

# ARCHITECTURE AND ENVIRONMENTAL DESIGN

The Architecture curriculum is designed to provide students with the following understanding and skills:

1. Verbal and graphic methods of communication;
2. An understanding of the social and environmental problems in the United States and other countries;
3. Creative solutions to existing and future problems in the United States and other countries; and
4. How to implement new ideas in a reasonable amount of time.

The areas of study include how to develop a better quality of life through efficient housing, new building material development, new construction methods, new work methods, solar and wind power, efficient use of resources, and a reduction of waste in materials and time. A learning-by-doing approach is stressed in preparation for the job market or for transfer to a university to further study in architecture, architectural engineering, city planning, or landscape architecture. Students planning to transfer to a four-year institution and major in one of these fields should consult with a counselor regarding the transfer process and lower division requirements.

## Contact Information

Division: Science (PS - 148)

Division Phone Number: (909) 384-8645

Department Chair: Todd Heibel (theibel@sbccd.edu), Ph.D.

Counselor Liaisons: Elizabeth Banuelos (ebanuelos@sbccd.edu), M.S. and Erica Begg (ebegg@sbccd.edu), M.S.

- 3D Modeling and Design Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/architecture-environmental-design/3d-modeling-and-design-certificate-achievement/>)
- Architecture and Environmental Design Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/architecture-environmental-design/architecture-environmental-design-as-degree/>)
- Building Information and 3D Modeling Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/architecture-environmental-design/building-information-3d-modeling-certificate-achievement/>)
- Building Information Management (BIM) Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/architecture-environmental-design/bim-certificate-achievement/>)

### ARCH 015 2 Units

#### Survey of Design and Drafting Software Applications

**Lecture:** 18 contact hours

**Lab:** 54 contact hours

This course is an introduction to the theories and principles of industry-related software applications in the design and drafting fields. Topics of the course include dimensional graphics, three-dimensional modeling, and electronic mapping applications. Principal software applications will be explored as they relate to the fields of architecture, design, manufacturing, construction, and urban planning.

**Associate Degree Applicable**

### ARCH 070 1 Unit

#### Portfolio Design

**Lab:** 54 contact hours

**Prerequisite:** ARCH 112 or ARCH 113

This course is designed to assist architecture students in the preparation of their portfolio. The design portfolio is required to transfer to most four-year/five-year Architecture programs. This course also benefits the student entering the job force in documenting their experience. (Formerly ARCH 270)

**Associate Degree Applicable**

### ARCH 098 1-4 Units

#### Environmental Design Work Experience

**WRKEX:** 300 contact hours

**Prerequisite:** ARCH 111 or ARCH 112 or ARCH 145 or ARCH 145H

This course involves supervised training, in the form of on the job employment that will enhance the student's knowledge in the selected field of study. The student's major and job must match. For paid work, 75 hours = 1 unit; for volunteer work, 60 hours = 1 unit. Students may earn a total of 16 units toward graduation in Work Experience 098 courses. See department for specific guidelines.

**Associate Degree Applicable**

### ARCH 110 2 Units

#### Introduction to Architecture

**Lecture:** 36 contact hours

This course explores the professional and academic path of the architect and aspects of the architect's relation to allied professions. Lectures will include licensing, academic options and pathways, history of the profession, practice, design theory, structures, and personal goal setting. Guest speakers and an office visit will provide students a firsthand opportunity to observe multiple aspects of the profession.

**Associate Degree Applicable**

**Transfers to both UC/CSU**

### ARCH 111 2 Units

#### Sketching and Design Visualization

**Lecture:** 18 contact hours

**Lab:** 54 contact hours

This introductory course in architectural visualization and drawing techniques will focus on how to communicate three-dimensional designs in a two-dimensional medium. Subjects and techniques include, orthographic projection, isometrics, basic one and two point perspectives, pralines, plan views, elevations, and line types. Emphasis on sketching and hand drafting and sketch-up media will be introduced in developing graphic skills.

**Associate Degree Applicable**

**Transfers to both UC/CSU**

**ARCH 112 4 Units****Environmental Design****Lecture:** 36 contact hours**Lab:** 108 contact hours

This beginning architectural design course includes the perceptual and physical study of two and three-dimensional design theories, principles and compositional techniques used in the creation and manipulation of architectural form, space and light. Focus will be on the fundamental design skills and will progress to a three dimensional architectural design project including consideration of approach, transition and destination. Models, drawings and graphics will be utilized to study and communicate the design. (Formerly ARCH 100)

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 113 4 Units****Environmental Design Communication****Lecture:** 36 contact hours**Lab:** 108 contact hours**Advisory:** ARCH 111 and ENGL 101 or ENGL 101H

This is an advanced studio course that builds on a basic understanding of design communication, strengthening complexity and design intention in two and three-dimensional design and three-dimensional visualization techniques, including freehand sketching, graphic conventions, modeling, shade/shadow, color rendering, graphic presentations, and a magazine page project based presentation. This course is intended to provide the visual communications skills needed to describe architecture and participate in the design communication process. It is project-based with projects selected by the instructor to build a student's range of expression, while focusing on a variety of visualization techniques and media. (Formerly ARCH 101)

**Associate Degree Applicable****Transfers to CSU only****ARCH 130 2 Units****Computer-Aided Design (CAD) Drafting****Lecture:** 18 contact hours**Lab:** 54 contact hours

This course introduces Computer-Aided Design (CAD) as used to produce two-dimensional architectural drawings. PCs with AutoCAD will be used and instruction will focus on using a computer to draw a simple project, including the following drawing types: floor plan, site plan, elevation, and enlarged section/details. Students should have basic knowledge of computer operation and file management.

