Architectural Technology

Architectural Technology (A40100)

- Architectural Technology (A40100) (p. 1)
- Architectural Technology - UNCC Transfer Track (A40100T) (p. 1)

Degree Awarded

The Associate of Applied Science Degree - Architectural Technology is awarded by the college upon completion of this program.

Admissions

- A high school diploma or equivalent is required.
- Central Piedmont Placement tests are required in English and mathematics. Developmental Studies for math and English classes are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

Note: The curriculum at Central Piedmont includes an emphasis on computer-aided drafting (CAD), Building Information Modeling (BIM), and related computer courses. Students also gain experience in creating Virtual and Augmented Reality environments, and in laser-cutting and 3D printing fabrication techniques.

Contact Information

For more information, call the Program Chair at 704.330.2722 extension 4425, the Skilled Trades Division at 704.330.4424 or visit the Architectural Technology Program website.

Architectural Technology (A40100)

General Education Requirements

ART 111	Art Appreciation	3.0
ENG 111	Writing and Inquiry	3.0
COM 231	Public Speaking	3.0
MAT 171	Precalculus Algebra	4.0
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
SOC 210	Introduction to Sociology	

Major Requirements

ACA 122	College Transfer Success (Other Major Requirements)	1.0
ARC 112	Construction Materials & Methods	4.0
ARC 114	Architectural CAD	2.0
ARC 116	Architectural Design Studio I (Architectural Design Studio I)	5.0
ARC 117	Architectural Design Studio II (Architectural Design Studio II)	5.0
ARC 132	Specifications & Contracts	2.0
ARC 141	Elementary Structures for Architecture	4.0

ARC 216	Architectural Design Studio III (Architectural Design Studio III)	5.0
SEM 197	Seminar in _____	2.0
ARC 217	Architectural Design Studio IV (Architectural Design Studio IV)	5.0
ARC 225	Architectural Building Information Modeling I	2.0
ARC 250	Survey of Architecture	3.0
BPR 130	Print Reading-Construction	3.0
CMT 120	Codes and Inspections	3.0
SST 140	Green Building and Design Concepts	3.0

Technical Electives

Select 2 credits of the following:		2.0
UNCG Interior Architecture Transfer Electives		
PHY 151	College Physics I	
ECU Industrial Technology (Architectural Technology Concentration) Transfer Electives		
PHY 151	College Physics I	
WCU School of Engineering & Tech- Technical Operations Transfer Electives		
MAT 172	Precalculus Trigonometry	
PHY 151	College Physics I	
UNC Charlotte Civil Engineering Technology Transfer Electives		
PHY 151	College Physics I	
SRV 110	Surveying I	
CEG 211	Hydrology & Erosion Control	
MAT 172	Precalculus Trigonometry	
ASU Building Sciences (Arch Tech Concentration) Transfer Electives		
ARC 221	Architectural 3-D CAD	
PHY 151	College Physics I	
PHY 152	College Physics II	
Non-Transfer Elective Options		
ARC 226	Architectural Building Information Modeling II	
ART 131	Drawing I	
CEG 151	Cad for Engineering Technology	
CST 241	Planning/Estimating I	
DFT 154	Intro to Solid Modeling	
SST 120	Energy Use Analysis	
SST 130	Modeling Renewable Energy	
WBL 111	Work-Based Learning I	
WBL 112	Work-Based Learning I	
Total Credits		**67**

Architectural Technology - UNCC Transfer Track (A40100T)

General Education & Major Requirements

Fall		
ARC 116	Architectural Design Studio I	5.0
MAT 171	Precalculus Algebra	4.0
ART 111	Art Appreciation	3.0
ARC 225	Architectural Building Information Modeling I	2.0
ARC 250	Survey of Architecture	3.0
ACA 122	College Transfer Success	1.0
Spring		

