

# ARCHITECTURAL DRAFTING & DESIGN

## ASSOCIATE OF APPLIED SCIENCE (AAS) - 60 CREDITS

### About this program

In the Architectural Drafting and Design program, students become proficient in computer-aided drafting (CAD) and the Revit building design software, learning the skills needed for a variety of jobs related to the construction industry. Graduates are hired by architectural and engineering firms, contractors, and manufacturing and distribution companies. An advisory board comprised of local and regional industry representatives reviews the curriculum to ensure students learn the skills needed by employers.

### Program outcomes

1. Analyze relationships between building systems in coordination with architectural drawings.
2. Produce architectural construction drawings utilizing CAD software.
3. Demonstrate professional work behavior and communication.
4. Report existing conditions of buildings and site layouts.
5. Create and present relevant design concepts.
6. Calculate material quantities and the final cost of building projects.

### Curriculum overview

<b>Crds</b>	<b>Requirement type</b>
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51	Required courses
9	Restricted electives in course types
60	<b>Total</b>

**Developmental courses note:** A student may be required to enroll in developmental courses in reading, writing and math. A student's scores on the Accuplacer assessment will determine enrollment in developmental courses. The purpose of developmental courses is to prepare students for the demands of a college-level curriculum. *Credits may vary.*

**Accreditation:** Minnesota State Community and Technical College is accredited by the Higher Learning Commission, a regional accreditation agency recognized by the U.S. Department of Education. The Higher Learning Commission 230 South LaSalle Street, Suite 7-500 Chicago, IL 60604-1411 <http://www.ncahigherlearningcommission.org> Phone: 312.263.0456 / 800.621.7440

## Curriculum requirement details

### Required courses

Course	Credits
ARCH1126 - Residential Project I .....	3
ARCH2222 - Architectural Drafting Service Learning .....	4
ARCH2226 - Residential Project II .....	4
ARCH2232 - Civil and Structural Integration .....	3
ARCH2236 - Architectural Presentation .....	2
ARCH2244 - Commercial Projects .....	4
ARCH2248 - CADD Alternatives .....	3
ARCH2250 - Project Administration .....	2
BLDG1114 - Blueprint Reading I .....	2
CADD1000 - AutoCAD Basics .....	3
COMM1120 - Introduction to Public Speaking .....	3
CONM1108 - Principles of Estimating .....	4
CONM1124 - Building Systems .....	3
DET2230 - 3D Printing and Prototyping .....	2
ENGL1101 - College Writing .....	3
ENGT1126 - Engineering Graphics .....	3
ENGT1134 - Office Systems and Equipment .....	3

### Other requirements or restricted electives

#### 9 credits from these Course Types:

- General Education w/MnTC Goals

## Course summaries

**ARCH1126 - Residential Project I .....** **(3 credits)**  
This course covers the design development and documentation of single-family living. Students will be introduced to residential design styles as well as proper documentation methods.

**Prerequisites:**

- CADD1000
- ENGT1134

**ARCH2222 - Architectural Drafting Service Learning .....** **(4 credits)**  
This course provides the opportunity for Architectural Drafting and Design program students to work on real-life projects. These projects combine learning objectives with community service to provide a pragmatic, progressive learning experience while meeting societal needs.

**Prerequisites:**

- ARCH2226

**ARCH2226 - Residential Project II .....** **(4 credits)**  
This course introduces building design and construction requirements for multi-family housing. The course covers the processes for the selection of building materials and their integration into construction documents.

**Prerequisites:**

- ARCH1126

**ARCH2232 - Civil and Structural Integration .....** **(3 credits)**  
This course will review the incorporation of civil and structural engineering drawings in coordination with building systems. Content will include analysis of civil and structural drawings and their relationship to commercial and residential building types.

**Prerequisites:**

- ARCH1126

**ARCH2236 - Architectural Presentation .....** **(2 credits)**  
Students in this course develop design schematics and a set of presentation drawings for a commercial project. Emphasis is on verbal and visual presentation techniques.

**Prerequisites:**

- ARCH1126

**ARCH2244 - Commercial Projects .....** **(4 credits)**  
This course covers the construction document process for commercial building design while having the student complete a self-guided capstone project. Content includes final detailing, scheduling and sheet set layout from a given design developed project.

**Prerequisites:**

- ARCH2226

**ARCH2248 - CADD Alternatives .....** **(3 credits)**  
This course will familiarize the student with computer drafting and modeling software for the graphic design of residential construction.

