

ARCHITECTURE/ENGINEERING (AEC)

AEC 1075 | Special Topics

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

Prerequisite: This course requires department chair permission.

Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.

AEC 1085 | Independent Study

Independent Study Credit: 3-4

To be determined by the individual instructor. A Course Description will be developed for each course and documented within the course syllabus. Refer to the SFCC Style Guide for Course Description, Required Course Learning Outcome, and Topical Outline guidelines.

Prerequisite: Chair permission

AEC 1100 | Introduction to Design Theory

Lecture/Lab Credit: 3

Evaluates design environments both physical and theoretical. Students will be encouraged to consider how social and individual behavior is reflected in and influenced by these designed environments. Through exploration of assigned readings and movies the student will critically assess how design influences our perception of the built environment that surrounds us and the design theory behind it.

AEC 1110 | History of Architecture

Lecture Credit: 3

This course will cover major periods of architectural development. Social and cultural values influencing architecture will be highlighted as well as the interaction of art, engineering and architecture as forms of expression.

AEC 1120 | Themes in Architectural History

Lecture Credit: 3

Examines the history of building culture emphasizing environmental conditions, resources, and social factors that influence the development of architectural form. This course explores historical works of architecture and urban form to analyze trends and common responses to recurring issues of environmental design.

AEC 1220 | Architectural Drawing Theory

Studio Art Credit: 4

Print reading, construction assemblies, terminology, isometric drawings, orthographic projections and oblique sketching.

AEC 1231 | Residential Construction Drawing

Lecture Credit: 4

Investigates light frame construction techniques and the production of residential construction drawings. The course covers residential construction materials, components and systems related to wood frame structures. Students produce a professional set of construction drawings of a residential structure.

Prerequisite: AEC 1510 or AEC 1520 with a grade of C or better or department chair permission

AEC 1232 | Commercial Construction Drawing

Lecture Credit: 4

Examines the process of drawing commercial architectural plans, elevations, sections, details, and schedules. Students produce a portfolio of construction drawings of a multistory core and shell of a structure.

Prerequisite: AEC 1510 with a grade of C or better or with department chair permission.

Corequisite: AEC 1510 with a grade of C or better or with chair permission.

AEC 1500 | Building Science

Lecture/Lab Credit: 3

Surveys the complex interrelationships among the technical determinants of site context, climate, human well-being, occupant safety, energy flows, and building assembly concepts addressed in architectural design. This course explores how design decisions are made to support resource sustainability, health and safety, resiliency, and energy efficiency.

AEC 1501 | Building Structures

Lecture/Lab Credit: 3

Connects the essential architectural characteristics and properties of major building materials to their structural behavior through both conceptual and calculated examination. This course investigates their methods of application in common contemporary architectural structural systems.

Prerequisite: AEC 1500 with a grade of C or better

AEC 1502 | Building Detailing

Lecture/Lab Credit: 3

Explores the process of designing assemblies of architectural materials and components into constructible, sustainable, and durable buildings. This course emphasizes the development and application of freehand, scaled-drawing skills.

Prerequisite: AEC 1500 with a grade of C or better

AEC 1510 | Building Materials

Lecture Credit: 3

This course will cover the study of building materials and methods commonly used within the construction industry. The course will include interior and exterior materials used in everything from foundations to roof systems.

AEC 1520 | Construction Materials and Systems

Lecture Credit: 3

Examines building materials and construction techniques. Topics include a study of soils, concrete, brick, masonry, steel, timber, and plastics and a study of types of building structural systems and components. Principles of interpreting light commercial construction drawings (blueprints) for structural and trade information are also introduced.

AEC 1600 | Construction Practices and Documents

Lecture Credit: 2

Investigates construction practices, specifications, contracts and other legal documents used in the building construction industry. The roles and responsibilities of design and construction team participants are also explored.

Prerequisite: AEC 1500 with a grade of C or better or chair permission

AEC 2075 | Special Topics

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

Prerequisite: This course requires department chair permission.

Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.

