

## NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

### **COURSE SYLLABUS**

**Course Title:** Systems Analysis and Design

**Course #:** CSC\* 250

**Course Description:** 3 Credits. Introduction to analysis and design of business management systems, through the three stages of business systems design: analysis of information flow, systems specification and equipment, and selection and implementation of the system.

**Pre-requisite/Co-requisite:** CSC\* 104. CSC\* 233 is recommended.

**Goals:** Students are expected to

- be able to demonstrate knowledge and understanding of topics in the computing discipline and industry, both academically and within the needs of the workplace, as defined by the listed outcomes below.
- be able to articulate both verbally and written their scope of expertise in completing the study of course topics as they relate to the listed outcomes.
- increase their communication and presentation skills as they integrate computer knowledge into business systems using hardware and software components as required by the objectives in this course.

**Outcomes:** Upon successful completion of this course students will be able to:

- (1) Describe the building blocks of an information system including
  - (a) People
  - (b) Data
  - (c) activities
  - (d) networks
  - (e) technology
- (2) Define systems planning, systems analysis, systems design, systems implementation, and systems support.
- (3) Compare and contrast the systems development life cycle and system development techniques, including structured programming, modern structured analysis, structured design, information engineering, and prototyping.
- (4) Describe the Software Development Life Cycle (SDLC), and explain how it serves as a framework for systems development and business modeling.
  - (a) to study the life cycle phases leading to the development of system requirements.
  - (b) to examine methods, techniques, and models that can be used to determine and document the requirements for an information system.
  - (c) to examine that initial stages in the transition from analysis to design.
  - (d) to study various diagrams that are used to construct models of an information system including use case diagrams, interaction diagrams, object diagrams, state-transition diagrams, attribute dictionaries, decision tables and trees, and structured English.
  - (e) to perform process analysis and design to distribute data and activities into design units.

- (f) to understand and explain the phases of the classic systems development life cycle (ex deployment and maintenance) and apply its early phases to a small, real-world, externally sponsored case study.
- (5) Describe the steps in a preliminary investigation and the end product of an investigation
    - (a) Understand the reasons and main characteristics of continued business process (re)design.
    - (b) Understand and participate in task-centered needs/use-case analysis.
    - (c) Document, read and understand the results of task-centered use-case analysis.
    - (d) Refine business process models based on newly collected information.
    - (e) Ask business-relevant questions associated with information system design choices and proposals.
    - (f) Specify conceptual architectures for a variety of business information system solutions.
    - (g) Communicate design decisions and design motivations within and across teams of designers and to the sponsoring agency.
  - (6) Analyze and create a system design for business cases
    - (a) Explain data and processing analysis
    - (b) Explain, analyze, and design system implementation requirements, interface and configuration requirements, systems operations, support services, and security methods and systems.
  - (7) Develop effective documentation methods to use during systems development
    - (a) to describe, understand, and draw data and process modeling concepts and tools, including data flow diagrams, a data dictionary, and process descriptions; and object models including objects, attributes, methods, messages, classes, and instances
    - (b) to describe and explain the advantages and disadvantages of software outsourcing options, including offshore outsourcing and the role of service providers
  - (8) Explain the concept of user interface design and human-computer interaction, including the basic principles of user-centered design
  - (9) Define the systems analyst's role and responsibilities in a typical organization.
  - (10) Explain the importance of software quality assurance and software engineering
  - (11) Develop an overall training plan with specific objectives for each group of participants, compare in-house and outside training providers, and describe effective training techniques
  - (12) Assess future challenges for IT professionals as technology reshapes the workplace