

Architecture

ARCHITECTURE – ARCHI

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 Mathematics and Engineering Division
 Mathematics Building, Room 267

Possible career opportunities

Students are provided with a strong background in spatial composition, design theory, and production methods that prepare them for employment as an architectural technician. Many general courses in the architecture program offer education in areas that are also applicable to an entry-level internship position performing manual or computer-aided drafting, furniture or cabinet design, or architectural rendering and illustration.

**Associate in science degree
 Architecture design**

Students completing the program will be able to...

- A. communicate architectural concepts using graphic conventions and representational methods.
- B. demonstrate an understanding of drawing methods and graphic compositional techniques.
- C. construct physical models of architectural elements and spaces.
- D. demonstrate an understanding of building components, structures and systems in relation to design.
- E. identify notable architects, design concepts, canonical buildings and precedents in architecture.
- F. identify the historical and contemporary role of architects in the profession and related design fields.
- G. describe the role of environmental design, energy use and sustainable design practices in the profession and in buildings.
- H. utilize digital means of production, representation and/or digital fabrication methods for the creation and manipulation of architectural images and forms.

Students in the architectural design program will develop the necessary skills to analyze, modify or create architectural space and the abilities to present their ideas in graphic form using a variety of media. The program emphasizes spatial and architectural theories relating to design, architectural history, and methods of graphic composition and presentation.

The DVC architecture design major is intended for transfer. Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. Students who intend to transfer are advised to select General Education Option 2 (IGETC) or Option 3 (CSU GE). Option 1 (DVC General Education) is not generally advised.

To earn an associate in science degree with a major in architecture design, students must complete each course used to meet a major requirement with a “C” grade or higher, maintain an overall GPA of 2.5 or higher and complete all general education requirements as listed in the catalog. Many upper level architecture degree programs require specific physics, math and general education preparation. Please consult the transfer institution for required courses. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
ARCHI-120	Introduction to Architecture and Environmental Design	3
ARCHI-121	Architectural Design I.....	4
ARCHI-130	Architectural Graphics I	3
ARCHI-131	Architectural Graphics II	3
ARCHI-135	Digital Tools for Design	3
ARCHI-136	Digital Tools for Architecture	3
ARCHI-207	Environmental Control Systems	3
ARCHI-220	Architectural Design II.....	4
ARCHI-221	Architectural Design III.....	4
ARCHI-244	Architectural Practice and Working Drawings.....	3
CONST-144	Materials of Construction.....	3

<i>plus at least 3 units from:</i>		
ARCHI-156	History of World Architecture: Early Civilizations to Middle Ages.....	3
ARCHI-157	History of World Architecture: Middle Ages to 18th Century.....	3
ARCHI-158	History of World Architecture: 18th Century to Present	3
ARCHI-160	History of American Architecture	3
total minimum units for the major		39

**Associate in science degree
 Architecture technology**

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- E. identify notable architects, design concepts, canonical buildings and precedents in architecture.
- F. identify the historical and contemporary role of architects in the profession and related design fields.
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- H. utilize digital means of production, representation and/or digital fabrication methods for the creation and manipulation of architectural images and forms.

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The DVC architecture technology degree program offers students the opportunity to earn an associate in science degree in architecture technology, which prepares students for a career as an architectural intern, draftsman or designer. As an architecture technology student, students gain an in-depth understanding of the requirements and skills necessary for employment in an architect’s office.

Architectural interns, draftsmen or designers prepare technical and presentation drawings, draft copies of specifications and cost estimates, revise plans, trace details from various sources, operate printing machines, and assemble prints and other documents for projects. Graduates with these skills are also employed by landscape architects, industrial designers, interior designers, and engineers.

To earn an associate in science with a major in architecture technology, students must complete each course used to meet a major requirement with a “C” grade or higher and maintain an overall GPA of 2.5 or higher in the coursework required for the major. Certain courses may satisfy both major and general education requirements; however, the units are only counted once.

