Level: bachelor	
Course title: Requirements Engineering (I385)	
Status: elective	
ECTS: 7,5	
Requirements: none	

Learning objectives

Software requirements engineering is the science and discipline concerned with the process of forming and documenting software requirements. It deals with the techniques for elicitation, analysis, specification, verification and management of software requirements. On the other hand, system requirements engineering is the science and discipline concerned with the analysis and documentation of system requirements. It involves a transformation of operational needs into a system description, system performance parameters and a system configuration, that is accomplished through an iterative process of analysis, design, trade-off studies and prototyping. This course should provide students with a comprehensive understanding and critical evaluation of software and system requirements engineering.

Learning outcomes

Minimal: Students should demonstrate in-depth understanding of requirements engineering both for software and system requirements, to be able to critically evaluate basic management models and basics of requirements engineering, and to appreciate the essential issues of requirements engineering and architecture design.

Desirable: Students should be able to practically apply techniques for elicitation, analysis, documentation, validation and tracing of requirements, and to critically evaluate the role of tools and methods in requirements engineering.

Syllabus

Theoretical instruction

Theoretical basis and methods of requirements engineering. Types and characteristics of requirements. Requirements structuring and their analysis. Relationships and distinctions among requirements in design process, their role and implementation in real software systems. Requirements quality. Relationships among users and requirements engineers. Techniques for requirements elicitation, analysis and negotiation. System theory, system engineering and concepts of system requirements. Transformation of operational requirements into technical specifications. Techniques for requirements documentation. Requirements management and tracing. Usage of appropriate formalisms and notations. Illustration of adequate requirements management tools.

Practical instruction

Analysis of study examples and individual work on requirements specifications for small real-world systems.

Weekly teaching load				Other:
Lectures: 3	Exercises: 2 (1+1)	Other forms of teaching:	Student research:	