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| Course title | Virtual Reality for Industrial Application |
| Course code | IP 426 |
| Module coordinator | Cordelia Makartsev |
| 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) | 4 |
| ECTS credits | 4 |
| Workload | In total 120h, 60h course attendance, 60h self-study |
| Assessment (grading; pass/fail) | graded |
| Regular cycle | Each semester |
| Language of instruction | English |
| Contents: | <ul style="list-style-type: none"> • 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: • Introduction to computer graphics (Blender) • Version control tools (Git) • - Unity Engine |
| Learning outcome (competencies): | <p>After having successfully completed the course, the students should</p> <ul style="list-style-type: none"> • Have basic understanding of computer graphics • Be able to use 3D modeling tools such as Blender • Be able to use Git as a source control tool for projects • Be able to create simple Virtual Reality applications using Unity and SteamVR |
| 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"> • Unity: https://learn.unity.com/ • Blender: https://www.blender.org/support/tutorials/ • Git: https://www.codecademy.com/learn/learn-git <p>Online material:</p> <ul style="list-style-type: none"> • Unity: https://learn.unity.com/ • Blender: https://www.blender.org/support/tutorials/ • Git: https://www.codecademy.com/learn/learn-git <p>Books:</p> <ul style="list-style-type: none"> • Unity: "Unity in Action: Multiplatform game development in C#", 2nd Edition, Joe Hocking |

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