# ELECTRONIC ENGINEERING TECHNOLOGY

pcc.edu/programs/electronic-engineering

#### CAREER AND PROGRAM DESCRIPTION

Electronic Engineering Technology (EET) is concerned with the theory and practice of applied electronics engineering. Emphasis is placed on the practical application of engineering knowledge. To apply electronics engineering knowledge requires a thorough background in mathematics and science. EET graduates possess a combination of theoretical and practical understanding and require minimal onthe-job training to become productive.

Graduates of an Associate of Applied Science Degree program in EET are called electronic engineering technicians and find employment in circuits and systems testing, product development, prototype construction and testing, circuit and systems medication, systems operation and manufacturing. EET graduates are expected to have good communication skills and be capable of creative problem solving, working independently and in teams. They should have extensive knowledge of both the hardware and software of electronic systems.

Employers of EET engineering technicians include research and development laboratories, electronic equipment manufacturers, public utilities, colleges and universities, government agencies, medical laboratories and hospitals, electronic equipment distributors, semiconductor manufacturers and manufacturing and processing industries that use electronic control equipment and others.

Students can complete the EET degree and/or the EET options in Biomedical Engineering Technology, Wireless and Data Communications, Renewable Energy Systems, and Mechatronics/Automation/Robotics Engineering Technology. The EET department also offers one certificate - Electronics Engineering Technology.

# **DEGREES AND CERTIFICATES OFFERED**ASSOCIATE OF APPLIED SCIENCE DEGREE

Electronic Engineering Technology

Electronic Engineering Technology: Biomedical Engineering Technology

Electronic Engineering Technology: Mechatronics/Automation/ Robotics Engineering Technology

Electronic Engineering Technology: Renewable Energy Systems Electronic Engineering Technology: Wireless and Data Communications Engineering Technology

# LESS THAN ONE-YEAR: CAREER PATHWAY CERTIFICATE

Electronic Engineering Technology

# **Academic Prerequisites**

- Basic computer skills in the Windows operating system, word processing and spreadsheets are required. Prerequisites and requirements vary depending upon the degree or certificate.
- Electronic Engineering Technology AAS Degree
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher
- Biomedical Engineering Technology AAS Degree
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher
  - Completion of any medical terminology course 3 credits or higher.
  - d. Completion of (BI 120) or (BI 121, BI 122) or (BI 231, BI 232, BI 233)

- Mechatronics/Automation/Robotic Engineering Technology AAS degree
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher
- Renewable Energy Systems AAS Degree
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher
- Wireless and Data Communications Engineering Technology AAS Degree
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher
- Electronic Engineering Technology Certificate
  - a. Placement into WR 115 or higher
  - b. Placement into MTH 95 or higher

#### **Academic Requirements**

None

### **Non-Academic Prerequisites**

 Job-upgrade students: students who want to upgrade their job skills must meet individual course prerequisites and complete an advising interview with an EET advisor prior to enrollment. Admission is granted on a space available basis after the needs of the degree/certificate seeking full-time and part-time students are met

# **Non-Academic Requirements**

 Students can transfer classes from the EET degree into any BSEET. Please check with the department for courses which transfer to Oregon Institute of Technology's BSEET degree.

#### ASSOCIATE OF APPLIED SCIENCE DEGREE

Electronic Engineering Technology (p. 1)

Electronic Engineering Technology: Biomedical Engineering Technology (p. 2)

Electronic Engineering Technology: Mechatronics/Automation/ Robotics Engineering Technology (p. 2)

Electronic Engineering Technology: Renewable Energy Systems (n. 4)

Electronic Engineering Technology: Wireless and Data Communications Engineering Technology (p. 4)

# ELECTRONIC ENGINEERING TECHNOLOGY AAS DEGREE

Minimum 95 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study or completion of MTH 111 (or higher). Students should consult with program advisors for course planning.

#### COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
EET 101A	Electronic Lab and Essential Work Skills	2
EET 111	Electrical Circuit Analysis I	5
EET 121	Digital Systems 1	4
EET 100D	Introduction to Computers and Networking	3
MTH 111 or EET 100A	Precalculus I: Functions (MTH111=MTH111Z) (or higher) <sup>z</sup> or Math for Electronic Engineering Technology	4

#### **ELECTRONIC ENGINEERING TECHNOLOGY**

Second Term			
EET 101B	Electronic Equipment and Lab Skills	2	
EET 112	Electrical Circuit Analysis II	5	
EET 122	Digital Systems 2: Computing Systems	5	
EET 188	Industrial Safety	2	
General Education	: 1 course		
Third Term			
EET 113	Electrical Power	5	
EET 123	Digital Systems 3: Mixed-Signal Systems	5	
EET 178	Computing Environments for Technicians	4	
EET 150	Introduction to Soldering	1	
Fourth Term			
EET 221	Semiconductor Devices and Circuits	5	
EET 242	Microcontroller and Embedded Systems	4	
EET 254	Electronic Engineering Technology Seminar	1	
General Education	: 1 course		
Fifth Term			
EET 252	Electromechanical Systems Fundamentals	2	
EET 241	Advanced Microcontrollers and Embedded Systems	4	
EET 256A or EET 280A	EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology	2	
EET 263	PLC Fundamentals	2	
WR 121	Composition I (WR121=WR121Z)	4	
General Education	: 1 course		
Sixth Term			
EET 223	RF Communications Circuits	5	
EET 256B or EET 280A	EET Capstone Project 2 or Cooperative Education: Electronics Engineering Technology	2	
EET 272	Motors and Motor Controls	3	
EET 273	Electronic Control Systems	2	
General Education: 1 course			
	Total Credits	95	

<sup>&</sup>lt;sup>1</sup> OSHA industrial safety training can be substituted

Recommended General Education (p. 5)

# **BIOMEDICAL ENGINEERING TECHNOLOGY AAS** DEGREE

Minimum 101 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study or completion of MTH 111 (or higher). Students should consult with a program advisor for course planning.

#### COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
EET 101A	Electronic Lab and Essential Work Skills	2
EET 111	Electrical Circuit Analysis I	5
EET 121	Digital Systems 1	4
MTH 111 or EET 100A	Precalculus I: Functions (MTH111=MTH111Z) (or higher) <sup>z</sup> or Math for Electronic Engineering Technology	4
EET 100D	Introduction to Computers and Networking	3
Second Term	-	
EET 101B	Electronic Equipment and Lab Skills	2
EET 112	Electrical Circuit Analysis II	5
EET 122	Digital Systems 2: Computing Systems	5
EET 188	Industrial Safety <sup>1</sup>	2
General Education:	•	
Third Term		
EET 113	Electrical Power	5
EET 123	Digital Systems 3: Mixed-Signal Systems	5
EET 178	Computing Environments for Technicians	4
EET 150	Introduction to Soldering	1
Fourth Term	S	
EET 221	Semiconductor Devices and Circuits	5
EET 242	Microcontroller and Embedded Systems	4
EET 254	Electronic Engineering Technology Seminar	1
EET 260	Biomedical Equipment Technology	4
General Education:	1 course	
Fifth Term		
CIS 179	Data Communication Concepts I	4
EET 252	Electromechanical Systems Fundamentals	2
EET 280C	Cooperative Education: BMET Practicum	4
WR 121	Composition I (WR121=WR121Z)	4
General Education:	1 course	
Sixth Term		
EET 223	RF Communications Circuits	5
EET 273	Electronic Control Systems	2
EET 280C	Cooperative Education: BMET Practicum	7
General Education:	1 course	
	Total Credits	101

<sup>1</sup> OSHA industrial safety training can be substituted

MTH 112 and MTH 112Z

Recommended General Education (p. 5)

# MECHATRONICS/AUTOMATION/ROBOTICS **ENGINEERING TECHNOLOGY AAS DEGREE**

Minimum 99 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study or or completion of MTH 111 (or higher). Students should consult with program advisors for course planning.

Z This course is part of Oregon Common Course Numbering. The following courses are equivalent: MTH 111 and MTH 111Z

Z This course is part of Oregon Common Course Numbering. The following courses are equivalent: MTH 111 and MTH 111Z

# **COURSE OF STUDY**

The coursework listed below is required. The following is an example of a term-by-term breakdown.

