CSCE 361: Software Engineering

Course Description

Catalog Description

Computer Systems Engineering (3 cr). Techniques used in the disciplined development of large software projects. Software requirements analysis and specifications, program design, coding and integration testing, and software maintenance. Software estimation techniques, design tools, and complexity metrics. *Requires participation in a group design and implementation of a software project.*

Prerequisites

Grade of "P" or "C" or better in CSCE 310, CSCE 310H, CSCE 311, SOFT 260, SOFT 260H, or RAIK 283H.

Prerequisites by Topic

- *Mastery of* A high-level programming language
- *Mastery of* Basic data structures and algorithm design
- *Familiarity with* Two or more programming languages

Course Objectives

- *Mastery of* Concepts and techniques for large-scale software development.
- *Familiarity with* Design techniques, such as structured and object-oriented analysis
- *Familiarity with* The software life cycle and the software development process
- *Familiarity with* Pragmatic aspects of developing software systems
- *Exposure to* Software testing techniques
- *Exposure to* Developing and maintaining large-scale software systems
- *Exposure to* Using existing software systems or legacy code when developing a software system
- *Exposure to* Working in a team of software developers
- *Exposure to* Communication of technical results (done in context of projects)
- *Exposure to* Ethical issues in computing

Topics Covered

- Programming vs. large-scale software development
- Software process and life cycle models
- Requirements engineering
- Specification techniques
- Structured analysis and design
- Object-oriented design techniques

- Software testing (black box and white box; unit and system)
- System maintenance issues and techniques
- Software architecture

Back to Syllabus Outline