

Architectural Technician

Program Number: 10-614-1

Associate in Applied Science Degree

Applied Engineer Technologies Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or
(800) 322-6282 Ext. 6800

About the Program

The architectural area is broad and challenging. It is the purpose of the architect and/or consulting engineer to supply owners with a set of plans and specifications of the structure desired. The architectural technician assists the architect or engineer in the development of plans and specifications, and while in the field, checks on building compliance with the contract documents.

Unique Requirements for Admission

High school course recommendations: We strongly recommend that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, a high school physical science course is highly recommended. Students must earn a 2.0 (C) or better in these high school courses. Contact the Architectural Technician academic advisor at (608) 246-6232 for pre-registration advising.

The Architectural Technician Program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS test prior to enrollment. Advisement and course placement in English and math is done based on test results.

Unique Requirements for Graduation

Graduation requirements: 68 credits and a GPA of 2.0 (C) or above; average of 2.0 (C) or above required to occupational specific courses.

Program Courses

10-614-111 Architectural Graphics 1 3 credits
Emphasizes architectural drafting and the theory of drafting. Proper architectural lettering, line work and use of drafting tools are discussed. Orthographic projection isometric, axonometric and perspective drawings, contours, shade and shadow are covered in the first semester. Massing studies using the software "Sketch up" is also incorporated.

10-614-112 Architectural Graphics 2/Studio 3 credits
Small-scale design projects will address the development of design skills. Topics covered include programming, site analysis, building materials, and building code issues will be studied for residential and commercial projects. Prerequisites: 10-614-111 and 10-614-113.

Curriculum

FIRST YEAR

First Semester	Credits	Hrs/week Lec-Lab
10-614-111 Architectural Graphics 1.....	3	1-4
10-614-113 Intro to CAD-Architectural.....	3	1-4
10-614-121 Construction Materials.....	3	3-0
10-614-140 Architectural Print Interpretation.....	2	1-2
10-801-195 Written Communication.....	3	3-0
10-804-114 College Technical Math 1B.....	2	2-0
Semester Total	16	

Second Semester

10-614-112 Architectural Graphics 2/Studio.....	3	1-4
10-614-115 Intro to Revit.....	2	1-3
10-614-118 Design Communications.....	2	1-2
10-804-116 College Technical Math 2.....	4	4-0
10-806-154 General Physics 1.....	4	3-2
<u>Elective.....</u>	<u>2</u>	<u>E</u>
Semester Total	17	

SECOND YEAR

First Semester

10-614-155 Advanced Revit.....	2	1-2
10-614-123 Electrical and Mechanical Systems.....	4	4-0
10-614-154 Site Design.....	3	1-4
10-614-178 Mechanics/Strengths of Materials.....	4	4-0
10-614-193 Job Orientation.....	1	1-0
10-809-199 Psychology of Human Relations.....	3	3-0
<u>Elective.....</u>	<u>2</u>	<u>E</u>
Semester Total	19	

Second Semester

10-614-132 Building Estimating.....	2	2-0
10-614-142 Architectural Detailing.....	2	1-2
10-614-145 Architectural Design Studio.....	4	2-4
10-801-197 Technical Reporting.....	3	3-0
10-809-166 Intro to Ethics: Theory & Application.....	3	3-0
<u>Elective.....</u>	<u>2</u>	<u>E</u>
Semester Total	16	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives

10-614-100 Introduction to Architecture	3 credits
10-614-101 Architecture Theory 1	3 credits
10-614-102 Architecture History	3 credits
10-614-114 CAD-Intermediate	2 credits
10-614-135 Building Codes	2 credits
10-614-150 Introduction to Specifications	2 credits
10-614-190 Special Problems	2 credits

Program Courses (Continued)

10-614-113 Intro to CAD-Architectural 3 credits

Major emphasis is placed on learning the basic commands necessary to complete 2-dimensional construction drawings for the architectural community. Approximately 50 percent of the course is spent on lecture/demonstrations concerning software commands and procedures, while 50 percent of the course is spent in on developing operating skills. A basic understanding of Windows and file management is necessary for success within the course. The current version of AutoCAD is used as the teaching tool. Corequisite: 10-614-111 or instructor consent.

10-614-115 Intro to Revit 2 credits

Students gain an understanding of the concepts of the industry's leading 3D architectural modeling software. Building Information Modeling (BIM) concepts and advantages will be discussed throughout the course. Students learn command concepts for creating 3D BIM models and how this model is used for automatic creation of floor plans, elevations, sections, and many other tedious drafting tasks. The course text takes you through a tutorial approach to create a model and learn the input commands of the software, yet allows the student to explore the software more fully. Instructor input is given throughout the course in order to incorporate various additional topical areas not covered within the text. At the end of the course, students will have developed a set of typical construction drawings based on their BIM mode. Prerequisites: 10-614-113 and 10-614-111.

