ARCHITECTURE (ARCH)

ARCH-120 ARCH Visualization/Communication (4 Credits)
Development of fundamental skills in graphic visualization, representation, and communication as used in architecture and related design fields. Integrates sketching and digital media as a means to imagine, develop architectural concepts, and represent basic design ideas that shape the built environment.
Offered: All, Every Year

ARCH-180 Introduction to Architectural Design (4 Credits)
Introduction to the principles of architectural design through lectures and short design exercises. Emphasis is placed on developing visual communication skills necessary and related to architectural presentation including drawing, drafting and model making techniques. A final design project provides the framework for investigating and understanding the fundamental elements, design principles and processes necessary to explore the creation of architectural spaces.
Offered: All, Every Year

ARCH-220 Architectural Representation & Analysis (4 Credits)
Development of digital technology skills using 3D modeling software/applications for architectural design, representation, fundamentals of tectonic assemblies, construction details and documents. Building Information Modeling (BIM) software is applied as a tool for design investigations and the generation of digital representations of physical, functional, and performance characteristics of buildings.
Offered: All, Every Year

ARCH-230 Architectural Design I (4 Credits)
Studio investigations of fundamental design concepts, principles and elements. Projects and exercises focus on the creation of abstract architectural forms and spaces through an exploration of shape, hierarchy, organization, scale, proportion, materials, and light. Studio Design courses should be taken in sequence.
Prerequisite(s): ARCH-180 or permission of instructor
Offered: Fall, Every Year

ARCH-260 Sustainable Design & Building Science (4 Credits)
Study of energy issues, sustainable building design, and introduction to building science. Focus is on energy efficient buildings, solar energy systems, related environmental issues, and basics of building science. Projects involve energy analysis of buildings, evaluation of renewable energy options, world energy issues, critical design decisions for building, and building forensics.
Offered: Fall, Every Year

ARCH-270 Commercial Construction (4 Credits)
Introduction processes of commercial building, including environmental and regulatory factors and analysis of foundation components, structural and enclosure building systems. Lectures, site visits, and projects, present students with an array of technical challenges in building design. Focus is on analyzing and designing architectural details, for a variety of building materials.
Offered: Spring, Every Year

ARCH-275 Residential Construction (4 Credits)
A study of residential construction technology systems, including the planning, materials and processes used by building contractors to build residential structures. The interrelationship of societal needs, the environment, and quality of life as they affect building design and construction practices are examined. 2 hour lecture, 3 hour lab
Offered: All, Every Year

ARCH-280 Architectural Design II (4 Credits)
Collaborative project-based studio design course emphasizing a team approach to solving real world architectural problems in the community for clients with social, environmental, and civic design needs. Students engage in service to their communities, embracing inclusiveness and understanding of diverse views, through bi-weekly meetings with the clients.
Prerequisite(s): ARCH-230
Offered: Spring, Every Year

ARCH-290 Special Topics (2-8 Credits)
Study of a selected topic in Architecture. May be repeated as topics change.
Prerequisite(s): Vary with topic
Offered: All, Every Year

ARCH-294 Cooperative Education (2-8 Credits)
Work learning experience for which compensation may be received. Placements arranged and approved, supervised and evaluated by full time Architecture faculty. Elective credit only (cannot be applied to credits in the Major) to maximum of 12 credits per program. May be repeated for credit, normally 40 hours/credit. Graded Pass/Fail.
Prerequisite(s): Declaration of Architecture Major, and permission of instructor
Offered: All, Every Year

ARCH-320 Adv Architectural Representation (4 Credits)
Advanced digital technology skills using applications for architectural design, representation, tectonic assemblies, construction details and documents. Building Information Modeling (BIM) and rendering software is applied for design investigations, parametric modeling, and the generation of documents, which represent the physical, functional, and performance of buildings.
Prerequisite(s): ARCH-220
Offered: Spring, Every Year

ARCH-330 Architectural Design III (4 Credits)
Studio investigations of fundamental design concepts, principles, and processes. Projects focus on the creation of both abstract and programmed architectural forms and spaces with an emphasis on formal and aesthetic values and the development of a visual vocabulary. The exercises are oriented toward the achievement of creative individual expression.
Prerequisite(s): ARCH-280
Offered: Fall, Every Year

