TECHNISCHE HOCHSCHULE LÜBECK

Module: Interactive Virtual Worlds

Level	Bachelor	**Short Name**	IVW
Responsible Lecturers	Fabio Anthony		
Department, Facility	Electrical Engineering and Computer Science		
Course of Studies	International Track		
Compulsory/elective	Compulsory elective	**ECTS Credit Points**	5
Semester of Studies	(Unspecified)	**Semester Hours per Week**	4
Length (semesters)	1	**Workload (hours)**	150
Frequency	(Flexible)	**Presence Hours**	60
Teaching Language	English	**Self-Study Hours**	90
The following section is filled only if there is **exactly one** module-concluding exam.			
Exam Type	Portfolio Exam	**Exam Language**	English
Exam Length (minutes)		**Exam Grading System**	One-third Grades
Learning Outcomes	Students will be able to develop 3D interactive virtual worlds using an advanced integrated development environment.		
Participation Prerequisites			
The previous section is filled only if there is **exactly one** module-concluding exam.			
Consideration of Gender and Diversity Issues	✔ Use of gender-neutral language (THL standard) ✘ Target group specific adjustment of didactic methods ✘ Making subject diversity visible (female researchers, cultures etc.)		
Applicability			
Remarks			

TECHNISCHE HOCHSCHULE LÜBECK

Module Course: Interactive Virtual Worlds (Lecture)

(of Module: Interactive Virtual Worlds)

Course Type	Lecture	**Form of Learning**	Online supported with presence hours
Mandatory Attendance	yes	**ECTS Credit Points**	2
Participation Limit		**Semester Hours per Week**	2
Group Size		**Workload (hours)**	60
Teaching Language	English	**Presence Hours**	30
Study Achievements ("Studienleistung", SL)		**Self-Study Hours**	30
SL Length (minutes)		**SL Grading System**	

The following section is filled only if there is a course-specific exam.

Exam Type		**Exam Language**	
Exam Length (minutes)		**Exam Grading System**	
Learning Outcomes			
Participation Prerequisites			

The previous section is filled only if there is a course-specific exam.

Contents

The course details in practical fashion how an agile information technology design and development workflow is established, with the purposes of producing 3D interactive virtual worlds.

Topics include:

- Setup and configuration of an advanced integrated development environment
- Setup and use of version control and project management tools
- 3D World Building specifics, including:
  - User Interface creation
  - Coordinates, Transforms, Units and Project Organization
  - Mesh Actors, Materials and Lighting
  - Physics and Particle Systems
  - Landscapes and Foliage Systems
  - Cinematic and Audio Systems
  - Visual Scripting Systems
- Project Packaging for different release platforms

Literature

- Shannon, Tom. (2017). *Unreal Engine 4 for Design Visualization*.
- McCaffrey, Mitch. (2017). *Unreal Engine VR Cookbook*.
- Ulibarri, Stephen Seth. (2020). *Unreal Engine C++ the Ultimate Developer's Handbook*.
- Seifert, Carsten. (2014). *Spiele entwickeln mit Unity: 3D-Games mit Unity und C# für Desktop, Web & Mobile.*

Remarks	

Module Course: Interactive Virtual Worlds (Exercise)

(of Module: Interactive Virtual Worlds)

Course Type	Exercise	**Form of Learning**	Online supported with presence hours
Mandatory Attendance	no	**ECTS Credit Points**	3
Participation Limit		**Semester Hours per Week**	2
Group Size		**Workload (hours)**	90
Teaching Language	English	**Presence Hours**	30
Study Achievements ("Studienleistung", SL)		**Self-Study Hours**	60
SL Length (minutes)		**SL Grading System**	
The following section is filled only if there is a course-specific exam.			
Exam Type		**Exam Language**	
Exam Length (minutes)		**Exam Grading System**	
Learning Outcomes			
Participation Prerequisites			
The previous section is filled only if there is a course-specific exam.			
Contents	See Lecture		
Literature	See Lecture		
Remarks			