**COEN 2610 Software Methodologies**

**Class Schedule:** 3 credit course, meeting for 3 50-minute periods each week or 2 75-minute periods each week.

**Course Coordinator**: Dr. Richard Povinelli

**Required Textbook:**

# *Software Engineering* (10th Edition) by Ian Sommerville, Pearson, 2015.

**Course Description:**

The first course in software engineering, covering the software life cycle, proper selection of data structures and algorithms, and the availability and choice of programming paradigms for appropriate design and implementation of well-engineered software. An open laboratory and significant programming experiences form an integral part of this course.

**Prerequisites**: EECE 1610 or COSC 1010

**Required** course in the Computer Engineering program

**Contribution to Professional Component**:

Engineering Science: 50%

Engineering Design: 50%

**Course Goals:**

This class is the first course to provide students the fundamental knowledge of software process as an engineering discipline, with the concepts that software is no longer considered as a “computer program” but as a large scale and complex “engineering product.” Students gain software engineering experience through teamwork on real-life software design projects. Specifically students will possess the following skills after taking the class

* Fundamental concepts of software engineering process
* Skills of software analysis and design using a function-oriented approach
* Skills of software analysis and design using an object-oriented approach
* Basic skills for software testing
* Basic skills on software project management

**Course Objectives:**

At the end of the course, students will be able to:

1. clearly understand the difference between a programmer and a software engineer.
2. apply appropriate software life-cycle models and software processes to real-world software development projects.
3. communicate effectively with customers and clients on software requirements and specification.
4. write Software Requirement Specification (SRS) document, clear and readable.
5. be familiar with software quality assurance issues and software testing procedures, as well as the importance of software maintenance.
6. understand the difference between function-oriented and object-oriented software design methodologies, and use them effectively.
7. use CASE tools effectively for the design and implementation of the software.
8. distribute the software product and establish the working relationship developed through teamwork.
9. understand the importance of lifelong learning.

**Contribution to Program Objectives**: partial fulfillment of Criterion 3 objectives A, B, C, D, E, F, G, K

**Course topics:** (subject to change)

Week 1: Introduction and Scope of Software Engineering

Week 2: Software Process and Life-cycle Models

Week 3: Design Term formed and Project Started

Week 4: Software Planning and Estimation

Week 5-6: Software Requirement Analysis (SRS)

Week 7-8: Function Oriented Software Design

Week 9-10: Object oriented Software Design

Week 11-12: Detailed Design

Week 13-14: Coding and Testing

Week 15: Software Maintenance

Week 16: Final Exam

Last modified: October 20, 2015