

## CSC 426 - REQUIREMENTS ENGINEERING AND SYSTEM MODELING

**CREDIT HOURS:** 3

**PREREQUISITES:** CSC 323

**GRADE REMINDER:** Must have a C or better in each prerequisite course.

### CATALOG DESCRIPTION

Study of the methodology for building a complete application system. Emphasis on critical analysis of existing systems and design of computer-based systems.

### PURPOSE OF COURSE

To complement knowledge acquired in other computer science courses by providing an understanding of the activities of requirements engineering necessary for the implementation of computer-based systems. To show the value of system modeling and the team approach to software development. To acquaint the student with issues involved in computer systems development and acquisition.

### EDUCATIONAL OBJECTIVES:

Upon successful completion of the course, students should be able to:

1. Identify the skills and knowledge expected of a systems analyst.
2. Describe techniques of requirements identification, including interviews, observation, questionnaires, and applicable sampling methods.
3. Perform cost/benefit analyses of proposed systems, including comparison of alternative means of system acquisition, such as purchase of commercial off-the-shelf (COTS) software.
4. Use a prototype to clarify requirements.
5. Describe analysis techniques and use of a CASE tool.
6. Interact with others on a team project.
7. Demonstrate an understanding of important issues of project management.
8. Describe the ramifications of design decisions pertaining to product architecture, data storage and access, and information presentation.

### CONTENT

**Hours**

Introduction .....	2
Review of system development life cycle	
Information systems characteristics	
Overview of the systems analyst position	
Preliminary Investigation .....	3
Feasibility analysis	
Gathering and presenting facts	

Requirements Gathering .....	6
Sampling techniques	
Interviewing	
Use of questionnaires	
Observations	
Prototyping	
Use cases, scenarios, userstories	
Tools	
Requirements Analysis .....	8
Analysis techniques	
Data dictionaries	
Tools	
Approaches for System Selection .....	8
Acquisition versus development	
Economic evaluation of alternatives	
Design Issues .....	8
System architecture: platforms; client-server, intranet, internet, batch, online	
Output: media selection, form and screen design	
Input: media selection, validation techniques	
Files and databases	
Project Management .....	6
Planning and estimating	
Scheduling	
Tools	
Installation .....	1
Exams .....	3
	TOTAL 45

**REFERENCES**

Kendall and Kendall, Systems Analysis and Design, 4<sup>th</sup> Ed., Prentice Hall, 1999.

Kotonya and Sommerville, Requirements Engineering Process and Techniques, John Wiley and Sons, 1997.

Shelly, Cashman, and Rosenblatt, Systems Analysis and Design, 6<sup>th</sup> Ed., Course Technology, 2006.

Sommerville and Sawyer, Requirements Engineering - A Good Practice Guide, John Wiley and Sons, 2004.