

# Architecture (ARCH)

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## Courses

### **ARCH 1301 Architectural History I: 3 semester hours.**

Survey of the development of architecture from Renaissance to modern era. This course will also focus on culturally significant Western and Nonwestern architecture that advances critical thought and intellectual curiosity. Required drawing and reading material will enhance the evolution of historical, social and political concepts and foster the ability to write and express ideas graphically and professionally to engage effectively the regional, national and global community with an emphasis on personal as well as social responsibility.

### **ARCH 1302 History of Architecture II: 3 semester hours.**

Survey of the development of architecture from Renaissance to modern era. This course will also focus on culturally significant Western and Nonwestern architecture that advances critical thought and intellectual curiosity. Required drawing and reading material will enhance the evolution of historical, social and political concepts and foster the ability to write and express ideas graphically and professionally to engage effectively the regional, national and global community with an emphasis on personal as well as social responsibility.

### **ARCH 1303 Architectural Design I: 3 semester hours.**

Introduction to basic design issues including form, space, ordering systems, human use and the architect's responsibility to society. Students will investigate these issues critically in individual and collaborative projects and communicate findings through visual, oral and written presentations. Co-requisite: ARCH 1307.

### **ARCH 1307 Visual Communications: 3 semester hours.**

Multimedia techniques in graphics emphasizing orthographic projections, perspective, shade and shadow, color theory and freehand and digital drawing.

Co-requisite: ARCH 1303.

### **ARCH 1315 Computer Aided Design: 3 semester hours.**

Introduction to the range and potential of computer aided design and electronic media in problem-solving and conceptual design, and Building Information Modeling (BIM) programs.

### **ARCH 1327 Multimedia Digital Application: 3 semester hours.**

The goal of this course is to obtain an introductory skill set for using computer base multimedia technologies, such as Adobe Acrobat, PhotoShop, Illustrator, and AutoCad, which will further help assist them in their studies and practices. The primary emphasis is to help improve their research, productivity, presentation communications through the effective use of graphic technology; stimulating their personal capacity creativity.

### **ARCH 1626 Architectural Design II: 6 semester hours.**

Basic principles of architectural design and communication including organization, spatial sequence, relationships and problem solving using simple interior and exterior problems.

Prerequisites: ARCH 1303 or ARCH 1253.

### **ARCH 2312 Architectural Technology: 3 semester hours.**

Introduction to the properties and uses of natural and manufactured building materials and the effect of the nature of materials upon design.

### **ARCH 2603 Architecture Design III: 6 semester hours.**

Problem solving and presentation of basic principles, concepts and ideas as applied to simple architectural problems

Prerequisites: ARCH 1626 or ARCH 1266.

### **ARCH 2604 Architecture Design IV: 6 semester hours.**

Basic architectural design projects with an emphasis on site development, function, form and the design process.

Prerequisites: ARCH 2603 or ARCH 2256.

### **ARCH 3328 Materials and Methods: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

Prerequisites: ARCH 2312 or ARCH 2273.

### **ARCH 3329 Structural Systems I: 3 semester hours.**

A study of the theory of various structural concepts. Emphasis is placed on statics and strength of materials.

Prerequisites: MATH 1316 or MATH 1123.

### **ARCH 3345 Environmental Systems: 3 semester hours.**

Fundamentals of environmental systems for buildings with an emphasis on heating, cooling, and distribution systems.

### **ARCH 3346 Sustainable Building: 3 semester hours.**

Issues facing the design and construction industries in creating and maintaining high performance green buildings. Sustainable building projects will be analyzed, green building rating systems of USGBC's LEED system and the DOE's Energy Star program will be studied and researched and presentation of benchmark sustainable case study projects will be accomplished.

**ARCH 3347 Ecology and Man: 3 semester hours.**

Theoretical frameworks for understanding how the physical and cultural constructs of mankind are integral to the natural world, for the purpose of developing the systems thinking skills that will be required to sustain life.

**ARCH 3625 Architecture Design V: 6 semester hours.**

Building design as it relates to structure, circulation, context and support systems.

Prerequisites: (ARCH 2604 or ARCH 2266) and (ARCH 3329 (may be taken concurrently) or ARCH 3293 (may be taken concurrently)).