EET 100D Introduction to Computers and Networking  EET 101A Electronic Lab and Essential Work Skills 2  EET 111 Electrical Circuit Analysis I 5  EET 121 Digital Systems 1 4  MTH 111 PRECALCULUS I: Functions 4  OF EET 100A (MTH111=MTH111Z) (or higher) 2 or Math for Electronic Engineering Technology  Second Term  EET 101B Electronic Equipment and Lab Skills 2  EET 112 Digital Systems 2: Computing Systems 5  EET 112 Electrical Circuit Analysis II 5  EET 122 Digital Systems 2: Computing Systems 5  EET 188 Industrial Safety 1 2  General Education: 1 course  Third Term  EET 113 Electrical Power 5  EET 123 Digital Systems 3: Mixed-Signal Systems 5  EET 178 Computing Environments for Technicians 4  EET 150 Introduction to Soldering 1  Fourth Term  EET 221 Semiconductor Devices and Circuits 5  EET 224 Microcontroller and Embedded Systems 4  EET 254 Electronic Engineering Technology 1  Seminar  Mechatronics Electives 4  WR 121 Composition I (WR121=WR121Z) 4  Fifth Term  EET 241 Advanced Microcontrollers and 4  Embedded Systems 2  EET 256A EET Capstone Project 1 2  or EET 280A or EET Capstone Project 1 2  or EET 280 PLC Fundamentals 2  General Education: 1 course  EET 252 Electronechanical Systems 2  EET 253 RF Communications Circuits 5  EET 256 EET Capstone Project 2 2  or EET 280A Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 5  General Education: 1 course 5  EET 256 EET Capstone Project 2 2  or Cooperative Education: Electronics Engineering Technology  EET 263 RF Communications Circuits 5  EET 256 EET Capstone Project 2 2  or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course 6  Total Credits 99	First Term		Credits
EET 111         Electrical Circuit Analysis I         5           EET 121         Digital Systems 1         4           MTH 111         Precalculus I: Functions or EET 100A         4           (MTH111=MTH111Z) (or higher) or Math for Electronic Engineering Technology         4           Second Term         EET 101B         Electrical Circuit Analysis II         2           EET 101B         Electrical Circuit Analysis II         5           EET 122         Digital Systems 2: Computing Systems         5           EET 188         Industrial Safety 1         2           General Education: 1 course         1           Third Term         EET 113         Electrical Power         5           EET 123         Digital Systems 3: Mixed-Signal Systems         5           EET 178         Computing Environments for Technicians         4           EET 178         Computing Environments for Technicians         4           EET 178         Computing Environments for Technicians         4           EET 221         Semiconductor Devices and Circuits         5           EET 221         Semiconductor Devices and Circuits         5           EET 242         Microcontroller and Embedded Systems         4           EET 244         Composition I (WR121=WR121Z)	EET 100D		3
EET 121 Digital Systems 1 4 MTH 111 Precalculus I: Functions or EET 100A (MTH111=MTH1112) (or higher) 2 or Math for Electronic Engineering Technology  Second Term  EET 101B Electronic Equipment and Lab Skills 2 EET 112 Electrical Circuit Analysis II 5 EET 122 Digital Systems 2: Computing Systems 5 EET 188 Industrial Safety 1 2 General Education: 1 course Third Term  EET 113 Electrical Power 5 EET 123 Digital Systems 3: Mixed-Signal Systems 5 EET 178 Computing Environments for Technicians 4 EET 150 Introduction to Soldering 1 Fourth Term  EET 221 Semiconductor Devices and Circuits 5 EET 242 Microcontroller and Embedded Systems 4 EET 254 Electronic Engineering Technology 5 EET 254 Electronic Engineering Technology 1 Fifth Term  EET 241 Advanced Microcontrollers and 6 EET 241 Englineering Technology 5 EET 256A EET Capstone Project 1 2 Or EET 280A or Cooperative Education: Electronics Engineering Technology 2 EET 252 Electromechanical Systems 2 EET 253 PLC Fundamentals 2 General Education: 1 Course EET 254 Electromechanical Systems 5 EET 255 Electromechanical Systems 6 EET 256 EET 256 Electromechanical Systems 7 EET 257 Electromechanical Systems 8 EET 258 Electromechanical Systems 9 EET 259 Electromechanical Systems 1 EET 250 ET 250 ET 250 ELECTROMECHANICAL STAN ENGREE 2 EET 250 ELECTROMECHANICAL STAN ELECTRONICAL STAN ELECTRO	EET 101A	Electronic Lab and Essential Work Skills	2
