Arch 467 Design Methods

Syllabus for Spring 2018-19
February 13, 2019

Introduction

This course asks you to step back from the acts of designing and judging your designs and to explore some ideas that can lead to a stronger intellectual base for these actions. The course will focus on the process of design, on formal methods of decision making and on methods to systematically improve design.

Topics and Readings

The four topics of the course and the list of both the required and the optional readings for each topic are listed below.

What is design? Lecture notes

We will start the course with the history of design methods and give an overview of the different theories of design and how design is viewed by each of them. The first set of readings give a historical overview to the question of "What is design?" and constitute a starting point for discussions that follow.

Required reading:

- Cross N. "Designerly Ways of Knowing: Design Discipline Versus Design Science" *Design Issues,* v 17, n 3, pp. 49 – 55, Summer 2001.

Optional readings:

- Alexander C. *Notes on the Synthesis of Form*, Harvard University Press, Cambridge Mass. 1964. **NK1505 A4**
- Simon H.A. *The Sciences of the Artificial*, The MIT Press, Cambridge Mass. 1981.**Q175 S564** (Chapter 1).
- Reitman W.R. "Heuristic decision procedures, open constraints, and the structure of ill-defined problems" in *Human Judgments and Optimality* (Eds.) Shelly M. W., Bryan G. L., John Wiley and Sons, New York, 1963. pp. 282-315. **BF441 S48**
- Rittel H.W.J., Webber M.M. "Dilemmas in a general theory of planning", *Policy Sciences*, v .4, 1973, pp. 155 – 169.

Intuitive design process Lecture notes

Next we will look at the intuitive design process. What are some systematic frameworks allowing one to examine the activities that designers undertake? What is the role of the media used in design, of the designer's training, personality and experience? The processes of design will be considered from a cognitive psychological framework that views thinking as information processing.

Required reading:

- Akın Ö., *A Cartesian Approach to Design Rationality*, METU Faculty of Architecture Printing Workshop, Ankara, 2006. Chapter 3, pp. 49 – 73.

Optional readings:

- Akın Ö., Simon Says: Design is Representation, Draft 2001.

- Eastman C.M. "On the analysis of intuitive design processes" in *Emerging Methods in Environmental Design and Planning* (ed.) G.T.Moore, The MIT Press, 1970. pp. 21 – 37.

Systematic enumeration of alternatives Lecture notes

Are there some methods by which design intentions can be systematically explored? How can design goals be precisely stated? We will look at methods for systematic enumeration of designs using floor plans as an example.

Required reading:

- Stiny G, Mitchell W J. "The Palladian Grammar", *Environment and Planning B*, v 5, 1978, pp. 5 – 18.

Optional readings:

- Stiny G, Mitchell W J. "Counting Palladian Plans", *Environment and Planning B*, v 5, 1978, pp. 189 – 198.
- Stiny G, Gips J. "An Evaluation of Palladian Plans", *Environment and Planning B*, v 5, 1978, pp. 199 – 206.
- Baykan C., "Representations for the analysis and synthesis of space layouts" in *Yapılar Fora*. (edited by Gönül Pultar) İstanbul, Tetragon İletişim Hizmetleri, 2010, pp. 109 – 121.
- Liggett R.S. "Automated facilities layout: past, present and future" *Automation in Construction*, v 9, 2000, pp. 197 – 215.

Measurement and evaluation of designs and buildings Lecture notes

Design enumeration necessitates selection of the best from among the alternatives that have been generated. Design involves many goals and intentions. What are some methods for relating these goals? How can we say that a building or a design is good or bad?

Required reading:

- "Old people's housing" *The Architect's Journal* Information Library, 31 May 1972, pp. 1200 – 1214.

Optional reading:

- Lawson B. *How Designers Think, 2nd Edition*, Butterworth Architecture, 1990. Chapter 5, pp. 48 – 62. **NA2510 1425 1990**

Course Organization

The course consists of readings, lectures and class discussions. There is one required reading and a few optional readings for every topic as indicated above. The dates you are required to read each article is indicated on the course calendar. You are expected to do the reading before coming to class and participate in the discussions.

Attendance

According to the rules of the department, attending less than 70% of classes means automatic failure in the course. Being late to class counts as an absence from that class hour. Absence from midterms and final are also treated according to the rules of the University and department. A valid medical report from the METU Health Center or approved by the METU Health Center is required and must be submitted on or immediately after the exam date.

Course Calendar

The course meets for three hours on Wednesdays 13:40–16:30 in Room 47.

	Date	Lecture	Required Reading
1	Feb 13	Introduction	
2	Feb 20	What is design?	Cross
3	Feb 27	What is design?	
4	March 6	Intuitive design	Akın, ch. 3
5	March 13	Intuitive design	
6	March 20	Intuitive design	
7	March 27	Systematic enumeration	***Midterm1***
8	April 3	Systematic enumeration	Stiny, Mitchell
9	April 10	Systematic enumeration	
10	April 17	Design evaluation	
11	April 24	Design evaluation	"Old people's housing"
12	May 1	Design evaluation	***Midterm2***

* Midterm date will not be changed during the semester.

Grading

Semester grades will be based on attendance, participation, two midterms and final, with weights as shown below:

- Attendance and participation 10%
- Midterm 1 30%
- Midterm 2 30%
- Final 30%

Other Sources

The following journals are good sources to find additional readings and research materials for the topics covered in this class. METU library has an electronic subscription to these journals so that you can access and download all articles and other contents.

Automation in Construction http://www.sciencedirect.com/science/journal/09265805

Design Studies http://www.sciencedirect.com/science/journal/0142694X

Environment and Planning B http://www.pion.co.uk/ep/

The Design Research Society, DRS, is an organization of the design research community. You can find more about their activities and services at their website, http://www.designresearchsociety.org/joomla/index.php .

Course Faculty

Can Baykan Matpum Bldg., Room 9 Phone: X-7255 email: baykan@metu.edu.tr
Office hours: Wednesdays 10:30 – 11:30 or by appointment.