



MODULE DESCRIPTION

Module code	
Module name	Programowanie grafiki komputerowej
Module name in English	Computer Graphics Programming
Valid from academic year	2012/2013

MODULE PLACEMENT IN THE SYLLABUS

Subject	Computer Science
Level of education	1st degree <i>(1st degree / 2nd degree)</i>
Studies profile	General <i>(general / practical)</i>
Form and method of conducting classes	Full-time <i>(full-time / part-time)</i>
Specialisation	Computer Graphics
Unit conducting the module	The Department of Computer Science
Module co-ordinator	Grzegorz Łukawski, PhD, Eng.
Approved by:	

MODULE OVERVIEW

Type of subject/group of subjects	Major <i>(basic / major / specialist subject / conjoint / other HES)</i>
Module status	Compulsory <i>(compulsory / non-compulsory)</i>
Language of conducting classes	Polish
Module placement in the syllabus - semester	6th semester
Subject realisation in the academic year	Summer semester <i>(winter / summer)</i>
Initial requirements	The Fundamentals of Computer Graphics <i>(module codes / module names)</i>
Examination	Yes <i>(yes / no)</i>
Number of ECTS credit points	5

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	30		30	15	



TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	3D graphics programming using OpenGL and DirectX, programming shaders with the GLSL language. Special effects in 3D graphics and animation: transparency, shadows, inequality mapping, environmental mapping, and advanced lighting. Algorithms of computer graphics connected with 3D graphics.
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Effect symbol	Teaching results	Teaching methods (l/c/l/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student is acquainted with the fundamentals of programming 3D graphics using OpenGL and DirectX.	l	K_W12	T1A_W04, T1A_W07
W_02	A student is capable of listing and describing the advantages of direct programming of GPU. Moreover, a student knows the fundamentals of GLSL.	l	K_W06, K_W12	T1A_W04, T1A_W07,
U_01	The ability to program 3D graphics using OpenGL on the advanced level.	l	K_U01, K_U18	T1A_U01, T1A_U16
U_02	The ability of programming 3D graphics using the DirectX library on the basic level.	l	K_U01, K_U18	T1A_U01, T1A_U16
U_03	The ability of programming a GPU using GLSL.	l	K_U01, K_U05, K_U12, K_U18	T1A_U01, T1A_U09, T1A_U16
K_01	A student is capable of dividing a programming problem into elements and co-operate in a team while implementing it.	p	K_K03	T1P_K03

Teaching contents:

Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1-5	Programming 3D computer graphics with OpenGL on the advanced level, special effects in 3D animation and graphics.	W_01
6-10	The fundamentals of programming a GPU with GLSL.	W_02
11-15	The fundamentals of programming 3D graphics with the DirectX library.	W_01

Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1-6	Programming 3D computer graphics with OpenGL on the advanced level, special effects in 3D animation and graphics.	U_01
7-12	The fundamentals of programming a GPU with GLSL.	U_03
13-15	The fundamentals of programming 3D graphics with the DirectX library.	U_02

The characteristics of project assignments

A project assignment consists in preparing an application realising 3D graphics rendering with specific tools and libraries (U_01, U_03, and K_01).



The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results <i>(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)</i>
W_01	A written examination
W_02	A written examination
U_01	Laboratory class assignments, a test on laboratory classes
U_02	Laboratory class assignments, a test on laboratory classes
U_03	Laboratory class assignments, a test on laboratory classes
K_01	Laboratory class and project assignments

STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	Student's workload
1	Participation in lectures	30
2	Participation in classes	-
3	Participation in laboratories	30
4	Participation in tutorials (2-3 times per semester)	8
5	Participation in project classes	15
6	Project tutorials	8
7	Participation in an examination	2
8		
9	Number of hours requiring a lecturer's assistance	93 <i>(sum)</i>
10	Number of ECTS credit points which are allocated for assisted work <i>(1 ECTS credit point=25-30 hours)</i>	3
11	Unassisted study of lecture subjects	10
12	Unassisted preparation for classes	-
13	Unassisted preparation for tests	10
14	Unassisted preparation for laboratories	12
15	Preparing reports	-
16	Preparing for a final laboratory test	7
17	Preparing a project or documentation	10
18	Preparing for an examination	8
19	Preparing questionnaires	
20	Number of hours of a student's unassisted work	57 <i>(sum)</i>
21	Number of ECTS credit points which a student receives for unassisted work <i>(1 ECTS credit point=25-30 hours)</i>	2
22	Total number of hours of a student's work	150
23	ECTS credit points per module <i>1 ECTS credit point=25-30 hours</i>	5
24	Work input connected with practical classes <i>Total number of hours connected with practical classes</i>	85
25	Number of ECTS credit points which a student receives for practical classes <i>(1 ECTS credit point=25-30 hours)</i>	3