ELECTRICAL ENGINEERING TRANSFER, AS
OIT ADVISING GUIDE

Prerequisites and Course Availability per Term

(for complete information, see 2016-2017 UCC Catalog) **REVISED 10/26/16**

	UCC Course No.	UCC Course Name	Term Offered F	W	S	S	Credits	Prerequisites/Notes		OIT Course No.	Credits
Term 1	CH 221	General Chemistry I /Lec/Lab/Rec	x				5	MTH 111		CH 201 / CH 204	4
	ENGR 111	Engineering Orientation I	x				3	MTH 65		UCC ENGR 111 + ENGR 112 = OIT ENGR 101+ ENGR 102	4
	MTH 251	Calculus I	x	x			5	MTH 112		MTH 251	4
	SP 111	Public Speaking	x	x	x		4	WR 095		SPE 111	3
									17		
Term 2	ENGR 112	Engineering Orientation II		x			3	ENGR 111		UCC ENGR 111 + ENGR 112 = OIT ENGR 101+ ENGR 102. See note above for ENGR 111	0
	CH 222	General Chemistry II /Lec/Lab/Rec		x			5	CH 221		CH 202/CH 205	4
	MTH 252	Calculus II		x	x		4	MTH 251		MTH 252	4
	CS 161	Computer Science I		x			4	CS 160 or MTH 111	16	CST 116	4
Term 3	Social Science	Social Science Elective	x	x	x	x	3			Social Science Elective	3
	Humantities	Humanities Elective	x	x	x	x	3			Humanities Elective	3
	MTH 253	Calculus III			x		4	MTH 252		MTH 253N	4
	MTH 261	Linear Algebra			x		2	MTH 111 Algebra		UCC recommendation	0
	Humanities or Social Science	Humanities or Social Science Elective	x	x	x	x	3			Humanities or Social Science Elective	3
									15		
Summer											
Term 4											
	ENGR 201	Electrical Fundamentals I	x				4	MTH 251 Co-requisite		EE 221	4
	MTH 254	Vector Calculus I	x				4	MTH 252		MTH 254N	4
	PH 211	Physics I w/Calculus	x				5	MTH 251 Co-requisite		PH 221	4
	WR 121	English Composition: Intro to Argument	x	x	x	x	4	WR 115 or Placement Test		WR 121	3
									17		
Term 5											
	ENGR 202	Electrical Fundamentals II		x			4	ENGR 201		EE 223	4
	MTH 256	Differential Equations		x			4	MTH 252		MTH 256	4
	PH 212	Physics II w/Calculus		x			5	PH 211		PH 222	4
	WR 122	English Composition: Style & Argument	x	x	x	x	4	WR 121	17	WR 122	3
Term 6											
	ENGR 203	Electrical Fundamentals III		x			4	ENGR 202		EE 225	4
	ENGR 271	Digital Logic Design - Lecture		x			3	ENGR 202		UCC ENGR 271 + ENGR 271 = OIT EE 131	4
	ENGR 272	Digital Logic Design - Lab		x			1	ENGR 202		UCC ENGR 271 + ENGR 271 = OIT EE 131. See note above.	0
	PH 213	Physics III w/Calculus			x		5	PH 212		PH 223	4
	WR 227	Technical Report Writing	x	x	x	x	4	WR 121	17	WR 227	3
TOTAL DEGREE CREDITS							99				85

*A grade of "C" or better is required in all courses.

Program Advisor:

NOTES:

1. Three Humanities Electives and Two Social Science Electives can be taken at UCC. One Humanities Elective must study literature. See UCC/OIT Articulation Agreement
2. See UCC/OIT Articulation Agreement for other courses that can be taken at UCC and for courses that will be taken at OIT

Umpqua Community College
Engineering Transfer Program

to

Oregon Institute of Technology
Bachelor of Science in Electrical Engineering

Articulation Agreement
2016 - 2017 Catalog

It is agreed that students transferring from Umpqua Community College's (UCC) Engineering Transfer program to Oregon Institute of Technology's (Oregon Tech) Bachelor of Science in Electrical Engineering (BSEE) will be given credit for courses as specified below. This agreement is based on the evaluation of the rigor and content of the general education and technical courses at both UCC and Oregon Tech and is subject to a yearly reevaluation by both schools for continuance. This agreement is dated October 23, 2016.

