



**Engineering Technology  
2021-2022**

**Civil Engineering and Surveying Technoogy**

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<b>AAS</b>	<b>Civil Engineering and Surveying Technology</b>	<b>98 credits</b>
<b>AASO</b>	<b>Applied Surveying Option</b>	<b>94 credits</b>
<b>AASO</b>	<b>Applied Water Quality Option</b>	<b>96 credits</b>

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**SUMMARY**

The **Civil Engineering & Surveying Technology, Applied Associate of Science (AAS)** is a two-year degree. This is an applied degree with emphasis on being job ready at graduation. It is possible to also complete an Engineering, AS degree with a third year of coursework. There are two specialization options within the Applied Associate of Science that incorporate 24 credits of occupational skills training through cooperative work experience. The options are intended to further prepare graduates for direct entry into the workforce through more on-the-job training, but will likely preclude the student from pursuing a transfer engineering degree in the future. The options include: **Civil Engineering & Surveying Technology: Applied Surveying Option, AAS** and **Civil Engineering & Surveying Technology: Applied Water Quality Option, AAS**.

The coursework is identical for first year of the AAS degree and the two options. Completion of the first year of coursework completes requirements for the Engineering & Drafting Technician, Completion Certificate (CC). The Drafting and GIS pathways certificates are embedded within the first year of coursework for the AAS degree. Depending on electives and option selected, the student will chose between the Surveying and Water Quality pathways certificates during the second year of coursework.

It is **strongly recommended** that students pursuing the AAS degree apply to the UCC Registrar’s Office for award of the Pathways Certificates and the Completion Certificate either after the coursework is completed or at time of graduation with the AAS degree, since the Certificates *are not automatically awarded*. The Certificate will increase employment opportunities for graduates.

## FIRST TERM GUIDE

The first term courses are the same for the parent AAS degree and the two options. The first term guide at UCC is especially important. The courses you take during the first quarter at UCC will impact the amount of time required to complete your degree. Assuming your first term is fall quarter, you will be assigned an Academic Advisor and develop a Student Academic Plan (term x term planner) during fall quarter, after you begin classes. The Student Academic plan is entered into a UCC program called "Degree Works" during fall term. The Degree Works software allows the student to track progress towards graduation and to complete "what if" scenarios for plan adjustments.

A key core-course for the first term is ENGR111. One of the assignments in ENGR111 is to meet with Faculty Advisor and Academic Advisor to review the Academic Plan entered into Degree Works and to plan for second term (winter quarter) classes. Core program courses are generally in sequential order, and assume start in fall quarter. In some, cases the faculty advisor may waive pre-requisites or approve independent study courses in order for students to take core classes out of sequence. If your first term UCC is not a fall quarter start, it is recommended that you meet with the Faculty Advisor and Academic Advisor, and develop the Academic Plan prior to beginning the first term. Students generally must place into WR121 and MTH111, and begin in Fall term, to complete the AAS degree in two years. If math and writing placement is lower than WR121 or MTH111, additional term(s) may be required to complete. General education classes, including writing and lower division math courses are available during summer quarter. If placement testing results are less than WR121 or MTH111, it is also recommended that you meet with the Faculty Advisor and Academic Advisor, and develop the Academic Plan prior to beginning the first term. Digital literacy (computer skills), including basic proficiency with Windows operating system and file management, is required for the program. Students with beginning computer skills should consider taking CIS100 during their first term at UCC.

First Term Plan	Digital Literacy: Proficient				Digital Literacy: Beginning			
	Math Placement				Math Placement			
	MTH111		MTH95 or less		MTH111		MTH95 or less	
Course Number	Cr	Course Number	Cr	Course Number	Cr	Course Number	Cr	
Term 1**	ENGR111	3	ENGR111	3	ENGR111	3	ENGR111	3
	DRF112	3	DRF112	3	DRF112	3	DRF112	3
	GS203	4	Math*	4	GS203	4	Math*	4
	Writing*	4	Writing*	4	CIS100***	4	CIS100***	4
	14		14		14		14	

\* Math and writing course depend on placement testing

\*\* Students beginning other than fall quarter or placing less than MTH111 should meet with Faculty Advisor and Academic Advisor to develop an Academic Planner in Degree Works prior to beginning first term

\*\*\* Recommended for students with beginning computer skills consider CIS100. Will increase total credits.

## Advising Guide, Civil Engineering & Surveying Technology, AAS

Program Prerequisites: See requirements needed for first term classes.

