

Architectural Drafting, Associate in Arts Degree

SUBJECT & NO.	COURSE	UNITS
	<i>Architectural Drafting Certificate</i>	30
ARC 115	Architectural Practice	2
ARC 152	Equipment of Buildings	3
ARC 210	Construction Estimating	3
ENV 101	Foundations of Design I	3
ENV 102	Foundations of Design II	3

General Education Graduation “Plan B” Requirements

SUBJECT & NO.	COURSE	UNITS
Area A	Natural Sciences	3
	<i>Biology 3, Physics 1, 6 or 11 are recommended</i>	
Area B	Social and Behavioral Sciences	3
	<i>History 12 or Political Science 1 are recommended</i>	
Area C	Humanities	3
	<i>Architecture 130, 131, Philosophy 1 are recommended</i>	
Area D	Language and Rationality	6
	<i>English 101, Comm 101 and Mathematics 241 are recommended</i>	
Area E	Health and Physical Education	3
	<i>Health 11 is recommended</i>	
	Total	62

DEPARTMENT OF ARCHITECTURE SCHOLARSHIPS

SCHOLARSHIPS	AMOUNT
Architecture 152 Scholarship	\$300
Beata Anaya Scholarship	\$2,000
Delmar Beckhart Memorial Scholarship	\$500
Dieterich-Post Scholarship	\$500
D. Michael Hamner Architect Award	\$500
Gen3 Entertainment Arts	varies
Hammel, Green & Abrahamson, Inc. Design Excellence Award	\$500
Osborn Architects Design Excellence Award	\$750
Randall-Baylon Architects/RACAIA Scholarship	\$1,000
Robert T. and Millie Weiss Scholarships	\$1,000
Ruben Gabriel Alumni Award	\$1,000
Souders/Huey Book Grant	varies
Stephen Ehrlich Design Award	\$500
Woodbury University Scholarship	varies

TRANSFER CURRICULUM

Information regarding lower division major preparation requirements required to transfer to a University of California (UC) or California State University (CSU) campus may be obtained at www.assist.org. For information about independent or out-of-state colleges/universities, please consult with a counselor.

SUBJECTS & COURSE DESCRIPTIONS

Note: All Architecture and Architectural Technology students must see the Architectural Advisor in room E7-136 for program approval.

Architecture majors may take other classes in architecture when signing up for ARC 110, 130 or 131. Counseling by department chair is highly recommended prior to doing so.

See Architecture 170, 171, 172, 173, 271, 272, INT 201 and 202 for Drafting courses.

See Architecture 160, 161, 162, 164, 261, 262, 264, 341, and 342 for Computer-Aided Design courses.

Architecture (ARC)

110 Introduction to Architecture (1) CSU

LECTURE, 1 HOUR.

Note: Open to all students. Satisfies 1 unit of General Education in Humanities requirements for graduation.

This is an introductory lecture course on the profession of architecture and related fields which provides a general overview of the profession of architecture in terms of its history and development, the education process, the practice of architecture and allied professionals in the construction industry, and environmental design.

115 Architectural Practice (2) CSU

LECTURE, 2 HOURS.

This course presents a study of the architecture profession and the construction field with respect to education and registration; professional relations; office procedures; marketing; business; and legal aspects.

121 Freehand Drawing I (2) UC:CSU

LECTURE, 1 HOUR; LABORATORY, 3 HOURS.

This course involves the development of freehand graphic skills for visual communication, expression, and as a medium for perception of form and visual thinking. Developmental methods are explored through a variety of graphic media and tools applied to a wide variety of architectural SubjectS and design themes.

122 Architectural Perspective (2) UC:CSU

Advisory: Architecture 170.

LECTURE, 1 HOUR; LABORATORY, 3 HOURS.

This course covers the various methods of making three-dimensional pictorial drawings. Through a series of exercises, students develop technical skills to simulate 3D spaces on a 2D plane. Topics include: Review of the different pictorial systems used in the field of architecture, the technical principles of traditional perspective, tips and tricks to promptly create freehand perspective sketches that are proportionate, rendering vocabulary (tones, values, light, shadows, reflections) and computer applications. Upon successful completion of the course, students are able to produce traditional architectural “napkin” sketches to quickly convey their design intent.

130 History of Architecture I (2) UC:CSU

LECTURE, 2 HOURS.

Note: Open to all students. Satisfies 2 units of General Education in Humanities requirements for graduation.

