Technology
Arts Sciences
TH Köln

Course Manual 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
Valid from	summer semester 2022
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

Literature

Aufgrund des sehr dynamischen Fachgebiets können Literaturangaben immer nur jeweils unmittelbar zu Veranstaltungsbeginn gemacht werden. Aktuell: http://developer.android.com; Künneth, Android 8 - Das Praxisbuch für Entwickler, Rheinwerk 2018

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.

Separate final exam	Yes

Minimum standard	At least 50% of the total number of points.
Exam Type	EN Klausur

− Lecture / Exercises

Learning goals

Goal type	Description
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)
Knowledge	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
Skills	using programming environments for mobile devices
Skills	programming smartphone applications of medium complexity
Knowledge	assessing the risks in the programming and usage of mobile devices

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1
Exercises (shared course)	1
Tutorial (voluntary)	0

Special 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

Accompanying material	lecture foils (electronic), exercises (electronic), example program code and projects (electronic), links to relevant Web pages (esp. API documentation, programming examples, and free software development tools)
Separate exam	No

Practical training

Learning goals

Goal type	Description
Knowledge	Smartphone programming on a selected system - details see "Vorlesung/Übung"
Skills	using programming environments for smartphones
Skills	implementation of smartphone applications of medium complexity in small teams

Expenditure classroom teaching

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

Special requirements

object-oriented programming (ideally Java), programming with concurrency / threading and with sockets, communication protocols for data networks, relational databases

Accompanying material	lecture foils (electronic), example programs and projects (electronic), links to relevant Web pages (esp. API documentation, programming examples, and free software development tools)
Separate exam	Yes

Separate exam

Exam Type	EN praxisnahes Szenario bearbeiten (z.B. im Praktikum)

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.