



**AS**

**Engineering  
2022-2023**

**Engineering Transfer**

**93 credits**

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**SUMMARY**

The Engineering, Associate of Science (AS) degree is a transfer program that provides a balanced pre-engineering curriculum to prepare students for transfer to a bachelor's degree program after two-years of college at UCC.

Engineering graduates with bachelor's degrees have the highest average starting salary for 4-year graduates according to the US Bureau of Labor Statistics. There is also a high job demand for graduates with a projected nation-wide, employment growth of 140,000 jobs over the next decade. The high salaries and job demand are because this is a rigorous program with a foundation of high-level mathematics and science, and advanced technologies.

The Engineering, AS degree can include 5 quarters of 200-level calculus, 3 quarters of 200-level calculus-based physics, and 2 quarters of 200-level chemistry courses. In order to complete the Engineering, AS degree in two years, the student must begin their first fall term at college taking MTH251 and CH221. Although it is possible to complete the Engineering, AS degree in two (2) years, the recommendation is that students plan on three (3) years to complete the Engineering, AS degree and be ready for transfer. This will significantly improve student success (completion) and is the expectation at all community colleges and transfer universities.

UCC also has an Engineering Technology track that includes a two-year, Applied Associate of Science (AAS) degree with focus on being job ready in two years. Engineering technicians have some of the highest beginning salaries of graduates from two-year, AAS programs. For students that are interested in the engineering field but with less math and science courses this is an option to consider.

The AS transfer track closely follows the first two years of study of engineering programs at most universities in Oregon. Majors offered at OSU include Architectural Engineering, Electrical and Computer Engineering, Civil Engineering, Construction Engineering Management, Environmental Engineering, Mechanical, Industrial and Manufacturing, and Chemical Engineering, as well as BioMedical, Forest, Geological, Mining, Metallurgical, and Nuclear Engineering. PSU and OIT offer degrees in Civil and Environmental, Mechanical, Manufacturing, Electrical and Computer Engineering. OT also offers majors in Geomatics(Surveying) and Renewable Energy. Many of the core classes taken during the first two years of study are the same for all engineering majors. However, it is important that students work closely with Advisors to develop a custom educational planner for transfer to the university of choice.

**FIRST TERM GUIDE**  
**Engineering, AS**

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.

As noted previously, although it is possible to complete the Engineering, AS degree in two (2) years, the recommendation is that students plan on three (3) years to complete the Engineering, AS degree. Students will require three years to complete the Engineering, AS degree if student: 1) does not begin fall quarter with MTH251 and CH221, 2) is working part-time while attending school, or 3) is student athlete. Students should never begin their first quarter at UCC with CH221, PH211, and a calculus course, even if the student has completed the necessary pre-requisites at high school as dual credit courses. Student success and completion should be the focus of the Academic plan. Core program courses are generally in sequential order, and assume start in fall quarter. If your first term at 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.

	2-Year Plan		3-Year Plan					
<b>First Term Plan</b>	<b>Course Number</b>	<b>Cr</b>	<b>Course Number</b>	<b>Cr</b>				
Term 1(2)	ENGR111	3	ENGR111	3				
	DRF112(3)	3	DRF112	3				
	MTH251(4)	5	Math(1)	4				
	CH221 (5)	5	Writing(1)	4				
		16		14				
(1) Math and writing course depend on placement testing								
(2) Students beginning other than fall quarter should meet with Faculty Advisor and Academic Advisor to develop an Academic Planner in Degree Works prior to beginning first term								
(3) DRF112 can be substituted with CS161, ENGR203, ENGR245, or CH223. See Advisor								
(4) Students that completed MTH251 as dual credit see Advisor for course substitution								
(5) Prerequisite of CH104, CH112, GS105 or instructor approval								

## AS Degree Requirements and Program Electives

Note:

- 90 credits are required to complete an AS degree but additional credits will be required to transfer with junior level status at university
- Program electives are specific to both transfer university specific and branch of engineering. Meet with faculty advisor and Academic advisor during first term to develop Academic plan and enter into Degree Works
- 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
	MTH251	Calculus I	5	F,W	MTH 112
	CH221	General Chemistry	5	F	Corequisite: MTH 111 or higher and Prerequisite: CH 104, CH 112, GS 105, or instructor approval