**ARCH2250 - Project Administration .....** **(2 credits)**  
This course provides an understanding of architectural firm structures and legal issues as well as project management procedures used throughout documentation, bidding and construction administration.

**Prerequisites:**

- ARCH2226

**BLDG1114 - Blueprint Reading I .....** **(2 credits)**  
This course provides the student with a working knowledge of blueprints and specifications. The student gains an understanding of blueprints, then interprets and applies this knowledge to job situations.

**CADD1000 - AutoCAD Basics** ..... **(3 credits)**  
This course provides the fundamentals of computer-aided drafting (CAD) using the latest version of the AutoCAD drafting software. The course develops the CAD skills necessary to design and print complex two-dimensional drawings and sheet sets.

**COMM1120 - Introduction to Public Speaking** ..... **(3 credits)**  
Meets MnTC Goal Area 1. This course clarifies the process of oral communication, clarifies the basic principles of public speaking and allows the student to increase the application of these principles while both speaking and listening.

**Prerequisites:**

- Assessment into ENGL 1101

**CONM1108 - Principles of Estimating** ..... **(4 credits)**  
This course focuses on the basics of material, labor and equipment estimating. Students learn to calculate the quantities of material comprising a project. These quantities determine the primary portion of the direct costs used in a construction bid. This process is the first step in completing accurate bids for construction projects of all sizes.

**Prerequisites:**

- BLDG1114

OR

- ARCH1126

OR

- CONM1101

**CONM1124 - Building Systems** ..... **(3 credits)**  
This course is a comprehensive treatment of the various techniques, systems and methodologies utilized in the construction industry and will help the student prepare for the responsibilities of supervision on a modern construction project.

**DET2230 - 3D Printing and Prototyping** ..... **(2 credits)**  
This course covers the basic concepts of 3D printing and rapid prototyping utilizing various three-dimensional printers and scanning equipment.

**Prerequisites:**

- CADD1410

OR

- ARCH2248

OR

- CADD1400

**ENGL1101 - College Writing** ..... **(3 credits)**  
Meets MnTC Goal Area 1. This is an introductory writing course designed to prepare students for later college and career writing. The course focuses on developing fluency through a process approach, with particular emphasis on revision. Students will consider purpose and audience, read and discuss writing and further develop their own writing processes through successive revisions to produce polished drafts. Coursework will include an introduction to argumentative writing, writing from academic sources and a short research project.

**Prerequisites:**

- Completion of ELL1085, ENGL0096, or ENGL0097 with a grade of C or higher OR placement into college-level English.

**ENGT1126 - Engineering Graphics** ..... **(3 credits)**  
This course introduces and develops basic skills in drawing, lettering, orthographic projection, sections and dimensioning. Students in this course will apply the basic fundamentals of pictorial drawing, including isometric, oblique, perspective, shade and shadow, and freehand sketching.

**ENGT1134 - Office Systems and Equipment** ..... **(3 credits)**  
This course covers the application of Windows software systems in coordination with AutoCAD software as well as general office equipment set-up and use.

# ARCHITECTURAL DRAFTING & DESIGN

## ASSOCIATE OF APPLIED SCIENCE (AAS) - 60 CREDITS

### Program Plan — "AAS"

Locations: Wadena

#### 1st Fall Term (14 credits)

##### Courses

Course	Credits
BLDG1114 - Blueprint Reading I .....	2
CADD1000 - AutoCAD Basics .....	3
CONM1124 - Building Systems .....	3
ENGT1126 - Engineering Graphics .....	3
ENGT1134 - Office Systems and Equipment .....	3

#### 1st Spring Term (16 credits)

##### Courses

Course	Credits
ARCH1126 - Residential Project I .....	3
ARCH2226 - Residential Project II .....	4
ARCH2250 - Project Administration .....	2
CONM1108 - Principles of Estimating .....	4
ENGL1101 - College Writing .....	3

#### 2nd Fall Term (18 credits)

##### Courses

Course	Credits
ARCH2222 - Architectural Drafting Service Learning .....	4
ARCH2232 - Civil and Structural Integration .....	3
ARCH2236 - Architectural Presentation .....	2
ARCH2248 - CADD Alternatives .....	3
COMM1120 - Introduction to Public Speaking .....	3

##### **3 credits in one or more of the following:**

General Education w/MnTC Goals

#### 2nd Spring Term (12 credits)

##### Courses

Course	Credits
ARCH2244 - Commercial Projects .....	4
DET2230 - 3D Printing and Prototyping .....	2

##### **6 credits in one or more of the following:**

General Education w/MnTC Goals