**ARCH 3626 Architecture Design VI: 6 semester hours.**

Analysis and design of structures of advanced complexity with emphasis on interrelationships of building systems.

Prerequisites: ARCH 3625 or ARCH 3256.

**ARCH 4333 INTL EDUCATION AND TRAVEL INIT: 3 semester hours.**

The study of architecture and building design focusing on historical and/or current projects in the country of \_\_\_\_\_. Included in the course will be a trip to \_\_\_\_\_ that will focus on exploring the methods and practice of architecture and construction in this country.

Prerequisites: (ARCH 2233 or ARCH 1301) and (ARCH 2243 or ARCH 1302).

**ARCH 4343 Structural Systems II: 3 semester hours.**

A study of theory, behavior and design of structural systems in steel and timber.

Prerequisites: ARCH 3329 or ARCH 3293 and (MATH 1123 or MATH 1316).

**ARCH 4344 CAD Construction Documents and Codes: 3 semester hours.**

The organization, development, and preparation of a representative set of working drawings using computer aided design.

Prerequisites: ARCH 1315 or ARCH 2223.

**ARCH 4359 Professional Practice: 3 semester hours.**

Overview of the ethical, legal and administrative responsibilities of the architect. The study of relationships between the architect, the client, and the contractor involved in comprehensive architectural services and emerging techniques of practice.

**ARCH 4361 Landscape Architecture: 3 semester hours.**

Principles of site development as related to climate, topography, and intended use.

**ARCH 4363 Net Zero Energy Design I: 3 semester hours.**

Passive and active design strategies for reducing energy use in buildings followed by on-site renewable energy applications to achieve net zero energy use.

**ARCH 4364 Net Zero Energy Design II: 3 semester hours.**

This course focuses on strategic decarbonization of new and existing buildings, reduction of dependence on fossil fuels and the positive impact on the environment as well as human health. This course will reinforce the adoption of heat pump technologies that can help reduce the carbon footprint of buildings.

**ARCH 4366 Regenerative Design: 3 semester hours.**

Integrated frameworks for developing regenerative capabilities in the products of design, the process of design, and the individuals who engage in design.

**ARCH 4367 Introduction to Interior Design: 3 semester hours.**

Introduction to the profession and practice of interior design.

**ARCH 4368 Interior Design II: 3 semester hours.**

Interior Design II will provide an advanced understanding in designing and detailing interior architecture, exploring the production of interior mechanical, millwork drawings, and Construction Documents.

**ARCH 4373 Advanced Computer Aided Design: 3 semester hours.**

Comprehensive architectural design and presentation using 2- and 3 - modeling software. Emphasis on the role electronic media in the visualization of design projects.

Prerequisites: ARCH 2322 or ARCH 2223.

**ARCH 4374 Building Information Modeling: 3 semester hours.**

Introduction to the fundamentals of Building Information Modeling and how they apply to the design and construction industry and a technology enabled workforce. Introduction to the methods of creation, evaluation and exchange of Building Information Models. Leveraging BIM and 4D modeling for construction optimization and sustainable building initiatives.

Prerequisites: ARCH 1315 or ARCH 2223.

**ARCH 4375 Introduction to Geographical Information Systems: 3 semester hours.**

Concepts and techniques of utilizing geographic information systems to study and model environmental issues including methods of creating, analyzing and displaying GIS data utilizing industry standard software. Global positioning systems (GPS) will be introduced as a means of creating GIS data.

**ARCH 4376 Energy Modeling: 3 semester hours.**

Utilize energy, solar, and daylighting modeling software to determine how to cost effectively achieve high performing buildings.

**ARCH 4397 Special Topics: 3 semester hours.**

The study of various specialized fields of architecture as they relate to contemporary social issues. Topics vary by semester. Course may be repeated for credit when topics vary.

**ARCH 4399 Independent Study: 1-3 semester hour.**

Readings, research, and/or field work on selected topics.

**ARCH 4640 Architectural Internship: 6 semester hours.**

Approved internship in an architecture office, the building construction industry or a planning or public service agency. Prerequisite: Approval of Director or Dean of the School of Architecture.

**ARCH 4645 Architecture Design VII: 6 semester hours.**

Exploration of urban design and the human and environmental impact of individual designs in the built environment.

Prerequisites: ARCH 3626 or ARCH 3266.

