

ENERGY SYSTEMS ENGINEERING EMPHASIS, AS - WITH OREGON STATE UNIVERSITY

Program Code: AS.OSUENERGYSYS

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

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
First Year		
Fall Term		
CH-221	General Chemistry	5
ENGR-111	Introduction to Engineering	3
MTH-251	Calculus I	5
WR-121	English Composition	4
Credits		17
Winter Term		
CH-222	General Chemistry	5
ENGR-112	Engineering Programming	3
MTH-252	Calculus II	5
Credits		13
Spring Term		
COMM-111	Public Speaking	4
EC-201	Principles of Economics: MICRO	4
MTH-254	Vector Calculus	5
WR-227	Technical Report Writing	4
Credits		17

Course	Title	Credits
Summer Term		
MTH-256	Differential Equations	4
Credits		4
Second Year		
Fall Term		
BA-211	Financial Accounting	4
ENGR-211	Statics	4
ENGR-221	Electrical Circuit Analysis I	4
PH-211	General Physics With Calculus	5
Credits		17
Winter Term		
ENGR-212	Dynamics	4
ENGR-222	Electrical Circuit Analysis II	4
PH-212	General Physics With Calculus	5
Credits		13
Spring Term		
PH-213	General Physics With Calculus	5
Engineering Electives (p. 1)		3-4
Literature and the Arts Electives (p. 2)		3-4
Western Culture Electives (p. 1)		4
Credits		15-17
Total Credits		96-98

Engineering Electives

Code	Title	Credits
ENGR-115	Engineering Graphics	3
ENGR-213	Strength of Materials	4
ENGR-223	Electrical Circuit Analysis III	4

Western Culture Electives

Code	Title	Credits
ART-204	History of Art/Ancient Through Medieval	4
ART-205	History of Art/Romanesque Through Baroque	4
ART-206	History of Art/Enlightenment Through Contemporary	4
ENG-107	World Literature: Ancient Through Classical Times	4
ENG-108	World Literature: Early Middle Ages through the 18th Century	4
ENG-109	World Literature: The 19th through 21st Centuries	4
ENG-201	Shakespeare	4
ENG-202	Shakespeare	4
ENG-204	British Literature: Ancient to Enlightenment	4
ENG-205	British Literature: Romantic to Contemporary	4
ENG-250	Greek Mythology	4
ENG-251	Celtic Mythology	4
ENG-253	American Literature: Pre-Columbian to Civil War	4
ENG-254	American Literature: 1865 to Present	4
ENG-255	American Literature: Topics in American Literature	4
GEO-208	Geography of the United States & Canada	4
HST-101	History of Western Civilization	4
HST-102	History of Western Civilization	4

Code	Title	Credits
HST-103	History of Western Civilization	4
HST-132	History of Language and the Written Word in Western Civilization	4
HST-201	History of the United States	4
HST-202	History of the United States	4
HST-203	History of the United States	4
PHL-102	Ethics	4
R-204	History of Christianity	4

Literature and the Arts Electives

Code	Title	Credits
ART-101	Art Appreciation	3
ART-204	History of Art/Ancient Through Medieval	4
ART-205	History of Art/Romanesque Through Baroque	4
ART-206	History of Art/Enlightenment Through Contemporary	4
ENG-104	Introduction to Literature: Fiction	4
ENG-105	Introduction to Literature: Drama	4
ENG-106	Introduction to Literature: Poetry	4
ENG-107	World Literature: Ancient Through Classical Times	4
ENG-108	World Literature: Early Middle Ages through the 18th Century	4
ENG-109	World Literature: The 19th through 21st Centuries	4
ENG-194	Introduction to Film	4
ENG-195	American Film	4
ENG-201	Shakespeare	4
ENG-202	Shakespeare	4
ENG-204	British Literature: Ancient to Enlightenment	4
ENG-205	British Literature: Romantic to Contemporary	4
ENG-213	U.S. Latino Literature	4
ENG-241	Norse Mythology	4
ENG-250	Greek Mythology	4
ENG-251	Celtic Mythology	4
ENG-252	Hindu Mythology	4
ENG-253	American Literature: Pre-Columbian to Civil War	4
ENG-254	American Literature: 1865 to Present	4
ENG-255	American Literature: Topics in American Literature	4
ENG-260	Introduction to Women Writers	4
ENG-270	Introduction to Literary Criticism	4
MUS-105	Music Appreciation	3
MUS-205	Music Literature: History of Jazz	4
MUS-206	Music Literature: History of Rock	4

Optional

While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

Cultural Diversity Electives

Code	Title	Credits
ANT-231	Native Americans of the Pacific Northwest	4
ANT-232	Native Americans of North America	4
ENG-213	U.S. Latino Literature	4
ENG-252	Hindu Mythology	4
R-101	Judaism and Foundations of Religion	4
R-102	Christianity and Islam	4
R-103	Asian Religions	4
R-210	World Religions	4

Difference, Power, and Discrimination Electives

Code	Title	Credits
HST-201	History of the United States	4
HST-202	History of the United States	4
HST-203	History of the United States	4
SOC-225	Social Problems	4

Biological Science Electives

Code	Title	Credits
BI-101	General Biology; Cellular Biology	4
BI-102	General Biology; Animal Systems	4
BI-103	General Biology; Plants & the Ecosystem	4
BI-175	Integrated Science Inquiry	4
BI-176	Integrated Science Inquiry	4
BI-177	Integrated Science Inquiry	4
BI-204	Elementary Microbiology	4
BI-211	General Biology for Science Majors (Cellular Biology)	5
BI-212	General Biology for Science Majors (Animal Biology)	5
BI-213	General Biology for Science Majors (Plant Biology & Ecology)	5
BI-234	Introductory Microbiology	4
ESR-171	Environmental Science	4
ESR-172	Environmental Science	4
ESR-173	Environmental Science	4
Z-201	General Zoology	4
Z-202	General Zoology	4
Z-203	General Zoology	4

Physical Education Electives

Code	Title	Credits
HPE-295	Health & Fitness for Life	3