Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Research Methods
Code der Lehrveranstaltung	76107
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	IINF-05/A
Sprache	Englisch
Studiengang	Master in Software Engineering
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	Prof. Ilenia Fronza, Ilenia.Fronza@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/17458
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
Studienjahr/e	2
KP	6
Vorlesungsstunden	40
Laboratoriumsstunden	20
Stunden für individuelles Studium	90
Vorgesehene Sprechzeiten	18
Inhaltsangabe	• Quantitative, qualitative, and mixed-methods • Literature review • Questionnaires and Interviews • Experiments • Case study • Reporting research results

Themen der Lehrveranstaltung	The course addresses key challenges in scientific research and equips students with effective methods for conducting and reporting research.
Stichwörter	Research methods, Reporting research
Empfohlene Voraussetzungen	
Propädeutische Lehrveranstaltungen	
Unterrichtsform	Frontal lectures, hands-on activity, and discussion.
Anwesenheitspflicht	Attendance is not compulsory. However, students must attend at least 75% of the lab hours to qualify as "attending students.
Spezifische Bildungsziele und erwartete Lernergebnisse	Knowledge and understanding D1.2 be able to analyse and solve even complex problems in the area of Software Engineering for Information Systems with particular emphasis on the use of empirical evaluation studies, methods, techniques and technologies D1.7 know the various fields of application of Software Engineering also with reference to the local, national and international economic-social context D1.8 ability to read and understand specialist scientific documentation, such as conference proceedings, articles in scientific journals, technical manuals Applying knowledge and understanding D2.2 know how to design and carry out experimental analyses of software systems in order to acquire measurements of their behaviour and evaluate experimental hypotheses in different application fields, such as business, industry or research Making judgements D3.1 ability to independently select documentation from various sources, including technical books, digital libraries, technical scientific journals, web portals or open source software and hardware tools D3.5 ability to work with broad autonomy, taking responsibility for projects and structures. Communication skills

	D4.1 ability to present the contents of a scientific/technical report in a set time in front of diverse audiences, including non-specialists. Learning skills D5.1 ability to independently extend the knowledge acquired during the course of study by reading and understanding scientific and technical documentation in English
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	
Art der Prüfung	Attending students Project work [70% of mark] + final exam (oral) [30% of mark]. Project work is needed to assess the intended Learning Outcomes (ILOs) D1.2, D1.8, D2.2, D3.1, and D3.5. The oral exam is needed to assess ILOs D1.7, D1.8, D2.2, D4.1, and D5.1. Project work and final exam are mandatory, and both must be positive to pass the exam. In case of a positive mark for the project work, the mark will count for the remaining regular exam sessions. In case of negative evaluation of the project work, a new project needs to be submitted for the next session. Project work must be evaluated BEFORE the final exam, otherwise the exam cannot be registered. Students must attend at least 75% of the lab hours to qualify as "attending students". Non-attending students Final exam (oral) [100% of mark]. Verification questions and discussion about the topics of the course. ILOs assessed: all.
Bewertungskriterien	Relevant for the final exam assessment: correctness of answers, clarity of answers, ability to summarize, and deep understanding of the course topics. Relevant for the project work assessment: skills in critical thinking, identification of interesting research questions, correct application of the research methods, effectiveness in the results, and quality of

	the final report.
Pflichtliteratur	• Experimentation in Software Engineering. C. Wohlin, P. Runeson, M. Höst, M.C. Ohlsson, B. Regnell, A. Wesslén. Springer, 2012 • Software Metrics – A Rigorous & Practical Approach. N. Fenton, S. Pfleeger. • Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. Sage. • · Richards, L. (2014). Handling qualitative data: A practical guide. Sage. • Easterbrook S., Singer J., Storey MA., Damian D. (2008) Selecting Empirical Methods for Software Engineering Research. In: Shull F., Singer J., Sjøberg D.I.K. (eds) Guide to Advanced Empirical Software Engineering. Springer, London. https://doi.org/10.1007/978-1-84800-044-5_11 • Fowler, F. J. (2009). Applied Social Research Methods: Survey research methods (4th ed.). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781452230184 • Runeson, P., Host, M., Rainer, A., & Regnell, B. (2012). Case study research in software engineering: Guidelines and examples. John Wiley&Sons. https://onlinelibrary.wiley.com/doi/book/10.1002/9781118181 • Additional books and papers will be provided during the course.
Weiterführende Literatur	
Weitere Informationen	
Ziele für nachhaltige Entwicklung (SDGs)	Geschlechter-Gleichheit, Hochwertige Bildung