



SYLLABUS OF THE DISCIPLINE

Advanced 3D Graphics

Component of the educational program - elective (3.0 credits)

Educational and professional program	Information technology and project management
Specialty	122 – Computer science
Field of knowledge	12 – Information technology
Level of higher education	first (bachelor's)
Language of instruction	English
Teacher's profile	Andrii Dorosh, PhD in Physics and Mathematics, Associate Professor of the Department of Mathematical Modeling https://mathmod.chnu.edu.ua/pro-nas/spivrobitnyky/dorosh-andrii-bohdanovych/
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Course page in Moodle	https://moodle.chnu.edu.ua/course/view.php?id=8224

SUMMARY OF THE SUBJECT

The purpose of the discipline is to master the principles of working with 3D graphics using various tools including Blender, OpenGL and basic geometric transformations.

EDUCATIONAL CONTENT OF THE EDUCATIONAL COMPONENT

MODULE 1.	
Topic 1	Triangulation of basic geometric primitives
Topic 2	STL file format
Topic 3	Intersection of a plane with a body
MODULE 2.	
Topic 4	Displaying a simple 3D scene using OpenGL
Topic 5	Parallel translation, rotation and scaling matrices
Topic 6	Handling mouse and keyboard events

FORMS, METHODS AND EDUCATIONAL TECHNOLOGIES

Teaching and learning methods: lectures, laboratory classes, e-learning using Moodle system, testing, completion of individualized learning tasks.

FORMS AND METHODS OF CONTROL AND EVALUATION

Types and forms of control:

1. Current (verbal questioning, problem solving).
2. Modular (tests, laboratory tasks).

Means of assessment: tests; team projects; analytical reports on laboratory work, individual tasks and independent work.

Final control: credit.

CRITERIA FOR ASSESSING LEARNING OUTCOMES

The learning outcomes assessment system is based on ECTS principles and is cumulative. During the semester, students complete laboratory tasks and test assignments, for which they can get up to 60 points. The final control in the discipline is a credit (40 points).

POLICY ON ACADEMIC INTEGRITY

Compliance with the policy on academic integrity by participants of the educational process in the study of the discipline is regulated by the following documents:

- ✓ Ethical Code of Yuriy Fedkovych Chernivtsi National University
[https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/etychnyi-kodeks-
chernivetskoho-natsionalnoho-universytetu-imeni-yurii-fedkovycha/](https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/etychnyi-kodeks-chernivetskoho-natsionalnoho-universytetu-imeni-yurii-fedkovycha/)
- ✓ Regulations on Detection and Prevention of Academic Plagiarism at Yuriy Fedkovych Chernivtsi National University
[https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/polozhennia-pro-
vyivlennia-ta-zapobihannia-akademichnomu-plahiatu/](https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/polozhennia-pro-vyivlennia-ta-zapobihannia-akademichnomu-plahiatu/)

INFORMATION RESOURCES

1. <http://www.songho.ca/opengl>
2. <http://www.opengl-tutorial.org/beginners-tutorials>
3. <https://moodle.chnu.edu.ua/course/view.php?id=8224>