

# ARCHITECTURAL TECHNOLOGY (ARCH)

## ARCH 99 Special Projects in Environmental Design

1-3 Units (Degree Applicable)

Lab: 54-162

Prerequisite: Instructor authorization needed prior to enrollment

Extended laboratory experiences pursuing specialized and directed projects in Environmental Design and Architecture. The extended experiences are supplementary to those available in the regular program and allow the student to focus on laboratory projects and experiments of specialized interest. Portfolio pieces will be produced. Students will be able to pursue more advanced and complex laboratory projects and experiments. The content of the course and the methods of study vary from semester to semester and depend on the particular project under consideration. Instructor authorization is needed prior to enrollment. Field trips required.

## ARCH 101 Design I - Elements of Design

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Corequisite: ARCH 121

Design and design process including conceptualization, visualization, form making, presentation, expression, and site analysis of physical, contextual, and cultural aspects of design and the urban environment. Portfolio will be produced. Field trips are required.

## ARCH 102 Design II - Architectural Design

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Corequisite: ARCH 122 or ARCH 23

Advisory: (ARCH 10 and ARCH 11) or (ARCH 101 and ARCH 141)

Second level architectural design studio with a focus on site analysis, design conceptualization, form making, program development and presentation. Emphasis is on critical thinking and problem solving integrated with the artistic design process. Investigations will stress symbolic expression, aesthetics, craftsmanship, technical skills, vocabulary and physical object making through the design of multi-family residential, institutional and cultural buildings. Field trips are required.

## ARCH 121 CADD and Digital Design Media Level I

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Corequisite: ARCH 101

CADD (Computer Aided Design and Drafting) Level 1 and computer applications in architecture, engineering, and related fields including spreadsheet, drawing, and presentation application. Field trips required.

## ARCH 122 Architectural Presentations

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Corequisite: ARCH 21 or ARCH 102

Advisory: (ARCH 10 and ARCH 11) or (ARCH 101 and ARCH 141)

Analysis and preparation of architectural presentation projects, including schematic and final design, architectural models, oral presentation techniques, board layouts using hand-drawn and computer-aided techniques, and development of project portfolio. Field trips required.

## ARCH 141 Design Drawing and Communication

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Architectural drawing techniques including graphic standards, scales, orthographic, paraline, and perspective projections. Field trips required.

## ARCH 142 Architectural Materials and Specifications

4 Units (Degree Applicable, CSU)

Lecture: 54 Lab: 54

Advisory: Eligibility for MATH 51

Building materials and specifications used in architecture and construction. Includes a lab component of common building material applications. Field trips required.

## ARCH 145 Building and Zoning Codes

3 Units (Degree Applicable, CSU)

Lecture: 54

Advisory: ARCH 11 or ARCH 141

Building and zoning codes, including code requirements related to architectural design and construction documentation. Process of obtaining design approvals and building permits from proper authorities having jurisdiction.

## ARCH 146 Architectural Drawings and Fabrications

3 Units (Degree Applicable, CSU)

Lecture: 53 Lab: 53

Advisory: ARCH 141 or ARCH 11

Architectural working drawings and construction documents for light frame construction. Field trips required.

## ARCH 147 Architectural CAD and BIM

3 Units (Degree Applicable, CSU)

Lecture: 53 Lab: 53

Advisory: ARCH 141 or ARCH 121

3-D Computer Aided Design and Drafting (CAD) and Building Information Modeling (BIM) for architectural design and design development. Portfolio of 3-D building models and extracted 2-D drawings will be produced. Field trips required.

## ARCH 180 Science Concepts for Sustainable Design and Environmental Control

3 Units (Degree Applicable, CSU)

Lecture: 54

Simplified and contextualized science concepts focused on sustainable design and environmental control. Applicable elements from several disciplines will be brought together and investigated in a non-mathematical and experiential format. Topics such as human thermal comfort, thermal energy, solar geometry, insolation, and energy conservation will be examined in the context of the built environment.

## ARCH 201 Design III - Environmental Design

4 Units (Degree Applicable, CSU, UC)

Lecture: 54 Lab: 54

Corequisite: ARCH 221

Advisory: ARCH 102

Theory and principles of environmental design as applied to architecture, landscape architecture, urban design, urban planning, and civil engineering. Portfolio will be produced. Field trips required.

**ARCH 202 Design IV - Sustainable Design Advanced Project**

**4 Units** (Degree Applicable, CSU)

Lecture: 54 Lab: 54

Corequisite: ARCH 222

Advisory: ARCH 201

Fourth level architectural design studio focusing on sustainability, energy efficiency, and environmental conservation. Emphasis is on critical thinking and problem solving involving material selection, envelope design, advanced space planning, and the development of designs from complex building programs. Investigations will stress logical organization, craftsmanship, technical skills, vocabulary, and physical object making through the design complex building types. Field trips are required.

**ARCH 221 Architectural Rendering and Illustration**

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 36 Lab: 71

Corequisite: ARCH 201

Advisory: ARCH 122

Architectural and interior illustration including perspective drawing, sketching, shades and shadows, entourage, and color application utilizing various media and development of project portfolio. Field trips required.

**ARCH 222 Advanced Digital Media, Generative, and Algorithmic Design and Illustration**

**3 Units** (Degree Applicable, CSU)

Lecture: 36 Lab: 71

Corequisite: ARCH 202

Architectural computational and algorithmic design. Course focuses on design mathematics, visual interface coding, and the development of digital models from computational definitions. Computer Aided Design (CAD), 3 dimensional (3-D) illustration and modeling. Development of interior and exterior 3-D models and how they interact with solar lighting.

**ARCH 247 Architectural CAD Working Drawings**

**3 Units** (Degree Applicable)

Lecture: 53 Lab: 53

Advisory: ARCH 146 or ARCH 147

Architectural Computer Aided Design (CAD) for design development and working drawings. Portfolio of working drawings using Building Information Modeling (BIM) and CAD applications of integrated 3-D and 2-D BIM/CAD models will be produced. Field trips required.

**ARCH 250 World Architecture: Prehistory to the Middle Ages**

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 45 Lab: 27

Development of world architecture from pre-history to the Middle Ages. Influence of geography, religion, and socio-economic background on architecture from ancient Egypt, Europe through the Middle Ages, and classic civilizations of Asia and the Americas. Field trips required.

**ARCH 251 World Architecture: Renaissance through the Contemporary Era**

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 45 Lab: 27

Development of world architecture from the Renaissance to the present. Influence of environment, religion, and socio-economic movements on modern architecture. Field trips required.

**ARCH 280 Structural Design Level I**

**3 Units** (Degree Applicable, CSU)

Lecture: 54

Advisory: Eligibility for MATH 71

Theories of structural design and the relationship of structure to form, function, and economics. Analysis of structural systems including statics, strength of materials, and structural properties as well as the demonstration of forces and stresses.

**ARCH 290 Architectural Work Experience**

**1-2 Units** (Degree Applicable)

(May be taken for Pass/No Pass only)

Lab: 60-150

Prerequisite: Compliance with work experience regulations as designated in the College Catalog

Provide work experience in architecture at an approved work site related to classroom instruction. A minimum of 75 paid or 60 non-paid)clock hours per semester of supervised work is required for each unit of credit. Field trips are required