

## ENGINEERING

### Civil Engineering & Surveying Technology Associate of Applied Science

#### PROGRAM MISSION

The Civil Engineering & Surveying Technology program prepares students to incorporate advanced technologies into a wide-range of career pathways.

#### PROGRAM DESCRIPTION

The Associate of Applied Science (AAS) degree prepares graduates to be job ready after graduation in two years. Some of the courses are application based and will not transfer. However, it is possible to transfer with the AAS degree and a third year of coursework at UCC. Two quarters of calculus are included in the second-year of classes for the AAS degree. Students that are sure they will not be continuing their education in the future should consider either the **Applied Surveying Option** or **Applied Water Quality Option** for the AAS degree. The Applied Options include 24 credits of Occupational Skills Training (approximately 5 months) during the second-year of course work.

#### PROGRAM OUTCOMES

In addition to the learning outcomes for the Completion Certificate as an Engineering & Drafting Technician, students that complete the AAS degree in Civil Engineering & Surveying Technology will also:

1. Solve well-designed engineering problems using integrated STEM concepts
2. Examine and design viable engineering solutions for well-defined technical problems
3. Demonstrate multiple forms of communication in well-defined technical and non-technical environments based on appropriate research
4. Conduct and analyze standard test, measurements, and experiments, culminating in the interpreting and reporting of results
5. Participate effectively as a member of a technical team
6. Demonstrate functional use of 3D computer-aided drafting and design software used for a variety of drawing techniques

#### CAREER CONSIDERATIONS

Civil engineering and surveying are some of the broadest fields of engineering, and are part of virtually all construction-related projects. Graduates have local, state-wide, and nation-wide employment opportunities. The field of civil engineering deals with planning, design, construction, and maintenance of private and public projects. Projects include highways, bridges, dams, subdivisions, water supply and wastewater systems. Land surveyors perform a variety of important tasks such as boundary surveys, topographic mapping and construction staking. Civil Engineering and Surveying Technology graduates work with or in support of professional architects, engineers and land surveyors.

#### PROGRAM COURSE REQUIREMENTS

##### Year One

##### Program Requirements

CIV 214	Virtual Design -CAD -Civil3D	3
DRF 112	Computer Aided Drafting (CAD) I	3
DRF 113	Computer Aided Drafting (CAD) II	3
ENGR 111	Engineering Orientation	3
ENGR 112A	Problem Solving & Technology	2
ENGR 112B	Problem Solving & Technology	1
ENGR 245	Engineering Graphics -SolidWorks	3
GIS 203	Digital World & Geospatial Concepts	4
GIS 234	GIS: Intro to Geographic Systems	4
GIS 235	GIS II: Analysis and Applications	4
SUR 161	Surveying I	4

##### General Education Requirements

Human Relations Elective, from Approved List on page 43	3	
MTH 111	College Algebra	5
MTH 112	Elementary Functions	4
WR 121	Academic Composition	4

**Year One Credits 50**

##### Year Two

##### Program Requirements

CIV 280	Cooperative Work Experience	3
CWE 161	CWE Seminar I	1
ENGR 211	Statics	4
ENGR 212	Dynamics	4
ENGR 213	Strength of Materials	4
SOIL 205/206	Soil Science & Lab	4
Approved Program Electives*		4

##### General Education Requirements

MTH 251	Calculus I	5
MTH 252	Calculus II	4
SP 111	Fundamentals of Public Speaking	4
WR 227	Technical Report Writing	4

**Year Two Credits 48**

##### \* Approved Program Electives (Select at least 3 of the following):

SUR 162	Surveying II	4
SUR 163	Route Surveying	4
SUR 242	Land Description & Cadastre	3
WQT 227	Wastewater Treatment	3
WQT 228	Wastewater Collection	3
WQT 260	Water Treatment	3
WQT 261	Water Distribution	3