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**AS Degree, Engineering OSU Industrial for 2018-2019 Catalog**


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**AS Degree, Engineering OSU Industrial-FIRST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>QUARTER</b>
COMM-111	Public Speaking	4	Prerequisites: WRD-090 or placement in RD-115; WRD-098 or placement in WR-121	Fall/Win/Spr/ Summer
ENGR-111	Introduction to Engineering	3	Prerequisite or Corequisite: MTH-112 or higher	Fall/Winter/ Spring
MTH-251	Calculus I	5	Prerequisite: MTH-112 with a C or better or placement in MTH-251. Recommended: WRD-098 or placement in WR-121	Fall/Win/Spr/ Summer
WR-121	English Composition	4	Prerequisite: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115	Fall/Win/Spr/ Summer
<b>WINTER TERM</b>				
CH-221	General Chemistry	5	Prerequisites: A year of high school chemistry or CH-150, or CH-104 and CH-105; MTH-095 with a C or better, or placement in MTH-105 or MTH-111	Fall/Winter
ENGR-112	Engineering Programming	3	Prerequisite or Corequisite: MTH-112 or higher	Fall/Winter/ Spring
MTH-252	Calculus II	5	Prerequisite: MTH-251 with a C or better. Recommended: WRD-098 or placement in WR-121	Fall/Win/Spr/ Summer
<b>SPRING TERM</b>				
CH-222	General Chemistry	5	Prerequisite: CH-221	Winter/ Spring
ENGR-115	Engineering Graphics	3	Prerequisite or Corequisite: MTH-112 or higher	Spring
MTH-254	Vector Calculus	5	Prerequisite: MTH-252 with a C or better	Fall/Spring/ Summer
WR-227	Technical Report Writing	4	Prerequisite: WR-121 with a C or better. Recommended: WRD-090 or placement in RD-115	Fall/Win/Spr/ Summer
<b>SUMMER TERM</b>				
MTH-256	Differential Equations	4	Prerequisite: MTH-252 with a C or better	Winter/Sprin g/Summer
Social Processes elective	Social Processes elective	4		

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**AS Degree, Engineering OSU Industrial-SECOND YEAR**


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<b>FALL TERM</b>		<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>QUARTER</b>
ENGR-211	Statics	4	Prerequisite: MTH-252. Corequisite: PH-211	Fall
PH-211	General Physics with Calculus	5	Prerequisites: MTH-251 with a C or better or placement in MTH-252 and WRD-090 with a C or better or placement in RD-115, or placement in WR-121. Recommended: MTH-254	Fall
Western Culture elective	Western Culture elective	4		

**WINTER TERM**

ENGR-212	Dynamics	4	Prerequisite: ENGR-211 and PH-211	Winter
MTH-253	Calculus III	5	Prerequisite: MTH-252 with a C or better; Recommended: WRD-098 or placement in WR-121	Fall/Winter/Spring
PH-212	General Physics with Calculus	5	Prerequisites: PH-211 and MTH-252. Recommended: MTH-254	Winter

**SPRING TERM**

ENGR-213	Strength of Materials	4	Prerequisite: ENGR-211	Spring
ENGR-221	Electrical Circuit Analysis	4	Prerequisite: MTH-252	Fall/Spring
PH-213	General Physics with Calculus	5	Prerequisite: PH-212	Spring

**SUMMER TERM**

ST-314	Introduction to Statistics for Engineers	3	Consult OSU	Consult OSU
IE-212	Computational Methods for Industrial Engineering	4	Consult OSU	Consult OSU

Courses in green are the requirements for entry into the professional program. Courses in yellow are not required for entry into the professional program, but are prerequisites for upper division classes. Failure to complete highlighted courses before transfer may delay students from on-time graduation.

**OSU Industrial Engineering- THIRD YEAR**

FALL		WINTER		SPRING	
IE-355	4	IE-356	4	Restricted Elective	4
IE-367	4	IE-368	4	Cultural Diversity Elective	3
MATS-321	4	IE-366	4	ENGR-390	3
Restricted Elective	4	MFGE-336	4	Physical Education Elective	3
IE-255	3			Restricted Elective	3

**OSU Industrial Engineering - FOURTH YEAR**

FALL		WINTER		SPRING	
IE-425	4	IE-415	4	Restricted Elective	3
IE-412	4	Restricted Elective	3	Synthesis Elective	3
IE-497	4	IE-426	4	Synthesis Elective	3
Restricted Elective	3	IE-498	4	Difference, Power & Discmin	3
		Literature and Arts Elective	3	Biological Science Elective	4

**Transfer Timeline for OSU**

Step 1	Apply for Admission to Oregon State University	Deadlines: December 15 if planning to applying for scholarships at OSU, February 1 when not applying for scholarships
Step 2	Apply for Scholarships at Oregon State University	Deadline: February 1
Step 3	Petition for Graduation from Clackamas CC	Winter Quarter (two terms before graduation)
Step 4	Apply to MECOP program	Application Period: March 1-March 31
Step 5	Apply for Admission to the Professional program at Oregon State University	Deadlines: May 1 for Summer admission, August 1 for Fall admission, November 1 for Winter admission. The minimum GPA requirement for entry to the professional program is announced at the beginning of August for upcoming Spring, Summer, and Fall terms.