Baccalaureate students must complete a minimum of 60 credits of upper-division work before a degree will be awarded. Upper-division is defined as 300-and 400-level classes at a bachelor's degree granting institution. Baccalaureate students at Oregon Tech must complete 45 credits from Oregon Tech before a degree will be awarded.

Students are responsible for notifying the Oregon Tech Admissions and Registrar's Office when operating under an articulation agreement to ensure their credits transfer as outlined in this agreement. In order to utilize this agreement students must be attending Umpqua Community College during the above catalog year. Students must enroll at Oregon Tech within three years of this approval.

By_____
Clay Baumgartner
Department Chair
Umpqua Community College

By_____
Marla R. Edge
Director, Academic Agreements
Oregon Institute of Technology

By_____
Jesse Morrow
Dean, Career and Technology Education
Umpqua Community College

By_____
Wendy Ivie
University Registrar
Oregon Institute of Technology

By_____
David Farrington
Director of Enrollment Services/Registrar
Umpqua Community College

By_____
Cristina Crespo, Chair
Electrical Engineering and
Renewable Energy Engineering
Oregon Institute of Technology

Courses Required for Oregon Tech's Electrical Engineering Degree to be taken at UCC.

Umpqua Community College Course Number & Title	Qtr. Units	Oregon Institute of Technology Course Number & Title	Qtr. Units
CH 221 General Chemistry	5	CHE 201/204 General Chemistry and Lab	4
CH 222 General Chemistry	5	CHE 202/205 General Chemistry and Lab	4
ENGR 111 Engineering Orientation I ENGR 112 Engineering Orientation I	3 3	ENGR 101 Introduction to Engineering I ENGR 102 Introduction to Engineering II	2 2
CS 161 Computer Science I	4	CST 116 C++ Programming I	4
ENGR 201 Electrical Fundamentals I	4	EE 221 Circuits I	4
ENGR 202 Electrical Fundamentals II	4	EE 223 Circuits II	4
ENGR 203 Electrical Fundamentals III	4	EE 225 Circuits III	4
ENGR 271 Digital Logic Design ENGR 272 Digital Logic Design Lab	3 1	EE 131 Digital Electronics I	4
Humanities electives [3]	3	Humanities electives [3]	3
Social Science electives[4]	6	Social Science electives[4]	6
MTH 251 Calculus I	5	MATH 251 Differential Calculus	4
MTH 252 Calculus II	4	MATH 252 Integral Calculus	4
MTH 253 Calculus III	4	MATH 253N Sequences and Series	4
MTH 254 Vector Calculus I	4	MATH 254N Vector Calculus I	4
MTH 256 Differential Equations	4	MATH 321 Applied Differential Equations I [2]	4
MTH 261 Linear Algebra	2	General elective (Does not count toward BS in Electrical Engineering) [1]	--
PH 211 General Physics w/Calculus	5	PHY 221 General Physics with Calculus	4
PH 212 General Physics w/Calculus	5	PHY 222 General Physics with Calculus	4
PH 213 General Physics w/Calculus	5	PHY 223 General Physics with Calculus	4
SP 111 Fundamentals of Public Speaking	4	SPE 111 Public Speaking	3
WR 121 English Composition: Intro to Argument	4	WRI 121 English Composition	3
WR 122 English Composition: Style and Argument	4	WRI 122 Argumentative Writing	3
WR 227 Technical Report Writing	4	WRI 227 Technical Report Writing	3
Total UCC Credits [1]	**99**	**Total Articulated Degree Credits**	**85**

Courses required for Oregon Tech's Bachelor of Science in Electrical Engineering and can be taken at either UCC or Oregon Tech.

Umpqua Community College Course Number & Title	Qtr. Units	Oregon Institute of Technology Course Number & Title	Qtr. Units
Humanities elective	6	Humanities elective	6
Social Science elective	6	Social Science elective	6
SP 219 Small Group Discussion	3	SPE 321 Small Group and Team Communication [2]	3
Additional UCC Credits [1]	**15**	**Additional Oregon Tech Credits**	**15**
Total Articulated Credits [1]	**114**	**Total Articulated Degree Credits**	**100**

In addition to the above courses, the courses listed below are also required for the Bachelor of Science in Electrical Engineering and are offered only by Oregon Tech.

