MECHANICAL/CIVIL ENGINEERING, ASSOCIATE OF SCIENCE

The Associate of Science (AS) in Mechanical/Civil Engineering program will provide the first two years of the engineering core curriculum for students pursuing civil or mechanical engineering as a transfer degree. The coursework is foundational to the upper division pro-schools and provides the fundamental concepts needed for success and advancement in the civil and mechanical engineering profession.

This degree satisfies the requirements for an AS degree and was designed to transfer to Oregon Institute of Technology's College of Engineering or Oregon State University's College of Engineering. Please consult your advisor for details.

GRADUATION REQUIREMENTS

Students must complete a minimum of 107 credit hours with a cumulative Grade Point Average (GPA) of 2.0 or better. All courses must be completed with a grade of 'C' or better. Twenty-four (24) credits must be completed at Southwestern before the AS degree is awarded.

Courses that are developmental in nature (designed to prepare students for college transfer courses) are not applicable to this degree.

Students must complete the graduation application process one term prior to the term of completion (e.g., spring term graduates must apply during winter term).

PROGRAM STUDENT LEARNING OUTCOMES

- Students will demonstrate the ability to solve engineering problems using a variety of mathematical and computational methods.
- Students will learn and apply the required ethics expected in a professional engineering setting.
- Students will gain fundamental understanding of engineering principles including fundamentals of equilibrium of forces, and moments, an understanding of material responses to applied and reaction loads, and fundamental electrical circuits.
- Students will demonstrate problem solving experience through various methods including use of higher level computer programming 2-D and 3-D CAD modeling.
- Students will demonstrate an ability to think critically and design feasible solutions to proposed design problems.
- Students will be able to communicate designs and results effectively.
- Students will demonstrate an ability to function in interdisciplinary teams.

Math and writing placement are unique to each student and are determined during the admissions and intake advising process. Additional math or writing courses may be required prior to taking the math or writing program requirements in this degree.

PROGRAM GUIDE

Course	Title	Credits
First Year		
Fall		
CHEM221Z	General Chemistry I	4
CHEM227Z	General Chemistry I Laboratory	1
ENGR111	Intro to Engineering	3
MTH251Z	Differential Calculus	4
WR121Z	Composition I	4
	Credits	**16**
Winter		
CHEM222Z	General Chemistry II	4
CHEM228Z	General Chemistry II Laboratory	1
COMM111Z	Public Speaking	4
MTH252Z	Integral Calculus	4
ENGR112	Engineering Computation	4
	Credits	**17**
Spring		
BI103	General Biology [2]	4
MTH253Z	Calculus: Sequences and Series	4
WR227Z	Technical Writing	4
DRFT110 or DRFT112	Computer Assisted Drafting I or Computer Assisted Drafting III	3
Arts & Letters [1]		3
	Credits	**18**
Summer		
ECON201Z or ECON202Z	Principles of Microeconomics or Principles of Macroeconomics	4
Arts and Letters [1]		3
	Credits	**7**
Second Year		
Fall		
ENGR201	Electrical Fundamentals I [5]	4
ENGR211	Statics	3
MTH254	Vector Calculus I	4
PH211	General Physics with Calculus I	5
	Credits	**16**
Winter		
Cultural Diversity [3]		3
ENGR202	Electrical Fundamentals II [5]	4
ENGR212	Dynamics	3
PE231	Wellness for Life [4]	3
PH212	General Physics with Calculus II	5
	Credits	**18**
Spring		
ENGR213	Strength of Materials	3
MTH260	Matrix Methods and Linear Algebra [6]	4
MTH256	Differential Equations	4

PH213	General Physics with Calculus III	5
	Credits	**16**
	Total Credits	**108**

1 Select appropriate course in specific subject area from the course listed in AS Arts & Letters category.

2 BI101, BI102, BI103, BI221Z, BI222Z, BI223Z, BI234, ENV235, F250 may be substituted. Transfer to OIT for Civil Engineering should substitute G201.

3 Cultural Diversity: ANTH224, ANTH231, ANTH232, or HST104. Must be a Social Science course.

4 PE231, HE250, or three (3) credits of PE185 sport/activity courses will satisfy this requirement.

5 GEOG265 may substitute for ENGR201 for students transferring to OIT Civil Engineering.

6 MTH264 and MTH243A may be substituted for MTH253Z and MTH260. Students transferring to Oregon State in Civil Engineering must take MTH264 and STAT243Z.

7 OIT and PSU transfers should take MTH255 in place of MTH260 and should take MTH253.

8 OSU and OIT Civil Students should take Forest Surveying F222A in place of ENGR202.