Course syllabus

Kravhantering
Requirements Engineering

ETSN15, 7,5 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Elective for: C4-da, D4-se, E4-pv, F4, F4-pv, I4, I4-pvs
Language of instruction: The course will be given in Swedish

Aim

The objective of the course is to give basic and advanced knowledge and skills within requirements engineering for large-scale development of systems completely or partly based on software. The course gives both theoretical knowledge and practical skills in methods and techniques for requirements engineering. The course gives training in scientific paper reading.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to define basic concepts and principles within requirements engineering
- give an account of several different types of requirements
- be able to describe and value several different methods and techniques for requirements engineering
- be able to describe and relate different sub-processes within requirements engineering
- be able to describe the relation between the requirements engineering process and other processes in the product lifecycle
- be able to describe the relation between requirements engineering and market-driven product management
- be able to discuss some scientific results within requirements engineering research

Competences and skills
For a passing grade the student must

- be able to choose suitable requirements techniques for a given context
- be able to apply several different techniques for requirements elicitation
- be able to apply several different techniques for requirements specification
- be able to apply several different techniques for requirements validation
- be able to apply several different techniques for requirements prioritisation

Judgement and approach
For a passing grade the student must

- be able to consciously select a process depending on the nature of the requirements
- show a systematic and long-term approach to processes
- be able to consciously see the problem in the relation between the quality of requirements and the quality of the resulting implementation
- be able to adequately involve users in the requirements engineering process
- be able to consciously see the problem in the relation between requirements engineering and economical aspects of product development

Contents

- Requirements on different abstraction levels and in different contexts
- Sub-processes of requirements engineering and their relation
- Specification of data requirements, e.g. using virtual windows and data models
- Specification of functional requirements, e.g. using textual feature requirements and task descriptions
- Specification of different types of non-functional requirements, e.g. usability, performance, reliability
- Different techniques for requirements elicitation, e.g. focus groups
- Different techniques for requirements validation, e.g. inspections
- Different techniques for requirements prioritisation, e.g. pair wise comparisons
- Market-driven requirements engineering, product management and prioritisation

Lectures give a theoretical overview and help for private studies. Projects give practical skills and training in different areas of requirements engineering. Exercises relate theory to practice through discussions of problems and solutions.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Examination is based on both individual and group assessment. Project work is assessed in groups, lab sessions are assessed in pairs, and the written exam is assessed individually. The final mark is a combination of written exam marking and project marking.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0117. **Name:** Requirements Engineering.
Credits: 4,5. **Grading scale:** TH. **Assessment:** The final grade of the course is to 60% based on the result of the

written examination. **Contents:** Written exam.

Code: 0217. **Name:** Project.

Credits: 3. **Grading scale:** TH. **Assessment:** The final grade of the course is to 40% based on project results. **Contents:** Project and laboratory work.

Admission

Admission requirements:

- EDA260 Software Development in Teams – Project or EDAF45 Software Development in Teams - Project or ETS032 Software Development for Large Systems or ETSA01 Software Engineering Process - Methodology or ETSA02 Software Engineering - Methodology or ETSF20 Software Development for Large Projects or ETSN05 Software Development for Large Systems

The number of participants is limited to: No
The course overlaps following course/s: ETS672, ETSF30, ETS170

Reading list

- Lauesen S.: Software Requirements – Styles and Techniques. Addison-Wesley, 2002, ISBN: 0-201-74570-4.
- Additional literature assigned by the department.

Contact and other information

Course coordinator: Professor Björn Regnell, bjorn.regnell@cs.lth.se
Course homepage: http://cs.lth.se/etsn15
Further information: The course contains a project work which gives 3 credits.