CM2001 Mobile Sports Applications and Data Mining 6.0 credits

Mobila applikationer och dataanalys för idrott

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for CM2001 valid from Autumn 2019

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Medical Engineering

Specific prerequisites

7,5 ECTS Object Oriented Programming. English B/6.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After successful completion of the course the student will be able to:

· design and develop applications for mobile devices, both self-contained and those that communicate over networks, including the ability to consider hardware and network limitations during design

· develop usage-tailored user interfaces for mobile devices and judge whether they are sufficiently functional for their intended use.

· develop mobile phone software that uses both internal and external sensors, such as GPS, accelerometer, wearables, and camera.

· describe several cloud and messaging services for mobile devices in connection with data analysis for sports and health applications.

· apply existing data analysis methods on sensor data to find patterns and insights for sports and health

For higher grades it is also required that the student

• has the ability to explain, analyze, and critically evaluate some recent trends within the area of mobile applications for sports and health

• demonstrate a large degree of independence and ability to present one's own work

Course contents

This is a practically oriented course in the development of mobile applications, including data mining techniques, for sports and health. The following topics are included in the course:

· How mobile applications can be used in sports and health.

· Common mobile platforms, such as smartphones, tablets, smart watches and bracelets, and wearables.

· Hardware, operating systems, and development tools for mobile platforms as well as API:s for third party tools.

· Mobile application programming:

o Application components

o User interfaces

o Handling of persistent data

o Sensors in mobile devices

- Platform-independent development
- Cloud and messaging services for mobile systems
- The usage of camera for video analysis

Examination

- RED1 - Account, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory work, 2.0 credits, grading scale: P, F
- LAB2 - Laboratory work, 2.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.