Application Interfaces
Applikationsgränssnitt
7.5 credits
7.5 högskolepoäng

Ladok Code: C3KAP1
Version: 1.0
Established by: Utskottet för utbildningar inom bibliotek, information och IT 2019-02-05
Valid from: Autumn 2019

Education Cycle: First cycle
Main Field of Study (Progressive Specialisation): Information Architecture (G1F), Informatics (G1F)
Disciplinary Domain: Natural sciences
Prerequisites: Passing grades in the following courses: Technologies for web design (31KTW1 or 31ETW1), Dynamic web applications 1 – Client-based programming (31KDW1 or 31EDW1), or course equivalents
Subject Area: Informatics/Computer and Systems Sciences
Grading Scale: Seven-degree grading scale (A-F)

Content
The course focuses on design and the implementation of application programming interfaces (APIs). APIs are used to facilitate access to internet-based resources like images, video clips, serialized data, and HTTP, XML, and text documents, amongst others. The course deals with the technologies and standards REST-APIs (REpresentational State Transfer), the platform Node.js the framework Express.js, the document database MongoDB, and the data interchange format JSON. Additionally, the course provides an overview of the foundational methods in the protocol HTTP and basic authentication for API access. With these skills, students are expected to develop the facility to make available and access internet-based resources through an API.

Learning Outcomes
After completing the course, the student shall have the skills to, concerning:

Knowledge and understanding
1.1 Explain the foundational concepts within and the connections between application programming interfaces
1.2 Explain data security with respect to application programming interfaces

Competence and skills
2.1 Design an API to facilitate access to internet-based resources
2.2 Implement an API for providing access to internet-based resources
2.3 Implement API authentication
2.4 Retrieve and process data through an API

Judgement and approach
3.1 Explain and reflect over the practical and theoretical aspects of API development
3.2 Explain and reflect over the practical and theoretical aspects of API data security

Forms of Teaching
Teaching is conducted using lab work, seminars, supervision, and lectures.

The language of instruction is English.

Forms of Examination
The course is graded through the following examinations:

- Examination: home exam
Learning outcomes: 1.1, 1.2, 3.1, 3.2
Credits: 1.0
Grading scale: 7-degree grading scale (A-F)

- Written assignment 1: API construction (group assignment)
  Learning outcomes: 2.1, 2.2, 2.3, 3.1, 3.2
  Credits: 4.0
  Grading scale: 7-degree grading scale (A-F)

- Written assignment 2: access to data through an API, and processing of data
  Learning outcomes: 2.4
  Credits: 2.5
  Grading scale: pass (G) or fail (U)

To receive the grade E on the entire course requires an E or pass (G) for all examinations. A higher grade on the entire course is calculated thusly: grades for every assignment with a 7-degree grading scale are translated to numerical values (E=1, D=2, C=3, B=4, A=5) and then multiplied with 1 for the home exam and 4 for hand-in assignment 1. These two numbers are then added together and divided by 5. This number is then translated to the 7-degree grading scale.

Every student shall document their contributions to the group work as determined by the course instructor, and this documentation will be the basis for grading of the individual efforts of the student.

The examiner can decide that the written assignment 1: API construction (group work) be replaced with an individual written assignment if the student has not passed or has not participated in the group work during the course.

When the course plan is changed, students who wish to finish the course must do so according to the new plan’s content and assignment requirements. If the course no longer is offered on a regular basis, students who wish to complete the course must take all or part of another, equivalent course.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

**Literature and Other Teaching Methods**

Web-based material and additional student-found material totaling approximately 200 pages is also required.

**Student Influence and Evaluation**
The course is evaluated in accordance with current guidelines for course evaluations at the University of Borås in which students’ views are to be gathered. The course evaluation report is published and returned to participating and prospective students in accordance with the above-mentioned guidelines, and will be taken into consideration in the future development of courses and education programmes. Course coordinators are responsible for ensuring that the evaluations are conducted as described above.

**Miscellaneous**
The course is part of the degree programme Web Content Manager and Designer, 180 credits, and Web Content Manager and Designer, distance education, 180 credits, as well as being offered as an freestanding course.