Possible Term Plan	Course Number	Course Title	Credits	Terms	Prerequisites/Notes
Term 1	ENGR 111	Engineering Orientation I	3	F	MTH 65 Elementary Algebra
	DRF 112	Computer Aided Drafting I	3	F	None
	WR 121	Academic Composition	4	F,W,S,Su	Prerequisite: WR115* and RD090* or appropriate placement test scores or placement by multiple measures; and basic computer word processing skills
	GIS 203	Digital World and Geospacial Concepts	4	F	MTH 65 Elementary Algebra
Term 2	ENGR 112A	Problem Solving and Technology	2	W	Prerequisite: ENGR111 or FOR111 or NR201
	MTH111	College Algebra	5	F,W,S,Su	Prerequisite: MTH095*, placement by approved measure, or instructor permission
	GIS 234	GIS I Intro to Geographic Information Systems	4	W	None
	DRF 113	Computer Aided Drafting II	3	W	DRF 112 CAD I
	Choose	Human Relations Elective	3	F,W,S,Su	See Advisor
Term 3	CIV 214	Computer Aided Drafting- Civil 3D Virtual Design	3	S	DRF 112 CAD I
	ENGR 112B	Problem Solving and Technology	1	S	ENGR 112B
	MTH 112	Elementary Functions	4	F,W,S	MTH 111 Algebra
	GIS235	GIS II Data Analysis and Applications	4	S	GIS 234
	SUR 161	Surveying I	4	S	Co-req MTH 112
	ENG 245	Engineering Graphics	3	S	DRF 112 CAD I
Summer	CIV 280	Coop. Work Experience	3	F,W,S, Su	None
Term 5	ENGR 211	Statistics	4	F	Co-req MTH 251
	MTH 251	Calculus I	5	F	MTH 112
	WR 227	Technical Report Writing	4	F, W, S, Su	WR 121
	Choose	Engineering Elective	4	F	See Advisor & list of Approve Electives below
Term 6	ENGR 212	Dynamics	4	W	ENGR211 & Co-req MTH 252
	MTH 252	Calculus II	4	W	MTH 251
	CWE 161	CWE Seminar I	1	F,S	None
	Choose	Engineering Elective	4 to 6	W	See Advisor & list of Approve Electives below

**Advising Guide, Civil Engineering & Surveying Technology, AAS (continued)**

Term 7	ENGR 213	Strength of Materials	4	S	ENGR 211
	SP 111	Fundamentals of Public Speaking	4	F,W,S	None
	SOIL 205/ 206	Soil Science and Lab	4	S	MTH 95
	Choose	Engineering Elective	3	S	See Advisor & list of Approve Electives below

Approved Electives	Course Number	Course Number/Title	Credits	Terms	Prerequisites/Notes
	SUR 162	Plane Surveying II	4	F	SUR 161
	SUR 163	Route Surveying	4	W	SUR 162
	SUR 242	Land Descriptions & Cadastre	3	S	SUR 161
	WQT 227	Wastewater Treatment	3	W	MTH 95
	WQT 228	Wastewater Collection	3	W	MTH 95
	WQT 260	Water Treatment	3	S	MTH 95
	WQT 261	Water Distribution	4	F	MTH 95

Advising Notes	A minimum of 90 credit hours must be completed to receive a AAS degree at UCC. If a student places higher than MTH111, student may need to take additional elective courses to graduate with 90 or more hours.
	Engineering Program Approved Electives. Students may benefit by taking more than 96 credit hours and more electives than required for graduation, depending on career and educational goals.

Required/ Recommended Equipment and Software	Laptop with minimum capacity of: 3.3 GHz quad core CPU, 16 GB Ram, and quality graphics card. Considered a "gaming" computer

**Advising Guide, Civil Engineering & Surveying Technology: Applied Surveying Option, AAS**

Program Prerequisites: See requirements needed for first term classes.

Possible Term Plan	Course Number	Course Title	Credits	Terms	Prerequisites/Notes
Term 1	DRF 112	Computer Aided Drafting	3	F	MTH 65 Elementary Algebra
	ENGR 111	Engineering Orientation I	3	F	None
	GIS 203	The Digital World and Geospatial Concepts	4	F	Prerequisite: WR115* and RD090* or appropriate placement test scores or placement by multiple measures; and basic computer word processing skills
	WR 121	Academic Composition	4	F, W, S	MTH 65 Elementary Algebra

Term 2	DRF 113	Computer Aided Drafting II	3	W	Prerequisite: ENGR111 or FOR111 or NR201
	ENGR 112A	Problem Solving and Technology	2	W	Prerequisite: MTH095*, placement by approved measure, or instructor permission
	MTH 111	College Algebra	5	F,W,S,Su	None
	GIS 234	GIS I Intro to Geographic Information Systems	4	W	DRF 112 CAD I
	Choose	Human Relations Elective	3		See Advisor

