

Course title	Virtual Reality for Industrial Application
Course code	IP 424
Module coordinator	Miriam Heinrich
Lecturer	Dr. Alexei Konnov
Level of course	Bachelor
Recommended prerequisites	Participation in lecture IP 423 "Reliability Engineering - Compact" is mandatory. Basic programming skills are recommended.
Type of course	Laboratory
Weekly lecture hours (SWS)	3
ECTS credits	3
Workload	In total 90h, 45h course attendance, 45h self-study
Assessment (grading; pass/fail)	graded
Regular cycle	Each semester
Language of instruction	English
Contents:	<ul style="list-style-type: none"> <li>• This course introduces the essentials of Virtual Reality. The focus is on the necessary tools for VR development, such as Unity, Git and Blender. The goal is to create a simple virtual reality application for a windows-based system with a 6DoF headset. The course is divided in 3 main parts:</li> <li>• Introduction to computer graphics (Blender)</li> <li>• Version control tools (Git)</li> <li>• - Unity Engine</li> </ul>
Learning outcome (competencies):	<p>After having successfully completed the course, the students should</p> <ul style="list-style-type: none"> <li>• Have basic understanding of computer graphics</li> <li>• Be able to use 3D modeling tools such as Blender</li> <li>• Be able to use Git as a source control tool for projects</li> <li>• Be able to create simple Virtual Reality applications using Unity and SteamVR</li> </ul>
Teaching methods	<input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Group work <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Simulation <input type="checkbox"/> Video feedback <input type="checkbox"/> Others: Seminar
Assessment methods	Written Exam
Recommended reading	<p>Online material:</p> <ul style="list-style-type: none"> <li>• Unity: <a href="https://learn.unity.com/">https://learn.unity.com/</a></li> <li>• Blender: <a href="https://www.blender.org/support/tutorials/">https://www.blender.org/support/tutorials/</a></li> <li>• Git: <a href="https://www.codecademy.com/learn/learn-git">https://www.codecademy.com/learn/learn-git</a></li> </ul> <p>Online material:</p> <ul style="list-style-type: none"> <li>• Unity: <a href="https://learn.unity.com/">https://learn.unity.com/</a></li> <li>• Blender: <a href="https://www.blender.org/support/tutorials/">https://www.blender.org/support/tutorials/</a></li> <li>• Git: <a href="https://www.codecademy.com/learn/learn-git">https://www.codecademy.com/learn/learn-git</a></li> </ul> <p>Books:</p> <ul style="list-style-type: none"> <li>• Unity: "Unity in Action: Multiplatform game development in C#", 2nd Edition, Joe Hocking</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Blender: “Learning Blender: A Hands-On Guide to Creating 3D Animated Characters”, 2nd Edition, Oliver Villar</i></li> <li>• <i>Git: “Learn Version Control with Git: A step-by-step course for the complete beginner”, Tobias Günther</i></li> </ul>
<i>Additional information</i>	<i>The course is strictly limited to 8 participants</i>
<i>Recognition of credits</i>	