

Course Manual SM

Software Management

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– General information

Long name	Software Management
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Approving CModule	SM_BaTIN
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Responsible	Prof. Dr. René Wörzberger Professor Fakultät IME
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Valid from	winter semester 2022/23
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Level	Bachelor
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Semester in the year	winter semester
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Duration	Semester
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Hours in self-study	78
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ECTS	5
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Professors	Prof. Dr. René Wörzberger Professor Fakultät IME
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Requirements	(1) advanced programming skills in Java (2) experiences with development projects in teams (3) basic knowledge in software engineering
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Language	German, English if necessary
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Separate final exam	Yes
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Literature

wird in Vorlesung bekannt gegeben

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

EN Klausur

– Lecture / Exercises

Learning goals

Goal type	Description
Knowledge	inner workings of the source code management systems Git
Knowledge	organizing teams with GitLab functions
Knowledge	automate builds with Apache Maven
Knowledge	continuous integration and delivery (CI/CD) with GitLab Runner
Knowledge	test automation with JUnit
Knowledge	developing mocks with Mockito
Knowledge	automating web ui tests with Selenium
Knowledge	automating web ui tests with Selenium
Knowledge	measuring code quality with Sonarqube
Knowledge	on-prem and cloud infrastructures
Skills	creating a system cluster in the Google Cloud
Knowledge	container virtualization with Docker
Knowledge	container orchestration with Kubernetes

Special requirements

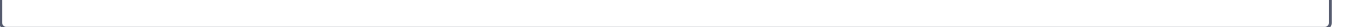
none

Accompanying material	(1) lecture slides (2) lecture notes (tbd) (3) assignment sheets
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Separate exam	No
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Expenditure classroom teaching

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



– Practical training

Learning goals

Goal type	Description
Skills	how to develop in teams with GitLab
Skills	adding and developing a code base with Git
Skills	creating build scripts with Maven
Skills	Implementation of tests with JUnit, Mockito, Selenium, and JMeter
Skills	containerization and deployment with Docker and Kubernetes
Skills	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

Special requirements

none

Accompanying material assignment sheets for the prepared part (home work) of the lab course, assignment sheets for the on-site part of the lab course

Separate exam Yes

Separate exam

Exam Type EN Projektaufgabe im Team bearbeiten (z.B. im Praktikum)

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.