Subject module project in Computer Science

About the course

subject	Fagmodul i Datalogi
Activity type	subject module project
Teaching language	English
Registration	You register for activities through stads selvbetjening during the announced registration period, which you can see on the Study administration homepage. Registration for project-exam: Please remember to confirm your registration by signing up for exam as a group when the group formation is final. The registration is through STADS Online Student Service When registering for courses, please be aware of the potential conflicts and overlaps between course and exam time and dates. The planning of course activities at Roskilde University is based on the recommended study programmes, which should not overlap. However, if you choose optional courses and/or study plans that goes beyond the recommended study programmes, an overlap of lectures or exam dates may occur depending on which courses you choose.
Detailed description of content	IMPORTANT: It is strongly recommended that the course Essential Computing is passed before the subject module project is initiated. The main task in a computer science subject module project is to develop a program with a complexity that raises interesting computational issues. All students have to participate in the development of the program and in the program documentation in the form of a report. The project work is supported by the subject module courses, for example the 10 ECTS course Software Development that typically is taken i parallel with the subject module project. Most students use the Java programming language since it is taught in the courses, but also other languages have been chosen, for example Processing, C#, python and C++. As a rule-of-thumb, the program has to comprise 200 lines of code per student, but the actual size depends on the complexity of the code. A wide range of programming projects can be carried out, for example more traditional projects focusing on algorithms and data structures, as well as application oriented projects, to name a few recent ones: Programming of Android apps, simulation of the solar system, Artificial Intelligence projects developing chat bots, neural networks for games, or neural nets for classification tasks or the prediction of the value of bitcoins. Many subject module projects are carried out in collaboration with the Flexlab (https://flexlab.ruc.dk), which is Computer Science and Informatics' laboratory for experimental technology exploration. The Flexlab encourage students to work with new technologies such as Virtual Reality, Internet of Things, Drones and physical computing. The lab is not only a place to work on your project, but a range of lab facilities are offered, as well as technical support from the lab manager. Recent projects involve programming of • drones for various purposes, for example rescue drones involving image recognition; • robots, for example in connection with art installations; and • virtual reality (VR), for example for training Danish army soldiers in parachute jumping.
Expected work effort (ECTS-declaration)	Project work will have a total workload of 405 hours. 40 hours are spent on project formation and around 40 hours for the exam and preparation for the exam. During the project period, there are 15 hours of project formation workshops and internal evaluation and groups of 4 students can expect 15 hours of supervision during their project. Students who are granted permission to working alone must expect a reduced number of supervisions.
Course material and Reading list	The project literature and curriculum are determined by the students in consultation with the supervisor and in compliance with requirements and learning goals as specified in the study programme. The students are expected to utilize curriculum from own literature search and reviews, and where possible from existing computer science courses.
Evaluation- and feedback forms	The project is supported by supervision from a project coordinator (at project establishment). The project coordinator is also facilitating establishment of the project groups. After a supervisor has been allocated to the project, the project group will be offered supervision throughout the projects period, i.e. throughout the semester. During the semester, a project group may, depending on how many students the group comprise, expect approximately one meeting per week. There will also be given feedback in connection with the mid-term evaluation, from supervisors as well as from other student groups. An electronic evaluation will take place at the end of the project period.
Administration of exams	IMT Registration & Exams (imt-exams@ruc.dk)

Responsible for the activity	Torben Braüner (torben@ruc.dk)

Type of examination	**Pr. 1. september 2023 er gruppestørrelsen på Basisprojekter og Fagmodulprojekter altid minimum 3 studerende. Dette gælder også selvom der måtte stå andet andre steder.** **As per 1 September 2023, the size of the project groups for basic and subject module projects is always minimum 3 students, even if it says otherwise elsewhere.**

ECTS	15

Learning outcomes and assessment criteria	• Knowledge and understanding • Knowledge and understanding of software development, including programming, algorithms and data structures. • Skills: • Proficiency in programming, testing and documenting a program in a higher, general programming language. • Proficiency in choosing and arguing for the choice of design, data structurers and algorithms for the specific project. • Proficiency in specifying and modelling requirements for the functionality of IT systems. • Competences: • Competences to plan, determine the requirements for, manage and complete a small software development process.

Overall content	The subject module is to make the students more proficient in describing and reflecting upon an independently completed task wherein a medium-sized programming job has been planned, implemented, tested and documented and which has used a higher, general programming language. The project work is concluded with the preparation of a written project report.

Teaching and working methods	Project work with supervision

Type of activity	Project

Form of examination (p1)	Oral group exam for the participants in the project. The starting point for the oral exam is the students' project report and additional material. The oral exam takes place as a dialogue between the students and the assessors. There may be posed questions related to any part the subject area of the project report. The assessment is an individual assessment of the project report and additional material and the individual students oral performance. Permitted group size: 2-6 students. The character limits of the project report are: For 2 students: 40,800-180,000 characters, including spaces. For 3 students: 40,800-192,000 characters, including spaces. For 4 students: 40,800-192,000 characters, including spaces. For 5 students: 40,800-204,000 characters, including spaces. For 6 students: 40,800-204,000 characters, including spaces. The character limits include the cover, table of contents, summary, bibliography, figures and other illustrations, but exclude any appendices. Time allowed for exam including time used for assessment is for: 2 students: 60 minutes. 3 students: 75 minutes. 4 students: 90 minutes. 5 students: 105 minutes. 6 students: 120 minutes. Writing and spelling skills in the project report are part of the assessment. Permitted support and preparation materials at the oral exam: All. Assessment: 7-point grading scale.

	Moderation: External examiner.
Form of Re-examination (p1)	Samme som ordinær eksamen
Exam code(s)	Exam code(s) : U26631

Course days:

Hold: 1

Subject Module Project: Computer Sciences - Projektformation (COMP)

time	04-09-2023 08:15 til 04-09-2023 12:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt
location	06.1-032 - teorirum (65)

Subject Module Project: Computer Sciences - Projektformation (COMP)

time	05-09-2023 09:00 til 05-09-2023 17:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt
location	10.2-049 - teorirum (58)

Subject Module Project: Computer Sciences - Projektformation (COMP)

time	06-09-2023 09:00 til 06-09-2023 13:00
location	10.2-049 - teorirum (58)

Subject Module Project: Computer Sciences - Projektformation (COMP)

time	08-09-2023 08:15 til 08-09-2023 12:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt
location	02.1-095 - kort og sten-salen (60)

Deadline for registration in STADS

time	12-09-2023 12:00 til 12-09-2023 12:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt

Subject Module Project: Computer Sciences - Project hand-in (COMP)

time	19-12-2023 10:00 til 19-12-2023 10:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt

Subject Module Project: Computer Sciences - Oral examination period (COMP)

time	15-01-2024 08:15 til 31-01-2024 18:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt

Subject Module Project: Computer Sciences - Oral reexamination period(COMP)

time	01-02-2024 08:15 til 29-02-2024 18:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt