Syllabus

Course Description

Course Title	Software Quality and Metrics
Course Code	76103
Course Title Additional	
Scientific-Disciplinary Sector	INFO-01/A
Language	English
Degree Course	Master in Software Engineering
Other Degree Courses (Loaned)	
Lecturers	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
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	40
Lab Hours	20
Individual Study Hours	90
Planned Office Hours	38
Contents Summary	• Importance of quality • Software product quality • Software process quality • Software quality metrics • Measurement techniques for monitoring software quality • Total Quality Management tools and techniques and their application to software

Course Topics	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.
Keywords	Software quality; Software metrics; Empirical software engineering; AI software quality.
Recommended Prerequisites	
Propaedeutic Courses	
Teaching Format	Frontal lectures, group work, and laboratory exercises.
Mandatory Attendance	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.
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding D1.1 possess solid knowledge of both the fundamentals and the application aspects of the various fundamental areas of computer science Applying knowledge and understanding 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 Making Judgements D3.3 ability to define work objectives compatible with the available time and resources Communication skills D4.6 ability to carry out research and projects in a working group. Learning skills D5.4 ability to formulate and validate theories and define new methods using empirical induction and new generation scientific investigation tools.
Specific Educational Objectives and Learning Outcomes (additional info.)	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.
Assessment	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.
Evaluation Criteria	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.
Required Readings	Lecture notes will be handed out during the course. Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it
Supplementary Readings	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.
Further Information	
Sustainable Development Goals (SDGs)	Industry, innovation and infrastructure, Quality education