SYLLABUS OF A MODULE

Polish name of a module	**Programowanie interaktywnej grafiki komputerowej na stronach WWW**
English name of a module	**Programming of interactive computer graphics on WWW pages.**
ISCED classification - Code	0613
ISCED classification - Field of study	*Software and applications development and analysis*
Languages of instruction	*English*
Level of qualification:	*2 – MSc (EQF 7)*
Number of ECTS credit points	*6*
Examination:	*EW – exam written*

Number of hours per semester:

Lecture	Exercises	Laboratory	Seminar	E-learning	Project
30	0	30	0	0	0

MODULE DESCRIPTION

MODULE OBJECTIVES

O1. The acquisition of knowledge needed to create interactive computer graphics on WWW pages.

O2. The acquisition of practical skills needed to create interactive computer graphics on WWW pages.

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Ability to program in any high level language.
2. Basic knowledge of the design WWW pages (HTML, CSS).
3. Ability to use different sources of information and technical documentation.
4. Ability to work independently and in a group.
5. 5.Ability to correctly interpret and present their own activities.

LEARNING OUTCOMES

LO 1 – The student has basic theoretical knowledge in the field of programming of interactive computer graphics on WWW pages and knowns the basic technologies that enabling the creation of interactive computer graphics on WWW pages.

LO 2 – The student is able to select appropriate technologies to the selected problems and use them in order to obtain interactive graphics of the web pages in the response of the user behavior.

LO 3 – The student is competent to perform the tasks assigned to him, is able to work in the group in order to perform entrusted tasks.

MODULE CONTENT

Type of classes – lecture	**Number of hours**
Lec 1-2 – Introduction to interactive computer graphics on websites, review of available technologies, libraries and tools.	**4**
Lec 3.4 – jQuery library: selectors, animations, mouse interaction, UI-library	**4**
Lec 5.6 – Interaction and animation using CSS (2D and 3D).	**4**
Lec 7.9 – Creating graphics using Canvas, graphic primitives, coordinate system, transformations, complex shapes, 2D animations.	**6**
Lec 10-11 – Libraries for creating 2D and 3D graphics on Canvas, animations and interactions on selected examples of libraries.	**6**
Lec 12-15 – Libraries for data visualization.	**6**
Sum	**30**
Type of classes– laboratory.	**Number of hours**
Lab 1,2 - Introduction to interactive computer graphics, overview of libraries, tools and technologies.	**4**
Lab 3.4 - Manipulating elements of the DOM tree using jQuery, creating simple animations and interactions, using jQuery UI-library and Bootstrap components.	**4**
Lab 5.6 - Creating animations and interactions (2D, 3D) using CSS.	**4**
Lab 7-8 - Programming graphic elements on Canvas, practical use of transformations, programming interactions, 2D animations.	**6**
Lab 11-13 - JavaScript libraries using Canvas, practical implementation of interaction and animation on the example of selected libraries (2D and 3D).	**6**
Lab 14-15 - Overview of JavaScript libraries for data visualization, practical data visualization using selected libraries.	**6**
Sum	**30**

TEACHING TOOLS

1. – lectures using multimedia presentations
2. – blackboard and chalk or whiteboards and pens
3. – laboratory guides and tutorials
4. – reports from laboratory activities (paper and electronic versions)
5. – computer stations with software

WAYS OF ASSESSMENT (F – FORMATIVE, S – SUMMATIVE)

F1. - assessment of preparation for laboratory exercises
F2. - assessment of the ability to apply the acquired knowledge while doing the exercises
F3. - evaluation of reports on the implementation of exercises covered by the curriculum
F4. - assessment of activity during classes
S1. - assessment of the ability to solve the problems posed and the manner of presentation obtained results - pass mark *
S2. - assessment of mastery of the teaching material being the subject of the lecture - exam

*) in order to receive a credit for the module, the student is obliged to attain a passing grade in all laboratory classes as well as in achievement tests.

STUDENT'S WORKLOAD

L.p.	Forms of activity	Average number of hours required for realization of activity
1.	**Contact hours with teacher**	
1.1	Lectures	30
1.2	Tutorials	0
1.3	Laboratory	30
1.4	Seminar	0
1.5	Project	0
1.6	Consulting teacher during their duty hours	3
1.7	Examination	3
	Total number of contact hours with teacher:	66
2.	**Student's individual work**	
2.1	Preparation for tutorials and tests	0
2.2	Preparation for laboratory exercises, writing reports on laboratories	40
2.3	Preparation of project	0
2.4	Preparation for final lecture assessment	0
2.5	Preparation for examination	28
2.6	Individual study of literature	16
	Total number of hours of student's individual work:	84
	Overall student's workload:	150
Overall number of ECTS credits for the module		6 ECTS
Number of ECTS points that student receives in classes requiring teacher's supervision:		2.64 ECTS
Number of **ECTS** credits acquired during practical classes including laboratory exercises and projects:		2.8 ECTS

BASIC AND SUPPLEMENTARY RESOURCE MATERIALS

1. Meyer, J. HTML5 and JavaScript Projects, Springer 2018
2. Collins, M. J. Pro HTML5 with CSS, JavaScript, and Multimedia, Springer 2017
3. Eric Rowell, HTML5 Canvas CookBook, 2011
4. Tony Parisi, Programming 3D Applications with HTML5 and WebGL, 2014
5. Julie C. Meloni, HTML and CSS in 24 Hours, Sams Teach Yourself, SAMS 2013.
6. David Flanagan, Canvas Pocket Reference. Scripted Graphics for HTML5, 2010

MODULE COORDINATOR (NAME, SURNAME, E-MAIL ADDRESS)

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