Digital Fabrication

Course Outline

This course is a fast paced and fun introduction to digital fabrication techniques. You will gain in-depth knowledge of the methods used to create physical objects from digital files. We will work with different ways to combine fabrication technologies such as 3D-printing, laser cutting and CNC-milling. The course gives you hands on experience and understanding. You will also make considerations in order to reduce production time and material waste.

Structure

This four day class starts with Rhino basics before moving on to model preparation and the grasshopper interface. The last day will be spent in the workshop at Fellesverkstedet in Oslo.
The course is adaptable to suit many professional fields such as: architecture, furniture, industrial design, marine design and engineering.

Prerequisites

Trainees should ideally have at least three months of experience with using Rhino, or have completed McNeel's Rhino Level 1 training. Experience with other modelling software can however make up for little or no Rhino experience.

Level: intermediate

Day 1   Intro + Surface and Solid Modeling

- Intro: What kind of program is Rhino? examples of "Rhino-projects.
- Interface walk through: commands, menus, navigation, Snaps, Grid, tolerances and CPlanes
- How are surfaces and solids defined?
- Boolean operations
- Y-branch
- Smoothness in curves and surfaces, internal continuity, blend curves
- Surface commands,-how they work: sweeps, lofts, blends and revolve
- Make2d

Day 2   Modeling strategies and Grasshopper

-Paneling Tools
-Unrolling surfaces
-Dirty geometry, Cleanup routines
-Grasshopper:
- The Grasshopper interface
- Data streams
- Vectors
- Structural grids
- Read and write Excel files

Day 3   Fabrication

-Intro to Fellesverkstedet
-3d printing
-laser cutting
-CNC milling

Questions
Course Evaluation