

Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Software Quality and Metrics
Code der Lehrveranstaltung	76103
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	INFO-01/A
Sprache	Englisch
Studiengang	Master in Software Engineering
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	dr. Marina Andric, Marina.Andric@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/42187 Dott. Diaeddin M A Rimawi, Diaeddin.Rimawi@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/46519
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
Studienjahr/e	2
KP	6
Vorlesungsstunden	40
Laboratoriumsstunden	20
Stunden für individuelles Studium	90
Vorgesehene Sprechzeiten	38
Inhaltsangabe	<ul style="list-style-type: none"> • Importance of quality • Software product quality • Software process quality

	<ul style="list-style-type: none"> • Software quality metrics • Measurement techniques for monitoring software quality • Total Quality Management tools and techniques and their application to software
Themen der Lehrveranstaltung	The course complements the core topics with methods for evaluating modern software systems, including AI-based applications and recommender systems, and with statistical and empirical techniques for analyzing software quality data.
Stichwörter	Software quality; Software metrics; Empirical software engineering; AI software quality.
Empfohlene Voraussetzungen	
Propädeutische Lehrveranstaltungen	
Unterrichtsform	Frontal lectures, group work, and laboratory exercises.
Anwesenheitspflicht	Attendance is not mandatory but strongly recommended. Non-attending students should contact the lecturer at the start of the course to agree on the modalities of the independent study.
Spezifische Bildungsziele und erwartete Lernergebnisse	<p>Knowledge and understanding</p> <p>D1.1 possess solid knowledge of both the fundamentals and the application aspects of the various fundamental areas of computer science</p> <p>Applying knowledge and understanding</p> <p>D2.1 know how to apply the fundamentals of empirical analysis of ICT data for the construction of mathematical models for the evaluation and prediction of characteristics of applications and software systems</p> <p>Making Judgements</p> <p>D3.3 ability to define work objectives compatible with the available time and resources</p> <p>Communication skills</p> <p>D4.6 ability to carry out research and projects in a working group.</p> <p>Learning skills</p> <p>D5.4 ability to formulate and validate theories and define new</p>

	methods using empirical induction and new generation scientific investigation tools.
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	Upon successful completion of the course, students will be able to select appropriate software quality metrics, interpret measurement results, assess software products and processes, apply quality analysis tools, and justify software quality decisions using empirical evidence.
Art der Prüfung	The final grade consists of graded laboratory assignments (one third) and a final project (two thirds). The final project is assessed through a written report, a presentation, and an individual oral discussion. Depending on the class size, the project may be completed individually or in groups.
Bewertungskriterien	Both the laboratory assignments and the final project must be completed. The course is passed if the final mark is at least 18/30. Assessment results remain valid for the three regular examination sessions of the academic year; afterwards, all results expire.
Pflichtliteratur	Lecture notes will be handed out during the course. Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it
Weiterführende Literatur	Fenton, N. E., & Bieman, J. Software Metrics: A Rigorous and Practical Approach (3rd ed.). CRC Press, 2014. Robillard, M. P., Maalej, W., Walker, R. J., & Zimmermann, T. (Eds.). Recommendation Systems in Software Engineering. Springer, 2014.
Weitere Informationen	
Ziele für nachhaltige Entwicklung (SDGs)	Industrie, Innovation und Infrastruktur, Hochwertige Bildung