

# MECHANICAL ENGINEERING EMPHASIS, AS - WITH PORTLAND STATE UNIVERSITY

Program Code: AS.PSUMECHENGR

The Associate of Science with an emphasis in Engineering is for students interested in transferring a bachelor's degree to Portland State University, Oregon State University, Oregon Tech (Oregon Institute of Technology) or George Fox University.

For information contact Eric Lee, 503-594-6163 or [elee@clackamas.edu](mailto:elee@clackamas.edu)

## Outcomes

### Program Outcomes

Upon successful completion of this program, students should be able to:

- apply the fundamental elements of engineering design;
- employ mathematics, science, and computing techniques in a systematic and rigorous manner to support the study and solution of engineering problems;
- conduct and document laboratory experiments in the sciences and engineering, effectively communicating determined quantitative relationships using both graphs and equations;
- exhibit good teamwork skills and serve as effective members of laboratory and project teams;
- articulate and justify technical solutions to an audience through oral, written, and graphical communication.

## Requirements

Course	Title	Credits
<b>First Year</b>		
<b>Fall Term</b>		
CH-221	General Chemistry	5
ENGR-111	Introduction to Engineering	3
MTH-251	Calculus I	5
WR-121	English Composition	4
<b>Credits</b>		<b>17</b>
<b>Winter Term</b>		
CH-222	General Chemistry	5
ENGR-112	Engineering Programming	3
ENGR-231	Properties of Materials	4
MTH-252	Calculus II	5
<b>Credits</b>		<b>17</b>
<b>Spring Term</b>		
COMM-111	Public Speaking	4
ENGR-115	Engineering Graphics	3
MTH-254	Vector Calculus	5
Select one of the following:		4
<a href="#">Arts &amp; Letters Elective (p. 1)</a>		

Course	Title	Credits
<a href="#">Social Science Elective (p. 1)</a>		
<b>Credits</b>		<b>16</b>
<b>Second Year</b>		
<b>Fall Term</b>		
ENGR-211	Statics	4
MTH-261	Linear Algebra	4
PH-211	General Physics With Calculus	5
<a href="#">Arts &amp; Letters Elective (p. 1)</a>		4
<b>Credits</b>		<b>17</b>
<b>Winter Term</b>		
ENGR-212	Dynamics	4
MTH-256	Differential Equations	4
PH-212	General Physics With Calculus	5
<a href="#">Social Science Elective (p. 1)</a>		4
<b>Credits</b>		<b>17</b>
<b>Spring Term</b>		
ENGR-201	Electrical Fundamentals	4
ENGR-213	Strength of Materials	4
PH-213	General Physics With Calculus	5
Select one of the following:		3-4
<a href="#">Arts &amp; Letters Elective (p. 1)</a>		
<a href="#">Social Science Elective (p. 1)</a>		
<b>Credits</b>		<b>16-17</b>
<b>Total Credits</b>		<b>100-101</b>

## Arts & Letters Electives

All courses in [ASL](#), [COMM](#), [ENG](#), [FR](#), [GER](#), [HUM](#), [PHL](#), [SPN](#), [WR](#). Note that native speakers should only take advanced (300 level or above) world language courses.

Non-performance based courses in art, journalism, music, and theater also meet this requirement:

Code	Title	Credits
ART-101	Art Appreciation	3
ART-205	History of Art/Romanesque Through Baroque	4
ART-206	History of Art/Enlightenment Through Contemporary	4
J-211	Mass Media & Society	4
MUS-105	Music Appreciation	3
MUS-141	Introduction to the Music Business	3
MUS-205	Music Literature: History of Jazz	4
MUS-206	Music Literature: History of Rock	4
MUS-230	Music and Media: Sex, Drugs, Rock & Roll	4
TA-101	Appreciation of Theatre	4
TA-102	Appreciation of Theatre	4

## Social Science Electives

All courses in [ANT](#), [EC](#), [GEO](#), [HST](#), [PS](#), [PSY](#), [SOC](#), [SSC](#), and [WS](#)

## Optional

While not required for the AS degree, mechanical engineering students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Portland State University.

Additional courses include (1) One additional Arts & Letters or Social Science elective and (2) Approved Science Elective: Any minimum 4 credit course from **BI**, **CH**, **ESR**, **GEO**, or **PH**.