

<b>Module title</b>		<b>Abbreviation</b>
Interactive Computer Graphics		10-MCS-ICGV-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>
holder of the Chair of Computer Science IX		Institute of Computer Science
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
5	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	undergraduate	--
<b>Contents</b>		
<p>The module teaches basic methods for digital synthesis and manipulation of visual content in the context of interactive 3D computer graphics. This includes principles of modeling light-matter interaction, illumination models, image formats, data representations, the mathematical formulations of motion and projections, and texturing techniques. Theoretical aspects of the ray-tracing and raster pipeline substeps and their extension by algorithmic approaches to interactive image synthesis using computer systems will be taught. The WebGL pipeline will be used to practically illustrate the concepts of modern renderers. Typical application areas for interactive 3D computer graphics are contemporary and novel graphical human-computer interfaces, for example in the areas of virtual and augmented reality, the visualization of complex data in scientific and industrial applications, or the economically growing segment of computer games.</p>		
<b>Intended learning outcomes</b>		
<p>After participating in the module courses, students know basic concepts of digital synthesis and manipulation of visual content. They can recall, summarize and explain principle methods and implement them.</p>		
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)		
V (2)		
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)		
<p>written examination (approx. 60 to 120 minutes) Language of assessment: German and/or English creditable for bonus</p>		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
<p>Bachelor' degree (1 major) Human-Computer Systems (2015) Bachelor' degree (1 major) Human-Computer Systems (2016) Bachelor' degree (1 major) Human-Computer Systems (2018)</p>		