TECHNISCHE HOCHSCHULE LÜBECK

Module: Artificial Intelligent Systems

Level	Bachelor	**Short Name**	AIS
Responsible Lecturers	Fabio Anthony		
Department, Facility	Electrical Engineering and Computer Science		
Course of Studies	Information Technology, Bachelor		
Compulsory/elective	Compulsory elective	**ECTS Credit Points**	4
Semester of Studies	6	**Semester Hours per Week**	4
Length (semesters)	1	**Workload (hours)**	150
Frequency	WiSe	**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 applications that make use of various algorithms in the field of artificial intelligence.		
Participation Prerequisites	+ Advanced Mathematics I (Coordinate Systems, Vector Math, etc.)		
	+ Understanding of practical programming, algorithms and design patterns (C/C++, etc.).		

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	

Module Course: Artificial Intelligent Systems (Lecture)

(of Module: Artificial Intelligent Systems)

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	This course intends to provide a beginner to intermediate level introduction to artificial intelligence and related fields as applicable in real-time systems. Foundational topics such as Finite State Machines and Cellular Automata are followed up with topics such as Pathfinding and Emergent Behavior before concepts in the area of Machine Learning are introduced.
Literature	- Zhang, Aston; Lipton, Zachary C.; et al. (Release 0.7.0 CN/EN). *Dive into Deep Learning*. - Bräunl, Thomas. (2020). *Robot Adventures in Python and C*. - Millington, Ian. (3rd Edition, 2019). *AI for Games*. - Nystrom, Robert. (2014). *Game Programming Patterns*. - Buckland, Mat. (2004). *Programming Game AI By Example*. Champanard, Alex. (2003). *AI Game Development: Synthetic Creatures with Learning and Reactive Behaviors*.
Remarks	

Module Course: Artificial Intelligent Systems (Exercise)

(of Module: Artificial Intelligent Systems)

Course Type	Exercise	**Form of Learning**	Online supported with presence hours
Mandatory Attendance	no	**ECTS Credit Points**	2
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	Students will dive heads-first into real programming exercises from the field of Academic Research as well as AI Game Development in a quest to learn, by example, how algorithms from the field of artificial intelligence find use in real-time applications.
Literature	See Lecture
Remarks	

03.02.2022