ARCH-350 Architectural History I (4 Credits)
An introduction to the history of architecture and the design concepts that are the building blocks of architectural history from prehistory to the Gothic period. The course surveys the traditional or canonical architectural works of Western Europe, the United States, Asia and the Middle East.
Offered: Fall, Every Year

ARCH-355 Architectural History II (4 Credits)
Survey of architectural history, including built form, design theories, construction technologies, and social, political, religious influences from the Gothic period through 1960s. Examines the architecture of Western and non-Western civilizations. Lectures, exams, written reports and oral presentations serve as methods for learning about evolution of design in architectural history.
Prerequisite(s): ARCH-350
Offered: Spring, Every Year

ARCH-360 Solar Design & Building Science II (4 Credits)
Designing Passive and Active Solar Systems for buildings, performance modeling, and advanced building science. Includes the basic principles, performance calculations, design optimization, architectural integration of solar energy systems, air quality, and moisture control. Students design combined solar systems applying principles of advanced building science.
Prerequisite(s): ARCH-260
Offered: Spring, Every Year

ARCH-370 Architectural Systems (4 Credits)
Designing mechanical and electrical systems in the context of high performance buildings. Course applies scientific principles in designing water supply systems, heating, cooling, electrical services, lighting, and sound control, extending the understanding of healthy building design. Emphasizes principles and concepts to help students design a variety of systems while creating healthy buildings.
Prerequisite(s): ARCH-260 or permission of instructor
Offered: Fall, Every Year

ARCH-375 Statics and Structural Analysis (4 Credits)
Analysis of structural systems in static equilibrium. Begins with fundamental physical laws and progresses to equations of forces and movements on rigid bodies, analysis of frames, trusses, and internal forces and movements in beams, and loading diagrams and geometrical analysis of building loads.
Offered: Fall, Every Year

ARCH-380 Architectural Design IV (4 Credits)
Intermediate-level studio design investigations that generate architectural solutions, which integrate aesthetic architectural factors of spatial, formal, and organizational principles, fundamental building science concepts, and basic building systems and materials selection. Design exercises include individual analysis and synthesis of built form through research into precedents, human, site, environmental, and contextual factors.
Prerequisite(s): ARCH-330 or permission of instructor
Offered: Spring, Every Year

ARCH-430 Architectural Design V (4 Credits)
Advanced architectural studio investigations of a moderate scale site and building program. Emphasis is on research, analysis, simulating the professional design process. Design solutions must demonstrate sustainability through the integration of aesthetic design principles, program and occupant concerns, site context, and appropriate selection of tectonics, materials, environmental systems.
Prerequisite(s): ARCH-330
Offered: Fall, Every Year

ARCH-435 Portfolio Design (4 Credits)
Preparation of an architectural portfolio for employment, fellowships, grants and postgraduate academic opportunities. Course focuses on visual and written representation of individual studio work. Students engage in the representational process to provide a critical forum for written and visual communication in the field of architecture and their own work.
Offered: Fall, Every Year

ARCH-480 Senior Design Project (4 Credits)
Culminating course in the architecture program where each senior defines and develops a complete design and set of drawings for a real client and site. The course emphasizes group interaction, peer review, and evaluation by independent architects.
Prerequisite(s): ARCH-280 or permission of instructor
Offered: Spring, Every Year

ARCH-490 Advanced Special Topics (2-8 Credits)
Study of a selected topic in Architecture at an advance level. May be repeated as topics change. Prerequisites vary with topics.
Offered: All, Every Year

ARCH-494 Advanced Cooperative Education (2-8 Credits)
Sequential work learning experience for which compensation may be received. Placements arranged and approved, supervised and evaluated by full time Architecture faculty. Elective credit only (normally 40/hours credit) to maximum of 12 credits per program. May be repeated for credit. Graded Pass/Fail.
Prerequisite(s): Declaration of Architecture Major and permission of instructor
Offered: All, Every Year

ARCH-498 Independent Study (2-8 Credits)
Advanced independent study of various fields of Architecture through independent reading, writing, laboratory work, or field investigation. Requires a written report. May be repeated to a total of 8 credits.
Prerequisite(s): Permission of instructor
Offered: All, Every Year