

<b>Module title</b>		<b>Abbreviation</b>
3D User Interfaces		10-HCI=3DUI-161-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	graduate	--
<b>Contents</b>		
<p>This module will give students the opportunity to learn about the specificities of 3D User Interfaces (3DUI) development using Virtual, Augmented or Mixed Reality technologies. The module content will be mainly dedicated to learn and practice the skills essential to the design and implementation of high-quality 3D interaction techniques. Design guidelines as well as classical and innovative 3D Interaction techniques will be studied. In addition, the course will address novel research themes such as 3D interaction for large displays and games; and integrating 3DUIs with mobile devices, robotics, and the environment. Students will be assessed through a group practical project (team work), which will consist of a program, a presentation, a technical report (2 pages) and a video. Previous years, the assignment replicated the IEEE 3DUI Contest 2011, where teams of students competed between each other to find the best solution (see results at <a href="https://www.youtube.com/watch?v=gYs-pBW7Agc">https://www.youtube.com/watch?v=gYs-pBW7Agc</a> and <a href="https://www.youtube.com/watch?v=gYs-pBW7Agc">https://www.youtube.com/watch?v=gYs-pBW7Agc</a>)</p>		
<b>Intended learning outcomes</b>		
<p>After the course, the students will gain a solid background on the theory and the methods to create your own 3D spatial interfaces. They will have a broad understanding of the particular difficulties of designing and developing spatial interfaces, as well as evaluating them. Students will also learn about traditional and novel 3D input/output devices (e.g. motion tracking system and Head-mounted Display).</p>		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
V (2) + Ü (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>presentation of project results (approx. 30 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>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
<p>Master's degree (1 major) Computer Science (2016)          Master's degree (1 major) Mathematics (2016)          Master's degree (1 major) Computational Mathematics (2016)          Master's degree (1 major) Computer Science (2017)          Master's degree (1 major) Computer Science (2018)</p>		

Master's degree (1 major) Computational Mathematics (2019)  
Master's degree (1 major) Mathematics (2019)  
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Master's degree (1 major) Computer Science (2021)  
Master's degree (1 major) Computational Mathematics (2022)  
Master's degree (1 major) Mathematics (2022)  
Master's degree (1 major) Computer Science (2023)