

750782, Software Process

3 hours per week, 3 credit hours, prerequisite: **none**

Teaching Method: 37 hours Lectures (2-3 hours per week), 8 hours Seminars (1 per 2 weeks)

Aims: This module aims to provide students with knowledge about: description of commonly used software life cycle process models and the content of institutional process standards; definition, implementation, measurement, management, change and improvement of software process; and use of a defined process to perform the technical and managerial activities needed for software development and maintenance.

Learning Outcomes:

On completion of this module, the student should:

- Have knowledge on commonly used software life cycle process models.
- Understand the standards of software process
- Be able develop software projects
- Be able to use a defined process to maintain software.

Textbooks and Supporting Materials:

1. R. S. Pressman. Software Engineering: a Practitioner's Approach, 6th edition, McGraw-Hill, 2005 .
2. Daniel Galin, Software Quality Assurance, ISBN 0 201 70945 7,

Research papers:

Website(s): <http://www.mhhe.com/pressman>

<http://www.booksites.net/download/galin/download.htm>

Synopsis:

Part 1- Software Process:

- 1- Introduction: Motivation, Software, process, Software Process, Model = Methodology + Structures.
- 2- Conventional Methodologies: All known software process (waterfall, ...)
- 3- An Agile Process
- 4- Software Process Fundamentals: *Requirements*: Modeling, evolution, formalism, enactment,

programming, environment; *Concepts*: Activity, Agent, Role, Event, Constraint, Product,
Coordination; *Paradigm*: Programming Model, Active database, Modeling language and IA,

29

Network, Hybrid; *Issues*: Integration, evolution, Coherence, Coherence, Environment;

Methodologies and Structures: Individual Models, Collective Model, Methodology, structures.

5- Specific Software Process: Methodology; Structures; Generic Software Process.

6- Generic Software Process: Methodology; Structures; Generic Software Process.

Part 2-Software Quality:

7- Quality Management

8- Product Measurement and Metrics

9- Process and Project Measurement and Metrics

Assessment: Two 1-hour midterm exams (15% each); Assignments (10%); Seminars (10%); 2-

hours

Final Exam (50%)