University of Minnesota
School of Architecture College of Design
ARCHITECTURE AS CATALYST 2016 - REPRESENTING SYSTEMS

*vagueterrain*_Syllabus

Faculty Host   Guest Instructor
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Course Overview:

"…And we may now be in a position to think about the origin of form and structure, not as something imposed from the outside on an inert matter, not as a hierarchical command from above as in an assembly line, but as something that may come from within the materials, a form that we tease out of those materials as we allow them to have their say in the structures we create.." Manuel DeLanda

Vagueterrain is a workshop examining structural growth systems that can structurally support itself, starting from the study of material strategies of self-organization to pursue material investigation at multiple informational levels.

This sensitivity finds a unique particular substrate in the tradition of great architects and engineers of the past. By studying Frei Otto and his research into form finding with material systems based on viscous material behavior, the workshop aims to develop strategies and models of optimized path/construction systems and derive self-intelligent organizational model structures in the design process.

Program:
The Program is an approx 20' radius shell model where the students will do an exploration of geometry configurations of structure. Not searching for an optimized shell configuration, we will rethink the design of the shell, as a producer of effects at different scales of material organization:

a) architectural: stressing heterogeneity towards uniformity, spontaneous generation of order, material variability and dynamic behavior.
b) programmatic: challenging the interior space by local merging for openings.
c) structural: going beyond the architectural traditional distinction between structure and ornament.

Research:
We will investigate these issues through a set of material models and readings to develop sensitivity to these ideas.

Technique:
We will use analogue computing techniques introduced by Frei Otto that are based on viscous material behaviour. Otto use a wide variety of materials and procedures, like cloth soaked in plaster, fine chains and nets, models with evenly loaded rubber membranes or fabrics and many more to calculate wide-span shells and lattice shells.

Experimenting with mixed digital and fabrication techniques, each student will develop a system to inform the interdependencies between the CVs of Nurbs geometry in Rhino. Our goal is to model material relations, not the final forms.

Goals:
- Develop research and skills for the deployment of abstract methodologies into architectural systems.
(day 1)
- Approach form finding techniques to raise questions such as:
What is a systemic design? What is representation in the realm of generative form finding?
(days 2, 3)
- Consider how systems architecturally residing in a vague dimension (between ground and wall, wall and ceiling, between roof and column) affect our perceptions and actions. (days 4, 5)

Requirements:
Read the main readings before the workshop
Buy what is needed for material models

Workshop Schedule: March 7-11, 2016

Day 1: Design material model

Day 2: Design material model

Day 3: Digitization of material model // Logic Diagrams

Day 4: Drawings: Logic Diagrams // renderings of dome project // plan, section

Day 5: Production and Final Review

Main Bibliography:

Manuel DeLanda,   *Uniformity and Variability - an essay in the philosophy of matter.*
Manuel DeLanda, *Materiality: Anexact and Intense* in Lars Spuybroek, *NOX: Machining Architecture.*
Detlef Mertins, Bioconstructivism, in Lars Spuybroek, *NOX: Machining Architecture.*
Lars Spuybroek, *The structure of Vagueness*, in Lars Spuybroek, *NOX: Machining Architecture.*

Frei Otto, Bodo Rash, Finding Form, Edition Axel Menges.
Lars Spuybroek, *NOX: Machining Architecture,* Thames & Hudson, 2004.