

## COURSE DESCRIPTION

**Department and Course Number:** CSCI 562

**Course Title:** Software Engineering I

**Current Catalog Description:** Software engineering paradigms, requirement analysis and specifications, design of reliable software; data flow, data structures and object oriented design methodologies.

**Total Credits:** 3 hours

**Coordinator:** Pamela B. Lawhead, Associate Professor of Computer and Information Science

**Textbook:** None

**Other required materials:** A collection of journal articles compiled by the instructor.

1. Wassermam, Anthony, *Toward a Discipline of Software Engineering*.
2. Mark C. Paulk, Bill Curtis, Mary Beth Chrissis, and Charles V. Weber, "Capability Maturity Model, Version 1.1," *IEEE Software*, Vol. 10, No. 4, July 1993, pp. 18-27.
3. F.P. Brooks, Jr. "No Silver Bullet". *Computer*, 20(4):10-19, April 1987.
4. A. Hall. "Seven Myths of Formal Methods," *IEEE Software*, 7(5):11-19, September 1990.
5. M. Shaw. "Prospects for an Engineering Discipline of Software," *IEEE Software*, 7(6):15-24, November 1990.
6. Boehm Boehm, B.W. "Software Engineering", *IEEE Transactions on Computers* C- 25 (December 1976), pp. 1226-1241.

Other readings are included as the topic changes.

### Course Goals:

1. To develop critical reading skills in the field of software engineering.
2. To explore a topic in software engineering by reading a collection of journal articles.
3. To write a paper in the field of software engineering.

**Prerequisites by Topic:** Topics and software development experiences from an undergraduate software engineering class (CSCI 387).

**Major Topics Covered in the Course:** Depends upon articles chosen.

**Laboratory projects:** There were no specific laboratory projects in this course. Students were asked to read a paper each week and then to write a one page critique of that paper. Finally, students were asked to write a major paper on the topic. Students were ask to read referee rules for major journals and to learn to write a critique.

**Estimate of ABET/CAC Category Content:**

|                 | CORE  | ADVANCED |  | CORE  | ADVANCED |
|-----------------|-------|----------|--|-------|----------|
| Data Structures | _____ | _____    | Computer Organization and Architecture | _____ | _____    |
| Algorithms      | _____ | _____ 1  | Concepts of Programming Languages      | _____ | _____    |
| Software Design | _____ | _____ 2  |  | _____ | _____    |

**Oral and Written Communications:**

Every student is required to submit at least 9 written reports (not including exams, tests, quizzes, or commented programs) of typically 1 page and to make 1 oral presentation of typically 25 minutes duration. This includes only material that is graded for grammar, spelling, style, and so forth, as well as for technical content, completeness, and accuracy.

**Social and Ethical Issues:**

The social implications are covered when they are to subject of a paper under discussion. For instance, when software risks are being discussed the ethical issues and responsibilities are clearly a focus of the discussion.

**Theoretical Content (Foundations):**

This depends upon the articles chosen.

**Problem Analysis and Solution Design:**

This course focused on the problem discussed in each paper. Students are asked to critique each paper, this is a hard problem for them.