MTH 111 or EET 100A (MTH111=MTH111Z) (or higher) Z or Math for Electronic Engineering Technology  Second Term  EET 101B Electronic Equipment and Lab Skills 2 EET 112 Electrical Circuit Analysis II EET 122 Digital Systems 2: Computing Systems 5 EET 188 Industrial Safety 1 2 General Education: 1 course Third Term EET 113 Electrical Power EET 178 Computing Environments for Technicians 4 EET 150 Introduction to Soldering 1 Fourth Term EET 221 Semiconductor Devices and Circuits 5 EET 242 Microcontroller and Embedded Systems 4 EET 254 Electronic Engineering Technology Seminar  Mechatronics Electives 4 WR 121 Composition I (WR121=WR121Z) 4 Fifth Term EET 241 Advanced Microcontrollers and Embedded Systems EET 256A Or EET 280A EET Capstone Project 1 Or Cooperative Education: Electronics Engineering Technology EET 252 Electromechanical Systems 2 General Education: 1 course EET 253 RF Communications Circuits 5 EET 256B Or EET 280A Or Cooperative Education: Electronics Engineering Technology EET 256 Sixth Term EET 223 RF Communications Circuits 5 EET 256B Or EET 280A Or Cooperative Education: Electronics Engineering Technology EET 272 Motors and Motor Controls 3 EET 273 Electronic Control Systems 2 General Education: 1 course	EET 111	Electrical Circuit Analysis I	5
or EET 100A (MTH111=MTH111Z) (or higher) <sup>2</sup> or Math for Electronic Engineering Technology  Second Term  EET 101B Electronic Equipment and Lab Skills 2  EET 112 Electrical Circuit Analysis II 5  EET 122 Digital Systems 2: Computing Systems 5  EET 188 Industrial Safety <sup>1</sup> 2  General Education: 1 course  Third Term  EET 113 Electrical Power  EET 123 Digital Systems 3: Mixed-Signal Systems 5  EET 178 Computing Environments for Technicians 4  EET 150 Introduction to Soldering 1  Fourth Term  EET 221 Semiconductor Devices and Circuits 5  EET 242 Microcontroller and Embedded Systems 4  EET 254 Electronic Engineering Technology 1  Seminar  Mechatronics Electives 4  WR 121 Composition I (WR121=WR121Z) 4  Fifth Term  EET 241 Advanced Microcontrollers and 4  Embedded Systems  EET 266A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2  General Education: 1 Course  EET 252 Electromechanical Systems 2  EET 252 Electromechanical Systems 5  EET 253 RF Communications Circuits 5  EET 256B EET Capstone Project 2 or Cooperative Education: Electronics Engineering Technology  EET 270 Motors and Motor Controls 3  EET 271 Electronic Control Systems 6  EET 272 Motors and Motor Controls 5  EET 273 Electronic Control Systems 6  EET 273 Electronic Control Systems 6  EET 274 Electronic Control Systems 6  EET 275 Electronic Control Systems 6  EET 271 Electronic Control Systems 6  EET 271 Electronic Control Systems 6  EET 272 Electronic Control Systems 6  EET 273 Electronic Control Systems 6  EET 274 Electronic Control Systems 7  EET 275 Electronic Control Systems 7  EET 275 Electronic Control Systems 7  EET 277 Electronic Control Systems 7  EET 278 Electronic Control Systems 7  EET 279 Electronic Control Systems 7  EET 271 Electronic Control Systems 7  EET 272 Electronic Control Systems 7  EET 275 Electronic Control Systems 7  E	EET 121	Digital Systems 1	4
EET 101B Electronic Equipment and Lab Skills 2 EET 112 Electrical Circuit Analysis II 5 EET 122 Digital Systems 2: Computing Systems 5 EET 188 Industrial Safety 1 2 General Education: 1 course Third Term EET 113 Electrical Power 5 EET 123 Digital Systems 3: Mixed-Signal Systems 5 EET 178 Computing Environments for Technicians 4 EET 150 Introduction to Soldering 1 Fourth Term EET 221 Semiconductor Devices and Circuits 5 EET 242 Microcontroller and Embedded Systems 4 EET 254 Electronic Engineering Technology 5 Eeminar Mechatronics Electives 4 WR 121 Composition I (WR121=WR121Z) 4 Fifth Term EET 241 Advanced Microcontrollers and 6 EET 256A EET Capstone Project 1 7 Or Cooperative Education: Electronics Engineering Technology EET 263 PLC Fundamentals 2 General Education: 1 Course EET 252 Electromechanical Systems 2 EET 253 RF Communications Circuits 5 EET 223 RF Communications Circuits 5 EET 256B OR EET Capstone Project 2 7 Or Cooperative Education: Electronics Engineering Technology EET 272 Motors and Motor Controls 3 EET 273 Electronic Control Systems 2 General Education: 1 course 3 General Education: 1 course 3 General Education: 1 course 5 EET 273 Electronic Control Systems 2 General Education: 1 course 13 EET 273 Electronic Control Systems 2 General Education: 1 course 13 EET 273 Electronic Control Systems 2 General Education: 1 course 14 EET 273 Electronic Control Systems 2 General Education: 1 course 15 EET 273 Electronic Control Systems 2 General Education: 1 course 15 EET 273 Electronic Control Systems 2		(MTH111=MTH111Z) (or higher) <sup>z</sup> or Math for Electronic Engineering	4