Term 2	ENGR 112A	Problem Solving and Technology	2	W	Prerequisite: ENGR111 or FOR111 or NR201
	MTH252	Calculus II	4	W,S	MTH 251
	Choose	**Program Elective	4 to 5	W	See Advisor & Approved List Below.
	WR121	English Composition: Intro to Argument	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

Term 3	SP111	Fundamentals of Public Speaking	4	S	None
	ENGR 112B	Problem Solving and Technology	1	S	Prerequisite: ENGR111 or FOR111 or NR201
	Choose	Program Elective	3 to 5	S	See Advisor & Approved List Below.
	Choose	Program Elective	4 to 5	S	See Advisor & Approved List Below.
	Choose	Program Elective	2 to 5	S	See Advisor & Approved List Below.

Term 4	PH211	General Physics w/Calculus	5	F	Corequisite: MTH 252
	Choose	***Social Science Elective	3	F	See Advisor for University Specific Elective
	Choose	Program Elective	4 to 5	F	See Advisor & Approved List Below.
	Choose	Program Elective	4	F	See Advisor & Approved List Below.

Term 5	PH212	General Physics w/ Calculus	5	W	PH211
	Choose	***Arts and Letters Elective	3	W	See Advisor for University Specific Elective
	Choose	Program Elective	4 to 5	W	See Advisor & Approved List Below.
	Choose	Program Elective	4 to 5	W	See Advisor & Approved List Below.

## AS Degree Requirements and Program Electives (continued)

Term 6	WR227	Technical Report Writing	4	F,W,S,Su	WR 121
	Choose	Program Elective	4 to 5	S	See Advisor & Approved List Below.
	Choose	Program Elective	4 to 5	S	See Advisor & Approved List Below.
	Choose	Program Elective	4 to 5	S	See Advisor & Approved List Below.

Select Program Electives based on Engineering Specialty and Transfer University.

See Advisor and UCC Engineering Program Website for Transfer University specific advising guides at <https://www.umpqua.edu/engineering>

Program Electives	Course Number	Course Number/Title	Credits	Terms	Prerequisites/Notes
	BA211	Principles of Accounting I	3	F,W	
	BA212	Principles of Accounting II	3	W,S	Prerequisite: BA211 with a grade of C or better
	BA226	Business Law	3	W,S	
	BI211, 212, 213	Principles of Biology	5, 5, 5	F (BI211), W (BI212), S (BI213)	Prerequisite/Corequisite (BI211): CH104, CH112, CH211); Prerequisite: either BI211, FOR111, or NR 201 AND either CH104, CH112, or CH221 all with a grade of C or better, or instructor approval
	BI231, 233	Human Anatomy and Physiology	4, 4	F,W (BI231); S, Su (BI233)	Prerequisite (BI231): CH104 or CH112); Prerequisite (BI233): BI232
	BI234	Microbiology	4	F,W,S	Prerequisite: CH104, CH112, or CH221, previous course in biology recommended
	CS161	Computer Science I	4	W	Prerequisite: MTH111 or equivalent
	CS162	Computer Science II	4	S	Prerequisite: CS161
	CS260	Data Structures	4	F	Prerequisite: CS162 and MTH111 or higher, or instructor approval
	CH222	General Chemistry II	5	W	Prerequisite: CH221
	CH223	General Chemistry III	5	S	Prerequisite: CH222
	CH241, 242, 243	Organic Chemistry	4, 4, 4	F (CH241), W (CH242), S (CH243)	Prerequisite (CH241): CH223, Prerequisite (CH242): CH241, Prerequisite (CH243): CH242
	CIV214	CAD- Civil3D and Design	3	S	Prerequisite: DRF112
	G221	Environmental Geology	4	F	None
	GIS203	Digital World	4	F	None
	GIS234	GIS I Intro to GIS	4	W	None
	GIS235	GIS II Data Analysis and Apps	4	S	None
	ECON201	Microeconomics	3	W	Recommended, but not required prerequisites: ECON115, WR121, WR122, WR123, and MTH111 or any equivalent courses
	ECON202	Macroeconomics	3	W	Prerequisite: ECON201
ENGR201	Electrical Fund I	4	F	Corequisite: MTH251	
ENGR202	Electrical Fund II	4	W	Corequisite: MTH252	
ENGR203	Electrical Fund III	4	S	Prerequisite: ENGR202	
ENGR211	Statics	4	F	Corequisite: MTH251	
ENGR212	Dynamics	4	W	Prerequisite: ENGR212	
ENGR213	Strength of Materials	4	S	Prerequisite: ENGR211	

