

Only the german version of the module description as part of the study regulations is legally binding.

Module name	Advanced Virtual Reality
Module number	INF-25-Ma-FVC-AVR
Responsible lecturer	Prof. Dr. Matthew McGinity matthew.mcginity@tu-dresden.de
Qualification objectives	Students are familiar with current developments in the field of immersive visual, acoustic and haptic display technologies and spatial computer interfaces. They understand the current challenges and trends in the design and development of immersive interfaces and applications and are proficient in the design and implementation of user studies and experiments with immersive technologies.
Content	Contents of the module are advanced display and capture technologies, augmented reality and spatial computing, virtual worlds and avatars, empirical measurements of virtual experiences, multi-user systems, software architectures and application design for AR and VR, latest theories of perception and cognitive science relevant for the development of interactive and immersive systems, as well as the design of empirical studies using immersive technologies.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self-studium. The language of instruction for the lectures and exercises is English.
Prerequisites for participation	In the Diploma degree program in Computer Science, the competencies to be acquired in the modules INF-25-Ma-FVC-FVR Foundations of Virtual Reality, INF-25-Ba-MCI Foundations of Human-Computer Interaction, INF-25-Ba-SWT Software Technology, INF-25-Ma-FVC-FCG Foundations of Computer Graphics, INF-25-Ba-DMF Data Management Foundations, INF-25-Ba-KI Artificial Intelligence and INF-25-Ma-FVC-CV Computer Vision are required. In the Bachelor's degree course in Applied Computer Science with a specialization in Medical Computer Science, the competences to be acquired in the modules INF-25-Ma-FVC-FVR Foundations of Virtual Reality, INF-25-Ba-MCI Fundamentals of Human-Computer Interaction, INF-25-Ba-SWT Software Technology, INF-25-Ma-FVC-FCG Foundations of Computer Graphics, INF-25-Ba-PMZ-DBE Database Engineering and INF-25-Ba-KI Artificial Intelligence are required. In the Bachelor's degree course in Applied Computer Science with a specialization in Media Informatics, the competences to be acquired in the modules INF-25-Ma-FVC-FVR Foundations of Virtual Reality, INF-25-Ba-MCI Foundations of Human-Computer Interaction, INF-25-Ba-SWT Software Technology, INF-25-Ma-FVC-FCG Foundations of Computer Graphics, INF-25-Ba-DMF Data Management Foundations and INF-25-Ba-KI Artificial Intelligence are required.
Applicability	The module is a compulsory elective module in the Diploma degree course in Computer Science in the main study program in the subject area Visual Computing and Machine Learning, which must be selected in

	accordance with Annex 2 to the examination regulations. In the Bachelor's degree program in Applied Computer Science , the module is a compulsory elective module in the specialization in Media Informatics and in the specialization in Medical Informatics, which must be selected in accordance with the appendix to the examination regulations. In the Master's degree program in Computer Science, the module is a compulsory elective module in the open track in the subject area Visual Computing and Machine Learning as well as the supplement, which must be selected in accordance with Annex 2 to the examination regulations . The module can only be chosen once in the Master's degree program in Computer Science. The module cannot be selected in the Master's degree program in Computer Science if this module or a module with essentially the same content from a degree program with m the admission requirements according to Section 3 of the study regulations have already been completed. The module creates the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 120 minutes. The examination language is English.
Credit points and grades	6 credit points can be earned through the module. The module grade corresponds to the grade of the examination.
Module frequency	The module is offered every summer semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.