Software engineering 7.5 credits D7032E

Programvaruteknik

Course syllabus admitted: Autumn 2024 Sp 1 - Present

DECISION DATE
2024-02-15

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Software engineering 7.5 credits D7032E

Programvaruteknik

Second cycle, D7032E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Datalogi	Computer Technology

Main field of study

Computer Science and Engineering

Entry requirements

Courses of at least 90 credits, including the following knowledge/courses. D0009E Introduction to programming 7.5 credits, D0010E Object-oriented programming and design 7.5 credits, D0012E Algorithms and data structures 7.5 credits or equal.

Good knowledge in English equivalent to English 6.

Selection

The selection is based on 30-285 credits

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Course Aim

The general course goal is to give basic skills and understanding of software engineering.

- Knowledge and understanding

    -Demonstrate basic knowledge and understanding of software engineering both individually and in a group.
    -Demonstrate basic knowledge of proven software engineering methods and theories.
    -Demonstrate insight in how software is engineered in industry.
    -Demonstrate in-depth knowledge within the following areas of software engineering:
        Software management and code complexity.
        Build support and tools of the trade.
        API design and modular structuring.
        Modeling using patterns.
        Testing and debugging.
        Version management.
        Documentation.
        Deployment.

- Competence and skills

    -Demonstrate abilities to critically and creatively identify, formulate, analyze and evaluate design and implementation of software-based
     systems.
    -Demonstrate abilities to critically and systematically design and structure software-based systems through modeling and with
     entrepreneurial considerations.
    -Demonstrate a mature use of the tools of the trade, handling of code, build environment and code repositories.
    -Demonstrate abilities to plan, lead and execute basic software engineering assignments.
    -Demonstrate abilities to design software-based systems in regards of human needs and abilities as well as the society's goals for
     economical, social and ecological factors for sustainable development.
    -Demonstrate abilities for oral and written presentation in English of a software-based system.

- Judgment and approach

    -Demonstrate abilities to judge scientific, societal and ethical aspects of software engineering.
    -Demonstrate insights into the potentials and limitations of software engineering, foremost regarding economical and social aspects.
    -Demonstrate insights and capacities of working in small teams of 2-3 students.
    -Demonstrate abilities to search for new knowledge and to continuously develop skills using entrepreneurial methodologies
     (individually and through collaboration with other students).

Contents

The course will have an emphasis on selected topics from: Project planning and management, problem analysis, software management and interpretation, code complexity, API design, debugging and testing, configuration management, documentation, design patterns, build support and tools of the trade, packaging, release management and deployment, modeling and structuring of software, reuse, components, architectures, maintenance and documentation. The course includes a number of assignments, which are to be completed in groups, and that are evaluated in both written and oral form. Individual examination is given through tests and a home exam.

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Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Teaching consists of lecturers and laboratory work. The lab assignments are reported in writing and orally, and may be associated with a deadlined.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Laboratory work in groups as well as written and oral individual home exam.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Overlap

The course D7032E is equal to D7008E

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Laboratory work	U G#	3	Mandatory	A14	
0003	Take-home examination	G U 3 4 5	4.5	Mandatory	A17	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Robert Brännström 2024-02-15

Syllabus established

by Jonny Johansson, HUL SRT 2014-02-14

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