Course: Introduction to Engineering Semester 2 - 30 hours

Prerequisites	- basic computer knowledge (e.g. email checking, working with a text document, generating screenshots) - knowledge of basic geometry definitions (e.g. perpendicularity, parallel lines, Cartesian coordinate system)
Course aim and skills acquired	- getting familiar with the metric system (in the case of students from countries with a different system of units than metric) - basic concept of Computer Aided Design - ability to prepare handmade sketches of real objects (e.g. apartments) - ability to prepare digital versions of documentation - ability to prepare a digital 3D version of a spatial object - practicing presentation and public speaking skills
Course contents	**Part 1** 1 Introduction to AutoCAD 2 Getting familiar with the environment 3 Creating drawings 4 - 5 Drawing tools (lines, circles, rectangles, polygons, arcs) 6 - 7 Modifying drawings 8 - 9 Manipulating drawings **10 Test 1 (10 points) – 5th Class (22.03.2024)** **Evaluation of project part 1 (3 points)** **Part 2** 11 Introduction to drawings annotations (comparison of different engineering branches) 12 Dimensions and dimensions styles 13 Writing texts 14 Using leaders 15 Organizing drawings. Layers and xRefs 16 Blocks and dynamic blocks 17 Plotting drawings. Layouts, plot settings **18 Test 2 (10 points) – 9th Class (26.04.2024)** **Evaluation of project part 2 (3 points)** **Part 3** 19 Introduction to 3D modelling, Navigating in 3D model 20 Creating and modifying solids 21 Boolean operations 22 Creating 2D layout from 3D model 23 Surface modeling 24, 25 Applying material properties, rendering and visualization **26 Test 3 (10 points) – 13th Class (31.05.2024)** **Evaluation of project part 3 (3 points)** **27 - 28 Presentation of students' projects (11 points) – 14th Class (7.06.2024)** **29 - 30 Retake test (30 points – replaces points from previous tests) – 15th Class (14.06.2024)**
Literature	- Course materials - AutoCAD manual (https://help.autodesk.com/view/ACD/2022/ENU/)
Students input	Participants will follow simple exercises in AutoCAD shown by the teachers during the classes. In parallel, they prepare a project based on the skills acquired during the classes (independent work outside of class hours). This also requires them to make measurements and sketches by themselves. Participants shall take 3 practical AutoCAD tests. At the end of the project, they will present the outcomes of their project task to the group.

Assessment criteria	**Tests:** Participants will have to prepare a simple drawing based on a given example. Tests will last 45 minutes each. The retake test will last 90 minutes. **Project:** During the semester, Participants will collect their drawings and present them in the 14th class. The main project will be divided into three parts. In Part 1, Participants will make drawings of their apartment or a classroom or will design an apartment. It is highly recommended to prepare drawings of existing flats or classrooms since it is easier to measure things that are real and can be touched than design something that exists only on "paper". In Part 2, the dimensions and annotations will be added to the drawing. In Part 3, Participants will create a 3D model of the spatial element chosen by them (for example, it can be some engineering tool) which is related to the planned field of study, e.g.: - Civil Engineering - in particular, as the spatial element, Participants may choose the apartment / classroom that they worked on in parts 1, 2, - Electrical engineering - e.g. a PC case or another electrical part, etc. - Mechanical engineering - e.g. turbine, gear or another mechanical component, etc. - Environmental engineering - water and sewage pipes, taps, solar panels etc. Items (except Civil Engineering) will be available for selection in the classroom. **Final grade:** 0 - 9 points – evaluation of each part of the project, each part for 3 points, 0 - 30 points – three tests during the semester, each for 10 points, 0 - 11 points – project presentations. **The grade will be calculated as follows:** [30-34] - 3.0 (34-37] - 3.5 (37-41] - 4.0 (41-45] - 4.5 (45-50] - 5.0 Class attendance is obligatory. Two unjustified absences are allowed.