

# ELECTRICAL/COMPUTER ENGINEERING, ASSOCIATE OF SCIENCE

The Associate of Science (AS) in Electrical/Computer Engineering degree will provide fundamental engineering skills in circuit analysis and design, computer programming, engineering problem solving, and an understanding of the professional expectations and ethics of engineering. This program provides a two year foundation for transfer into a four year program in electrical or computer engineering. This degree 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 108 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 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).

## 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 a fundamental understanding of electrical concepts and will be able to apply analysis techniques to electric circuits of varying complexity.
- Students will gain familiarity with transient analysis of circuits with time varying voltage and/or current sources including Fourier and Laplace analysis.
- Students will design and test electric circuits for practical applications.
- Students will be able to communicate designs and results effectively.
- Students will demonstrate an ability to function in interdisciplinary teams.

## PRE-PROGRAM COURSES

Students are required to take the following courses *prior to* the program courses, depending on students' college placement information. See advisor for details:

Code	Title	Credits
MTH112	Trigonometry (or higher)	4
CS160	Computer Science Orientation (or higher)	4
WR90R	Academic Literacy (or higher)	4

## PROGRAM GUIDE

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
CHEM221	General Chemistry I	5
MTH251	Calculus I Differential Calculus	4
WR121	English Composition	4
Arts & Letters <sup>1</sup>		3
Credits		16
<b>Winter</b>		
MTH252	Calculus II Integral Calculus	4
ENGR112	Engineering Computation	4
SP111	Fundamentals of Public Speaking	3
CS161	Introduction to Computer Science I <sup>5</sup>	4
Social Science <sup>1</sup>		3
Credits		18
<b>Spring</b>		
BI103	General Biology <sup>2</sup>	4
MTH253	Calculus III Infinite Sequences And Series	4
WR227	Report Writing	4
CS162	Introduction to Computer Science II	4
Cultural Diversity <sup>3</sup>		3
Credits		19
<b>Second Year</b>		
<b>Fall</b>		
MTH254	Vector Calculus I	4
PH211	General Physics with Calculus I	5
CS261	Data Structures	4
ENGR201	Electrical Fundamentals I	4
Credits		17
<b>Winter</b>		
MTH255	Vector Calculus II	4
PH212	General Physics with Calculus II	5
ENGR202	Electrical Fundamentals II	4
PE231	Wellness for Life <sup>4</sup>	3
Arts & Letters <sup>1</sup>		3
Credits		19
<b>Spring</b>		
MTH260	Matrix Methods and Linear Algebra	4
PH213	General Physics with Calculus III	5
ENGR203	Electrical Fundamentals III	4
MTH256	Differential Equations	4
Credits		17
Total Credits		106

<sup>1</sup> Select appropriate course in specific subject area from the course listed in AS Social Science category.

<sup>2</sup> BI101, BI102, BI103, BI201, BI202, BI203, BI234, ENV235, F250 may be substituted. Transfer to OIT for Civil Engineering should substitute G201.

- <sup>3</sup> Cultural Diversity: ANTH224, ANTH231, ANTH232, HST104, HUM204, HUM205, HUM206 will satisfy this requirement.
- <sup>4</sup> PE231, HE250, or three (3) credits of PE185 sport/activity courses will satisfy this requirement.
- <sup>5</sup> CS161 may require instructor consent to register, talk to your advisor for details.
- \* All Honors courses may substitute for their equivalent requirements.