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Fourth Term  EET 221 Semiconductor Devices and Circuits 5  EET 242 Microcontroller and Embedded Systems 4  EET 254 Electronic Engineering Technology Seminar  Mechatronics Electives 4  WR 121 Composition I (WR121=WR121Z) 4  Fifth Term  EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 252 Electromechanical Systems 2  EET 252 Electromechanical Systems 2  EET 253 RF Communications Circuits 5  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course			
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EET 242 Microcontroller and Embedded Systems 4 EET 254 Electronic Engineering Technology Seminar  Mechatronics Electives 4 WR 121 Composition I (WR121=WR121Z) 4 Fifth Term EET 241 Advanced Microcontrollers and Embedded Systems EET 256A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology EET 263 PLC Fundamentals 2 General Education: 1 Course EET 252 Electromechanical Systems 2 General Education: 1 course 3 Sixth Term EET 223 RF Communications Circuits 5 EET 256B EET Capstone Project 2 or Cooperative Education: Electronics Engineering Technology EET 272 Motors and Motor Controls 3 EET 273 Electronic Control Systems 2 General Education: 1 course		Semiconductor Devices and Circuits	5
EET 254 Electronic Engineering Technology Seminar  Mechatronics Electives 4 WR 121 Composition I (WR121=WR121Z) 4 Fifth Term  EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2 General Education: 1 Course  EET 252 Electromechanical Systems 2 Fundamentals  General Education: 1 course 3 Sixth Term  EET 223 RF Communications Circuits 5 EET 256B EET Capstone Project 2 2 or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3 EET 273 Electronic Control Systems 2 General Education: 1 course			
Mechatronics Electives 4 WR 121 Composition I (WR121=WR121Z) 4 Fifth Term  EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2 General Education: 1 Course  EET 252 Electromechanical Systems 2 Fundamentals  General Education: 1 course 3 Sixth Term  EET 223 RF Communications Circuits 5 EET 256B EET Capstone Project 2 2 or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3 EET 273 Electronic Control Systems 2 General Education: 1 course		Electronic Engineering Technology	
WR 121 Composition I (WR121=WR121Z) 4  Fifth Term  EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 2 or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2  General Education: 1 Course  EET 252 Electromechanical Systems 2 Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2 or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	Mechatronics Election		Δ
Fifth Term  EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2  General Education: 1 Course  EET 252 Electromechanical Systems Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course			
EET 241 Advanced Microcontrollers and Embedded Systems  EET 256A EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2  General Education: 1 Course  EET 252 Electromechanical Systems Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course		Composition (Witt21=Witt212)	-
Embedded Systems  EET 256A		Advanced Microcontrollers and	1
or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 263 PLC Fundamentals 2  General Education: 1 Course  EET 252 Electromechanical Systems 2 Fundamentals 2  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course		Embedded Systems	
General Education: 1 Course  EET 252 Electromechanical Systems 2 Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course		or Cooperative Education: Electronics	2
EET 252 Electromechanical Systems Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	EET 263	PLC Fundamentals	2
Fundamentals  General Education: 1 course 3  Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	General Education:	1 Course	
Sixth Term  EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	EET 252		2
EET 223 RF Communications Circuits 5  EET 256B EET Capstone Project 2 2  or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	General Education:	1 course	3
EET 256B	Sixth Term		
or EET 280A or Cooperative Education: Electronics Engineering Technology  EET 272 Motors and Motor Controls 3  EET 273 Electronic Control Systems 2  General Education: 1 course	EET 223	RF Communications Circuits	5
EET 273 Electronic Control Systems 2 General Education: 1 course		or Cooperative Education: Electronics	2
General Education: 1 course	EET 272	Motors and Motor Controls	3
	EET 273	Electronic Control Systems	2
Total Credits 99	General Education:	1 course	
The state of the s		Total Credits	99