<i>major requirements:</i>		<i>units</i>
ARCHI-120	Introduction to Architecture and Environmental Design	3
ARCHI-126	Computer Aided Design and Drafting - AutoCAD	3
ARCHI-130	Architectural Graphics I	3
ARCHI-244	Architectural Practice and Working Drawings.....	3
CONST-124	Construction Details and Specifications	3
CONST-135	Construction Processes: Residential	4
CONST-144	Materials of Construction.....	3

<i>plus at least 6 units from:</i>		
ARCHI-131	Architectural Graphics II	3
ARCHI-226	Computer Aided Drafting Design, Advanced Concepts - AutoCAD	3
ARCHI-296	Internship in Occupational Work Experience Education in ARCHI.....	2-4
CONST-116	Plane Surveying.....	4
CONST-181	Building Code Interpretation: Non-Structural ..	3
CONST-183	Title 24: Energy Conservation Codes	3
total minimum units for the major		28

**Certificate of achievement
Architecture design**

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- G. describe the role of environmental design, energy use and sustainable design practices in the profession and in buildings.
- H. utilize digital means of production, representation and/or digital fabrication methods for the creation and manipulation of architectural images and forms

Students in the architectural design program will develop the necessary skills to analyze, modify, or create architectural space and the abilities to present their ideas in graphic form using a variety of media. The program emphasizes spatial and architectural theories relating to design, architectural history, and methods of graphic composition and presentation. This certificate provides a foundational core curriculum that prepares students for both accredited and non-accredited architectural degree programs at four-year colleges and universities, and also provides a strong foundation in core subjects for those who seek a career in the design field.

Students who intend to transfer must consult with a program advisor or counselor to ensure that the requirements for transfer to four-year institutions of their choice are met. To earn a certificate of achievement, students must complete each course used to meet a certificate requirement with a “C” grade or higher. Required courses are available in the day, and some are also offered in the evening.

<i>required courses:</i>		<i>units</i>
ARCHI-120	Introduction to Architecture and Environmental Design	3
ARCHI-121	Architectural Design I	4
ARCHI-130	Architectural Graphics I	3
ARCHI-131	Architectural Graphics II	3
ARCHI-135	Digital Tools for Architecture I	3
ARCHI-136	Digital Tools for Architecture II	3
ARCHI-220	Architectural Design II	4
total minimum required units		23

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**Certificate of achievement
Architecture technology**

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To earn a certificate of achievement, students must complete each course used to meet a certificate requirement with a “C” grade or higher. Required courses are available in the day, and some are also offered in the evening.

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ARCHI-120 Introduction to Architecture and Environmental Design	3
ARCHI-126 Computer Aided Design and Drafting - AutoCAD	3
ARCHI-130 Architectural Graphics I	3
ARCHI-244 Architectural Practice and Working Drawings.....	3
CONST-124 Construction Details and Specifications	3
CONST-135 Construction Processes: Residential	4
CONST-144 Materials of Construction.....	3

plus at least 6 units from:

ARCHI-131 Architectural Graphics II	3
ARCHI-226 Computer Aided Drafting Design, Advanced Concepts - AutoCAD	3
ARCHI-296 Internship in Occupational Work Experience Education in ARCHI.....	2-4
CONST-116 Plane Surveying.....	4
CONST-181 Building Code Interpretation: Non-Structural ..	3
CONST-183 Title 24: Energy Conservation Codes	3

total minimum required units 28

ARCHI-110 Design-Build Workshop

- 1 unit SC
- *May be repeated three times*
 - *72 hours laboratory per term*
 - *Advisory: IDSGN-105 or equivalent*
 - *Note: During spring term students will participate in the Cal Poly San Luis Obispo Design Village Competition. This allows each group of two-six students to design, build and live in their structure for three days in Poly Canyon. Multiple teams allowed, entry fees and material fees may apply.*

This is a design-build course for full-scale projects in wood, metal, and other materials to be designed and constructed by students working in teams in consultation with faculty. The course explores drawing, modeling, fabrication and assembly of full-scale architectural projects utilizing manual and computer controlled tools. CSU

