ARCHITECTURE (ARCH)

ARCH 1002 Architecture of the World (3 Credits)
This course offers a global perspective of buildings, their settings, and the dissemination of ideas about architecture from the late Neolithic period to the present. Particular attention is given to the relationships of architectural expression, meaning, and building technology and to issues arising when architectural traditions of one culture are imposed upon or otherwise adapted by another. Students will explore the impact of climate, economy, philosophy, social structure and technology on architecture by becoming familiar with some of the World's major monuments in architectural history. The course also integrates the history of technology and visual arts that paralleled each era, exploring the fundamental elements of each movement as illustrated through aesthetic expression.
General Education: Arts and Humanities (ARHX), Creativity (CRTY)
Previous: Legacy Equivalent(s): ARC* 102, ART* 105

ARCH 1005 Architecture Fundamentals I (4 Credits)
This course introduces students to graphic communication systems used as tools for architectural visualization. Beginning with basic freehand sketches and progressing to more complex hard line drawings, students practice and develop sketching and drafting techniques, line-projection and descriptive geometries, perspective drawing, basics of color rendering, and presentation tools and techniques. Concepts in light, shadow and composition are explored.
General Education: Creativity (CRTY)
Additional fees may apply
Previous: Legacy Equivalent(s): ARC* 105, ARC* 135

ARCH 1008 Construction Materials and Methods (3 Credits)
This course introduces students to the source, use and limitations of materials used in building construction. While the historical use of materials as function and design expression is a focus, emphasis is placed on contemporary and sustainable building construction, how codes impact design, and the articulation of a systems-approach through the understanding of assembly and attachment. Practical working knowledge is attained through a series of projects requiring students to design and detail mock assemblies.
Previous: Legacy Equivalent(s): ARC*106, ARC* 108

ARCH 1010 Introduction to Building Physics and Sustainability (3 Credits)
This course covers mathematical applications for design (trigonometry, analytic geometry, systems of equations, and vectors), fundamental physics required for understanding buildings (force, reactions, thermodynamics, energy, and material properties), and the principles of sustainability (ecology, economics, and equity). These topics are implemented in ARCH 2040, and throughout the design studio progression.
Prerequisites: Placement in MATH 1010 or higher

ARCH 1011 Building Codes and Ordinances (3 Credits)
This course introduces students to the origins, scope, and administration of local, state, and federal building codes and ordinances. Students will develop an understanding of code elements, sequencing of the code manuals, and the impacts they have on the design, construction, and occupancy of a project. Working knowledge of the codes is demonstrated as students implement code applications on various projects throughout the course.
Previous: Legacy Equivalent(s): ARC* 227

ARCH 1012 Introduction to Geographic Information Systems (3 Credits)
This course introduces students to the basic principles, techniques, and applications of GIS (Geographic Information Systems), as a computer-based tool that utilizes spatial (geographic) data to analyze and solve multi-disciplinary problems. Students will understand methods of data capture and sources of data, characteristics of spatial data and objects, and demonstrate application through executing typical operations. The lab component will emphasize GIS data collection, entry, storage, analysis, and output using the industry standard application, ESRI ArcGIS. Students will become familiar with products/applications, various database models, and raster and vector systems.
Additional fees may apply

ARCH 1129 Fundamentals of Construction Management (3 Credits)
This course introduces the fundamental aspects of construction management to students in a broad format, covering topics that include understanding the design vision, establishing project expectations, project planning, scheduling, estimating, organizational forms, contracts, and risk management.
Previous: Legacy Equivalent(s): CTC* 120

ARCH 2005 Architecture Fundamentals II (4 Credits)
This course expands upon architectural graphic systems, visualization tools, and introduces the systems-approach to sustainable design. Topics explored include advanced drafting, digital drawing environments, and building information modeling (BIM) for analyzing building performance.
Prerequisites: ARCH 1005
Additional fees may apply
Previous: Legacy Equivalent(s): ARC*115, ARC* 203

