

03-IMS-ISDM	Inside the Software Developer's Mind
	How We Understand, Navigate and Visualize Code

Lehrform (*teaching format*) / **SWS** (*hours per week*): 2SE

Kreditpunkte (*credit points*): 3

Turnus (*frequency*): Every semester

Inhaltliche Voraussetzungen (*content-related prior knowledge/skills*): NONE

Sprache (*language*): English

Lehrende (*teaching staff*): AG-Softwaretechnik (Amir Mashmool)

Studiengang (<i>degree program</i>)	Module	Semester
Informatik (Master)	IMS	from 1st sem.
AI and Intelligent Systems (Master)	AI-R-MS	from 2nd sem.
Digital Media (Master)	DMM-MA-2	from 1st sem.

Lernergebnisse / *Learning Outcome*:

- Understand the principles of program comprehension, and software visualization and their role in modern software engineering.
 - Critically analyze and compare scientific literature on diverse software engineering topics, including program comprehension, code navigation, software visualization, SE4AI, AI4SE, and LLMs for code.
 - Develop the ability to present and discuss research findings in a clear, structured, and scientifically sound manner.
 - Strengthen academic writing, critical thinking, and communication skills through seminar presentations and reports.
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Inhalte / *Contents*:

- Foundations of program comprehension, code navigation, and software visualization.
 - Research methods and techniques for understanding, exploring, and maintaining complex software systems.
 - Program slicing, fault localization, code summarization, code generation, cognitive aspects of software engineering, eye tracking, and related topics.
 - LLMs for Software Engineering, agentic software engineering, and related AI-based approaches.
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Hinweise (*remarks*): The table lists only the primary / most specific modules to which this course is assigned.