ARCHI-119 Introduction to Technical Drawing

- 3 units SC
- *36 hours lecture/72 hours laboratory per term*
 - *Note: Same as ENGTC-119. Credit by examination option available.*

This course presents an introduction to technical drawing. Topics include technical lettering and line work, geometric constructions, sketching and shape description, orthographic projection, dimensioning, section views, and auxiliary views. Students will gain experience using computers to produce technical drawings utilizing 3D modeling and orthographic computer aided design (CAD) drafting. An introduction to computer numerical control (CNC) prototyping and 3D printing is also covered. CSU, UC (credit limits may apply to UC - see counselor)

ARCHI-120 Introduction to Architecture and Environmental Design

- 3 units LR
- *CSU GE: C1*
 - *36 hours lecture/72 hours laboratory per term*

This course is an introduction to the professional field of architecture, environmental design, landscape design, and urban planning. An overview of the practice of environmental design with concepts in design methods and theory, analysis and problem solving, history of design, and the profession is presented. An emphasis on beginning design projects utilizing drawing, model making and computers is covered in class. CSU, UC

Architecture

ARCHI-121 Architectural Design I

4 units SC

- CSU GE: C1
- 36 hours lecture/108 hours laboratory per term
- Prerequisite: ARCHI-120 or equivalent and ARCHI-130 (may be taken concurrently) or equivalent
- Advisory: ARCHI-135 or equivalent

This first-year studio design course focuses on development of fundamental design skills and spatial theory. Topics include spatial qualities of architecture, composition and ordering systems, circulation and movement through space, daylighting, introductory structural systems, precedent studies and architectural theory. CSU, UC

ARCHI-126 Computer Aided Design and Drafting - AutoCAD

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Advisory: ARCHI-119 or ENGTC-119 or equivalent
- Note: Same as ENGTC-126. Students may petition to repeat this course when software or hardware is changed. Only the first course completed will be applied toward a degree or certificate requirement. Units for both courses will apply towards the 60 units required for the degree. Credit by examination option available.

This introductory course covers the fundamentals of AutoCAD, and its application to the creation of technical drawings. Hands-on training utilizing a comprehensive overview of the software package and its applications to technical drafting is emphasized. CSU, UC (credit limits may apply to UC - see counselor)

ARCHI-127 Introduction to Revit

3 units SC

- 36 hours lecture/54 hours laboratory per term
- Note: Credit by examination option available.

This course presents an introduction to Revit software. Topics include fundamentals of the Revit operating environment, file structure, creation and organization of three-dimensional and two-dimensional construction models and documents. CSU

ARCHI-130 Architectural Graphics I

3 units LR

- CSU GE: C1
- 36 hours lecture/72 hours laboratory per term
- Advisory: ARCHI-119 or ENGTC-119 or equivalent

This course is an introduction to architectural graphics related to projection systems, representation of architectural forms, rendering and shadow casting. An overview of history and methods of graphic representation used by architects and an application of drafting, drawing and rendering methods is presented. Problem-solving in orthographic and pictorial projection and drawing, architectural lettering, shades and shadows, and color rendering techniques are covered. There is an emphasis on mechanical drafting with pencil and beginning introduction to other art media. CSU, UC

ARCHI-131 Architectural Graphics II

3 units LR

- 36 hours lecture/72 hours laboratory per term
- Prerequisite: ARCHI-130 or equivalent

This course is an advanced exploration of drawing techniques utilizing freehand and mechanical drawing methods of representation. Emphasis is placed on perspective drawing, shade and tone, color theory and composition. A continuing exploration of media for architectural rendering and representation is included. CSU, UC

ARCHI-135 Digital Tools for Design

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Note: ARCHI-135 and ARCHI-136 may be taken in any order.

This course is an introduction to the use of computers in design communication and representation. Topics presented include two-dimensional and three-dimensional graphics utilizing Adobe Illustrator, InDesign, Photoshop, AutoCAD, Sketchup and other related programs. Students will be introduced to additional concepts in processing digital images, digital photography, scanning and printing. CSU

ARCHI-136 Digital Tools for Architecture

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Note: ARCHI-135 and ARCHI-136 may be taken in any order.

