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

PM102 - Advanced Software Programming

PM102 - Advanced Software Programming

General information	
Module Code	PM102
Unique Identifier	AdvSWProg-01-MA-M
Module Leader(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Lecturer(s)	Prof. Dr. Prochnow, Steffen (steffen.prochnow@haw-kiel.de)
Offered in Semester	Wintersemester 2025/26
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel im Wintersemester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	Yes

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - MIE - Information Engineering (PO 2022, V3)
Module type: Pflichtmodul
Semester: 1, 2

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

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 sustainable software systems. The course deepens the knowledge about advanced software development practices. will also equip you with essential research, analytical and critical thinking skills.

In the context of this course, software generators are tools that application developers use to generate software artifacts with regard to a certain domain specific context. Students should be empowered to automatically develop and use executable software systems from formally specified models. The course is Java-based and builds on the Eclipse framework.

Methodological: Students have enhanced and deepened their scientific competencies, e.g. they are capable of formulating and presenting their results comprehensibly to other experts in the field

Content information	
Content	- Development and configuration of software development tools (plug-in development environment) based on Eclipse and Java - Concepts of model-driven software development (MDSD / MDA) based on the MOF (Meta Object Facility) - Design and implementation of domain-specific languages (DSL) with EMF (Eclipse Modeling Framework) - Language processing tools (including code generation) - Interpreter models - Development and application of tool chains for the partially automated production of software for selected example domains
Literature	- Beydeda, Sami; Book, Matthias; Gruhn, Volker (Eds.): Model-Driven Software Development, Springer, 2005. - Thomas Stahl , Markus Voelter, et al., Model-Driven Software Development: Technology, Engineering, Management, Wiley, 2008 - George T. Heineman, William T. Councill: Component-Based Software Engineering: Putting the Pieces Together, Addison-Wesley Professional, 2001 - E. Clayberg, D. Rubel: Eclipse Plug-ins. Addison-Wesley, 2009.

Teaching formats of the courses	
Teaching format	**SWS**
Seminar	2
Lehrvortrag	2

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
PM102 - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Absatz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Pre-requisites for this course are: - methods and processes of Software Engineering - Object Oriented Programming - Model-based Design with UML - Java
Miscellaneous	This course is not offered anymore. Students who still need this course have to choose module Advanced Software Engineering (ASE) as a substitute.