

ID 4823: Parametric Product Modeling

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Summer Semester 2011 • Tuesday/Thursday • 10:00-12:35 • 3 credit hours

Course Objectives

Flexible product representation allows for tailored, or customized product offerings, often referred to as “mass customization.” Products can be customized based on consumer preferences, regional constraints, specific population attributes, modular system requirements, and other influences. Meeting these needs involves moving beyond mass-customizable “configurators” with discreet numbers of options, such as NikeiD and “build your own” automobile websites, towards fully flexible systems enabling nearly infinite user control within design-specified constraints. This type of system requires integration of flexible design, modeling and fabrication. How is the designers’ approach to product architecture informed by this new mindset? How will manufacturing technology enable and/or impact this process? Students will design, model and fabricate products to validate this thinking.

Course Procedure and Organization

Instructional methods for the course include: Lectures and in-class discussions; presentations and project reviews; readings; hands-on fabrication. Some of the topics covered will include: Creating digital representations of products with embedded geometric flexibility; bottom-up design modeling; top-down design modeling; relation and constraint modeling; parametric planning; computer-aided-manufacturing (CAM) and fabrication techniques.

Required/Suggested Readings

- *Shaping Things*, Bruce Sterling (2005, The MIT Press)
- *SolidWorks Surfacing and Complex Shape Modeling*, Matt Lombard (2008, Wiley Publishing Inc.)
- *SolidWorks for Dummies*, Greg Jankowski (2005, Wiley Publishing Inc.)

Course Requirements

Project 1 + Assignments	25%
Project 2 + Assignments	25%
Final Project	50%

