MODULE DESCRIPTION

Module code	
Module name	**Algorytmy grafiki komputerowej**
Module name in English	**Computer Graphics Algorithms**
Valid from academic year	**2012/2013**

MODULE PLACEMENT IN THE SYLLABUS

Subject	**Computer Science**
Level of education	**1st degree** *(1st degree / 2nd degree)*
Studies profile	**General** *(general / practical)*
Form and method of conducting classes	**Full-time** *(full-time / part-time)*
Specialisation	**Computer Graphics**
Unit conducting the module	**The Department of Computer Science**
Module co-ordinator	**Barbara Strug**
Approved by:	

MODULE OVERVIEW

Type of subject/group of subjects	**Major** *(basic / major / specialist subject / conjoint / other HES)*
Module status	**Compulsory** *(compulsory / non-compulsory)*
Language of conducting classes	**Polish**
Module placement in the syllabus - semester	**6th semester**
Subject realisation in the academic year	**Summer semester** *(winter / summer)*
Initial requirements	**The Fundamentals of Computer Graphics** *(module codes / module names)*
Examination	**No** *(yes / no)*
Number of ECTS credit points	**4**

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

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aim of the module is to familiarise students with the most significant algorithms of graphics, drawing particular attention to rasterisation, lighting, shading, and texture mapping. Another aim is to acquaint students with the methods of object representation in graphics, tools, and libraries supporting their implementation.

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 can characterise rasterisation algorithms, backface culling as well as shading and lighting models; a student is also able to indicate their position in a graphics pipeline.	l	K_W12	T1A_W04
W_02	A student is able to describe object representation methods (including parametric) as well as texturising them.	l	K_W12	T1A_W04
U_01	A student can gain information from various sources and interpret it.	p	K_U01	T1A_U01
U_02	A student can use information tools as regards computer graphics.	p	K_U18	T1A_U07
U_03	A student can implement the selected graphics algorithms applying modern tools and libraries.	p	K_U18	T1A_U16
U_04	A student can work independently and in a team; a student can also prepare documentation of the completed assignments.	p	K_U01 K_U02 K_U03	T1A_U01
K_01	A student is aware of the significance of teamwork as well his/her responsibility for the allocated tasks.	p	K_K03	T1A_K03

Teaching contents:

Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	Basic notion, a graphic pipeline, modelling and the representation of graphical objects.	W_02
2	Basic section and circle rasterisation methods.	W_01
3	Basic polygon rasterisation algorithms.	W_01
4-5	Basic backface culling algorithms.	W_01
6-8	Curves and parametric surfaces – their applications and visualisation methods.	W_02
9-11	The most important of lighting algorithms.	W_01
12	The selected shading methods.	W_01
13-14	Texture mapping methods.	W_02
15	Current issues connected with graphical algorithms.	U_01

The characteristics of project assignments

As part of the project assignment, students ought to design, implement, and provide documentation an application utilising the selected computer graphics algorithms. The subject of the project may regard any field of study; however, it has to meet the following requirements:

- An application must support at least two various types of data entry

- Algorithms from at least two various groups have to be implemented (backface culling, parametric surface visualisation, shading/lighting algorithms, and texture mapping algorithms).
- It has to be user-friendly
- Complete documentation has to be prepared

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results *(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)*
W_01	A test
W_02	A test
U_01.	A project – a report
U_02	A project
U_03	A project
U_04	A project – a report
K_01	A project – a report

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	
4	Participation in tutorials (2-3 times per semester)	**5**
5	Participation in project classes	**15**
6	Project tutorials	
7	Participation in an examination	
8		
9	**Number of hours requiring a lecturer's assistance**	**50** *(sum)*
10	**Number of ECTS credit points which are allocated for assisted work** *(1 ECTS credit point=25-30 hours)*	**2**
11	Unassisted study of lecture subjects	**20**
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	
15	Preparing reports	
16	Preparing for a final laboratory test	
17	Preparing a project or documentation	**30**
18	Preparing for an examination	
19	Preparing questionnaires	
20	**Number of hours of a student's unassisted work**	**50** *(sum)*
21	**Number of ECTS credit points which a student receives for unassisted work** *(1 ECTS credit point=25-30 hours)*	**2**
22	**Total number of hours of a student's work**	**100**

23	**ECTS credit points per module** *1 ECTS credit point=25-30 hours*	**4**
24	**Work input connected with practical classes** *Total number of hours connected with practical classes*	**50**
25	**Number of ECTS credit points which a student receives for practical classes** *(1 ECTS credit point=25-30 hours)*	**2**