This course covers the use of computers in architectural design for advanced architectural graphics, three-dimensional modeling, rendering, and fabrication. Topics include Rhinoceros 3-D modeling software and V-Ray rendering software for architectural presentations, modeling of complex non-orthogonal geometries and architectural forms, fabrication utilizing a laser cutter, and current computer graphics and architectural rendering standards. CSU

ARCHI-150 Topics in Architecture

.3-4 units SC

- Variable hours

A supplemental course in architecture to provide a study of current concepts and problems in architecture. Specific topics to be announced in the schedule of classes. CSU

Architecture

ARCHI-156 History of World Architecture: Early Civilizations to Middle Ages

3 units SC

- *IGETC: 3A; CSU GE: C1; DVC GE: III*
- *54 hours lecture per term*
- *Advisory: College-level reading and writing are expected.*
- *Note: ARCHI-156, 157 and 158 may be taken in any order*

This course presents a survey of world architecture and urbanism prehistory to the Middle Ages. The social, cultural, and physical conditions that influence the built environment in the Mediterranean region, Europe, Asia, Africa, and Pre-Columbian Americas will be explored. Topics include early megalithic tombs and structures, Native American dwellings, architecture of Egypt, Mesopotamia, Persia and the Middle East, early civilizations of the Aegean, temples and cities of Greece, architecture and engineering of Rome, and early medieval structures after the fall of Rome. CSU, UC

ARCHI-157 History of World Architecture: Middle Ages to 18th Century

3 units SC

- *IGETC: 3A; CSU GE: C1; DVC GE: III*
- *54 hours lecture per term*
- *Advisory: College-level reading and writing are expected.*
- *Note: ARCHI-156, 157 and 158 may be taken in any order*

This course presents a survey of world architecture and urbanism from the Middle Ages until the end of the 18th Century. The social, cultural, and physical conditions that influence the built environment of Europe, Asia and the Colonial Americas will be explored. Topics include the development of the Gothic cathedral, art and architecture of the Renaissance, Baroque design in Europe, architecture of Japan, China and India, historic buildings in Colonial America, and architectural developments in Europe during the 18th Century including Romanticism and later Greek and Gothic revival movements. CSU, UC

ARCHI-158 History of World Architecture: 18th Century to Present

3 units SC

- *IGETC: 3A; CSU GE: C1; DVC GE: III*
- *54 hours lecture per term*
- *Advisory: College-level reading and writing are expected.*
- *Note: ARCHI-156, 157 and 158 may be taken in any order*

This course presents a survey of world architecture and urbanism from the 18th Century to the present. The social, cultural, and physical conditions that influence the built environment of Europe, Asia, and the Americas will be explored. Topics include American architectural contributions of Frank Lloyd Wright and the Chicago School of Architecture, Art Nouveau and the work of Gaudi, the influence of industrialization in architecture as well as topics in Russian Constructivism, 20th Century Modernism, Post-modernism and Deconstructivism. CSU, UC

ARCHI-160 History of American Architecture

3 units SC

- *IGETC: 3B; CSU GE: C1, C2; DVC GE: III*
- *54 hours lecture per term*
- *Advisory: College-level reading and writing are expected.*

This course is a survey of American architectural history from Native American dwellings to the present. The architectural influence of immigrant groups is presented, as well as the influences of architectural design movements in the United States through the course of history. CSU, UC

ARCHI-207 Environmental Control Systems

3 units SC

- *54 hours lecture per term*

This course covers the theory and application of climate, energy use and comfort as determinants of architectural form in small-scale buildings. Methods of ventilating, cooling, heating, and lighting will be discussed. Topics include passive solar techniques, cross and stack ventilation, daylighting and an introduction to various passive systems for environmental control in buildings. There will be an emphasis on green building technology and sustainable practices in design. CSU

ARCHI-220 Architectural Design II

4 units LR

- *36 hours lecture/108 hours laboratory per term*
- *Prerequisite: ARCHI-121 and 135 or equivalents*
- *Advisory: ARCHI-136 or equivalent*