ARCH 2010 Site Design (3 Credits)
This course introduces students to the climatic, cultural, and geographical systems and elements that are encountered in the analysis of site conditions, understanding their interrelationship and what procedures are required to maintain or improve the quality of the site environment. Through a series of exercises and projects, students will explore the relationship between land use and architectural design and gain hands on experience by applying aspects of site context, orientation, natural and cultural features, topography and grading, and regulatory issues, all leading to site selection and an ecological approach to site design.
Additional fees may apply

ARCH 2015 Construction Documents (3 Credits)
Construction Documents introduces the student to construction industry documents, including project working drawings and the project manual, which contains bidding documents, contract documents, contract conditions, and the specifications. Additional documents include cut sheets, shop drawings, manufacturer's specs. and various AIA (American Institute of Architects) documents used in contract administration. Working knowledge is attained through actual execution of the documents.
Prerequisites: ARCH 1005 or with Program Coordinator's permission
Previous: Legacy Equivalent(s): ARC* 215

ARCH 2020 Architectural Design I (4 Credits)
This course introduces the architecture student to the principles and methodologies of an architect's design process including precedent analysis, variable exploration, decision-making, and solution implementation. Students will apply their studies to date while designing an assigned project that explores the form, space and ordering systems used in design. Emphasis in Design I is placed more upon the path of design and the decision-making process, than on a polished solution.
Prerequisites: ARCH 1002 or ARTH 1013, and ARCH 1005, or with Program Coordinator's permission
Additional fees may apply
Previous: Legacy Equivalent(s): ARC* 201, ARC* 211, ARC* 205/205L

ARCH 2025 Architectural Design II (4 Credits)
This course expands upon the skills learned in Design I. Designing projects that consider both interior and exterior building elements along with site, students will explore performance aspects of sustainable design. Theories focusing on form and natural light, energy efficiency, and operation and maintenance are explored while considering site aspects of smart growth, walkable communities, parking, drainage, and water management.
Prerequisites: ARCH 2020
General Education: Creativity (CRTY)
Additional fees may apply
Previous: Legacy Equivalent(s): ARC* 202, ARC* 213, ARC* 207/207L

ARCH 2029 Structures (3 Credits)
This course explores the principles of structural mechanics in the design and function of various statically determined wood, steel, and concrete members and systems. Load behavior is investigated (compression, tension, bending, shear, stress/strain, equilibrium), as applied to the design and analysis of footings, columns, beams, slabs, trusses, and connections. Students will apply formulas in solving designs for bending, shear, deflection, and axial loading, through analytic methods using appropriate design techniques, manuals, and theory, and practice graphical detailing of designs according to current practice.
Prerequisites: ARCH 1008 and MATH 1600 or with Program Coordinator's permission
Corequisite: PHYS 1201 or PHYS 1104 or ARCH 1010
Previous: Legacy Equivalent(s): ARC* 229

ARCH 2030 CAD 3D Architectural Parametric (3 Credits)
This course introduces students to a 3D parametric computer aided design platform where students gain operational and productivity knowledge using industry-common parametric software.
Prerequisites: ARCH 1005 and ARCH 1008 or with Program Coordinator's permission
Additional fees may apply
Previous: Legacy Equivalent(s): CAD* 118, CAD* 204

ARCH 2040 Environmental Systems (3 Credits)
Environmental Systems introduces students to the interior environment of structures (both residential and commercial), and the interrelationship of energy, climate, site and architectural design. Covering a systems-approach to heating, ventilation, cooling, electrical, plumbing, and fire protection systems, students gain an understanding of building performance and energy conservation through benchmarking, studying metrics for operations and maintenance, and running simulations on life cycle costs.
Prerequisites: ARCH 1008
Previous: Legacy Equivalent(s): ARC* 240, ARC* 214

ARCH 2229 Construction Estimating (3 Credits)
The course examines the roles and responsibilities of a construction estimator. Using both traditional and industry standard digital methods, the course will cover the cost of labor, material, and equipment by unit and by square foot; the fundamentals and effects of scheduling, including critical path, bar and Gantt charts; and the effect of the global economy on overall construction costs and supply chains.
Prerequisites: MATH 1010 or higher
Previous: Legacy Equivalent(s): CTC* 229