Technology
Arts Sciences
TH Köln

Course Manual SE

Software Engineering

– General information

Long name	Software Engineering
Approving CModule	SE_BaTIN
Responsible	Prof. Dr. Hans Nissen Professor Fakultät IME
Valid from	winter semester 2021/22
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	78
ECTS	5
Professors	Prof. Dr. Hans Nissen Professor Fakultät IME
Requirements	programming skills in Java
Language	German
Separate final exam	Yes

Literature

I. Sommerville: Software Engineering, Addison-Wesley, 2018.

H. Balzert: Lehrbuch der Softwaretechnik: Basiskonzepte und Requirements Engineering, Spektrum Akademischer Verlag, 3. Auflage, 2009.

B. Oestereich: Analyse und Design mit der UML 2.5: Objektorientierte Softwareentwicklung, Oldenbourg Verlag, 11. Auflage, 2013.

B. Brügge, A.H. Dutoit: Objektorientierte Softwaretechnik mit UML, Entwurfsmustern und Java, Pearson Studium, 2006.

H. Balzert: Lehrbuch der Softwaretechnik: Entwurf, Implementierung, Installation und Betrieb, Spektrum Akademischer Verlag, 3. Auflage, 2012.

Final exam

Details	Written exam. The exam ensures that each student also individually has reached the goals of the learning outcome, through tasks of the following types: Questions about basic knowledge regarding specification techniques, design principles, methods for software testing (K.2, K.3), Modeling the different perspectives of a software system (K.1, K.2, K.4, K.5, K.9), Creation of suitable test cases (K.7, K.9), Application of simple design patterns (K.9).
Minimum standard	At least 50% of the total number of points.
Exam Type	EN Klausur

− Lecture / Exercises

Learning goals

Goal type	Description
Knowledge	overview of Software Engineering
Knowledge	software development process models
Knowledge	requirements engineering
Knowledge	system and software specification techniques
Knowledge	modelling in UML
Knowledge	modern system architectures
Knowledge	quality assurance methods
Knowledge	tasks and methods of configuration management
Skills	documentation of requirements
Skills	evaluation of process models
Skills	development of system specifications
Skills	design and evaluation of different system architectures
Skills	design and evaluation of different software architectures
Skills	design of logical test cases and precise test procedures
Skills	Creation of readable program code

Special requirements

safe handling of Java

Accompanying material	electronic presentation slides for the lecture, electronic worksheets for exercises
Separate exam	No

Expenditure classroom teaching

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

— Practical training

Learning goals

Goal type	Description
Skills	text understanding
Skills	usage of modelling tools
Skills	development of models
Skills	writing object-oriented programs in Java
Skills	testing of programs
Skills	transform model into code
Skills	develop system models from requirements
Skills	develop system design from system model
Skills	implementation of system models
Skills	verification of program code

Expenditure classroom teaching

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

Special requirements

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Accompanying material	elektronische Vortragsfolien zur Vorlesung , elektronische Übungsaufgabensammlung
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, modelling and programming assigments are solved under supervision (and, if necessary, with assistance). For the preparation of a laboratory appointment a homework sheet has to be solved.
Minimum standard	Successful participation in all laboratory appointments, i.e. in particular independent solution (or with some assistance if necessary) of the assignments.