

SYLLABUS

Academic staff :

LECTURER : Professor James C. Stevens, AIA

ASSISTANT/S: N/A

Course Name: makeLab – Parametric Forming

Detailed syllabus of the subject (Silabusi detajuar i lendes)

General Course Description (PERSHKRIMI PERGJITHSHEM I LENDES)

The course will conduct a critical analysis of digital fabrication and associated emerging technologies for architecture. This will be accomplished by full engagement with parametric modeling, Computer Numeric Control (CNC) and 3D rapid prototyping (3D printing) systems. Students will design, prototype and fabricate their projects at various scales. The content of the course will give students an understanding of digital tectonics and assembly. The applied projects will be supplemented with readings and discussions of significant precedents and techniques.

Course Objectives (OBJEKTIVAT)

The objective of the workshop is to digitally design and fabricate masonry units.

The process will include:

- 1) Parametrically generating units
- 2) Isolation and layout of units
- 3) Fabrication and production of CNC G-code
- 4) Final fabrication of a foam mold.
- 5) Final Cast and Assembly

Program Content/Topics and Schedule (PËRMBAJTJA E PROGRAMIT TË LËNDËS – TEMA)

03 July -*Introduction to makeLab and Digital Fabrication Project* introduction, assemble design groups

04 July -*Demonstration: Software, Studio – Group work*
Studio – Group work (concurrent), Demo – CNC (concurrent)

05 July -*Studio group work, prototypes produced, Studio – prototypes produced*

10 July - Studio – Build

11 July - Studio Build, prepare graphic presentation

12 June - Final Review

Course Content/Keywords
(PËRMBAJTJA E
PROGRAMIT TË LËNDËS –
BRIEF)

Digital Fabrication / Parametric Design / Post-production (G-code) / Casting / Assembly

Assignments
(DETYRAT/ PROJEKTET
DHE DETYRIME TË TJERA)

PARAMETRIC FORMING

The combination of parametric tools with digital fabrication technology provides a powerful methodology for architecture. Recent technological developments have left architects overwhelmed by the opportunities and choices available. Regardless of how architecture is generated, the outcomes can be categorized in three primary systems: forming, joining and removing. All digital fabrication processes produce architecture in one or more of these systems. The topic of this workshop is to study one of the three systems – Forming. For the purposes of this workshop forming will be defined as: The parametric creation of a form-giving object that can be used to replicate multiple building components. The fabricated part can be conceived as a mold, jig or template.

Each student group will be responsible for the following outcomes:

- Isolation and creation of a single masonry unit in a parametrically designed wall.
- Creation of a digitally fabricated foam mold.
- Using the mold, cast a minimum of five (5) final units.
- Assemble the units into a single wall with units from other student groups.

TOOL

The digital Fabrication CNC tool that will be used was built by makeLab™ and will remain at Polis for student and faculty use. The CNC machine is a fully functional 3-axis milling machine.

UNIT GUIDELINES

Each unit will be 16cm wide X 10cm tall X 8cm deep. Each unit should share these common dimensions to insure dry stacking of the final wall. The outside 4cm of the unit can be modified in anyway.

Methodology
(METODOLOGJIA DHE ANA
DIDAKTIKE)

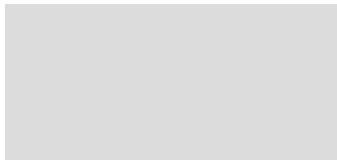
The course will be conducted with a combination of lectures, studio work, desk critiques and student presentations. Each student is expected to participate in lectures and to demonstrate competency through the final design project. It is paramount that each student's design methodology is iterative.

Required Literature
(LITERATURË E
DETYRUESHME)

All text, reading and reference material will be provided to the students digitally at <http://make-lab.org/albania-2015>

Recommended Literature
(LITERATURË E
REKOMANDUAR)

Digital Vernacular, Architectural Principles, Tools and Processes,
James Stevens & Ralph Nelson
Architecture in the Digital Age: Design and Manufacturing, Branko
Kolarevich



1. Evaluation Table (Tabela e detajuar e vleresimit)

Evaluation component (Kompnentet e Vleresimit)	% weight distribution (Shperndarja e Peshes Specifike ne %)	Barrier
ATTENDANCE (FIXED)	10	
Rigor and Participation	10	
Final Project	80	
TOTAL	100	

Ps. For each component you can assign a barrier: for example if the evaluation component of the project is 30 %, you can also establish the minimum points to pass (example. 15/30).

2. Point-grade conversion (Konvertimi i pikeve ne Note)

Points (Piket)	Grades (Nota)
94 - 100	10
83 - 93	9
75 - 82	8
65 - 74	7
55 - 64	6
50 - 54	5
0 - 49	4