to achieve this goal, each student will work through a healthcare information systems case simulation.

The case simulation is broken up into ten milestones with deadlines scattered throughout the semester. The goal is for the milestones to break the project up into more manageable deliverables and to ensure that you are working and thinking about the project throughout the entire semester. All milestone reports are to be organized and submitted to D2L (in a single Microsoft Word file when possible). Files should be named “milestone#-firstname-lastname.docx” all lower case. Example: “milestone1-peter-haried.docx”.

Consider that you are a Healthcare Systems Analyst for New Century Wellness Group case located at the end of each chapter in your textbook. You have been asked to develop a Healthcare Information System to meet a defined clinical requirement. Evaluate the current system

architecture, applications and data flows using the methods discussed in class and make a recommendation regarding the new system design.

## **EHR Simulation**

Each student will participate in an electronic health record project simulation hosted through Neehr Perfect. Neehr Perfect stands for (Networked Educational Electronic Health Record) and is built on the most widely-used EHR system in the world (VistA). VistA is the US government's EHR. Neehr Perfect is an exactly-as-seen-in-practice EHR. Students will complete a series of 10 modules throughout the course to introduce and gain valuable experience using an in-practice EHR system. All Neehr Perfect activities will be submitted to D2L before the assigned due date. Follow the instructions given below on how to enroll.

Go to <http://my.neehrperfect.com/guides/Student%20Guide%20to%20Neehr%20Perfect.pdf>  
Activation Code: HFHFJ-GN4R3-74649  
UW HIMT Program Key: S63G66

## **Neehr Perfect Activities**

- Neehr Perfect Activity #1: Level I Scavenger Hunt – EHR Orientation AND Level II Scavenger Hunt – Essential Skills & Usability
- Neehr Perfect Activity #2: Structured and Unstructured Data
- Neehr Perfect Activity #3: VistA Scavenger Hunt Level I: Using a Terminal Emulator
- Neehr Perfect Activity #4: VistA Scavenger Hunt Level II: The VistA EHR Terminal
- Neehr Perfect Activity #5: VistA Activity Level I Introduction to Data Mining
- Neehr Perfect Activity #6: VistA Activity Chart Deficit Query
- Neehr Perfect Activity #7: VistA Activity Duplicate Resolution
- Neehr Perfect Activity #8: VistA Activity Data Mining in the EHR
- Neehr Perfect Activity #9: VistA Activity Clinical Reminder Report – Data Mining Colon Cancer Screening
- Neehr Perfect Activity #10: Hospital Inpatient Quality Measures

## **Course Policies**

### **Late Assignment Submission**

Late submission of assignments is discouraged. All assignments are due by 11:59 pm on the Sunday of the lesson. The instructor reserves the right to take partial or full points off for late

assignments. If you are going to be away, it is suggested you get the assignments done and posted ahead of time to avoid losing points for late submissions.

## **Statement of Student Time Commitment**

For each course credit, students are expected to spend a minimum of 3 hours/week on course work. Therefore, for a four-credit course, at least 12 hours/week are expected. This is a general guideline which may vary depending on the assignments and/or quizzes.

## **Grading**

### **Determination of Final Grade**

This is how the required work in the course will contribute to your course grade:

Assignment	Points
Quizzes: 12 @ 15 points each	180
NeehrPerfect Activities 10 @ 15 points each	150
MPI Activity	55
Case Simulation 10 Milestones @ 55 points each	550
Reflection Report	135
Total Points	1050

### **Grading Scale**

Grades Percentage Range

A	> 90 %
B	80 - 89.99%
C	70 - 79.99%
D	60 - 69.99%
F	< 60.00%
IC	

### **Course Calendar**

<b>Lesson and Dates</b>	<b>Topic</b>	<b>Text Chapter</b>	<b>Quiz</b>	<b>New Century Wellness Group Case</b>	<b>Neehr Perfect Activity</b>
Lesson 1: 1/19-1/24	Introduction to HIMT-370 & Introduction to Systems Analysis and Design	1	Quiz 1	Milestone #1 Pg. 42-43 Tasks 1-4	Introductions in Discussion Forum (not in Neehr Perfect)
Lesson 2: 1/25-1/31	Analyzing the Business Case	2	Quiz 2	Milestone #2 Pg. 83 Assignments 1-4	Activity #1
Lesson 3: 2/1-2/7	Managing Systems Projects	3	Quiz 3	Milestone #3 Pg. 123 Tasks 1-4	Activity #2
Lesson 4: 2/8-2/14	Communications Tools	Appendix A	Quiz 4		Activity #3
Lesson 5: 2/15-2/21	Requirements Modeling	4	Quiz 5	Milestone #4 Pg. 172 Tasks 1, 3 & 4	Activity #4
Lesson 6: 2/22-2/28	Data & Process Modeling	5		Complete MPI Activity	
Lesson 7: 2/29-3/6	Data & Process Modeling	5	Quiz 6	Milestone #5 Pg. 218-219 Tasks 1-3 For Task #2, work on lower level diagram for the "Process Appointment" Process	Activity #5
Lesson 8: 3/7-3/13	Object Modeling	6			
Lesson 9: 3/14-3/20	Object Modeling	6			Activity #6

<b>Lesson and Dates</b>	<b>Topic</b>	<b>Text Chapter</b>	<b>Quiz</b>	<b>New Century Wellness Group Case</b>	<b>Neehr Perfect Activity</b>
Lesson 10: 3/21-3/27	Object Modeling	6	Quiz 7	Milestone #6 Pg. 252 <u>Directions:</u> <b>Task 1:</b> Create a total of two Use Case Narratives. Create them for the following: 1) Establish New Patient 2) Make or Change Appointment. <b>Task 2:</b> Create a total of two Use Case Diagrams. Create them for the following: 1) Establish New Patient, 2) Make or Change Appointment Use Case	
Lesson 11: 3/28-4/3	Financial Analysis	Appendix C	Quiz 8		
Lesson 12: 4/4-4/10	Development Strategies	7	Quiz 9	Milestone #7 Pg. 292 Tasks 1, 2 & 4	Activity #7
Lesson 13: 4/11-4/17	Output & User Interface Design	8	Quiz 10	Milestone #8 Pg. 340 Tasks 2-4 For Task #2, discuss and suggest data validation checks	Activity #8
Lesson 14: 4/18-4/24	Data Design	9	Quiz 11	Milestone #9 Pg. 398 Tasks 1-3	Activity #9
Lesson 15: 4/25-5/1	System Architecture	10	Quiz 12	Milestone #10 Pg. 442 Tasks 1-3	Activity #10

<b>Lesson and Dates</b>	<b>Topic</b>	<b>Text Chapter</b>	<b>Quiz</b>	<b>New Century Wellness Group Case</b>	<b>Neehr Perfect Activity</b>
Lesson 16: 5/2-5/6	Course Reflection			Reflection Report	