

Computer Modelling of Objects

Subject area: Civil Engineering/Architecture

University:	CTU
Level:	BA all years, MA all years, PhD
Teaching mode:	hybrid: some students participate online, other students attend real-life
Instructor(s):	Mgr. Hana Lakomá, Ph.D.

Short description

The aim of the course is to provide students a basic overview of the possibilities and ways of using 3D NURBS modelling software during their studies and in their professional life. Emphasis is placed on modeling assigned objects and own designs in 3D and visualization of the finished models. The used tools are 3D NURBS computer graphic software Rhinoceros and module for parametric modelling Grasshopper.

Full description

SW Rhinoceros:

- Principles of modeling and file types; Rhino interface, customizing of the workspace, object snaps
- Organization of work – groups, layers
- Curves – creating, editing, transformation
- Surfaces and solids – creating, editing, transformation
- Boolean operations with objects
- Flow commands
- Import, export, rebuild of objects
- Rendering: material editor, texture palette, environment editor, lighting
- 3D print: STL format, errors of models

Module Grasshopper:

- Principles of visual programming
- Canvas, components, wires, number sliders
- Parametric models of curves
- Parametric models of solids and surfaces

Learning outcomes

Learners can reliably demonstrate how to create 3D model of an angular shape or an organic shape. Learners are able to do final scene setting: material editing, lighting, rendering quality.

After taking this class, students will understand differences between analytic and polygonal modelling 3D software and will be able to import and export between the software.

Recommended in particular for students of the following study programmes

Architecture, Design, Civil Engineering

General information

Contact hours per week: 2

Total workload: 50 (in student hours for the whole course)

ECTS credits: 2

Language: English

Course start date: 20 February 2023

Course end date: 28 May 2023

Add. info about start date: Start course date refers to starting date of spring semester at CTU. Schedule will be available 1 or 2 weeks before semester starts.

Weekly teaching day/time:

Time zone: CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)

Further information: sessions can be recorded on students' request

Prerequisites: None

Activities and methods: Seminars, Self-study, Practices, Exercises

Presence on campus:

Final examination

Form: project

Date:

Location/format:

Re-sit possibility: yes

Transcript available: end of semester

Add. info/requirements: The semester project is assigned in the middle of the course and is supposed to be made outside of the course and submitted on time.

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:	24
Minimum participants:	4
Internal course code:	101YPZO
Contact:	hana.lakoma@cvut.cz

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