3D Modelling
with FabLab Technologies

FabLab is a technical prototyping platform for innovation and invention, providing a huge potential for creating digital and physical 3D models. In order to use its full capacity there will be an introduction to generative and parametric design.

Generative design is a design method in which the output – image, sound, models, animation – is generated by a set of rules or an algorithm. Most generative design is based on parametric modelling.

Parametric design is a process based on algorithmic thinking that enables the expression of parameters and rules that, together, define, encode and clarify the relationship between design intent and design response.

Generative design is becoming more important, largely due to new programming environments. In the course we will use *programmable* 3D modelling tools like Rhinoceros 3D with Grasshopper as well as FabLab technologies like 3D printer and laser cutter.

The course is organized in three parts:

- Theoretical lectures which introduce selected topics

- Practical exercises in the FabLab where the students construct and program digital objects

- Student Mini-Project, where a hybrid digital and physical artifact will be designed, constructed and implemented
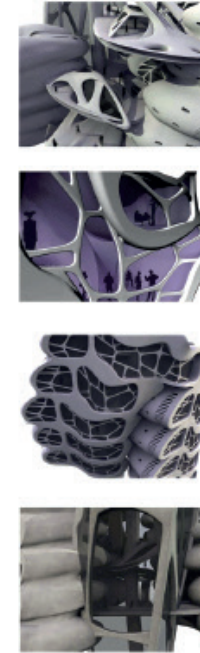
Hartmut Bohnacker, Benedikt Groß, Julia Laub, Claudius Lazzeroni: Generative Gestaltung – The Book (http://benedikt-gross.de/log/2009/09/generative-gestaltung/)

Kostas Terzidis 2003: Expressive Form – A Conceptual Approach to Computational Design, Routledge London und New York

Julia Walther-Hermann und Corinne Büching (Hg.) 2013: FabLab – Of Machines, Makers and Inventors, transcript-verlag Bielefeld

Robert J. Lang 2012: Origami Design Secrets – Mathematical Methods for an Ancient Art, CRC Press Taylor & Francis Group