Technology
Arts Sciences
TH Köln

Course
VMA - Programming distributed and mobile applications

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General information

Long name	Programming distributed and mobile applications
Approving CModule	VMA_BaET, VMA_BaTIN
Responsible	Prof. Dr. Cartsten Vogt Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	60
ECTS	5
Professors	Prof. Dr. Cartsten Vogt Professor Fakultät IME
Requirements	object-oriented programming (ideally Java) structure and functions of operating systems programming with concurrency / threading and with sockets communication protocols for data networks relational databases
Language	German, English if necessary
Separate final exam	Yes

Final exam

Details

Written exam:

Students shall prove that they can 1.) explain and apply fundamental terms, 2.) apply programming concepts to solve application problems in the field of mobile device programming and 3.) assess the correctness of statements and program code. Typical types of assignments are 1.) multiple choice

questions, fill-in-the-blank texts, assessment of statements, 2.) write program code to solve given problems of limited size and 3.) finding errors in texts and program code.

Minimum standard

At least 50% of the total number of points.

Exam Type

Written exam:
Students shall prove that they can 1.) explain and apply fundamental terms, 2.) apply programming concepts to solve application problems in the field of mobile device programming and 3.) assess the correctness of statements and program code. Typical types of assignments are 1.) multiple choice questions, fill-in-the-blank texts, assessment of statements, 2.) write program code to solve given problems of limited size and 3.) finding errors in texts and program code.

Lecture / Exercises

Learning goals

Knowledge

fundamental terms and techniques
characteristic properties of mobile devices
overview of current mobile operating systems and programming platforms
steps of mobile device programming (code development, emulation, and installation)

Mobile device programming with one or multiple current systems (Remark: This main part of the course will be continuously adapted to the current state of the art and the market. This document therefore lists only the main topics that will probably be covered.)
components of a mobile application
graphical user interfaces
data storage
concurrency
data communication, esp. Internet access
location-based services
security

assessing the risks in the programming and usage of mobile devices

Skills

using programming environments for mobile devices

programming smartphone applications of medium complexity

Expenditure classroom teaching

Type	Attendance (h/Wk.)

Lecture	2
Exercises (whole course)	1
Exercises (shared course)	1
Tutorial (voluntary)	0

Separate exam

none

Practical training

Learning goals

Knowledge

Smartphone programming on a selected system - details see "Vorlesung/Übung"

Skills

using programming environments for smartphones

implementation of smartphone applications of medium complexity in small teams

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Practical training	1
Tutorial (voluntary)	0

Separate exam

Exam Type

working on practical scenarion (e.g. in a lab)

Details

Students work in small teams. Each team completes multiple “rounds“ with assigned appointments in the lab. In each round, programming assigments are solved.

For the preparation of a laboratory appointment a “preparation sheet“ has to be solved. The acquired knowledge will be tested at the beginning of the appointment (short written entrance test, interview with the supervisor). In case of failure, a follow-up appointment must be taken; in case of multiple failures, the student will be excluded from the lab. In case of success, a "laboratory work sheet" with further tasks will be worked on under supervision (and, if necessary, with assistance).

Minimum standard

Successful participation in all laboratory appointments, i.e. in particular independent solution (or with some assistance if necessary) of the programming assignments.