



# ARCHITECTURAL DESIGN MAJOR

## Dept. of Civil and Environmental Engineering

### PROGRAM OVERVIEW

This undergraduate major in architectural design grants a degree of Bachelor of Science in Engineering with a specialization in Architectural Design. The major offers a wide variety of engineering courses with hands-on architectural design studios and fine arts courses. Students can choose from electives that develop additional depth in either architectural design or engineering. Architecture has become increasingly technical, and our graduates are well prepared to interact with a range of specialists. In addition to preparing students for advanced studies in architecture, the program's strong math and science requirements prepare students for graduate work in other fields, such as civil and environmental engineering, law, and business. Many students choose to take jobs directly after graduation as intern architects while others go on to graduate studies in architecture, structural engineering, or construction management. This pre-architecture undergraduate program is not a degree that leads directly to professional licensure in architecture or engineering. In order to become a licensed architect or engineer, additional graduate training is required.



### COURSE REQUIREMENTS

Architectural Design | 2011 - 2012 | Total Units = 100

#### 1. MATHEMATICS and SCIENCE (36 units minimum)<sup>1</sup>

Including **Math 19, 20, 21** (or 41 & 42)  
1 course required in Statistics

**Physics 21 or 41** (Mechanics is required), 3-4 units (Recommend Physics 22)

(Specially Approved Science Courses: EARTHSYS 101, EARTHSYS 102), 3 units each

(Recommended Math and Science Courses: CEE 101D, CME 100, CEE 64, CEE 70, GES 1, Physics 23 or 43),  
3,5,3,3,4,3,4 units respectively

#### 2. TECHNOLOGY IN SOCIETY - One course required<sup>1</sup>

#### 3. ENGINEERING FUNDAMENTALS and DEPTH<sup>1</sup>

**Engineering Fundamentals** – 9-11 units

**ENGR 14** Applied Mechanics, 3 units

**ENGR 60** Engineering Economy, 3 units

One other fundamentals elective, 3-5 units<sup>1</sup>

**Required Depth** – 38 units

**CEE 100** Managing Sustainable Building Projects, 4 units

**CEE 101A** Mechanics of Materials, 4 units

**CEE 110** Building Information Modeling, 4 units

**CEE 31 (31Q)** Accessing Architecture Through Drawing, 4 units

**CEE 130** Architectural Design, 4 units

**CEE 136** Green Architecture, 4 units

**CEE 137B** Intermediate Architecture Studio, 5 units

**CEE 156** Building Systems, 4 units

**ARTHS 3** Introduction to the History of Architecture, 5 units

#### 4. DEPTH ELECTIVES - See other side

<sup>1</sup>Choose from approved list of courses in SoE undergraduate handbook: <http://ughb.stanford.edu>

## COURSE REQUIREMENTS, cont.

Architectural Design | 2011 - 2012 | Total Units = 100

4. **DEPTH ELECTIVES** – At least one of the following CEE 111, CEE 115, CEE 138A or CEE 131A.  
(Note: the number of units of Depth Electives must be such that courses in Engineering Fundamentals, Required Depth, and Depth Electives total at least 60 units.)