ARC 117	Architectural Design Studio II	5.0
ARC 112	Construction Materials & Methods	4.0
ENG 111	Writing and Inquiry	3.0
ARC 132	Specifications & Contracts	2.0
ARC 251	Advanced Survey of Architecture	3.0
Summer		
SST 140	Green Building and Design Concepts	3.0
SOC 210	Introduction to Sociology	3.0
Fall		
ARC 216	Architectural Design Studio III	5.0
ENG 112	Writing and Research in the Disciplines	3.0
COM 231	Public Speaking	3.0
CMT 120	Codes and Inspections	3.0
Spring		
SEM 197	Seminar in _____	2.0
ARC 217	Architectural Design Studio IV	5.0
ARC 230	Environmental Systems	4.0
PHY 151	College Physics I	4.0
MAT 172	Precalculus Trigonometry	4.0
Total Credits		**74**

ARC 111. Introduction to Architectural Technology. 3.0 Credits.
Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course introduces basic architectural drafting techniques, lettering, use of architectural and engineer scales, and sketching. Topics include orthographic, axonometric, and oblique drawing techniques using architectural plans, elevations, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum architectural standards.

ARC 112. Construction Materials & Methods. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-2.0. Work-0.0
This course introduces construction materials and methodologies. Topics include construction terminology, traditional and alternative materials and their properties, manufacturing processes, construction techniques, and other related topics. Upon completion, students should be able to detail construction assemblies and identify construction materials and properties.

ARC 113. Residential Architectural Technology. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course covers intermediate residential working drawings. Topics include residential plans, elevations, sections, details, schedules, and other related topics. Upon completion, students should be able to prepare a set of residential working drawings that are within accepted architectural standards.
Prerequisites: Take ARC 111
Corequisites: Take ARC 112

ARC 114. Architectural CAD. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards.

ARC 116. Architectural Design Studio I. 5.0 Credits. Class-2.0. Clinical-0.0. Lab-9.0. Work-0.0
This course introduces the fundamental aspects of architectural design and documentation. Emphasis is placed on a studio culture experience, prompting completion of precedent analysis and creatively solving challenges within the field of architecture through the act of making; those being executed in both two and three dimensions. Upon completion, students should be able to apply their work to the foundational principles in which architecture is rooted.

ARC 117. Architectural Design Studio II. 5.0 Credits. Class-2.0. Clinical-0.0. Lab-9.0. Work-0.0
This course covers architectural vocabulary and design methods through the creation of a single or multi-family residential design project. Topics include and allow for the opportunity to interrogate cultural and environmental issues currently affecting the built environment humans inhabit while facilitating their graphic and verbal communication skills. Upon completion, students should be able to articulate, digitally and physically, the design of a small-scale building.
Corequisites: Take ARC 116

ARC 120. Interior Design-Residential. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course covers principles of light construction and materials. Topics include terminology, components, and light construction codes. Upon completion, students should be able to understand light construction principles.
Prerequisites: Take ARC 111

ARC 131. Building Codes. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0
This course covers the methods of researching building codes for specific projects. Topics include residential and commercial building codes. Upon completion, students should be able to determine the code constraints governing construction projects.
Prerequisites: Take ARC 111 or ARC 112

ARC 132. Specifications & Contracts. 2.0 Credits. Class-2.0. Clinical-0.0. Lab-0.0. Work-0.0
This course covers the development of written specifications and the implications of different contractual arrangements. Topics include specification development, contracts, bidding material research, and agency responsibilities. Upon completion, students should be able to write a specification section and demonstrate the ability to interpret contractual responsibilities.
Prerequisites: Take ARC 112

ARC 133. Construction Document Analysis. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers the analysis of building construction drawings. Emphasis is placed on material identification, understanding construction details, and the relationships of building structural, mechanical, plumbing, and electrical systems. Upon completion, students should be able to analyze a set of construction drawings by identifying building construction materials and understanding construction details and engineering systems.