This course is a second-level studio design class continuing the study of architectural design. Students will develop fundamental design skills utilizing concepts related to site planning and site analysis with projects of greater complexity. A continuing investigation of topics in material qualities, general methods of assembly and construction, and human factors in design are covered. Methods of presentation and design development include drawing, model making, and architectural reviews and critiques are utilized. CSU, UC

ARCHI-221 Architectural Design III

4 units LR

- *36 hours lecture/108 hours laboratory per term*
- *Prerequisite: ARCHI-136 (may be taken concurrently) or equivalent and ARCHI-220 or equivalent*

This course is a third-level studio design class continuing the study of architectural design. Focus is placed on the application of advanced design skills and spatial theories to projects of greater architectural complexity. Design problems and projects incorporate advanced concepts of site planning, urban design, integration of structural and mechanical systems, programming and circulation are included. CSU, UC

Architecture

ARCHI-226 Computer Aided Drafting Design, Advanced Concepts - AutoCAD

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Advisory: ARCHI-126 or ENGTC-126 or equivalent
- Note: Same as ENGTC-226. Students may petition to repeat this course when software or hardware is changed. Only the first course completed will be applied toward a degree or certificate requirement. Units for both courses will apply towards the 60 units required for the degree.

This course covers the concepts and applications of constructing digital three-dimensional (3D) models and photo-realistic renderings for presentation using AutoCAD. Advanced techniques for surface, wireframe and solid modeling will be presented. Students will explore lighting, materials mapping and rendering as they apply to architecture, engineering and industrial design. Other software may be presented. CSU, UC (credit limits may apply to UC - see counselor)

ARCHI-244 Architectural Practice and Working Drawings I

3 units SC

- 36 hours lecture/72 hours laboratory per term
- Prerequisite: ARCHI-130 or equivalent
- Advisory: CONST-144 or equivalents

This course will cover methods and processes for the interpretation and creation of architectural working drawings, connections, details and specifications. The technical concepts related to the construction of small-scale structures and their representation in construction documents will be discussed. Students will be introduced to the design review process, along with Construction Specifications Institute (CSI) format, standards of practice and graphic representation, and the role of the architect, client and local governing agencies. CSU

ARCHI-296 Internship in Occupational Work Experience Education in ARCHI

2-4 units SC

- May be repeated eight times
- Variable hours
- Note: In order to enroll in the ARCHI-296 course, students must be interning or volunteering, register for the course, complete an online Employment Form, and participate in an orientation. Incomplete grades are not awarded for this course.

ARCHI-296 is a supervised internship in a skilled or professional level assignment in the student's major field of study or area of career interest. Under the supervision of a college instructor, students will engage in on-the-job and other learning experiences that contribute to their employability skills and occupational or educational goals. Internships may be paid, non-paid, or some partial compensation provided. Each unit represents five hours of paid work or four hours of unpaid work per week or 75 hours of paid work or 60 hours of unpaid work per term. Students may earn up to a total of 16 units in any combination of WRKX courses. Repetition allowed per Title 5, Section 55253. CSU

ARCHI-298 Independent Study

.5-3 units SC

- Variable hours
- Note: Submission of acceptable educational contract to department and Instruction Office is required.

This course is designed for advanced students who wish to conduct additional research, a special project, or learning activities in a specific discipline/subject area and is not intended to replace an existing course. The student and instructor develop a written contract that includes objectives to be achieved, activities and procedures to accomplish the study project, and the means by which the supervising instructor may assess accomplishment. CSU

ARCHI-299 Student Instructional Assistant

.5-3 units SC

- Variable hours
- Note: Applications must be approved through the Instruction Office. Students must be supervised by a DVC instructor.

Students work as instructional assistants, lab assistants and research assistants in this department. The instructional assistants function as group discussion leaders, meet and assist students with problems and projects, or help instructors by setting up laboratory or demonstration apparatus. Students may not assist in course sections in which they are currently enrolled. CSU