

Course Syllabus**I. General Information**

Course name	Computer graphics
Programme	Informatics
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BA
Form of studies (full-time, part-time)	full-time
Discipline	Informatics
Language of instruction	English

Course coordinator/person responsible	Armen Grigoryan
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Type of class (<i>use only the types mentioned below</i>)	Number of teaching hours	Semester	ECTS Points
lecture			3
tutorial			
classes			
laboratory classes	30	II	
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	Introduction to computer science. Linear algebra.
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II. Course Objectives

Teaching students a basic knowledge and skills of 2D computer graphics.
Teaching students a basic knowledge and skills of 3D computer graphics.
Teaching students a basic knowledge and skills of 3D computer graphics animation.

III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
KNOWLEDGE		
W_01	The student knows the basic concepts of two-dimensional computer graphics.	K_W11
W_02	The student knows the basic concepts of three-dimensional computer graphics.	K_W11
W_03	The student knows the basic concepts of three-dimensional computer graphics animation.	K_W11
SKILLS		
U_01	The student freely uses tools for processing two-dimensional and three-dimensional computer graphics.	K_U01, K_U02, K_U04, K_U17, K_U25
U_02	The student is able to design complex scenes of three-dimensional computer graphics.	K_U02, K_U17
U_03	The student can create animations in three-dimensional computer graphics.	K_U02, K_U17, K_U25
SOCIAL COMPETENCIES		
K_01	The student is aware of the role of computer graphics and its applications.	K_K02
K_02	The student has a need for lifelong learning and deepening his knowledge of computer graphics.	K_K01, K_K02
K_03	The student can create effective graphic designs.	K_K01, K_K02

IV. Course Content

Two-dimensional graphics processing. Basic editing mechanisms: selections, layers, paths and masks. Filters. Processing of three-dimensional graphics with the use of Blender. Interface of Blender. Objects. Basic operations in object mode. Modelling the geometry of an object in edit mode. Working with node editors. Setting material properties. Texturing. Setting the lighting. Rendering scene images. Animating objects. Animation rendering. Collisions. Rigid bodies. Spline curves and their applications in modelling and animation. Introduction to particle systems.

V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods (choose from the list)	Forms of assessment (choose from the list)	Documentation type (choose from the list)
KNOWLEDGE			
W_01	Laboratory classes	Test	Protocol
W_02	Laboratory classes	Test	Protocol
W_03	Laboratory classes	Test	Protocol
SKILLS			
U_01	Laboratory classes	Test	Protocol
U_02	Laboratory classes	Test	Protocol
U_03	Laboratory classes	Test	Protocol
SOCIAL COMPETENCIES			
K_01	Laboratory classes	Test	Protocol

K_02	Laboratory classes	Test	Protocol
K_03	Laboratory classes	Test	Protocol

VI. Grading criteria, weighting factors.....

Graded pass: 2 tests - 100%.

The final evaluation:

91 – 100% - 5,

81 – 90% - 4.5,

71 – 80% - 4.0,

61 – 70% - 3.5,

51 – 60% - 3.0,

0 - 50% -2.0

Detailed assessment rules are given to students with each subject edition.

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	laboratory classes - 30 consultations - 30
Number of hours of individual student work	30

VIII. Literature

Basic literature
1. GNU Image Manipulation Program: https://www.gimp.org
2. Blender: https://www.blender.org
Additional literature
1. Simonds, Ben, Blender Master Class: A Hands-On Guide to Modeling, Sculpting, Materials, and Rendering , No Starch Press, Inc., 2013.
2. „Adobe Photoshop CS6/CS6 PL”, Adobe Systems Incorporated, 2012.