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.

COURSE CALENDAR

This course meets for a minimum of 37.5 lecture contact hours during the semester, including the final exam. Students have significant weekly extracurricular assignments which may involve reading, teamwork and team meetings, or engaging in other forms of preparation. Students are expected to complete a number of programming assignments, two class presentations based on a 4-5 person team, and 2-3 periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or the extracurricular assignments. Successful completion of these activities requires at a minimum six additional hours of outside of classroom work each week.

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

Hoffer, George and Valacich, Modern Systems Analysis and Design, 7th Ed., Prentice Hall, 2014

Kendall and Kendall, Systems Analysis and Design, 9th Ed., Prentice Hall, 2013.

McConnell, Software Project Survival Guide, Microsoft Press, 1998.

Pressman, R. S., Software Engineering: A Practitioner's Approach, 8th Ed., McGraw-Hill, 2014.