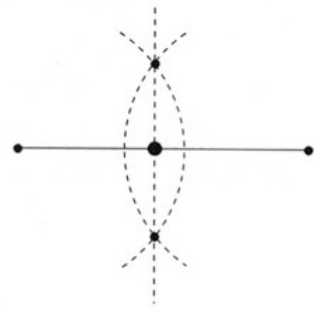


# Geometric Constructs in Digital Space



*The designer moreover, is using the computer not merely as a tool of representation but as a 'collaborative partner' within the design process itself, to such an extent that our whole notion of design needs to be reconfigured.*

Neil Leach

## <Course Description>

This course covers the fundamental concepts of geometric constructs used by designers in both Architecture and Industrial Design as formal vocabularies and spatial concepts. These concepts are taught through the lens of 3d modeling as explicitly constructed geometrical relationships. The course covers architectural drawing systems, normative and complex geometry, 3d modeling, parametric structures, and rapid prototyping.

## <Course Objectives>

- Overview of geometric constructs with underlying logic – From 0D to 3D
- Introduction to 3d surface modeling for design and fabrication [Rhinceros]
- Introduction to parametric thinking and structures [Grasshopper plugin for Rhinceros]
- Introduction to rapid prototyping [Laser Cutter and 3d Printer]

## <Primary Texts>

- Balmond, Cecil, and Smith, Jannuzzi. Informal. Munich; New York: Prestel, 2002.
- Kolarevic, Branko. Architecture in the Digital Age : Design and Manufacturing. New York: Spon Press, 2003.
- Leach, Neil, Turnbull, David and Williams, Chris. Digital Techtonics. Chichester, West Sussex, U.K.; Hoboken, NJ : Wiley-Academy, 2004.
- Pottman, Helmut; Asperl, Andrea; Hofer, Michael and Axel Kilian. Architectural Geometry. Exton, PA : Bentley Institute Press, 2007.
- Woodbury, Robert. Elements of Parametric Design. New York: Routledge, 2010.