Oregon Institute of Technology Course Number & Title	Qtr. Units
EE 133 Digital Electronics II	4
EE 321 Electronics I	5
EE 323 Electronics II	5
EE 331 Digital System Design with HDL	4
EE 333 Microcontroller Engineering	4
EE 335 Advanced Microcontroller Engineering	4
EE 341 Electricity & Magnetism with Transmission Lines	4
EE 343 Solid-State Electronic Devices	3
EE 355 Control System Design	4
EE 401 Communication Systems	5
EE 430 Linear Systems & Digital Signal Processing	5
ENGR 267 Advanced Engineering Programming	3
ENGR 465 Capstone Project	6
Engineering Elective (EE 3XX, EE 4XX, REE 3XX, REE 4XX or other approved electives by advisor and chair)	14
MATH 341 Linear Algebra I	4
MATH 465 Mathematical Statistics	4
MGT 345 Engineering Economy	3

Writing Elective and choose from the following: WRI 327 Advanced Technical Writing WRI 350 Documentation Development WRI 410 Proposal and Grant Writing	3
Additional Oregon Tech Credits [5]	**84**
Total Degree Credits [6]	**184**

1. Excess credits will transfer to Oregon Tech as general elective credit; these credits will not be used toward the Bachelor of Science in Electrical Engineering Degree.
2. Does not count toward 60 upper-division credit requirement
3. Students must take 9 credits of Humanities Electives. However, only 3 humanities credits can be studio/performance based Choose from ART, ENG, FA, MUS, PHL, and R prefixes or other courses designated as Humanities Electives by the Oregon Tech Registrar's Office.
4. Twelve credits of Social Science Electives are required. Choose from ANTH, ECON, HST, PS, PSY, and SOC prefixes or other courses designated as Social Science Electives by the Oregon Tech Registrar's Office.
5. Baccalaureate students must complete a minimum of 60 credits of upper-division work before a degree will be awarded. Upper-division is defined as 300- and 400-level classes at a bachelor's degree granting institution and 45 credits must be from Oregon Tech.
6. Oregon Tech's Bachelor of Science in Electrical Engineering requires 184 total credits.

Bachelor of Science in Electrical Engineering

Curriculum Klamath Falls Campus

Required courses and recommended terms during which they should be taken:

Freshman Year		Fall
CHE 201	General Chemistry I*	3
CHE 204	General Chemistry I Laboratory*	1
ENGR 101	Introduction to Engineering I	2
MATH 251	Differential Calculus	4
SPE 111	Public Speaking	3
Total		**13**

Freshman Year		Winter
CHE 202	General Chemistry II*	3
CHE 205	General Chemistry II Laboratory*	1
ENGR 102	Introduction to Engineering II	2
MATH 252	Integral Calculus	4
PHY 221	General Physics with Calculus	4
EE 131	Digital electronics ii	4
Total		**18**

Freshman Year		Spring
EE 133	Digital Electronics Ii	4
MATH 254N	Vector Calculus I	4
PHY 222	General Physics with Calculus	4
WRI 121	English Composition	3
Total		**15**

Sophomore Year		Fall
EE 221	Circuits I	4
PHY 223	General Physics with Calculus	4
WRI 122	Argumentative Writing	3
	Social Science Elective	3
Total		**11**

Sophomore Year		Winter
CST 116	C++ Programming I	4
EE 223	Circuits II	4
MATH 321	Applied Differential Equations I	4
MATH 341	Linear Algebra I	4
Total		**16**

Sophomore Year		Spring
EE 225	Circuits III**	4
MATH 253N	Sequences and Series	4
WRI 227	Technical Report Writing	3
	Humanities Elective	3
	Social Science Elective	3
Total		**17**

Junior Year		Fall
EE 321	Electronics I	5
EE 331	Digital System Design with HDL	4
EE 341	Electricity and Magnetism with Transmission Lines	4
MGT 345	Engineering Economy	3
Total		**16**

Junior Year		Winter
EE 323	Electronics II	5
EE 333	Microcontroller Engineering	4
EE 343	Solid-State Electronic Devices	3
MATH 465	Mathematical Statistics	4
Total		**16**

