

COURSE DESCRIPTION

Department and Course Number: COMP 6700

Course Title: Software Process

Total Credits: 3

Required: Yes (SWEN)

Prerequisites: COMP 3700 or COMP 3710

Class meetings per week: 3 hours

Lab meetings per week: 0 hours

Course Coordinator: Dr. David Umphress

Date Prepared: February 18, 2004

Current Catalog Description:

Process models of the software lifecycle as well as methods and tools for software development

Textbooks:

Humphrey, W. 1995. *A Discipline for Software Engineering*. Addison Wesley. ISBN 0-201-54610-8.

References:

None

Course Objectives:

1. Understand processes' raison d'être.
2. Know the processes identified as being necessary for successful software production.
3. Understand what a life cycle is, its component parts, and how it affects the software production process.
4. Understand the planning process.
5. Understand how to define "size", measure it, and estimate it.
6. Understand how to decompose work units.
7. Understand task dependencies, be able to construct and analyze a dependency chart.
8. Be able to estimate software cost understand the process of risk management.
9. Understand the purpose and function of status reviews.
10. Understand process/product measurement, be able to measure and analyze a sample project.
11. Understand own personal performance.

Prerequisites by Topic:

1. Software design
2. Familiarity with Java, C, or C++

Topics Covered: (specify number of hours on each)

1. Software engineering raison d'être (1 hour)
2. Process foundations (2 hours)
3. Process modes (2 hours)

4. Common process elements (3 hours)
5. Process descriptions (2 hours)
6. Size (1 hour)
7. Conceptual design (2 hours)
8. Size estimation (4 hours)
9. Task decomposition (1 hour)
10. Scheduling (4 hours)
11. Measurements (3 hours)
12. Reviews (3 hours)
13. Technical templates (4 hours)
14. Team processes (4 hours)
15. Miscellaneous processes (4 hours)
16. Infrastructure (1 hour)
17. Retrospective (1 hour)
18. Exams (3 hours)

Laboratory Projects: (specify number of weeks on each)

1. Introduction to processes (1 week)
2. Size estimation (1 week)
3. Advanced size estimation (2 weeks)
4. Size and duration estimation (2 weeks)
5. Scheduling (2 week)
6. Measurement (1 week)
7. Cyclic development (2 weeks)

Oral and Written Communications:

Students are required to provide complete process documentation for every assignment.

Social and Ethical Issues:

None.

Theoretical Content:

Students are presented a statistical approach to size and schedule estimation (total of 8 hours).

Problem Analysis and Solution Design:

All students apply fundamental software engineering practices to analyze, design, implement, test, and document solutions to all programming assignments. In addition, students are taught to put problem analysis, solution design, and other activities associated with the engineering of software components, subsystems, and systems within the framework of a software process. Skills such as task decomposition, size estimation, cost estimation, scheduling, and personal performance measurement are developed and applied throughout the course.