The development of architecture from prehistoric times to the beginning of the Renaissance. The development of Architecture as influenced by geographical, geological, climatic, religious, social and historical forces.

131 History of Architecture II (2) UC:CSU

LECTURE, 2 HOURS.

Note: Open to all students. Satisfies 2 units of General Education in Humanities requirements for graduation.

The course covers the development of architecture from the Renaissance to the present. The following influences are emphasized in the shaping of architecture: geographical, geological, climatic, religious, social, and historical.

152 Equipment of Buildings (3) CSU

LECTURE, 3 HOURS.

Essential considerations in design of Environmental Comfort Systems, selection of system components for houses, and energy-efficient design of building envelopes are presented in this course. Topics also include space heating, cooling and ventilating; lighting and power distribution; potable water supply and conditioning; waste disposal and recycling, sustainability, and total-energy systems.

160 Computers for Designers (3) CSU

LECTURE, 1.5 HOURS; LABORATORY, 4.5 HOURS.

This is an introductory course emphasizes how to optimize and understand the role of digital medium in today's design industry. Scanning, image manipulation, digital presentations, printing, Web publishing, imaging, and graphics software such as Photoshop are covered.

161 Introduction to Computer-Aided Architectural Design (2) CSU*Corequisite: Architecture 180.*

LECTURE, 1 HOURS; LABORATORY, 2 HOURS.

This is the first course in a series of Computer-Aided Design (CAD) classes using AutoCAD. Through lectures, demonstrations, and hands-on lab exercises, students learn the basic concepts involved in the creation of CAD-generated architectural drawings. Topics include: Drawing setup, basic and intermediate draw and modify commands, layers, text, dimensioning, and printing. Upon successful completion of this course, students are able to accurately produce 2-D architectural drawings such as plans and elevations that follow CAD standards.

162 Computer-Aided Design and Drafting (3) CSU*Corequisite: Architecture 180.*

LECTURE, 1 HOUR; LABORATORY 5 HOURS.

This is the second course in a series of Computer-Aided Design (CAD) classes using AutoCAD. Through lectures, demonstrations, and hands-on lab exercises, students learn advanced concepts involved in the creation of CAD-generated architectural drawings. Topics include: Advanced draw and modify commands, block creation, paper space/model space, layouts, external references, and isometric drawings. The semester ends with an introduction to 3D modeling. Upon successful completion of this course, students are able to accurately produce complex 2D drawings and to create basic 3D digital models.

164 Design Software for Architecture (2) CSU

LECTURE, 1 HOUR; LABORATORY, 3 HOURS.

This is a hands-on introduction to software used in the fields of architecture, interior design and construction. Through lectures, demonstrations and hands-on lab exercises, students learn the concepts of Building Information Modeling (BIM). Tools used for parametric building design and documentation are covered. By the end of the class, students are able to create an entire project, from schematic design through construction documentation and identify the benefits of BIM. Photorealistic rendering techniques and walk-throughs are also introduced.

165 Sustainable Design and Building Information Modeling (2) CSU

LECTURE, 1 HOUR; LABORATORY, 2 HOURS.

This course examines the underlying principles of sustainability design. Major aspects of sustainable design such as site location, energy efficiency, and material selection are covered. In addition, this course addresses the importance of Building Information Modeling (BIM) as it relates to sustainable design. Several application projects are designed during the semester.

170 Beginning Architectural Drafting (2) CSU

LECTURE 1 HOUR; LABORATORY, 3 HOURS.

This course is an introduction to graphics for students with no drafting knowledge, and for the person entering architecture, urban planning, landscape architecture, art, interior design, and the allied fields. Training in developing multi-view drawings of building exteriors, interiors, floor plans, and furniture is emphasized.

171 Architectural Detailing (2) CSU*Prerequisite: Architecture 170.*

LECTURE 1 HOUR; LABORATORY, 3 HOURS.

In this course, drafting skills as well as construction knowledge are developed by the study of specific construction details. Specialized drawings are drafted of foundations, walls, ceilings, roofs, doors, windows, cabinets, etc. Some drawings are made "full-size" in order to illustrate joinery techniques. Scale models, freehand sketching of details, and metrics are explored.

172 Architectural Drawing I (3) CSU*Prerequisite: Architecture 170 or General Engineering 111.*

LECTURE, 2 HOURS; LABORATORY, 4 HOURS.

This course covers the preparation of working drawings for a one-story, wood frame residence, and the study of construction methods, materials, and building ordinances. Includes graphic representation of site, foundation, floor and roof plans; schedules, cross-sections and details, interior and exterior elevations.