**Foreign Language:** In addition to the general education requirements, graduates of OSU must satisfy a foreign language proficiency requirement. Most students will meet the foreign language requirement by a) having completed two years of the same foreign language at the high school level b) completing two terms of a foreign language at a college or university, or c) demonstrating proficiency in a language that they already know. Clackamas offers language classes in American Sign Language, French, German, and Spanish that satisfy this requirement. Students who graduated from high school before 1997 are exempt from this requirement. Students do not need to meet this requirement before transfer, but they must complete it before receiving a bachelor's degree.

#### **Additional Coursework**

It is recommended that students take ST-314 Introduction to Statistics for Engineers at OSU in Corvallis during the summer after the second year at Clackamas because most of the upper level industrial engineering courses require it as a prerequisite. IE-212 Computational Methods for Industrial Engineering is optional as a summer class but will prepare students for the senior year courses in pro school. Otherwise, take IE-212 at some point during the junior year.

#### **Social Processes Electives:**

ANT-103 Cultural Anthropology, EC-201 Principles of Economics: MICRO, EC-202 Principles of Economics: MACRO, EC-230 not listed in catalog, HST-101 or HST-102 or HST-103 History of Western Civilization, PS-201 American Government & Politics, PS-202 not listed in catalog, PS-204 Introduction to Comparative Politics, PS-205 International Relations, PS-225 Introduction to Political Ideologies, PSY-110 Psychology: An Overview, PSY-200 Psychology as a Natural Science, PSY-205 Psychology as a Social Science, PSY-219 Introduction to Abnormal Psychology, PSY-231 Introduction to Human Sexuality, SOC-204 Introduction to Sociology, SOC-205 Social Stratification and Social Systems, SOC-206 Institutions and Social Change

**Western Culture Electives:** ART-204 or ART-205 or ART-206 History of Western Art, ENG-107 World Literature: Ancient, ENG-108 World Literature: Medieval- Enlightenment, ENG-109 World Literature: Romantic-Modern, ENG-201 or ENG-202 Shakespeare, ENG 203 not in catalog, ENG-204 Survey of English Literature: Part 1, ENG-205 Survey of English Literature: Part 2, ENG-250 Greek Mythology, ENG-251 Celtic Mythology, ENG-253 American Literature: Part 1, ENG-254 American Literature: Part 2, ENG-255 American Literature, ENG-275 not in catalog, GEO-122 Regional Geography Developed World, GEO-208 Geography of the U.S. & Canada, GEO 230 not in catalog, HST-101 or HST-102 or HST-103 History of Western Civilization, HST-201 or HST-202 or HST-203 History of the USA, PHL-102 Ethics, PHL-215 History of Western Philosophy, PS-206 Introduction to Political Theory, R-204 History of Christianity

**Optional:** While not required for the A.S. 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.

**Biological Science Elective:** ASC-200 or ASC-201 or ASC-202 not in catalog, BI-101 General Biology-Cellular Biology, BI-102 General Biology-Animal Systems, BI-103 General Biology-Plants and the Ecosystem, BI-204 Elementary Microbiology, BI 211 General Biology for Science Majors-Cellular, BI-212 General Biology for Science Majors-Animal, BI-213 General Biology for Science Majors-Plant and Ecology, BI-234 Introductory Microbiology, ESR-171 or ESR-172 or ESR 173 Environmental Science, Z-201 General Zoology, Z-212 not in catalog, Z-203 General Zoology

**Cultural Diversity Elective:** ANT-231 Indians of the Pacific Northwest, ANT-230 not in catalog, ANT-232 Indians of North America, ENG-210 not in catalog, ENG-213 U.S. Latino Literature, ENG-252 Hindu Mythology, GEO-110 Cultural & Human Geography, GEO-121 Regional Geography Developing World, GEO 230 not in catalog, R-101 or R-102 or R-103 Comparative Religions, R-210 World Religions

**Difference, Power, and Discrimination Elective:** HST-201 or HST-202 or HST-203 History of the USA, SOC-225 Social Problems

**Literature and Arts Elective:** ART-101 or ART-102 or ART-103 Art Appreciation, ART-204 or ART-205 or ART-206 History of Western Art, ART-211 not in catalog, ART-212 not in catalog, ART-213 not in catalog, DMC-194 Introduction to Film, ENG-104 Introduction to Literature: Fiction, ENG-105 Introduction to Literature: Drama, ENG-106 Introduction to Literature: Poetry, ENG-107 World Literature: Ancient, ENG-108 World Literature: Medieval-Enlightenment, ENG-109 World Literature: Romantic-Modern, ENG-194 Introduction to Film, ENG-195 American Film, ENG-201 or ENG-202 Shakespeare, ENG 203 not in catalog, ENG-204 Survey of English Literature: Part 1, ENG-205 Survey of English Literature: Part 2, ENG-213 U.S. Latino Literature, ENG-250 Greek Mythology, ENG-251 Celtic Mythology, ENG-252 Hindu Mythology, ENG-253 American Literature, Part 1, ENG-254 American Literature, Part 2, ENG-255 American Literature, ENG-260 Introduction to Women Writers, ENG-275 not in catalog, MUS-105 Music Appreciation, MUS-205 Music Literature: History of Jazz, MUS-206 Music Literature: History of Rock

**Physical Education Elective:** HPE-295 Health & Fitness for Life