	<b>ENGINEERING</b>
CEE 80N	The Art of Structural Engineering, 4 units
CEE 101B	Mechanics of Fluids, 4 units
CEE 101C	Geotechnical Engineering, 3-4 units
CEE 132	Interplay of Architecture and Engineering, 4 units
CEE 172A	Indoor Air Quality, 2-3 units
CEE 180	Structural Analysis, 4 units
CEE 181	Design of Steel Structures, 4 units
CEE 182	Design Experience – Steel Structures, 4 units
CEE 183	Integrated Building Design, 4 units
ENGR 50	Introductory Science of Materials, 4 units
ENGR 131	Ethical Issues in Engineering, 4 units
	<b>SUSTAINABILITY</b>
CEE 176A	Energy Efficient Buildings, 3-4 units
CEE 115	Goals and Methods for Sustainable Design of Buildings, 3-4 units
ME 222	Beyond Green Theory: Workshop in Ecological Design, 2-3 units
	<b>BUSINESS/PROFESSIONS</b>
CEE 111	Multidisciplinary Modeling and Analyses, 3-4 units
CEE 131A	Introduction to the Design Professions, 2 units
CEE 154	Cases in Estimating Costs, 3 units
ENGR 103	Public Speaking, 3 units
	<b>CAD/BIM/VDC</b>
CEE 122A,B	Computer Integrated Architecture/Engr./Construction, 2 units
CEE 135A	Parametrics: Applications in Architecture and Product Design, 4 units
	<b>STUDIO/DRAWING</b>
CEE 124	Sustainable Development Studio, 1-5 units
CEE 131	Architectural Design Process, 4
CEE 134B	Architectural Studio: Special Topic, 4 units
CEE 139	Design Portfolio Methods, 2 units
ME 101	Visual Thinking, 3 units
ME 110A	Design Sketching, 1 unit
	<b>STUDIO ART</b>
ARTSTUDI 60	Design I: Fundamental Visual Language, 3-5 units
ARTSTUDI 70	Introduction to Photography, 4 units
ARTSTUDI 140	Drawing I, 3 units
ARTSTUDI 145	Painting I, 3 units
ARTSTUDI 148	Printmaking, 3 units
ARTSTUDI 151	Sculpture, 4 units
ARTSTUDI 271	The View Camera: Its Uses and Techniques, 3 units
	<b>ART HISTORY</b>
ARTHIST 141	The Invention of Modern Architecture, 4 units
ARTHIST 142	Varieties of Modern Architecture, 4 units
ARTHIST 143A	American Architecture, 4 units
ARTHIST 188A	The History of Modern and Contemporary Japanese and Chinese Architecture and Urbanism, 4 units
ARTHIST 252A	Place: Making Space Now, 5 units
	<b>DESIGN PHILOSOPHY</b>
CEE 138A	Contemporary Architecture: Materials, Structures, and Innovations, 3 units
ME 115	Human Values in Design, 3 units
ME 120	History and Philosophy of Design, 3-4 units
	<b>STAGE PRODUCTIONS</b>
FILMPROD 114	Introduction to Film and Video Production, 5 units
DRAMA 137	Drafting and Construction, 2-3 units
	<b>URBAN PLANNING</b>
URBANST 110	Introduction to Urban Studies, 4 units
URBANST 113	Introduction to Urban Design: Contemporary Urban Design in Theory and Practice, 5 units
URBANST 163	Land Use Control, 4 units
URBANST 171	Urban Design Studio, 3 units

## **COURSE REQUIREMENTS, cont.**

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### **Interested in Graduate Studies in Architecture?**

Students intent on applying to architecture graduate school are encouraged to take studio art courses as early as possible in their academic career and to take more than the required number of architecture studios. In preparation for architecture graduate school applications, students should plan on taking the portfolio preparation class. It is also recommended that students take computer-modeling courses that will enable them to pursue summer internships. Internships are extremely valuable since they allow students to test their interest in architecture as a profession.

**Architecture Studio Courses:** CEE 31, CEE 130, CEE 134B, CEE 136, and CEE 137B

**Portfolio Preparation:** CEE 139

**Computer Modeling:** CEE 110 and CEE 111

### **Interested in Sustainable Architecture?**

CEE 100: Managing Sustainable Building Projects (fulfills WIM), CEE 115: Goals and Methods for Sustainable Design of Buildings, CEE 172A: Indoor Air Pollution, CEE 176A: Energy Efficient Buildings, CEE 136: Green Architecture, CEE 70: Environmental Science and Technology, EARTHSYS 101: Energy and Environment, EARTHSYS 102: Renewable Energy sources, and ME 222: Beyond Green Theory.

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**Program Website:** <http://cee.stanford.edu/programs/archdesign/index.html>

**Program Blog:** <http://stanfordarchitecture.wordpress.com/>

**Program Video Clip:** <http://cee.stanford.edu/programs/archdesign/programVideo.html>

**Handbook for Undergraduate Engineering Programs:** <http://www.ughb.stanford.edu>