Linnæus University

Course syllabus

Faculty of Technology
Department of Computer Science and Media Technology

1DT902 Introducerande projekt, 7,5 högskolepoäng
Introductory project, 7.5 credits

Main field of study
Computer Engineering

Subject Group
Computer Science

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Faculty of Technology 2019-12-02
The course syllabus is valid from autumn semester 2020

Prerequisites
1DT901 Introduction to programming, 7.5 credits or equivalent.

Objectives
After completing the course, students are expected to be able to:

Knowledge and understanding

- A.1 Explain how system requirements are developed, specified, and tested
- A.2 Give an overview of project management methods
- A.3 Describe the different sectors of the software industry and related work tasks

Competence and skills

- B.1 Develop software for an embedded computer (microcontroller) with external sensors and network connection
- B.2 Analyze a problem and create a requirements specification; from this, be able to implement a solution and verify that it fulfills the requirements
- B.3 Be able to use standard engineering tools, such as version control with Git
- B.4 Independently search and evaluate information about hardware and programming problems
- B.5 Be able to structure a written report as well as an oral presentation of a completed project
- B.6 Carry out a project in a group within a limited time frame during the course

Judgement and approach

- C.1 Reflect and evaluate a given approach to solve a problem
- C.2 Reflect on the relationship between engineering knowledge, engineering skills, and the professional role of an engineer
- C.3 Reflect on and evaluate their role versus the group effort in projects and assignments

Content

The course has two parallel tracks. The first track is about writing programs for a simple microcontroller that is used to interact with external devices, such as sensors and buttons connected to the internet. The second track introduces project management, working in groups and the professional role of an engineer.

Topics:

- Introduction to a microcontroller (hardware and software)
- Implement and execute programs in Python on a microcontroller
- Interact with external devices, such as sensors, buttons, and networked devices
- Introduction to project requirements, software design, and testing
- Introduction to engineering tools and methods, such as version control, requirements management, and communication
- Introduction to project management
- How to work in a group, the different roles with responsibilities
- How to search for information about software related issues, such as API, hardware specifications, and solutions
- How to write a fundamental project documentation
- Oral and written presentation of technical material
- An engineer's professional role in the work-life, typical tasks, and responsibilities

Type of Instruction

The course will consist of lectures, supervised labs and supervised project work as well as a final student presentation. Both the labs and the presentations are done in groups. The assignment 'an engineers professional role' is presented in the form of guest lectures and/or company visits.

Examination

The examination of the course is divided as following:

Code	Appellation	Grade	Credits
2001	Programming assignment	U/G	2.00
2002	Project (incl. Deliverables)	AF	4.00
2003	Presentation	AF	0.50
2004	Assignment about the professional role of engineer	U/G	1.00

The course is assessed with the grades A, B, C, D, E, Fx or F.
The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

To pass the course the student needs to pass the Programming assignment and the Engineer's professional role assignment, as well as getting at least an E on the other examinations. The final grade is determined from: Project (incl. Deliverables) (75%) and Presentation (25%).

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Objectives achievement

The examination parts are linked to the learning outcomes as follows:

Goal	2001	2002	2003	2004
A.1		✓	✓	
A.2		✓	✓	✓
A.3				✓
B.1	✓	✓		
B.2		✓	✓	
B.3	✓	✓		
B.4	✓	✓		
B.5		✓	✓	
B.6		✓	✓	
C.1	✓	✓	✓	
C.2			✓	✓
C.3		✓		

Course Evaluation
During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap
The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 1DT308, 7,5 credits

Other
The course is conducted in such a way that the course participants' experiences and knowledge are made visible and developed. This means, for example, that we have an inclusive approach and strive for no one to feel excluded. This can be expressed in different ways in a course, for example by the teacher using gender-neutral examples.

Required Reading and Additional Study Material

Together with the superviso, relevant literature will be selected.