

**Oregon Institute of Technology, Portland-Metro**  
**Bachelor of Science in Electronics Engineering Technology**  
**Curriculum Map according to Catalog Year 2021-22**

*Any deviations from courses listed below must be approved by academic advisor, department chair, and Registrar's office. Substitution is not official until shown in official student records.*

Course Notes	Required Oregon Tech Courses				Pre- and Co-requisites			FRESHMAN			SOPHOMORE			JUNIOR			SENIOR			
	Prefix	No.	Course Title	Credits	+Corequisite	* Pre- or corequisite C not read	^Grade ≥	F	W	S	F	W	S	F	W	S	F	W	S	
<b>Communications</b>				<b>18</b>																
	SPE	111	Public Speaking	4				4												
	SPE	321	Small Group & Team Communication	3	SPE 111 ^											3				
	WRI	121	English Composition	4	SAT/ACT or writing sample			4												
	WRI	227	Technical Report Writing	4	WRI 122, SPE 111*			4												
1	WRI	3XX/4XX	Advanced Writing Elective	3	Per catalog														3	
<b>Math/Science</b>				<b>40</b>																
	MATH	111	College Algebra	4	MATH 100			4												
	MATH	112	Trigonometry	4	MATH 111			4												
	MATH	251	Differential Calculus	4	MATH 112				4											
	MATH	252	Integral Calculus	4	MATH 251					4										
	MATH	254N	Vector Calculus I	4	MATH 252										4					
	MATH	321	Appl. Differential Equations I	4	MATH 252											4				
2	MATH	361	Statistical Methods I	4	MATH 111^														4	
	PHY	221	General Physics w/ Calculus	4	MATH 251, MATH 252*					4										
	PHY	222	General Physics w/ Calculus	4	MATH 252, PHY 221						4									
	PHY	223	General Physics w/ Calculus	4	PHY 222							4								
<b>General Education</b>				<b>26</b>																
See Catalog for more info.			Social Science elective	3	Per catalog															
			Social Science elective	3	Per catalog											3				
			Social Science elective	3	Per catalog												3			
			Social Science elective	3	Per catalog													3		
			Humanities elective	3	Per catalog															
			Humanities elective	3	Per catalog															
			Humanities elective	3	Per catalog															3
			Elective	2	Per catalog															
	MGT	345	Engineering Economy	3	MATH 105 or MATH 111											3				
<b>Lower Division Electrical Engineering and Programming</b>				<b>43</b>																
	EE	131	Digital Electronics I	4	MATH 111*			4												
	EE	133	Digital Electronics II	4	EE 131 or CST 162, MATH 111^			4												
3	EE	121	Fundamentals of Electric Circuits I	4	MATH 111			4												
3	EE	123	Fundamentals of Electric Circuits II	4	EE 121, MATH 112				4											
3	EE	219	Intro to Semiconductors & Amplifiers	4	EE 123					4										
4	EET	2XX	Technical Elective	4	Per catalog										4					
	EET	2XX	Technical Elective	4	Per catalog										4					
	EET	2XX	Technical Elective	4	Per catalog										4					
	EET	2XX	Technical Elective	4	Per catalog										4					
	CST	116	C++ Programming I	4	MATH 111+					4										
	ENGR	267	Engineering Programming	3	MATH 251											3				
<b>Circuits, Systems, DSP, and Communications</b>				<b>15</b>																
5	EE	320	Advanced Circuit and System Analysis	5	EE 123 or EE 223, MATH 252											5				
	EE	430	Linear Systems and DSP	5	EE 225 or EE 320														5	
	EE	401	Communication Systems	5	EE 311 or EE 430														5	
<b>Analog &amp; Mixed Signal Electronics</b>				<b>15</b>																
	EE	321	Electronics I	5	EE 123 or EE 223, MATH 252, EE 225* or EE 320											5				
	EE	323	Electronics II	5	EE 321, EE 225 or EE 320											5				
	EE	325	Electronics III	5	EE 323												5			
<b>Microcontroller Design, Digital Design, and HDL</b>				<b>16</b>																
	EE	333	Introduction to Microcontrollers	4	CST 116, EE 131 or EE 133 or EET 216														4	
	EE	331	Digital System Design with HDL	4	CST 133 or EE 133 or EE 347											4				
	EE	335	Advanced Microcontrollers	4	EE 333														4	
	EE	432	Advanced Digital System Design	4	EE 331, CST 116											4				
<b>Senior Project and Technical Electives</b>				<b>15</b>																
6	(R)EE	3XX/4XX	Technical Elective	3	Per catalog														3	
	(R)EE	3XX/4XX	Technical Elective	3	Per catalog														3	
	(R)EE	3XX/4XX	Technical Elective	3	Per catalog														3	
	ENGR	465	Capstone Project	2	Junior standing & consent														2	
	ENGR	465	Capstone Project	2	Junior standing & consent														2	
	ENGR	465	Capstone Project	2	Junior standing & consent														2	
<b>Total Required Credits</b>				<b>188</b>																
								16	16	14	16	18	15	17	15	16	16	14	15	

