COURSE SYLLABUS

Basics of Anthropometry
2023-2024 I.

Course Code: MSM611ANEG
Semester: 1st
Number of Credits: 3
Allotment of Hours per Week: 1 lectures, 2 practices
Evaluation: Semester mark
Prerequisites: -
Instructors: **Szőke András**

Introduction, Learning Outcomes
Ability of creating basic parametric and organic 3D models in the Blender modelling environment. Understanding and practical acquisition of the 3D scanning workflow. Generating new models using 3D scanned surfaces.

General Course Description and Main Content:
During the course we aim to develop the spatial vision capabilities of students. They get to know the basics of 3D modelling via a general purpose 3D graphics program called Blender. During the semester, we also create parametric and organic models in this environment. Additionally, students receive an insight into the world of 3D scanning and acquiring work with entry-level and industrial handheld scanners. Furthermore, we create new models using scanned surfaces that can accurately fit to the human body.

Methodology:
Introduction lectures, guided exercises, hardware management demonstrations, project work.

Schedule:

week	topic
1	Briefing on semester requirements, registration on online interfaces. Principles of 3D printing
2	The process of 3D printing and its technologies Introduction to Blender: Installation, setting up the UI, navigation, 3D views.
3	Tools, collections.
4	3D cursor, snapping, surface orientation and normals, setting up units. Parametric modelling: Adding reference background, adding wall thickness, setting up origin, measure tools. Checking 3D printability
5	Parametric modelling cont.: Slicing the model for 3D printing. Modelling using existing shop drawings. Using the revolve tool to create the model.
6	Modelling generic parts and shapes using various tools
7	Modelling a phone stand: Begin modelling the phone stand using a phone model as a reference. Adding wall thickness. Adding text onto the model and setting up cutter objects. Using the Boolean modifier to create subtractions in the model. Using 3D print toolbox. Combining the text and the model. Fixing issues, slicing for 3D printing.
8	Introduction to sculpting in Blender. Sculpting a simple fish.
9	Sculpting human upper limb: Blocking the forearm & anatomy.
10	Basics of 3D scanning Blocking the hand & fingers. Sculpting the hand.
11	Merging the hand & fingers. Connecting the thumb to hand. Finishing the hand.
12	Scanning human arm using handheld 3D scanners. Post processing the scanned surfaces.
13	Creating 3D models using the scanned surfaces.

Attendance:

Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required,

tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Evaluation + Grading

The successful completion of the mid-term project work.

Grading scale

Numeric Grade:	5	4	3	2	1
Evaluation in points:	85%-100%	70%-85%	55%-70%	40%-55%	below 40 %

The lower limit given at each grade belongs to that grade.

Students with special needs:

Students with special physical needs and requiring special assistance must first register with the Dean of the Students Office. All reasonable requests to provide an equal learning environment for all students is to be assured.

Readings and Reference Materials:

1. **Videos and guided materials on the PTE Moodle's portal.**
2. **Blender Reference Manual: https://docs.blender.org/manual/en/latest/**
3. **Blender 2.9: The beginner's guide – Allan Brito**
4. **Blender 3D By Example (2nd Edition) – Oscar Baechler, Xury Greer**
5. **Handbook of Anthropometry, Physical Measures of Human Form in Health and Disease - Victor R. Preedy**