

Module: **Architectural CAD Modelling 1** (129ACM1)

Leader: Ing. Jiri Skacilik, Ph.D. (e-mail: skacilik@fsv.cvut.cz)

The students are acquainted with the possibilities of architectural modelling in 3D space using ArchiCAD software. Basic functions, principles and possibilities needed for the creation of architectural CAD models are demonstrated to students. They will practice the newly acquired knowledge on a sample of a 3D model of a family house or another building or structure during the coursework.

Objective of this course is to teach prospective architects and civil engineers an effective method of creation 3D CAD model with output in classical paper documentation as well as in digital form.

Students must prove they can use basic tools and functions of the software on simple proposal of family house or another building or structure (bridge, tower etc.). The proposals are handed in electronically – archive (PLA) 3D model, 2D poster (PDF) and basic information about project and author (TXT) are required.

Programme of the course:

- 1 Introduction to ArchiCAD - working space, drawing setting (units, scale, construction grid etc.), tools and pallets. Drawing in 2D – lines, circles, spline curves, hatches etc.  
Common techniques of object modification using keys Ctrl, Shift, Alt, Space etc.
- 2 Principles of object creation and movement in 3D space - camera setting, orbit, exploration menu. Creating and modifying of walls and slabs. Using of magic wand tool.
- 3 Setting, insertion and modification of doors and windows.
- 4 Libraries and furniture. Manipulating and modification of objects – using basic edit operations – drag, split, copy, mirror, multiply etc.
- 5 Story setting and using. Creating roofs – manual and automatic techniques.
- 6 Mesh tool, creating staircases, columns and beams.
- 7 Operations with layers and groups of objects. Dimensioning, labeling, text tool. Using of references and working sheets. DWG - import and export.
- 8 Zone Tool, Extras Menu, trussmaker, roofmaker.
- 9 Visualization, rendering methods. Preparing of custom materials for import and edit.
- 10 Boolean operations, complex profiles, ArchiCAD advanced settings.
- 11 Making own library parts using standard ArchiCAD tools.
- 12 Layout setting for Printing/Plotting. Export to 2D and 3D PDF document. Principles of virtual building (BIM). Virtual Building Explorer – project import and using.
- 13 Final classification.

References: ArchiCAD tutorials:

[http://www.graphisoft.com/education/training\\_guides/](http://www.graphisoft.com/education/training_guides/)

ArchiCAD Talk Forum – Reference Books for ArchiCAD:

<http://archicad-talk.graphisoft.com/viewtopic.php?p=54905>

ArchiCAD - Reference Guide, vol. 1+2, Graphisoft 2001

Keywords: Virtual Building, BIM, ArchiCAD, AEC Design