- Notes:
- 1) Select from: WRI 327 Advanced Technical Writing, WRI 350 Documentation Development, or WRI 410 Proposal and Grant Writing.
  - 2) MATH 243 Introduction to Statistics or MATH465 Mathematical Statistics may be used instead.
  - 3) EE 121, EE 123, and EE 219 are not taught at Oregon Tech. Students can fulfill these course requirements through equivalent transfer coursework, or by substituting EE 121 with EE 221, EE 123 with EE 223, and EE 219 with EE 343.
  - 4) Lower division technical electives include CST 126, CST 136, or other advisor-approved 200-level EET, EE, ENGR, REE, or CST courses.
  - 5) EE 320 can be substituted with EE 225.
  - 6) Technical electives include upper division EE and REE courses (except EE 311, EE 347, EE 320, and EE 431), and courses listed for a specific BSEE technical emphasis. Other courses may be used with advisor approval.

### Freshman and Sophomore Years

The degree requirements for the first two years can be fulfilled by completing an accredited Associate of Applied Science degree in Electronics Engineering Technology, Microelectronics Engineering Technology, Microelectronics Technology, Electrical Engineering Transfer, Renewable Energy Technology, or equivalent coursework. Oregon Tech has articulation agreements with various community colleges throughout Oregon. Students transferring to Oregon Tech with an AAS degree from these programs will not be required to take any lower-division electronics courses at Oregon Tech. The curriculum map provides a list of lower division courses to satisfy the requirements for the first two years of the degree. Completion of all these courses is not required to be able to transfer, but is recommended for 2+2 transferability.

### BSEET Degree Technical Emphases

Students in the BSEET program may choose to specialize in a particular area by selecting their engineering technical elective courses from the appropriate list below. These lists are provided for guidance; students are not required to select a technical emphasis, and technical emphases will not appear on the students' transcripts.

#### 1. Electrical Power Courses

EE 419	Power Electronics	4
REE 243	Electrical Power	4
REE 253	Electromechanical Energy Conversion	4
REE 345	Wind Power	3
REE 413	Electric Power Conversion Systems	3
REE 453	Power System Analysis	3
REE 454	Power System Protection and Control	3

#### 2. Optical Engineering Courses

EE 448	Geometric Optics	4
EE 449	Radiometry and Optical Detection	4
EE 450	Physical Optics	4
EE 451	Lasers	4
EE 452	Waveguides and Fiber Optics	4
EE 453	Optical Metrology	4

#### 3. Systems Engineering and Technical Management

SEM 421	Systems Engineering	4
SEM 422	Advanced Systems Engineering	4
SEM 425	Advanced Engineering Management	4

