ARCHITECTURE/ENGINEERING/ (AEC)

AEC 100 | Introduction to Design Theory
Lecture 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 102 | 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 116 or AEC 121 or chair permission

AEC 104 | Architectural Drawing Theory
Studio Art Credit: 4
Print reading, construction assemblies, terminology, isometric drawings, orthographic projections and oblique sketching.

AEC 116 | 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 118 | 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 116 with a grade of C or better or with chair permission

AEC 120 | 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 121 | 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 116 or AEC 121 or Chair Permission
Corequisite: AEC 121 or AEC 102 or Chair Permission

AEC 123 | 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 116 with a grade of C or better or with chair permission.
Corequisite: AEC 116 with a grade of C or better or with chair permission.

AEC 125 | 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 175 | Special Topics
Lecture Credit: 2-12
Provides students with a vehicle to pursue in depth exploration of special topics of interest.
Prerequisite: This course requires chair permission.

AEC 205 | 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 121 with a grade of C or better or chair permission

AEC 215 | Elementary Site Planning
Lecture Credit: 3
Acquaints the student with basic surveying principles, building site analysis and associated drawings. Emphasis is placed on systems of land survey, topographical analysis, zoning and site requirements, and other factors that influence building site development. Students complete problems in building construction surveying.
Prerequisite: AEC 116 with a grade of C or better or chair permission

AEC 218 | Sustainable Building Systems
Lecture Credit: 3
Examines building systems and structures for a sustainable (green) building environment. 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 116 with a grade of C or better or with chair permission.

AEC 219 | 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 218 or chair permission

AEC 221 | Building Electrical/Mechanical Systems
Lecture Credit: 3
Acquaints the student with electrical and mechanical equipment and systems in buildings. Lectures cover the basic principles of electrical distribution, artificial lighting, fire protection, plumbing systems and heating, ventilating and air conditioning (HVAC) systems.
Prerequisite: AEC 123 with a grade of C or better or with chair permission.

AEC 225 | 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 115 or CAD 224 with a C or better; AEC 100, AEC 104 and AEC 116 with a grade of C or better, or with chair permission.
AEC 228 | Contracts and the Legal Environment
Lecture Credit: 3
Introduces different types of contracts, legal requirements and liabilities that are related to the construction industry. This course also focuses on contracting parties and their legal options and obligations when they interact during the construction phases. Specifications as an important part of the construction documents will be introduced.
Prerequisite: AEC 116 and AEC 121 with a grade of C or better or chair permission

AEC 236 | 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 116, AEC 102, or chair permission

AEC 275 | Special Topics
Lecture Credit: 3-6
Provides students with a vehicle to pursue in depth exploration of special topics of interest.
Prerequisite: This course requires chair permission.

AEC 280 | Internship
Internship Credit: 6
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 287 | 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: Permission of Chair

AEC 289 | Capstone
Lecture 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 chair permission.