173 Architectural Drawing II (3) CSU*Prerequisite: Successful completion of Architecture 172.*

LECTURE, 2 HOURS; LABORATORY, 4 HOURS.

This course covers the preparation of working drawings for a two-story, wood-framed building and the study of construction methods, materials, and building ordinances. Students examine the integration and implementation of active and passive sustainable practices of design and construction technologies. Special consideration is given to solving problems involving two-story construction in addition to existing one-story structures. Other topics include graphic representation of site, foundation, floor and roof plans, schedules, cross sections, details, and interior and exterior elevations.

180 Computer-Aided Architectural Laboratory (1) CSU*Corequisites: Architecture 161, 162, 261, or 262.*

LABORATORY, 2 HOURS.

This course is an open lab that is a corequisite for ARC 161, ARC 162, ARC 261, or ARC 262. This lab allows the students to have access to the software used in the Architecture department to either complete class assignments or projects.

201 Architectural Design I (3) UC:CSU*Prerequisite: Environmental Design 102.*

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course is a design studio of small scale architectural projects that explore the development of space and form through the influences of functional/social programs and materiality/structure/construction systems situated within a limited site context. Emphasis is placed on internally driven forces and relationships as primary influences within the design process to generate architectural design solutions. Comprehensive analysis and research of significant architecture precedents and building types additionally inform the process for the design problems.

202 Architectural Design II (3) UC:CSU*Prerequisite: Architecture 201.*

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course is a design studio of medium-scale architectural projects investigating the development of space and form through the influences of the existing context and environment, including cultural, geography, scale, private/public concerns, historical precedents, social and cultural conditions, and pertinent planning guidelines. Strategies in sustainability and lighting are also studied and applied to the architectural projects within urban environments. Emphasis is placed on the externally driven forces and relationships as primary influences within the design process to generate architectural design solutions that are contextual and responsive to the immediate and larger contextual environment.

210 Construction Estimating (3) CSU

LECTURE, 3 HOURS.

The students are introduced to methods used in determining quantity take-offs and cost estimates of labor and materials in the construction industry. Topics include: excavation, concrete, masonry, wood framing, wet and dry walls systems, paints and wall coverings, hardware, and building equipment.

211 Introduction to Building Codes (3) CSU

LECTURE, 3 HOURS.

This course is an introduction to the California Building Codes, current edition and municipal ordinances regulating various types of occupancies and zoning regulations. Introduction to the basic chapters from occupancy, occupant load calculation, construction types, allowable heights and areas, fire resistive construction, means of egress and accessibility, in addition, an introduction to the California Green Standards Code is provided.

221 Architectural Rendering (2) UC:CSU

LECTURE, 1 HOUR; LABORATORY, 3 HOURS.

This course offers opportunities for the development of graphic techniques and the use of media for visual communication in a variety of two-dimensional formats and compositions. The methods employed in the selection of media, techniques and composition are also studied in relation to the communication of architectural design and concepts.

223 Portfolio Development (1) CSU

LABORATORY, 2 HOURS.

This course assists students in the development and production of a portfolio to present a student's creative, technical and graphic communication work. Principles of graphic design are studied and applied to the visual organization and presentation of the contents. Topics include critical selection of contents, storyboard development, developing a project description, graphic layout, typography and photography techniques of a student's work. These topics are examined in terms of the intended audience and effective communication strategies. The fundamentals of a variety of digital applications are reviewed and applied to edit images, layout of contents and final visual presentation of the portfolio.

261 Computer-Aided Design for Architecture I (3) CSU*Prerequisite: Architecture 162.**Corequisite: Architecture 180.*

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This is the third course in a series of Computer-Aided Design (CAD) classes using AutoCAD. Through lectures, demonstrations, and hands-on lab exercises, students learn the concepts involved in the creation of 3D digital architectural models. Topics include: Solid modeling, surface modeling, mesh modeling, Non-Uniform Rational B-Spline (NURBS), materials, lighting, photorealistic rendering, fly-around, and walk-through. Upon successful completion of this course, students are able to generate professional 3D digital models, renderings, and Animations that they can use to convey their design.

262 Computer-Aided Design for Architecture II (3) CSU*Prerequisite: Architecture 261.**Corequisite: Architecture 180.*

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This is the fourth and final course in a series of Computer-Aided Design (CAD) classes using AutoCAD and advanced 3D modeling software such as 3ds Max Design. Through lectures, demonstrations, and hands-on lab exercises, students learn the concepts involved in the creation of complex 3D digital architectural models. Topics include: Advanced 3D modeling, material creation, lighting, special effects, advanced rendering and Animation, and basic video compositing. Upon successful completion of this course, students are able to generate high-impact visual 3D digital Animations that communicate the story behind the design.

