Technology
Arts Sciences
TH Köln

Course
SM - Software Management

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General information

Long name	Software Management
Approving CModule	SM_BaTIN
Responsible	Prof. Dr. René Wörzberger Professor Fakultät IME
Organisation and materials	Ilu course
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	78
ECTS	5
Professors	Prof. Dr. René Wörzberger Professor Fakultät IME
Requirements	(1) advanced programming skills in Java (2) experiences with development projects in teams (3) basic knowledge in software engineering
Language	German, English if necessary
Separate final exam	Yes

Final exam

Details

The final exam is either written or oral. Guided by stepwise assignments, students have to demonstrate how they develop a system in a team, automate build steps, implement automated tests and how to build a system cluster in the cloud.

Minimum standard

Some basic knowledge in the aforementioned topics must be demonstrated. Usually, in written exams 50% of all exam points suffice.

Exam Type

The final exam is either written or oral. Guided by stepwise assignments, students have to demonstrate how they develop a system in a team, automate build steps, implement automated tests and how to build a system cluster in the cloud.

Lecture / Exercises

Learning goals

Knowledge

inner workings of the source code management systems Git

organizing teams with GitLab functions

automate builds with Apache Maven

continuous integration and delivery (CICD) with GitLab Runner

test automation with JUnit

developing mocks with Mockito

automating web ui tests with Selenium

automating web ui tests with Selenium

measuring code quality with Sonarqube

on-prem and cloud infrastructures

container virtualization with Docker

container orchestration with Kubernetes

Skills

creating a system cluster in the Google Cloud

Expenditure classroom teaching

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

Separate exam

none

Practical training

Learning goals

Skills

how to develop in teams with GitLab

adding and developing a code base with Git

creating build scripts with Maven

Implementation of tests with JUnit, Mockito, Selenium, and JMeter

containerization and deployment with Docker and Kubernetes

set-up of a system cluster in the Google Cloud including (continuous) deployment of releases

Expenditure classroom teaching

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

Separate exam

Exam Type

working on projects assignment with your team e.g. in a lab)

Details

Solutions of the home work and on-site part of the lab course have to be demonstrated by the student teams and to be discussed with supervisors. In case of sufficient solution quality members of the respective team get a pass for the lab course part. There are about 3 to 4 lab course parts in each term.

Minimum standard

Solutions must work in the sense of the assignment.