AEC 2080 | Internship

Internship Credit: 3

Provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

AEC 2085 | Independent Study

Independent Study Credit: 3-4

To be determined by the individual instructor. A Course Description will be developed for each course and documented within the course syllabus. Refer to the SFCC Style Guide for Course Description, Required Course Learning Outcome, and Topical Outline guidelines.

Prerequisite: Chair permission

AEC 2087 | Cooperative Education

Practicum Credit: 3

Provides students an opportunity to gain practical experience in applying their occupational skills and/or to develop specific skills in a practical work setting. The instructor will work with the student to select an appropriate work site, establish learning objectives and to coordinate learning activities with the employer or work site supervisor.

Prerequisite: This course requires department chair permission.

AEC 2089 | Capstone

Lecture/Lab Credit: 6

Applies knowledge of building construction techniques and architectural drawing conventions in developing plans, elevations, sections and details of a building structure by developing a set of construction drawings from design development drawings and specifications.

Prerequisite: This course requires department chair permission.

AEC 2220 | Architectural Graphics

Lecture/Lab Credit: 3

Introduces graphic concepts to architectural students and develops graphic design techniques and rendering using pencil, ink, and color media. Both freehand and mechanical methods are stressed. Student will be able to produce architectural presentations.

AEC 2221 | Architectural Visualization Concepts

Lecture/Lab Credit: 3

Explores approaches for communicating design intentions, originating in hand-drawn, two-dimensional (2D), and Building Information Modeling (BIM) applications. This course uses multiple approaches to architectural drawing and may include rendering software, mixed-media techniques, and principles of presentation format design and composition.

Prerequisite: AEC 2220 and CAD 1115, CAD 2220 or CAD 1110 with a grade of C or better or Chair Permission

AEC 2230 | Architectural Design and Development

Studio Art Credit: 4

Reviews conceptual design, site analysis, and architectural drafting techniques. Students will be introduced to the development of design ideas and theories and learn how to present those ideas visually. Students will be required to analyze a site and produce a design solution that responds to that particular site through a combination of research data, conceptual models, drawings, and sketches. The student will produce a final presentation of all relevant data, sketches, conceptual models, and drawings using presentation boards produced in various graphical programs.

Prerequisite: CAD 1110 or CAD 2220 with a grade of C or better; AEC 1100, AEC 1220 and AEC 1510 with a grade of C or better, or department chair permission.

AEC 2300 | Sustainable Building Systems

Lecture Credit: 3

Investigates the technologies and strategies related to sustainable (green) materials and systems for buildings. Topics include: energy and environmental consciousness/regulations; the high performance building envelope; alternative construction techniques (adobe, cob, rammed earth, straw bale); microclimate/site factors; sustainable/green materials; and passive solar; active thermal solar, photovoltaic energy, wind energy conversion, on site water use/reuse and waste disposal systems.

Prerequisite: AEC 1500 with a grade of C or better or chair permission

Note: AEC 1500 is not offered at CCD. Please see your advisor for more information.

AEC 2310 | LEED Exam Preparation

Lecture Credit: 3

Prepares students for LEED (Leadership in Energy and Environmental Design) examination by the U.S. Green Building Council and provides a detailed exploration of the LEED rating system for a general understanding of what LEED is and how it is implemented. Topics include sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation in design.

Prerequisite: AEC 2300 with a grade of C or better or chair permission

AEC 2410 | Applied Statics and Strengths of Materials

Lecture Credit: 3

Provides an algebra-based investigation of concepts in statics and strengths of materials. Topics include a study of fundamental mechanical properties of materials, single planar forces, properties of sections, and two-dimensional free body, shear, and bending moment diagrams.

Prerequisite: MAT 1340 with a grade of C or better or department chair permission

AEC 2700 | International Building Codes

Lecture Credit: 3

A study is made of the restrictions, standards, and requirements that in the interest of public safety and welfare have been established by law to govern the construction of buildings and their materials. Specifications are developed to describe building materials to be furnished and how they are to be installed.

Prerequisite: AEC 1500 with a grade of C or better or chair permission

Note: AEC 1500 is not offered at CCD. Please see your advisor for more information.