2010-11 academic year

Software Engineering (21418)

Degree/study: Bachelor's degree in Computer Sciences (3377)
Year: 2nd
Term: 2nd / 3rd
Number of ECTS credits: 8 credits
Hours of studi dedication: 200 hours
Teaching language or languages: Catalan and Spanish
Teaching Staff: Vladimir Estivill-Castro

1. Presentation of the subject

Software engineering is the field concerned with the development and maintenance of software systems that behave reliably and efficiently. It also focuses on developing software within budget and satisfying customer requirements and users who have defined and specified the solution. It is an important discipline due to the spectrum and broad impact of software in the economical activities of humanity and modern society and for the role of software in critical systems and in ensuring security of many applications. The discipline integrates formal methods of mathematics, computer science and the origins and practices of engineering.

Therefore, software engineering is the systematic, disciplined, quantifiable and rigorous application of approaches for development, operation, maintenance and implementation of software. Obviously, the study of the approaches that lead to the production of quality software is the central focus of software engineering. Software engineering is mainly concerned about building software correctly. The software should not fail because nowadays thousands of activities are monitored, managed or regulated by running software systems.

Software engineering includes a range of concepts, definitions of processes, practices, tools and standards. Work teams use all this knowledge to perform tasks, which produce high quality software and achieve stakeholders' needs. Tasks include the analysis and the specification, design, implementation, verification, testing, maintenance and the project management, all in time and within the budget.

Modern software engineering has also an important approach with regard to producing designs for sustainable systems; whose environmental impact is minimal and whose objectives also consider social and ethical principles. Software engineers apply technology to develop new systems, build new tools and use technology to progress and, in general, produce benefit by ensuring the quality of results.

2. Competences to be obtained in the subject

Capacities for teamwork, organization, scheduling and solving problems are needed. Moreover, conceptual design and cognitive skills are also required.

Transferable skills	Specific competences
Instrumental 1.-Cognitive skills (understanding, interrelation of ideas and thoughts, analysis and summarizations) are very important for problem solving, planning, analysis and design. 2.- Common sense. Similarly, this competence is a tool to solve design problems and prioritise constraints and requirements.	The specific competences can be summarized in three main capacities: 1.- Knowledge of tools, methods and practices in software engineering. 2.- Capacity to analyze and discover requirements of a complex problem whose solution involves developing a software system. 3.- Capacity to design a solution to the