**Associate Degree Applicable****Transfers to CSU only****ARCH 131 2 Units****Introduction to Building Information Modeling (BIM)****Lecture:** 18 contact hours**Lab:** 54 contact hours**Advisory:** ARCH 130

This course introduces Building Information Modeling (BIM) as used to produce a three-dimensional architectural model with detailed construction information. PCs with Autodesk Revit will be used and instruction will focus on computer modeling a simple project and extracting construction documentation. Students should have basic knowledge of computer operation and file management.

**Associate Degree Applicable****Transfers to CSU only****ARCH 133 2 Units****Introduction to 3D Modeling and Design****Lecture:** 18 contact hours**Lab:** 54 contact hours

This course introduces 3-D Modeling for design visualization using Rhino software. Hands-on instruction will focus on digitally modeling designs with rectilinear and non-rectilinear geometry, including preparing files for fabrication and presentation. Students should have basic knowledge of computers and file management.

**Associate Degree Applicable****Transfers to CSU only****ARCH 145 3 Units****History of Architecture: Early Design Through Gothic****Lecture:** 54 contact hours**Advisory:** ENGL 101 or ENGL 101H

This course is a survey of Western architectural history from the early Egyptians through the Gothic period, in addition to the eastern architecture of India, Japan and China. The course includes a comparative study of architecture and architects with emphasis on the people, locations, structures, materials, and methods of construction and additional influences on the built environment.

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 145H 3 Units****History of Architecture: Early Design Through Gothic - Honors****Lecture:** 54 contact hours**Prerequisite:** ENGL 101 or ENGL 101H

This course is a survey of Western architectural history from the early Egyptians through the Gothic period, in addition to the eastern architecture of India, Japan and China. The course includes a comparative study of architecture and architects with emphasis on the people, locations, structures, materials, and methods of construction and additional influences on the built environment. This course is intended for students in the Honors Program, but is open to all students who desire more challenging course work.

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 146 3 Units****History of Architecture: Renaissance Through Modern****Lecture:** 54 contact hours**Advisory:** ENGL 101 or ENGL 101H

This is a survey course that covers the indigenous architecture in the Pre-Columbian Americas and the Western architectural history Renaissance period to modern times. This course includes a comparative study of architecture and architects with an emphasis on people, locations, structures, materials, and methods of construction.

**Associate Degree Applicable****Transfers to both UC/CSU**

**ARCH 146H 3 Units****Architecture History: Renaissance to Modern - Honors****Lecture:** 54 contact hours**Prerequisite:** ENGL 101 or ENGL 101H

This is a survey course that covers the indigenous architecture in the Pre-Columbian Americas and the Western architectural history Renaissance period to modern times. This course includes a comparative study of architecture and architects with an emphasis on people, locations, structures, materials, and methods of construction. This course is intended for students in the Honors Program, but is open to all students who desire more challenging course work.

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 212 4 Units****Architectural Design and Theory II****Lecture:** 36 contact hours**Lab:** 108 contact hours**Prerequisite:** ARCH 112**Advisory:** ARCH 113

This course will explore architectural and environmental design relationships between various programmatic models, normative building types, and technological themes with emphasis on physical, cultural, and historic contexts. The student will develop creative design skills and problem solving techniques as they apply to the architectural and related profession. Prerequisite may be waived subject to portfolio review of recent (within 5 years) work by Architecture department. (Formerly ARCH 200)

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 213 4 Units****Architectural Design II****Lecture:** 36 contact hours**Lab:** 108 contact hours**Prerequisite:** ARCH 212

Advanced architectural design processes are explored in the urban setting, with the relationships between a variety of programmatic models, normative building types, and technological themes within specific physical, cultural and historic contexts. Focus is on advanced problems solving in spatial relationships, structures, and human requirements of advanced model building, based on challenging design criteria, communication and editing a design narrative. (Formerly ARCH 201)

**Associate Degree Applicable****Transfers to both UC/CSU****ARCH 231 2 Units****Advanced Building Information Modeling (BIM)****Lecture:** 9 contact hours**Lab:** 81 contact hours

This course introduces Building Information Modeling (BIM) as used to produce a 3-dimensional architectural model with detailed construction information. PCs with Autodesk Revit will be used and instruction will focus on computer modeling a simple project and extracting construction documentation. Students should have basic knowledge of computer operation and file management as well as construction.

**Associate Degree Applicable****Transfers to CSU only****ARCH 233 2 Units****Advanced 3D Modeling and Design****Lecture:** 18 contact hours**Lab:** 54 contact hours**Prerequisite:** ARCH 133

This course introduces fundamental skills of coding and 3-D computational design using Rhino software with additional plug-ins. Hands-on instruction will focus on parametrically modeling and testing design variations with rectilinear and non-rectilinear geometry, including preparing files for fabrication and presentation. Students should have basic knowledge of 3-D modeling.

**Associate Degree Applicable****Transfers to CSU only**