

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Games Programming 2021-2022

Major H:	MH.ICT.KSGP.V20
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Description of unit of study				
Course code	ICT.GP.CG.V20	Credits: Regular	5 ECTS credits	Target group: Fulltime
Study unit Description	Computer Graphics			
Competences	-			
Target group	Almost every game is played in a graphical two- or three-dimensional space. In this course you will learn how to create these environments. The theoretical basis will be covered, as well as practical implementation using OpenGL and other libraries. With the help of these libraries you can manipulate objects in space and change their look and feel with respect to the material the object is made of.			
Educational content	Topics: <ul style="list-style-type: none"> • Shaders • Transformations • Texture Mapping • 3D Modeling • Theoretical and mathematical background • CPU vs GPU 			
Teaching methods	<ul style="list-style-type: none"> • Lectures and labs (combined) • Assignments in pairs 			
Teaching aids	See Electronic Learning Environment.			
Supervisory activity	<ul style="list-style-type: none"> • Explanation of theory • Practice implementation in classroom • Discussion and question answering 			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Final assignment	1 t/m 10, 1 dec.	70	Higher or equal to 5.5
	Homework	1 t/m 10, 1 dec.	30	Higher or equal to 5.5
Reading list				

Description of unit of study				
Course code	ICT.GP.CPP.V20	Credits: Regular	3 ECTS credits	Target group: Fulltime
Study unit Description	C++ Programming			
Competences	-			
Target group	Nowadays the game industry mostly works with sophisticated game engines, like the CryEngine or the Unreal Engine. To add functionality to the Unreal Engine, you have to program in C++. C++ is a widely-used programming language that is used in the gaming industry as well as in many other industries. C++ is different from programming languages like Java or C#, mainly because you are responsible for your own memory management. You will learn C++ Programming in a Windows environment.			
Educational content	<ul style="list-style-type: none"> • Introduction C++ • Classes in C++ • Object orientation in C++ • Templates • STL Classes (IO streams, vectors, etc.) • Pointers & references • Usage of C++ in a Windows environment 			
Teaching methods	<ul style="list-style-type: none"> • Lectures • Labs • Assignments 			
Teaching aids	<ul style="list-style-type: none"> • Visual Studio 2015 • See "Electronic Learning Environment" (ELO) 			
Supervisory activity	Through digital media and oral communication			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Lab exam	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				

Description of unit of study				
Course code	ICT.GP.PRJCT.V20		Credits: 10 ECTS credits	Target group: Fulltime Regular
Study unit Description	Game Project			
Competences	-			
Target group	You will create a (serious) game in a small group of fellow students.			
Educational content	<p>You will have the option to choose between:</p> <ul style="list-style-type: none"> • Designing and implementing your own game. • Creating a (serious) game for a real client. • Doing research into new technology and building a prototype game demonstrating the capabilities. • .. <p>The project has to meet a number of criteria, and will be approved or disapproved by a lecturer. The project requires the use of challenging technology.</p>			
Teaching methods	<ul style="list-style-type: none"> • Working in a project group • Workshops 			
Teaching aids	See Electronic Learning Environment			
Supervisory activity	Through digital media and oral communication			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				

Description of unit of study				
Course code	ICT.GP.AAI.V20		Credits: 6 ECTS credits	Target group: Fulltime Regular
Study unit Description	Game Algorithms and Artificial Intelligence			
Competences	-			
Target group	During this course students will learn about algorithms specifically for games and how to apply various artificial intelligence techniques to create intelligent computer players.			
Educational content	<p>Some of the topics that will be covered are:</p> <ul style="list-style-type: none"> • Generating and Solving Mazes • Backtracking Techniques • Minimax algorithm and Alfa-Beta Pruning • Path Planning • Steering Behaviours • State Machines • Goal-driven Behaviours • Fuzzy Logic 			
Teaching methods	<ul style="list-style-type: none"> • Lectures • Labs • Assignments 			
Teaching aids	See: Electronic Learning Environment			
Supervisory activity	Through digital media and oral communication			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Assignment	1 t/m 10, 1 dec.	2	Higher or equal to 5.5
	Theory exam	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				