ARC 141. Elementary Structures for Architecture. 4.0 Credits.
Class-4.0. Clinical-0.0. Lab-0.0. Work-0.0
This course covers concepts of elementary structures in architecture. Topics include structural form, statics, strength of materials, structural behavior, and the relationship between structures and architectural form. Upon completion, students should be able to size simple structural elements.
Prerequisites: Take One Set: Set 1: ARC 111 and MAT 121; Set 2: ARC 111 and MAT 171

ARC 160. Residential Design. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course introduces the methodology of basic residential design. Topics include residential site design, space organization and layout, residential styles, and the development of schematic design. Upon completion, students should be able to design a residence.
Prerequisites: Take ARC 111
Corequisites: Take ARC 112

ARC 197T. Seminar in. 2.0 Credits. Class-2.0. Clinical-0.0. Lab-0.0. Work-0.0
This course provides an opportunity for students to analyze current architectural movements, trends, and methodologies. Emphasis is placed on architectural production in various modes, including: writing, reading, thinking, and portfolio development. Students will be allowed to craft and critique their work and the work of their peers. Upon completion, students should be able to successfully analyze architectural concepts and theories through various forms of written and graphical representation.

ARC 210. Intro to Sustain Design. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces concepts and principles related to sustainable site development and architectural design. Topics include low impact and sustainable site development, water efficiency, energy efficiency, material and resource management, indoor environmental quality, and return on investment. Upon completion, students should be able to articulate and integrate sustainable design principles into site and architectural design.
Prerequisites: Take ARC 111

ARC 212. Commercial Constr Tech. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course introduces regional construction techniques for commercial plans, elevations, sections, and details. Topics include production of a set of commercial contract documents and other related topics. Upon completion, students should be able to prepare a set of working drawings in accordance with building codes.
Prerequisites: Take ARC 225
Corequisites: Take ARC 112

ARC 213. Design Project. 4.0 Credits. Class-2.0. Clinical-0.0. Lab-6.0. Work-0.0
This course provides the opportunity to design and prepare a set of contract documents within an architectural setting. Topics include schematic design, design development, construction documents, and other related topics. Upon completion, students should be able to prepare a set of commercial contract documents. This course will also introduce plumbing, mechanical (HVAC), and electrical systems for the architectural environment.
Prerequisites: Take ARC 225

ARC 214. Architectural Statics. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0
This course covers the concepts of elementary statics as applied to architecture. Topics include forces, resultants, and types of force system; equations of equilibrium; reactions of simple architectural structures; internal forces in architectural roof trusses; frames and beams; centroids and moments of inertia as applied to architecture. Upon completion, students should be able to solve problems which require the ability to analyze systems of forces in static equilibrium as applied to architectural forms.
Prerequisites: Take all: ARC 111, ARC 112, and MAT 121

ARC 215. Architectural Strength of Materials. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0
This course covers the concepts of elementary strength of materials within architecture. Topics include structural form, architectural strength of materials, structural behavior, and the relationship between structures and architectural form. Upon completion, students should be able to size simple structural elements to specific architectural forms.
Prerequisites: Take all: ARC 111, ARC 112, and MAT 121

ARC 216. Architectural Design Studio III. 5.0 Credits. Class-2.0. Clinical-0.0. Lab-9.0. Work-0.0
This course provides students information on construction topics, building codes and standards, and project logistics for the design of a commercial architectural project. Emphasis is placed on real world constraints and considerations while articulating innovative design strategies through advanced drawing techniques. Upon completion, students should be able to execute a large-scale building design according to industry standards.
Corequisites: Take ARC 117

ARC 217. Architectural Design Studio IV. 5.0 Credits. Class-2.0. Clinical-0.0. Lab-9.0. Work-0.0
This course is designed to allow students to collaborate in a team environment on the design of a conceptual architectural design project. Emphasis is placed on an architectural design challenge taking into considerations key elements like site, program, environment, client, and visual communication and presentation. Upon completion, student should be able to use collaborative BIM technologies, allowing a more focused understanding of professional practice with regard to design, documentation, and communication.
Corequisites: Take all: ARC 216 ARC 225

ARC 220. Advanced Architectural CAD. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course provides file management, productivity, and CAD customization skills. Emphasis is placed on developing advanced proficiency techniques. Upon completion, students should be able to create prototype drawings and symbol libraries, compose sheets with multiple details, and use advanced drawing and editing commands. Civil3D and Microstation CAD applications will be used in this course.
Prerequisites: Take ARC 114