10-614-118 Design Communications 2 credits

Studio course in techniques and conventions of graphic communication as an aid in the design process. Covers graphic principles, media, sketching and perspective drawing techniques. Emphasis is on developing drawing and rendering skills using pencil, color marker and pastels. Students generate sketches, presentation plans, and one- and two-point perspective drawings and use these drawings to generate a variety of architectural presentations. Prerequisite: 10-614-111.

10-614-121 Construction Materials 3 credits

Emphasizes materials used in building construction and their manufacture and application in various construction systems from wood frame to masonry, steel and precast concrete. Basic properties of materials are discussed as well as how, when and where to use them.

10-614-123 Electrical and Mechanical Systems 4 credits

Covers the basic principles of plumbing, electrical, lighting, daylighting, HVAC, fire safety, sprinklers, energy efficient design, vertical transportation and acoustics found in buildings today. Particular attention will be paid to the Wisconsin Commercial Building Code and its impact on these systems. Guest speakers and a small student designed project will augment the course. Prerequisites: 10-614-112 and 10-804-116.

10-614-132 Building Estimating 2 credits

Studies problems and responsibilities of the estimator, including plans, specifications and published construction cost data. Emphasis on estimating techniques and methods of preparing estimates and take-offs. Prerequisite: 10-804-116.

10-614-140 Architectural Print Interpretation 2 credits

This course provides the student with the basic fundamentals of reading and interpretation of construction documents for residential and light commercial construction. Emphasis will be placed on real world construction documents and their application. Students will learn how to read actual industry prints, interpret code requirements and study common construction materials and details used in architecture. Corequisite: 10-614-111 or instructor consent.

10-614-142 Architectural Detailing 2 credits

This course provides an in-depth study of materials and building assemblies as it pertains to accepted practices in architectural detailing and design. Emphasis will be placed on detailing techniques commonly found in commercial construction. Topics included are masonry, steel, and concrete construction. Field trips and guest lecturers from the architectural, engineering and construction industry will supplement the course. Prerequisites: Second year standing, 10-614-178 and concurrent enrollment in 10-614-145.

10-614-145 Architectural Design Studio 4 credits

Covers the basic skills used in the building design process. Introduces the student to building siting and massing, program analysis, building circulation, space flow diagrams, adjacency studies, and building context. The design process continues with the integration of the structural steel framing. The student will design the framing plans as well as complete the calculations for the sizing of the individual steel members. Prerequisites: 10-614-112 and 10-804-116.

10-614-154 Site Design 3 credits

Introduces the student to the basic design issues of the urban environment. Explore building massing and site analysis as they relate to the urban context. Learn about vehicular and pedestrian circulation, zoning analysis, contour manipulation and basic plant material selections. Course places a strong emphasis on in-class presentations utilizing the use of multimedia digital technology. Prerequisites: 10-804-114 and 10-614-112.

10-614-155 Advanced Revit 2 credits

Students develop proficiency in skills introduced in Intro to Revit, including modeling, family creation, design options, importing, rendering, and exporting with the current version of Revit Architecture. Particular emphasis will be placed on advanced modeling and family creation. This class also introduces new concepts related to creating and managing 3D BIM models including defining site topography and site-related features, massing, phasing, file linking, and worksharing. Competence will be demonstrated through performance on the CAD station, through saved projects, and through submitted printouts that will include both construction documents and rendered images. For one project, students will be working within a group and submitting a joint project, during which students will develop the essential worksharing skills required to complete large-scale building projects that require multiple drafters. Prerequisites: 10-614-111, 10-614-113 and 10-614-115.

10-614-178 Mechanics/Strength of Materials 4 credits

Study of forces that act on a structural member. These forces affect all types of structures including parts of machines. This course will emphasize the use of statics as it applies to building structures. We will look at types of force systems, vectors, resultant forces, moments, truss analysis and reactions. Strength of Materials provides the various analytical tools necessary for the sizing of specific structural members based on the loading conditions and strength of the material. The student will gain the knowledge necessary to calculate the sizes of members made of specific materials including wood, steel and masonry. Prerequisite: 10-804-116.

10-614-193 Job Orientation 1 credit

Occupational information prepares students to seek employment. Includes resume preparation, job interviews, portfolio design, and letters of introduction and recommendation. Former graduates are invited to discuss needs of students before employment. Representatives of labor, management, business and the professions are invited to discuss points of interest toward becoming an employee. Prerequisite: third-semester standing.

Career Potential:

- Architectural Technician
- Building Sales Person
- Building Mechanical Technician
- Shop Drawing Draftsperson
- Structural Draftsperson

With additional education and/or work experience, graduates may find employment as:

- Architect
- Building Inspector
- Chief Draftsperson
- Commercial or Industrial Estimator
- Construction Engineer
- Structural Engineer

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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