264 3D Modeling for Designers (3) CSU

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course is an introduction to 3-D digital modeling using SketchUp Pro and similar software. Through lectures, demonstrations, and hands-on lab exercises, students learn the fundamentals of design visualization and apply the learned concepts to quickly create compelling 3-D conceptual digital models. Upon successful completion of this course, students are able to use the software to develop design ideas, generate layouts of their projects, and produce full-featured renderings and Animations such as walkthroughs.

271 Architectural Drawing III (3) CSU

Prerequisite: Successful completion of *Architecture 173*.

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course covers the study of concrete block and/or brick buildings along with the further development of wood frame construction. Analysis is made of long span techniques and construction. It includes the further study of construction materials and building ordinances, and an introduction to interior design colors, materials, and furniture. Creative graphic representation via site and floor plans and interior and exterior elevations is also considered.

272 Architectural Drawing IV (3) CSU

Prerequisite: Successful completion of *Architecture 271*.

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course covers the design and construction of concrete buildings in working drawings with specific emphasis on tilt-up concrete construction and wood frame, long span beam techniques. Further study is provided for construction materials, details, and building ordinances as well as interior design color and material board presentation of finishes, materials, fixtures, and furniture selections. Working drawings, creative architectural design, and graphic presentation methods are emphasized.

185 Directed Study - Architecture (1) CSU**285 Directed Study - Architecture** (2) CSU**385 Directed Study - Architecture** (3) CSU

CONFERENCE 1 HOUR PER WEEK PER UNIT.

The above courses allow students to pursue Directed Study in Architecture on a contract basis under the direction of a supervising instructor.

CREDIT LIMIT: A MAXIMUM OF 6 UNITS IN DIRECTED STUDY MAY BE TAKEN FOR CREDIT.

Note: UC does not grant credit for variable topics courses in Architecture because of credit restrictions in this area.

931 Cooperative Education - Architecture (3) CSU

Note: Requires 15 to 19 hours per week; paid employment related to the occupational major and enrollment in at least 7 units (which include Co-op Ed).

This course offers advanced supervised training in an employment area that enhances the student's educational goals.

941 Cooperative Education - Architecture (4) CSU

Note: Requires 20 hours per week; paid employment related to the occupational major and enrollment in at least 7 units (which include Co-op Ed).

This course offers advanced supervised training in an employment area that enhances the student's educational goals.

Environmental Design (ENV)**101 Foundations of Design I** (3) UC:CSU

Advisory: *Architecture 170*.

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course is a design studio introducing formal and spatial visual design concept and principles, strategies and systems related to the design of the built environment. Two- and three-dimensional problems are introduced, processes studied and solutions evaluated. Examples exhibited in the natural environment are referenced and applied to inform these processes. Drawing and modeling techniques are developed as investigative tools, representational and expressive visual media.

102 Foundations of Design II (3) CSU

Prerequisite: *Environmental Design 101*.

Advisory: *Architecture 170*.

LECTURE, 1 HOUR; LABORATORY, 5 HOURS.

This course is a design studio introducing environmental, architectural and societal design considerations. Two- and three-dimensional problems are introduced, processes studied and solutions evaluated. Principles of how a process and solution to a design problem is derived and influenced by the physical laws of nature; derived by the physical materials and methods of working with those materials; human and natural environmental factors; and physical dimensions and activities with the human cultural, political and social environment. These topics and processes are also investigated in their interrelationship to sustainable design considerations and objectives.

Transportation Planning (TRN)**101 Transportation Planning I** (3) CSU

LECTURE, 3 HOURS.

This course introduces students to the overall elements involved in transportation planning. The course focuses on the role of transportation and land use planning in the overall city planning process. User characteristics, roadway design elements, transportation system modeling, system design and management techniques, and system capacity are covered.

102 Transportation Planning II (3) CSU

LECTURE, 3 HOURS.

This course relates the key issues of land use planning and transportation planning to show how interrelated they are and how they influence the overall shape of urban regions. The course demonstrates how transportation planning process is applied to urban planning problems from the regional to the neighborhood scale. The transportation planning process, transportation system modeling, and land use and transportation issues at the statewide, regional citywide and local levels are explored.