ARC 221. Architectural 3-D CAD. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-4.0. Work-0.0
This course introduces architectural three-dimensional CAD applications. Topics include three-dimensional drawing, coordinate systems, viewing, rendering, modeling, and output options. Upon completion, students should be able to prepare architectural three-dimensional drawings and renderings. SketchUp, Inventor, and Rhino3D are the primary applications used in this course.
Prerequisites: Take ARC 114

ARC 225. Architectural Building Information Modeling I. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course is an introduction to the fundamentals of Building Information Modeling (BIM) as a construction documentation system. Topics include basic parametric modeling, creating new types and families of components, and using 3D models to create design drawings. Upon competition, students should be able to use BIM software to create, edit, and print rudimentary architectural 3D computer models. Focus for this course: AutoDesk Revit Architecture.

ARC 226. Architectural Building Information Modeling II. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers advanced concepts of Building Information Modeling (BIM) including complex drawing generation and inter-disciplinary collaboration. Topics include advanced parametric modeling and model analysis, inter-disciplinary coordination, design web format models, material take-off, schedules, and rendering. Upon completion, students should be able to apply BIM software to create full 3D project models and convert them to scaled working or presentation drawings.
Prerequisites: Take ARC 225

ARC 230. Environmental Systems. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces plumbing, mechanical (HVAC), and electrical systems for the architectural environment. Topics include basic plumbing, mechanical, and electrical systems for residential and/or commercial buildings with an introduction to selected code requirements. Upon completion, students should be able to develop schematic drawings for plumbing, mechanical, and electrical systems and perform related calculations.
Prerequisites: Take One Set: Set 1: ARC 111 and MAT 121; Set 2: ARC 111 and MAT 171

ARC 231. Architectural Presentations. 4.0 Credits. Class-2.0. Clinical-0.0. Lab-4.0. Work-0.0
This course introduces architectural presentation techniques. Topics include perspective drawing, shadow projection, texturization, rendered plans, elevations, and other related topics. Upon completion, students should be able to present ideas graphically and do rendered presentation drawings.
Prerequisites: Take ARC 111

ARC 235. Architectural Portfolio. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers the methodology for the creation of an architectural portfolio. Topics include preparation of marketing materials and a presentation strategy using conventional and/or digital design media. Upon completion, students should be able to produce an architectural portfolio of selected projects.
Prerequisites: Take ARC 111 and ARC 114

ARC 250. Survey of Architecture. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0
This course introduces the historical trends in architectural form. Topics include historical and current trends in architecture. Upon completion, students should be able to demonstrate an understanding of significant historical and current architectural styles.

ARC 251. Advanced Survey of Architecture. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0
This course builds on prior knowledge of historical trends in architectural form, and explores those topics in greater depth. Topics could include historic preservation, the social and political contexts of architectural design, and design theory. Upon completion, students should be able to demonstrate a deeper understanding of significant historical and current architectural styles and theories.
Prerequisites: Take ARC 250

ARC 262. Architectural Animation & Video. 3.0 Credits. Class-1.0. Clinical-0.0. Lab-6.0. Work-0.0
This course covers three-dimensional architectural animation. Topics include storyboarding, rendered animation creation, audio and video input/output, and techniques for camera and object movement in and around buildings. Upon completion, students should be able to produce rendered architectural animations with sound and archive data to selected media. This course will focus on Autodesk 3DS software.
Prerequisites: Take ARC 221

ARC 264. Digital Architecture. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers multiple digital architectural techniques. Topics include spreadsheets and word processing procedures, on-line resources, modems, e-mail, image capture, multimedia, and other related topics. Upon completion, students should be able to transmit/receive electronic data, create multimedia presentations, and produce a desktop publishing document. Focus for this course will be SketchUP and Adobe PhotoShop software.
Prerequisites: Take ARC 111, minimum grade of C