Term 3	GIS 235	GIS II Data Analysis and Applications	4	S	DRF 112 CAD I
	ENGR 112B	Problem Solving and Technology	1	S	ENGR 112B
	ENGR 245	Engineering Graphics	3	S	MTH 111 Algebra
	MTH112	Elementary Functions	4	F,W,S,Su	GIS 234
	SUR 161	Surveying I	3	S	Co-req MTH 112
	CIV 214	Computer Aided Drafting - Civil 3D Virtual Design	4	S	DRF 112 CAD I

Term 4	CIV 280	Coop. Work Experience	8	F,W,S, Su	None
	WR 227	Technical Report Writing	4	F, W, S, Su	WR 121
	SUR 162	Plane Surveying II	4	F	SUR 161

Term 5	CIV 280	Coop. Work Experience	8	F,W,S, Su	None
	CWE 161	CWE Seminar I	1	F,S	None
	SUR 163	Route Surveying	4	W	SUR 162

Term 6	CIV 280	Coop. Work Experience	8	F,W,S, Su	None
	SUR 242	Land Descriptions & Cadastre	3	S	SUR 161
	SP 111	Fundamentals of Public Speaking	4	F,W,S	None

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**Advising Guide, Civil Engineering & Surveying Technology: Applied Surveying Option, AAS**

<b>Approved Electives</b>	<b>Course Number</b>	<b>Course Number/Title</b>	<b>Credits</b>	<b>Terms</b>	<b>Prerequisites/Notes</b>

<b>Advising Notes</b>	A minimum of 90 credit hours must be completed to receive a Completion Certificate at UCC. If a student places higher than MTH111, student may need to take additional elective courses to graduate with 90 or more hours.
	Engineering Program Approved Electives. Students may benefit by taking more than 96 credit hours and more electives than required for graduation, depending on career and educational goals.

<b>Required/ Recommended Equipment and Software</b>	

**Advising Guide, Civil Engineering & Surveying Technology: Applied Water Quality Option, AAS**

Program Prerequisites: See requirements needed for first term classes.

Possible Term Plan	Course Number	Course Title	Credits	Terms	Prerequisites/Notes
Term 1	ENGR 111	Engineering Orientation I	3	F	MTH 65 Elementary Algebra
	DRF 112	Computer Aided Drafting I	3	F	None
	WR 121	Academic Composition	4	F	Prerequisite: WR115* and RD090* or appropriate placement test scores or placement by multiple measures; and basic computer word processing skills
	GIS 203	Digital World and Geospatial Concepts	4	F	MTH 65 Elementary Algebra

Term 2	ENGR 112A	Problem Solving and Technology	3	W	Prerequisite: ENGR111 or FOR111 or NR201
	MTH111	College Algebra	5	W	Prerequisite: MTH095*, placement by approved measure, or instructor permission
	GIS 234	GIS I Intro to Geographic Information Systems	4	W	None
	DRF 113	Computer Aided Drafting II	3	W	DRF 112 CAD I
	Choose	Human Relations Elective	3	W	See Advisor

Term 3	CIV 214	Computer Aided Drafting- Civil 3D Virtual Design	3	S	DRF 112 CAD I
	ENGR 112B	Problem Solving and Technology	1	S	ENGR 112B
	MTH 112	Elementary Functions	4	S	MTH 111 Algebra
	GIS 235	GIS II Data Analysis and Applications	4	S	GIS 234
	SUR 161	Surveying I	4	S	Co-req MTH 112
	ENG 245	Engineering Graphics	3	S	DRF 112 CAD I

Term 4	WQT 261	Water Distribution	4	F	MTH 052
	WQT 280	Coop. Work Experience- Water Quality Treatment	8	F,W,S, Su	None
	WR 227	Technical Report Writing	4	F,W,S, Su	WR 121

Term 5	WQT 227	Wastewater Treatment	3	W	MTH 052
	WQT 228	Wastewater Collection	3	W	MTH 052
	WQT 280	Coop. Work Experience	8	F,W,S, Su	None
	CWE 161	CWE Seminar I	1	F,S	None

Term 6	WQT 260	Water Treatment	3	S	None
	WQT 280	Coop. Work Experience	8	F,W,S, Su	None
	SP 111	Fundamentals of Public Speaking	4	F,W,S, Su	None

**Advising Guide, Civil Engineering & Surveying Technology: Applied Water Quality Option, AAS**

	Course Number	Course Number/Title	Credits	Terms	Prerequisites/Notes
<b>Approved Electives</b>					

<b>Advising Notes</b>	A minimum of 90 credit hours must be completed to receive a Completion Certificate at OCC. If a student places higher than MTH111, student may need to take additional elective courses to graduate with 90 or more hours.
	Engineering Program Approved Electives. Students may benefit by taking more than 96 credit hours and more electives than required for graduation, depending on career and educational goals.

<b>Required/ Recommended Equipment and Software</b>	