Data field	Explanation
Module number	M08
German title / English title	Softwaretechnik / Software Engineering
Credits	5 ECTS
Workload	68 Contact hours (3 SWS SU + 1 SWS Ü),82 Hours of independent study
Subject coverage	Subject-specific principles
Learning outcomes	Students know basic principles of Software Engineering. They are acquainted with an object-oriented programming language and can systematically develop and test software in the context of information and communication systems.
Requirements	none
Level	2. Semester
Type of module	Seminar, Laboratory Training
Status	Required module
Semesters when offered	Summer semester
Method of assessment / Type of examination	The method of assessment / type of examination must be defined by the lecturer within the deadline determined in §19 (2) RSPO. Should the deadline pass without determination of the form of assessment in the module, the following method of assessment / type of examination applies: SU Written examination (90 minutes), Ü Written laboratory report (10-15 pages) with consultation (15-30 minutes)
Grade assessment	See study and examination regulations
Content	• Fundamentals of object-oriented design and implementation with practical exercises in an object-oriented programming language, for example Python • Use of the Unified Modeling Language (UML) for expressing structure and interaction within larger software architectures • Basic knowledge of modern software engineering processes • Use of software development tools: Versioning systems, Integrated Development Environments (IDE), and Testing frameworks • Quality assurance in software-intensive systems • Basic design patterns, for example „Iterator“ or „Observer“ • Fundamental data structures, for example container classes, buffers, queues
Reading list	Sommerville: Software Engineering, Addison-Wesley Longman Gamma, Helm, Johnson, Vlissides: Patterns. Elements of Reusable Object-Oriented Software., Addison-Wesley Spillner, Linz, Schaefer: Software Testing Foundations - A Study Guide for the Certified Tester Exam, Rocky Nook Fowler: UML Distilled: A Brief Guide to the Standard Object Modeling Language, 3rd. Edition, Addison-Wesley
Further information	Language employed in the module: English
Required Room type	SU-Sem, Ü-Lab