

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
Department of Computing and Mathematics
COURSE OUTLINE FOR

Course No.: SE300

Title: Software Engineering

Cr Hrs: 4

Lecture Hours: 3

Laboratory Hours: 1

COURSE DESCRIPTION:

This course introduces students to the fundamental principles and methodologies of large-scale software development. Students learn about the theory and practice of software engineering and work as part of a team on a full life-cycle software project that includes planning, software specification, software design, coding, inspections, and testing. The course has a closed lab that includes activities that guide project teams through a software development process and support team project activities such as team building, planning, requirements analysis and specification, design, testing and the use of tools. Prerequisite: CS225

GOALS:

The primary course objective is for students to acquire knowledge and experience about the processes, methodologies, tools and techniques used in developing large software systems. This course is designed to prepare students to work on a larger and more complex project in SE450 (Software Team Project).

PERFORMANCE OBJECTIVES:

Upon completion of this course, students should be able to:

1. Describe the major problems in large software system development.
2. Describe issues, principles, methods and technology associated with software engineering theory and practices (e.g., planning, requirements analysis, design, coding, testing, quality assurance, and configuration management).
3. Working as part of a team, use a software development process to develop a software product.

Department of Computing and Mathematics
COURSE OUTLINE FOR SE300, Continued

TEXTBOOK:

Humphrey, Watts, *Introduction to the Team Software Process*, Addison-Wesley, 2000.

Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice*, Prentice-Hall, 1998.

SUGGESTED SUPPLEMENTAL MATERIALS:

Pressman, Roger S., *Software Engineering: A Practitioner's Approach*, 3rd Edition, McGraw Hill, 1992.

PREREQUISITE KNOWLEDGE BY TOPIC:

1. moderate to substantial experience programming in a high-level language.
2. basic data structures and algorithms
3. sophomore standing or higher

TOPIC	CLASS HOURS	COURSE OBJECTIVES
1. Introduction to Software Engineering	2	Describe the major problems and issues in large software system development.
2. Models of Software Process	8	List and describe the various software process models used to develop software. Apply this knowledge in the development of a small software system by a project team.
3. Project Planning	6	Describe the process, methods and techniques used in project planning. Apply this knowledge in the development of a small software system by a project team.
4. Software Requirements	6	Describe the process, methods and techniques used in software requirements. Apply this knowledge in the development of a small software system by a team.
5. Software Design	6	Describe the process, methods and techniques used in software design. Apply this knowledge in the development of a small software system by a team.
6. Software Quality Assurance	8	Describe the process, methods and techniques used in software quality assurance. Apply this knowledge in the development of a small software system by a team.

	TOPIC (cont.)	CLASS HOURS	COURSE OBJECTIVES (cont.)
7.	Software Testing	6	Describe the process, methods and techniques used in software testing. Apply this knowledge in the development of a small software system by a team.
8.	Software Evolution	2	Describe the process, methods and techniques used in software maintenance.

LABORATORY:

A closed laboratory for team meetings, inspections, and team development work. An open computer laboratory for individual project work.

COMPUTER USAGE:

software development tools (editor, linker, compiler, debugger, OOA/OOD tools), spreadsheet, word processor, web browser

GRADING SYSTEM:

Team Project	50%
Quizzes, Reports, Homework	30%
Comprehensive Exam	20%

ESTIMATED CONTENT:

Skills:	50 %
Content:	50 %