

ENGINEERING

Engineering Associate of Science

PROGRAM MISSION

The Engineering transfer program provides a balanced pre-engineering curriculum to prepare students for transfer to a bachelor's degree program.

PROGRAM DESCRIPTION

The AS transfer track closely follows the first two years of study for 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. OIT 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 the UCC engineering faculty advisor and UCC Advising and Career Center to develop a custom educational planner for transfer to the university of choice.

PROGRAM OUTCOMES

Students who complete the Engineering Associate of Science will have the knowledge, skills, and abilities to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
3. Demonstrate ability to communicate effectively with a range of audiences
4. Take part in participating on teams whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
5. Develop and utilize appropriate experimentation, analyze and interpret data, and make use of engineering judgment to draw conclusions
6. Discover and make use of new knowledge as needed, using appropriate learning strategies

CAREER CONSIDERATIONS

Engineering is a broad field with more than 20 specialties. Engineering is widely considered as one of the most lucrative and in-demand career choices, with multiple options for engineering disciplines and job types.

PROGRAM COURSE REQUIREMENTS

General Education Requirements

CH 221	Chemistry I	5
MTH 251	Calculus I	5

SP 111	Fundamentals of Public Speaking	4
WR 121	Academic Composition	4
WR 227	Technical Writing	4
Arts & Letters Approved Elective ¹		3
Social Science Approved Elective ¹		3

General Education Subtotal **28**

Program Requirements ²

DRF 112 ³	Computer Aided Drafting (CAD) I	3
ENGR 111	Engineering Orientation I	3
ENGR 112A	Problem Solving & Tech	2
ENGR 112B	Problem Solving & Tech	1
MTH 252	Calculus II	4
PH 211	General Physics w/Calculus	5
PH 212	General Physics w/Calculus	5

Program Requirements Subtotal **23**

Program Specific Electives ²

Arts & Letters ¹		9
Arts & Letters ¹		9
Social Science ¹		6
BA 211	Principles of Accounting I	3
BA 212	Principles of Accounting II	3
BA 226	Business Law	3
BI 211	Principles of Biology	5
BI 212	Principles of Biology	5
BI 213	Principles of Biology	5
BI 231	Human Anatomy & Physiology	4
BI 233	Human Anatomy & Physiology	4
BI 234	Microbiology	4
BI Elective ⁴	BI Elective w/Lab	4
CH 222	General Chemistry II	5
CH 223	General Chemistry III	5
CH 241	Organic Chemistry	4
CH 242	Organic Chemistry	4
CH 243	Organic Chemistry	4
CIV 214	CAD - Civil3D & Design	3
CS 161	Computer Science I	4
CS 162	Computer Science II	4
CS 260	Data Structures	4
G 221	Environmental Geology	4
ECON 201	Microeconomics	4
ECON 202	Microeconomics	4
ENGR 201	Electrical Fund I	4

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ENGR 202	Electrical Fund II	4
ENGR 203	Electrical Fund III	4
ENGR 211	Statics	4
ENGR 212	Dynamics	4
ENGR 213	Strength of Materials	4
ENGR 245	Engineering Graphics	3
ENGR 271	Digital Logic - Lecture	3
ENGR 272	Digital Logic - Lab	1
GIS 203	Digital World	4
GIS 234	GIS I Introduction to GIS	4
GIS 235	GIS II Data Anal & Apps	4
HPE 295	Wellness & Health	3
MFG 111	Machine Shop Practice I	3
MFG 112	Machine Shop Practice II	3
MTH 231	Elements of Discrete Mathematics I	4
MTH 253	Calculus III	4
MTH 254	Vector Calculus I	4
MTH 256	Differential Equations	4
MTH 261	Introduction to Linear Algebra	2
MTH 265	Statistics for Scientists & Engineers	4
PH 213	General Physics w/Calculus	5
PHL 202	Ethics	3
SOIL 205	Soils Science Lecture	3
SOIL 206	Soils Science Lab	1
SUR 161	Surveying I	4
SUR 162	Surveying II	4
SUR 163	Route Surveying	4
SUR 242	Land Description & Cadastre	3
WLD 101	Welding Process & Applications	4
WLD 131	Basic Metallurgy	3
WR 122	Argument, Research, and Multimodal Comp	4

Program Electives, Minimum Subtotal **40**

Following is a tentative listing of courses by year. Note that many of these courses are offered only once each year at UCC (and are Prerequisites for subsequent courses), and students should meet with a UCC Advisor to develop a customized educational planner prior to beginning the program.

Year One

General Education Requirements

CH 221	General Chemistry I	5
MTH 251	Calculus I	5
SP 111	Fundamentals of Public Speaking	4
WR 121	Academic Composition	4

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Core Program Requirements ²

DRF 112 ³	Computer Aided Drafting (CAD) I	3
ENGR 111	Engineering Orientation	3
ENGR 112A	Problem Solving & Technology	2
ENGR 112B	Problem Solving & Technology	1
MTH 252	Calculus II	4

Program Specific Electives ²

Program Elective 1	2-5
Program Elective 2	3-5
Program Elective 3	4-5
Program Elective 4	4-5

Year One Credits (minimum) **45**

Year Two

General Education Requirements

Arts & Letters Approved Elective ¹	3	
Social Science Approved Elective ¹	3	
WR 227	Technical Writing	4

Core Program Requirements

PH 211	General Physics w/Calculus	5
PH 212	General Physics w/Calculus	5

Program Specific Electives ²

Program Elective 5	3-5
Program Elective 6	4-5
Program Elective 7	4-5
Program Elective 8	4-5
Program Elective 9	4-5
Program Elective 10	4-5
Program Elective 11	4-5

Year Two Credits (minimum) **45**

NOTES:

- At least one Arts & Letters elective must be designated as Cultural Diversity. 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
- Program electives (and number of electives) are specific to both the transfer university and engineering major. See Advisor and UCC Advising Guides listed on UCC website at: umpqua.edu/engineering Advising guides can be developed for other majors and transfer universities.
- DRF 112 can be substituted with CS 161, CH 223, ENGR 203 or ENGR 245. See Advisor and advising guide for selected major and transfer university OSU General Ed requirements include a Biological elective plus lab. For some majors the elective is a course requirement. See OSU website.
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