HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

MI137 - Advanced Software Engineering

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Allgemeine Informationen	
Modulkürzel oder Nummer	MI137
Eindeutige Bezeichnung	
Modulverantwortlich(e)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lehrperson(en)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Wird angeboten zum	Sommersemester 2023
Moduldauer	1 Fachsemester
Angebotsfrequenz	Regelmäßig
Angebotsturnus	In der Regel im Sommersemester
Lehrsprache	Englisch
Empfohlen für internationale Studierende	Ja
Ist als Wahlmodul auch für andere Studiengänge freigegeben (ggf. Interdisziplinäres Modulangebot - IDL)	Ja

Studiengänge und Art des Moduls (gemäß Prüfungsordnung)

Studiengang: M.Sc. - MIE - Information Engineering (PO 2022, V3)
Modulart: Wahlmodul
Fachsemester: 1, 2, 3

Kompetenzen / Lernergebnisse

Kompetenzbereiche: Wissen und Verstehen; Einsatz, Anwendung und Erzeugung von Wissen; Kommunikation und Kooperation; Wissenschaftliches Selbstverständnis/Professionalität.

The Advanced Software Engineering course focuses on contemporary techniques for the development of software systems, with an emphasis on the construction and management large and secure software systems. The course will also equip you with essential research, analytical and critical thinking skills.

The course deals with the model-based specification of software systems and components as well as their verification, validation and quality assurance. The emphasis is on view-based specification methods that use multiple views, expressed in multiple languages, to describe orthogonal aspects of software systems/components. Key examples include structural views represented using class diagrams, operational views expressed using constraint languages and behavioural views expressed using state diagrams. An important focus of the course is the use of these views to define tests and extra-functional properties.

Students learn to:
- Analyze and assess the requirements for new or existing software applications and operating systems
- Design, develop, and test user-friendly software solutions in the field of user experience engineering
- Create specifications for, develop, implement, introduce, maintain, and refine complex software architectures and systems
- Evaluate, compare, plan, design, implement, and develop IT applications
- Plan, design, and carry out software tests
- Analyze, design, develop, implement, and test modern, user-friendly operating concepts and user interfaces
- dentify, analyze, and model complex issues and processes (on behalf of clients)
- Collaborate on, head, or supervise IT projects

Angaben zum Inhalt

Lehrinhalte	After taking the course, students will be familiar with the latest state-of-the-art techniques for specifying the externally visible properties of a software system/component – that is, for describing a software system/component as a 'black box'. Participants will also know how to use the expertise acquired during the course to describe the requirements that a system/component has to satisfy and to define tests to check whether a system/component fulfils these requirements. With the acquired skills and know-how, students will be able to play a key role in projects involving the development of systems, components and software applications. Topics: - Software Quality - Software Reliability - Distributed Software Engineering - Aspect-Oriented Software Engineering - Service Oriented Architecture - Release Engineering - Optimization and Performance
Literatur	Somerville: Software Engineering. Ludewig, Lichter: Software Engineering. dpunkt.verlag. Shepperd, Ince: Derivation and Evaluation of Software Metrics, Claredon Press. Wohlin, et. Al: Experimentation in Software Engineering, Springer. Proceedings of the International Symposium on Search-Based Software Engineering

Lehrformen der Lehrveranstaltungen

Lehrform	SWS

Lehrvortrag	2
Projekt	2

Arbeitsaufwand	
Anzahl der SWS	4 SWS
Leistungspunkte	5,00 Leistungspunkte
Präsenzzeit	48 Stunden
Selbststudium	102 Stunden

Modulprüfungsleistung	
Voraussetzung für die Teilnahme an der Prüfung gemäß PO	Keine
MI137 - Portfolioprüfung	Prüfungsform: Portfolioprüfung Gewichtung: 100% wird angerechnet gem. § 11 Absatz 2 PVO: Nein Benotet: Ja