Course syllabus

Programvaruutveckling för stora system
Software Development for Large Systems

ETSN05, 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: BME4, C4, D4-se, E4-pv, E4-ae, F4, F4-pv, I4-pvs, L4-gi, Pi4-pv
Language of instruction: The course will be given in English on demand

Aim

The aim of the course is to give the students fundamental knowledge in the principal of project management and development processes and the central concepts in large-scale development of systems containing a significant share of software. The aim is also to give the student experiences of the problems that arise in large projects, where many involved actors and parallel work create situations that have to be handled.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

in writing be able to:

- Explain why a process and belonging documents are needed and why problems in this kind of projects are organisational rather than technical.
- Explain how cooperation and systematic approaches are important ingredients in the solution of these problems.
- Describe learning outcomes and possible improvements related to his/her role in the project and explain the aim of the project.

Competences and skills
For a passing grade the student must

- On the basis of a given project assignment within the context of a given development process develop key deliverables.
- Be able to add new well-functioning functionality to a given existing system.
- Actively contribute in a large software development project that follows a defined process.

Judgement and approach
For a passing grade the student must

- In a deliberate way be able to see the problems in the choice of development process and balance the organisational problems against the technical problems.

Contents

The focus in the course is on how software is engineered in an industrial environment. The students begin with an existing system, which gives some limitations. The students use a systematic and well-defined development process, in which requirements specifications, design and test specifications are important documents to be developed. Quality inspections are made of the project group's work as part of the development process. Different roles are distributed over the project members, such as project leaders, technical leaders, developers, and testers. Furthermore, the teachers act in other roles, e.g. department manager, quality auditor and technical experts.

Lectures, exercises and computer lab sessions are a direct introduction to the project, while the main part of the course is project work. Computer lab sessions and inspection meetings are mandatory elements in the course.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: The assessment is based on both individual and group performance. The individual examination consists of a written report and participation in mandatory course elements. The project group examination consists of a written report and an acceptance test of the system delivered by the project group. The grade is based on the project group's performance and the student's individual performance. Re-examination will be performed with an individually adapted assignment.

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: 0121. **Name:** Computer Labs.
Credits: 1,5. **Grading scale:** UG. **Assessment:** For a passing grade, completed laboratory work in programming is required.
Code: 0221. **Name:** Project.
Credits: 3,5. **Grading scale:** TH. **Assessment:** The project group examination consists of a written report and an acceptance test of the system delivered by the project group. **Contents:** Project i teams
Code: 0321. **Name:** Report.
Credits: 2. **Grading scale:** TH. **Assessment:** The individual examination consists of a written report and participation in mandatory course elements. The grade is based on the project group's performance and the student's individual performance. Re-examination will be performed with an individually adapted assignment.
Contents: Written report
Code: 0421. **Name:** Exercises.

Credits: 0,5. **Grading scale:** UG. **Assessment:** Participation in exercises is required for approved results.

Admission

Admission requirements:

- EDAA01 Programming - Second Course or EDAA30 Programming in Java - Second Course
- EDA011 Programming, First Course or EDA016 Programming, First Course or EDA017 Programming, First Course or EDAA10 Computer Programming in Java or EDAA20 Programming and Databases or EDAA45 Introduction to Programming or EDAA50 Programming, First Course or EDAA55 Programming, First Course or EDAA65 Programming, First Course

The number of participants is limited to: No
The course overlaps following course/s: ETS032, ETS312

Reading list

- Compendium from the department (in Swedish).

Contact and other information

Director of studies: Studierektor, studierektor@cs.lth.se
Course coordinator: Alma Orucevic, Alma.Orucevic-Alagic@cs.lth.se
Course homepage: http://cs.lth.se/etsn05/
Further information: Note: Most of the teaching in class is scheduled during the first four weeks. The project endures over nine weeks and is finished the second week of the subsequent study period. Due to dependencies within the project, the course requires personal presence during all weeks of the course.