Junior Year		Spring
EE 335	Advanced Microcontroller Engineering	4
EE 355	Control System Design	4
ENGR 267	Engineering Programming	3
	Engineering Elective***	4
Total		**15**

Senior Year		Fall
EE 430	Linear Systems and Digital Signal Processing	5
ENGR 465	Capstone Project	2
SPE 321	Small Group and Team Communication	3
	Engineering Elective***	4
	Social Science Elective	3
Total		**17**

Senior Year		Winter
EE 401	Communication Systems	5
ENGR 465	Capstone Project	2
	Engineering Elective***	3
	Humanities Elective	3
	Writing Elective****	3
Total 1		**16**

Senior Year		Spring
ENGR 465	Capstone Project	2
	Engineering Elective***	3
	Humanities Elective	3
	Social Science Elective	3
Total		**11**

Total Credits Required for B.S. in Electrical Engineering: 181

* CHE 201/4 and CHE 202/5 can be substituted with CHE 221 and CHE 222, respectively. CHE 202/5 can be substituted with an approved 4 credit Math/Science Elective.

** EE 225 can be substituted with EE 320.

*** Upper division EE or REE courses (except EE 311, EE 320, or EE347), or courses included in the list for a specific degree option can be used as an engineering elective (students must satisfy course pre- and co-requisites). Other courses may be used as engineering electives with advisor and department chair approval. Students must complete a minimum of 14 credits of engineering elective coursework.

**** Choose from WRI327, WRI350, and WRI410.

Curriculum – Wilsonville Campus

Required courses and recommended terms during which they should be taken:

Freshman Year		Fall
CHE 201	General Chemistry I*	3
CHE 204	General Chemistry I Laboratory*	1
EE 131	Digital Electronics I	4
MATH 251	Differential Calculus	4
WRI 121	English Composition	3
Total		**15**

Freshman Year		Winter
CHE 202	General Chemistry II*	3
CHE 205	General Chemistry II Laboratory*	1
EE 133	Digital Electronics II	4
MATH 252	Integral Calculus	4
WRI 122	Argumentative Writing	3
	Social Science Elective	3
Total		**18**

Freshman Year		Spring
MATH 321	Applied differential Equations I	4
MATH 254N	Vector Calculus I	4
MGT 345	Engineering Economy	3
SPE 111	Public Speaking	3
	Humanities Elective	3
Total		**17**

Sophomore Year		Fall
CST 116	C++ Programming I	4
EE 221	Circuits I	4
PHY 221	General Physics with Calculus	4
WRI 227	Technical Report Writing	3
Total		**15**

Sophomore Year		Winter
EE 223	Circuits II	4
ENGR 267	Advanced Engineering Programming	3
MATH 341	Linear Algebra I	4
PHY 222	General Physics with Calculus	4
	Humanities Elective	3
Total		**18**

Sophomore Year		Spring
EE 225	Circuits III**	4
MATH 253N	Sequences and Series	4
PHY 223	General Physics with Calculus	4
	Social Science Elective	3
Total		**15**

Junior Year		Fall
EE 321	Electronics I	5
EE 333	Microcontroller Engineering	4
EE 341	Electricity and Magnetism with Transmission Lines	4
SPE 321	Small Group and Team Communication	3
Total		**16**

Junior Year		Winter
EE 323	Electronics II	5
EE 331	Digital System Design with HDL	4
EE 335	Advanced Microcontroller Engineering	4
	Social Science Elective	3
Total		**16**

Junior Year		Spring
EE 343	Solid State Electronic Devices	3
EE 432	Advanced Digital System Design With HDL**	4
	Engineering Elective***	4
	Writing Elective****	3
Total		**14**

Senior Year		Fall
EE 355	Control System Design	4
ENGR 465	Capstone Project	2
MATH 465	Mathematical Statistics	4
	Engineering Elective***	4
Total		**14**

Senior Year		Winter
EE 430	Linear Systems and Digital Signal Processing	5
ENGR 465	Capstone Project	2
	Engineering Elective***	3
	Humanities Elective	3
Total 1		**13**

Senior Year		Spring
EE 401	Communication Systems	5
ENGR 465	Capstone Project	2
	Engineering Elective***	3
	Social Science Elective	3
Total		**13**

Total Credits Required for B.S. in Electrical Engineering: 184

* CHE 201/4 and CHE 202/5 can be substituted with CHE 221 and CHE 222, respectively. CHE 202/5 can be substituted with an approved 4 credit Math/Science Elective.