#### 4. Microelectronics Courses

EE 307	Embedded Systems Testing	4
EE 325	Electronics III	5
EE 407	Adv. LabVIEW Programming	4
EE 421	Analog IC Design	5
EE 423	CMOS Digital IC Design	5
EE 426	RF/Microwave Systems	4
EE 485	Printed Circuit Board Design	4

#### 5. Renewable Energy

EE 419	Power Electronics	4
ENGR 355	Thermodynamics	3
REE 243	Electrical Power	4
REE 253	Electromechanical Energy Conversion	4
REE 345	Wind Power	3
REE 346	Biofuels and Biomass	3
REE 412	Photovoltaic Systems	3
REE 413	Electric Power Conversion Systems	3
REE 427	Greenhouse Gas Accounting/Footprints	3

#### 6. Robotics, Automation, and Control

ENGR 420	Engineering Modeling	4
ENGR 421	Automation for Robotics	4
ENGR 422	Process Control	4
ENGR 423	Motion Control in Mechanisms and Robotics	4
REE 463	Energy Systems Instrumentation	3

### Graduation

Students must file an Application for Degree at least two terms prior to the term of Graduation (visit <http://www.oit.edu/registrar/graduate>). A minimum of 45 credits must be completed at Oregon Tech before a degree is awarded. Baccalaureate students must complete a minimum of 60 credits of upper-division work. To be eligible for graduation, students must maintain a 2.0 GPA. In addition, a final grade of "C" or better must be earned in all courses with MATH, PHY, CST, EE, ENGR prefixes as well as in all technical elective courses.

### Minors

Oregon Tech offers several Minors, including Applied Mathematics, Applied Physics Business, and others. Students should refer to the catalog (<http://catalog.oit.edu>) for a list of available Minors and corresponding course requirements. A minimum of 18 credits in the subject field outside the student's major field of study are required.

### Dual Majors

Students completing the BS in Electronics Engineering Technology have the option of selecting a dual major by taking additional coursework. The EERE department currently offers dual majors in Automation, Robotic, and Controls Engineering, Optical Engineering, and Systems Engineering and Technical Management. Students completing a BSEET degree with a dual major will receive a single BS degree in EET with both majors listed on their diploma and transcript.

For more information including requirements for each dual major, visit: <https://www.oit.edu/academics/degrees/electrical-engineering/degree-options>

### Bachelor of Science in Electrical Engineering

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 who have completed an ABET accredited bachelor's in Electronics Engineering Technology from another institution must complete a minimum of 45 Oregon Tech credits to receive the BS in Electrical Engineering from Oregon Tech. Students pursuing this option should work with their 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 (19 cr)

CHE 201/204	General Chemistry and Lab <sup>1</sup>	4
CHE 202/205	General Chemistry and Lab <sup>1,2</sup>	4
MATH 253N	Series and Sequences	4
MATH 341	Linear Algebra I	3
MATH 465	Mathematical Statistics	4

#### Required Electrical Engineering (11 cr)

EE 341	Elec. And Mag. With Trans. Lines	4
EE 343	Solid-State Electronic Devices	3
EE 461	Control System Engineering	4

#### Engineering Technical Electives (6 cr)

(R)EE 3xx/4xx	Technical Elective <sup>3</sup>	3
(R)EE 3xx/4xx	Technical Elective <sup>3</sup>	3

#### Additional courses needed for students who completed a BSEET degree from another institution (9cr)

Math/Science/Technical Elective <sup>3</sup>	3
Math/Science/Technical Elective <sup>3</sup>	3
Math/Science/Technical Elective <sup>3</sup>	3

<sup>1</sup>CHE 201/4 and CHE 202/5 can be substituted with CHE 221 and CHE 222, respectively

<sup>2</sup>CHE 202/205 can be substituted with an advisor approved 4 credit Math/Science elective

<sup>3</sup>Requires advisor approval

### Other BSEET Degree Options

The following options are available (consult the program webpage and your advisor for details):

4+1 BS EET (Oregon Tech) and MS Engineering (Oregon Tech): visit <https://www.oit.edu/mse>