**ARCH 4647 Architecture Design VIII: 6 semester hours.**

Advanced problems in architecture and planning.

Prerequisites: ARCH 4645 or ARCH 4456.

**ARCH 4698 Special Projects: 6 semester hours.**

Unique design studio projects tailored to learning objectives. May be repeated for credit.

Prerequisites: ARCH 2266 or ARCH 2626 or ARCH 2604.

**ARCH 4699 Independent Study: 1-6 semester hour.**

Readings, research, and/or field work on selected topics.

**ARCH 5159 Prof Employmnt Dev-Soft Skills: 1 semester hour.**

Graduating senior seminar for Architecture majors to provide an introduction to industry options with an emphasis preparing for success in their career by improving their "soft skills."

**ARCH 5302 Architecture History II: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationship among the components of the systems, the assembly processes, and project control.

**ARCH 5303 Architectural Design I: 3 semester hours.**

Emphasis on systems of building of structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5307 Visual Communications: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationship among the components of the systems, the assembly processes, and project control.

**ARCH 5312 Architectural Technology: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationship among the components of the systems, the assembly processes, and project control.

**ARCH 5315 Computer Aided Design: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationship among the components of the systems, the assembly processes, and project control.

**ARCH 5328 Materials and Methods: 3 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5329 Structural Systems I: 3 semester hours.**

A study of the theory of various structural concepts. Emphasis is placed on statics and strength of materials.

**ARCH 5343 Structural Systems II: 3 semester hours.**

A study of theory, behavior, and design of structural systems in steel and timber.

**ARCH 5345 Environmental Systems: 3 semester hours.**

Fundamentals of environmental systems for buildings with an emphasis on heating, cooling, and distribution systems.

**ARCH 5346 Sustainable Building: 3 semester hours.**

Issues facing the design and construction industries in creating and maintaining high performance green buildings. Sustainable building projects will be analyzed, green building rating systems of USGBC's LEED system and the DOE's Energy Star program will be studied and researched and presentation of benchmark sustainable case study projects will be accomplished.

**ARCH 5348 Structural Systems III: 3 semester hours.**

Structural design and analysis of building systems in steel and reinforced concrete; long spans, lateral forces, connections, code requirements, and economics of structural systems.

Prerequisites: ARCH 4343 or ARCH 4433.

**ARCH 5351 Research Seminar: 3 semester hours.**

Research and programming for the integrated Project Studio.

**ARCH 5359 Professional Practice: 3 semester hours.**

Ethical, legal and administrative responsibilities of the architect. The study of relationships between the architect, the client, and the contractor involved in comprehensive architectural services and emerging techniques of practice.

**ARCH 5374 Building Information Modeling: 3 semester hours.**

Exploring the fundamentals of Building Information Modeling and how they apply to the design and construction industry and a technology enabled workforce. Exploring the methods of creation, evaluation and exchange of Building Information Models. Leveraging BIM and 4D modeling for construction optimization and sustainable building initiatives.

**ARCH 5397 Special Topics: 3 semester hours.**

The study of various specialized fields of architecture as they relate to contemporary social or technical issues. Topics vary by semester. Course may be repeated for credit when topics vary.

**ARCH 5603 Architectural Design III: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5604 Architectural Design IV: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5625 Architectural Design V: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5626 Architectural Design II: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5636 Architectural Design VI: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5645 Architectural Design VII: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5647 Architectural Design VIII: 6 semester hours.**

Emphasis on systems of building structures and on the interrelationships among the components of the systems, the assembly processes and project control.

**ARCH 5650 Internship: 6 semester hours.**

Approved summer internship in an architecture office, the building construction industry or a planning or public service agency or approved foreign study program. Appropriate documentation of the experience will be required.

**ARCH 5656 Architecture Design IX: 6 semester hours.**

Advanced design studio with emphasis on integrated architectural design projects.

**ARCH 5698 Special Projects: 6 semester hours.**

Design projects of differing lengths and content with group or individual involvement. May be repeated for credit.

**ARCH 5699 Independent Study: 1-6 semester hour.**

Readings, research, and/or field work on selected topics. Prerequisite: Consent of advisor.

**ARCH 5957 Integrated Project Studio: 9 semester hours.**

An integrated design project based on research and programming accomplished in ARCH 5351.