** EE 225 can be substituted with EE 320. EE432 can be substituted with an approved technical Elective.

*** Upper division EE or REE courses (except EE311, EE320, and EE347), or courses included in the list for a specific degree option (students must satisfy course pre- and co-requisites). Other courses may be used as engineering electives with advisor and department chair approval. Students must complete a minimum of 14 credits of engineering elective coursework.

**** Choose from WRI327, WRI350, and WRI410.

Bachelor of Science in Electrical Engineering (Post-Baccalaureate)

Oregon Tech Bachelor of Science in Electronics Engineering Technology graduates may complete 36 additional credits to receive a Bachelor of Science in Electrical Engineering (post-baccalaureate). Students will receive two diplomas: a BSEET degree (upon completion of the BSEET degree requirements), and a BSEE degree (upon completion of the BSEE degree requirements, which include a minimum of 36 credits from Oregon tech beyond the BSEET requirements).
Students who have completed an ABET accredited BS degree in Electronics Engineering Technology from another university must complete a minimum of 45 Oregon Tech credits to receive the BS in Electrical Engineering from Oregon Tech. Students pursuing this option should contact an academic advisor to draft an academic plan that ensures all BSEE curriculum requirements are met. The following is a list of additional courses that Oregon Tech BSEET graduates are required to complete in order to meet the BSEE degree requirements.

Mathematics and Science

CHE 201	General Chemistry I*	3
CHE 204	General Chemistry I Laboratory*	1
CHE 202	General Chemistry II*	3
CHE 205	General Chemistry II Laboratory*	1
MATH 253N	Series and Sequences	4
MATH 341	Linear Algebra I	4
MATH 465	Mathematical Statistics	4

Electrical Engineering

EE 341	Electricity and Magnetism with Transmission Lines	4
EE 343	Solid-State Electronic Devices	3
EE 355	Control System Design	4

Engineering Technical Electives

	Engineering Elective (EE, REE)**	3
	Engineering Elective (EE, REE)**	3

Total if prior BSEET degree awarded by Oregon Tech 36

Additional credits needed for students who completed a BSEET degree from another institution:

	Engineering Elective (EE, REE)**	3
	Engineering Elective (EE, REE)**	3
	Engineering Elective (EE, REE)**	3
Total		**45**

*CHE 201/4 and CHE 202/5 can be substituted with CHE 221 and CHE 222 respectively. CHE 202/5 can be substituted with an approved 4 credit Math/Science Elective.

**Requires approval.

Bachelor of Science in Electrical Engineering with a Dual Major

Students completing the BSEE program have the option of selecting a dual major. The EERE department currently offers a dual major in Au-tomation, Robotics and Controls Engineering, a dual major in Optical Engineering, and a dual major in Systems Engineering & Technical Management. Students completing a BSEE degree with a dual major will receive a single BS degree with both majors listed on their diploma and transcript. The degree is issued upon completion of the requirements for each major (some courses may be used to meet the requirements for both majors). The requirements for the dual major in Optical Engineering, as well as the dual major in Systems Engineering & Technical Man-agement are listed under the corresponding sections of the catalog.

Concurrent Degree in Electrical Engineering and Renewable Energy Engineering

The EERE Department provides the opportunity for interested and motivated students to earn two Bachelor of Science degrees concurrently: a BS in Electrical Engineering & BS in Renewable Energy Engineering. The purpose of this dual degree is to provide the top students with a challenging academic program that will prepare them for career opportunities in the electronics, electrical engineering, power, and energy industries. The students receive a BS degree in a classical engineering discipline (Electrical Engineering), as well as an emerging high growth discipline (Renewable Energy Engineering). This dual degree program takes approximately an additional year beyond the BSEE degree program (or 4.5 years total by taking courses in Summer term). To obtain both degrees (BSEE and BSREE) students must complete all of the courses required for the BSEE degree and the following BSREE courses. Consult with your advisor for details.