**AS Degree Requirements and Program Electives (continued)**

<b>Program Electives Continued</b>	ENGR245	Engineering Graphics	3	S	Prerequisites: CIV112 or DRF112, with a grade of C or better
	ENGR271	Digital Logic- Lecture	3	S	Prerequisite: ENGR201
	ENGR272	Digital Logic- Lab	1	S	Prerequisite: ENGR201
	HPE295	Wellness and Health	3	F,W,S,Su	None
	MFG111	Machine Shop Practice I	3		Prerequisite: MFG108 and MTH052 or MTH060
	MFG112	Machine Shop Practice II	3		Prerequisite: MFG111
	MTH231	Elements of Discrete Mathematics	4	W	Prerequisite: MTH111 or equivalent with a grade of C or better or Instructor permission
	MTH253	Calculus III	4	S	Prerequisite: MTH252 with a grade of C or better or Instructor permission
	MTH254	Vector Calculus I	4	F	Prerequisite: MTH252 with a grade of C or better or Instructor permission
	MTH256	Differential Equations	4	W	Prerequisite: MTH252 with a grade of C or better or Instructor permission
	MTH261	Linear Algebra	2	S	Prerequisite: MTH111 with a grade of C or better or Instructor permission
	MTH265	Statistics for Engineers and Sciences	4	S	Prerequisite: MTH252 with a grade of C or better or Instructor permission
	PH213	Physics III w/ Calculus	5	S	Prerequisite: PH212
	PHL202	Ethics	3	W	None
	SOIL205	Soils Science- Lecture	3	S	None
	SOIL206	Soils Science- Lab	1	S	Prerequisite/Corequisite: SOIL205
	SUR161	Surveying I	4	S	Corequisite: MTH112 with a grade of C or better
	SUR162	Plane Surveying II	4	F	Prerequisite: SUR161 with a grade of C or better
	SUR163	Route Surveying	4	W	Prerequisite: SUR162 with a grade of C or better
	SUR242	Land Description and Cadastre	3	S	Prerequisite: SUR161 with a grade of C or better
	WLD101	Welding Process and App	4		None
	WLD131	Basic Metallurgy	3	F	None
	WR122	Expository Style and Argument	4	F,W,S,Su	Prerequisite: WR121 with a grade of C or better
	OSU	Perspectives- General Ed. Electives	9		
OIT	Humanities- General Ed. Electives	6			
OIT	Social Science- General Ed. Electives	3			

<b>Advising Notes</b>	OSU General Ed requirements include 5 "Perspective" courses, see website info at OSU website. OIT General Ed requirements allow up to 9 cr of Humanities electives and 12 cr of Social Science electives, see articulation agreements
	DRF 112 can be substituted by CS161, CH223, ENGR203, or ENGR245
	Are more hours and more electives than required for graduation, depending on career and educational goals.

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

## University Specific Advising Guides

Advising guides are included on the UCC Engineering webpage for the transfer universities and majors listed below. See Faculty Advisor to develop custom advising guides for other universities and majors.

Link to UCC webpage with University Specific Advising Guides: <https://www.umpqua.edu/engineering>

### OSU

Bioengineering  
Chemical Engineering  
Civil Engineering  
Construction Engineering  
Ecological Engineering  
Electrical & Computer  
Engineering Systems Engineering  
Environmental Engineering  
Forestry Engineering  
Industrial Engineering  
Forest Engineering  
Industrial Engineering  
Manufacturing Engineering  
Mechanical Engineering  
Radiation Health Physics

### Oregon Tech

Civil Engineering  
Electrical Engineering  
Mechanical Engineering  
Renewable Energy Engineering  
Surveying and Geomatics