DIT342 Web Development, 7.5 credits

Webbutveckling, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Computer Science and Engineering on 2021-11-17 to be valid from 2022-08-29, autumn semester of 2022.

Field of education: Science 100%
Department: Department of Computer Science and Engineering

Position in the educational system

The course is compulsory within the Software Engineering and Management Bachelor's Programme.

The course can be part of the following programmes: 1) Computer Science, Bachelor's Programme (N1COS), 2) Software Engineering and Management Bachelor's Programme (N1SOF)

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Main field of studies	*Specialization*
Software Engineering	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Entry requirements

To be eligible for this course, students must have successfully completed the courses DIT043 Object-Oriented Programming, 7.5 credits, and DIT033 Data Management, 7.5 credits, or equivalent.

Applicants must prove knowledge of English: English 6/English B or the equivalent level of an internationally recognized test, for example TOEFL, IELTS.

Learning outcomes
On successful completion of the course the student will be able to:

Knowledge and understanding
- define and contrast client-side and server-side web development
- explain the concept of full-stack development
- describe the key concepts and methods for web application development, including session management, database connectivity, asynchronous processing (AJAX), responsive design, and mobile-first web development
- explain different programming techniques for developing web applications with dynamic and interactive contents
- elaborate on basic concepts of distributed systems programming, such as processes and concurrency

Competence and skills
- develop Web applications with dynamic and interactive contents
- design web layouts with technologies such as HTML, CSS, and JavaScript
- develop full-stack applications using modern web libraries and frameworks
- develop mobile cross-platform applications using responsive design
- handle database connectivity and asynchronous processing

Judgement and approach
- reflect on how web programs are written, and how different components integrate, thus designing software efficiently

Course content
This course aims to cover key concepts, technologies and skills for server-side and client-side Web and mobile programming, including basic and advanced technologies and frameworks for interactive fullstack Web programming (HTML, CSS, JavaScript). The concept of responsive design will be used to show commonalities and differences of Web and mobile applications. Through this course, students will learn how to develop Web applications with dynamic and interactive contents, including Web applications designed for mobile consumption. Through the example of web applications, the course also discusses principles of how to write distributed applications in general.

Sub-courses

1. **Written hall examination** *(Skriftlig salstentamen),* 3 credits
    Grading scale: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U)

2. **Project** *(Projekt),* 4.5 credits
    Grading scale: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U)

Form of teaching

The teaching consists of lectures, project, exercises, as well as supervision in connection to the project.

Language of instruction: English

Assessment

The course is examined by an individual written exam carried out in an examination hall and a project normally carried out in groups. The project part is examined on the basis of individual contribution.

Students are required to complete written self- and peer-assessment forms during the course which will be part of the assessment of the student's individual contribution to the assignments.

Students who have not contributed sufficiently to the assignments will be asked to complete an individual task in order to receive a passing grade.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In cases where a course has been discontinued or has undergone major changes, the student shall normally be guaranteed at least three examination occasions (including the ordinary examination) during a period of at least one year from the last time the course was given.

Grades

The grading scale comprises: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U).
To pass the course, all mandatory components must be passed. To earn a higher grade than Pass, a higher weighted average from the grades of the components is required.

Course evaluation

The course is evaluated through a meeting after the course between teachers and student representatives. Further, an anonymous questionnaire is used to ensure written information. The outcome of the evaluations serves to improve the course by indicating which parts could be added, improved, changed or removed.

Additional information

Course literature to be announced the latest 8 weeks prior to the start of the course.

The course replaces the course DIT341, 7.5 credits. The course cannot be included in a degree which contains DIT341. Neither can the course be included in a degree which is based on another degree in which the course DIT341 is included.