Recommended General Education (p. 5)

# **MECHATRONICS ELECTIVES**

MEGNIZITION	DO ELECTIVEO	
Code	Title	Credits
Renewable Energy F		
EET 110	Introduction to Renewable Energy	3
Courses from PCC's Certificate	Solar Voltaic Manufacturing Technology	
MT 101	Introduction to Semiconductor Manufacturing	1
MT 102	Introduction to Semiconductor Devices	1
MT 104	Introduction to Solar Voltaic Processing	1
CH 100	Everyday Chemistry with Lab	4
Courses from PCC's	Manufacturing Technician Certificate	
MCH 100	Machine Tool Basics	1
MCH 110B	Blueprint Reading for Machine Manufacturing	3
MCH 115A	Geometric Dimensioning and Tolerancing I	2
MCH 120	Machine Shop Math	2
MCH 121	Manufacturing Processes I	5
MCH 130	Machine Shop Trigonometry	2.5
Courses from PCC's	Technical Designer Certificate	
CADD 115	Practical Mathematics for CAD	4
	Designers and Drafters	
CADD 175	SolidWorks Fundamentals	3
CADD 185	Inventor Fundamentals	3
CADD 195	CAD Simulation for Drafters and Designers	4
CADD 235	Materials and Design for Manufacturing Processes	3
CADD 245	Product Design and Development Fundamentals	3
Courses from PCC's	Mechanical Drafter Certificate	
CADD 126	Introduction to AutoCAD	3
CADD 160	Drafting Fundamentals	4
CADD 175	SolidWorks Fundamentals	3
CADD 265	Mechanical Design Drafting	4
Courses from PCC's	CAD Operator Certificate	
CADD 175	SolidWorks Fundamentals	3
CADD 185	Inventor Fundamentals	3
CADD 235	Materials and Design for Manufacturing Processes	3
CADD 275	SolidWorks Advanced	3
Medical Equipment F	Focus	
EET 260	Biomedical Equipment Technology	4
EET 261 EET 270	Medical Imaging Equipment	3
	oment Manufacturing Focus	
	Bioscience Technician Certificate	
BIT 102	Current Topics in Bioscience Technology	v 2
BIT 105	Safety in the Bioscience Workplace	, 2
BIT 107	Bioscience Lab Math	2
BIT 109	Basic Laboratory Techniques and Instruments	5
BIT 125	Quality Systems in Bioscience Technology	2
BIT 126	Applied Quality Practice	3
BIT 181	Exploring Bioscience	3
Semiconductor Equi		3
2333rradotor Equi		

OSHA industrial safety training can be substituted. Z This course is part of Oregon Common Course Numbering. The following courses are equivalent: MTH 111 and MTH 111Z

MT 101	Introduction to Semiconductor	1	Fourth Term
	Manufacturing		EET 221
MT 102	Introduction to Semiconductor Devices	1	EET 242
MT 103	Introduction to Micro and Nano Processing	1	EET 254
MT 150	Hand Tools for Assembly of Mechanical Systems	1	WR 121 General Education
MT 223	Vacuum Technology	3	Fifth Term
MT 224	Process Equipment I	3	EET 252
MT 227	Process Equipment II	3	221 202
MT 228	Process Equipment III	4	EET 241
MT 240	RF Plasma Systems	3	
Mechanical Foo	cus		EET 256A
Courses from P	CC's Mechatronics Technology Certificate		or EET 280A
MT 151	Intro to Hand Tools and Mechanical Assembly	1	EET 263
MT 153	Assembly of Mechanical Systems II	3	General Education
MT 155	Mechanical Systems	5	Sixth Term
Engineering Me	echanical/Manufacturing Focus		EET 223
ENGR 102	2D Modeling and Engineering Graphics	3	EET 256B
ENGR 105	3D Modeling and Engineering Graphics	3	or EET 280A
ENGR 211	Statics	4	EET 272
ENGR 212	Dynamics	4	EET 273
ENGR 213	Strength of Materials	4	General Education
ENGR 231	Material Science	4	General Education
ENGR 262	Manufacturing Processes	2	

#### RENEWABLE ENERGY SYSTEMS AAS DEGREE

Minimum 97 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study or completion of MTH 111 (or higher). Students should consult with program advisors for course planning.

#### COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
EET 101A	Electronic Lab and Essential Work Skills	2
EET 111	Electrical Circuit Analysis I	5
EET 121	Digital Systems 1	4
EET 100D	Introduction to Computers and Networking	3
MTH 111 or EET 100A	Precalculus I: Functions (MTH111=MTH111Z) (or higher) <sup>Z</sup> or Math for Electronic Engineering Technology	4
Second Term		
EET 101B	Electronic Equipment and Lab Skills	2
EET 112	Electrical Circuit Analysis II	5
EET 122	Digital Systems 2: Computing Systems	5
EET 110	Introduction to Renewable Energy	2
Third Term		
EET 178	Computing Environments for Technicians	s 4
EET 113	Electrical Power	5
EET 123	Digital Systems 3: Mixed-Signal Systems	5
EET 188	Industrial Safety	2
EET 150	Introduction to Soldering	1

Fourth Term		
EET 221	Semiconductor Devices and Circuits	5
EET 242	Microcontroller and Embedded Systems	4
EET 254	Electronic Engineering Technology Seminar	1
WR 121	Composition I (WR121=WR121Z)	4
General Education	n: 1 course	
Fifth Term		
EET 252	Electromechanical Systems Fundamentals	2
EET 241	Advanced Microcontrollers and Embedded Systems	4
EET 256A or EET 280A	EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology	2
EET 263	PLC Fundamentals	2
General Education	n: 2 courses	
Sixth Term		
EET 223	RF Communications Circuits	5
EET 256B or EET 280A	EET Capstone Project 2 or Cooperative Education: Electronics Engineering Technology	2
EET 272	Motors and Motor Controls	3
EET 273	Electronic Control Systems	2
General Education	n: 1 course	
	Total Credits	97

REE 201 of Oregon Tech can substitute

<sup>2</sup> OSHA industrial safety training can be substituted

z This course is part of Oregon Common Course Numbering. The following courses are equivalent:

MTH 111 and MTH 111Z

Recommended General Education (p. 5)

# WIRELESS AND DATA COMMUNICATIONS ENGINEERING TECHNOLOGY AAS DEGREE

Minimum 98 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. Math/computation competency is met through the math course(s) required in the program of study or completion of MTH 111 (or higher). Students should consult with program advisors for course planning.

#### COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
EET 100D	Introduction to Computers and Networking	3
EET 101A	Electronic Lab and Essential Work Skills	2
EET 111	Electrical Circuit Analysis I	5
EET 121	Digital Systems 1	4
MTH 111 or EET 100A	Precalculus I: Functions (MTH111=MTH111Z) (or higher) <sup>Z</sup> or Math for Electronic Engineering Technology	4
Second Term		
EET 101B	Electronic Equipment and Lab Skills	2
EET 112	Electrical Circuit Analysis II	5

EET 122	Digital Systems 2: Computing Systems	5
EET 188	Industrial Safety <sup>1</sup>	2
WR 121	Composition I (WR121=WR121Z)	4
Third Term		
EET 113	Electrical Power	5
EET 123	Digital Systems 3: Mixed-Signal Systems	5
EET 178	Computing Environments for Technicians	4
EET 150	Introduction to Soldering	1
Fourth Term		
CIS 179	Data Communication Concepts I	4
EET 221	Semiconductor Devices and Circuits	5
EET 242	Microcontroller and Embedded Systems	4
EET 254	Electronic Engineering Technology Seminar	1
General Education	n: 1 course	
Fifth Term		
EET 241	Advanced Microcontrollers and Embedded Systems	4
EET 256A or EET 280A	EET Capstone Project 1 or Cooperative Education: Electronics Engineering Technology	2
General Education	n: 3 courses	
Sixth Term		
CIS 189	Wireless Security	4
CIS 278A	Cisco 1: Introduction to Networks	4
EET 223	RF Communications Circuits	5
EET 256B or EET 280A	EET Capstone Project 2 or Cooperative Education: Electronics Engineering Technology	2
	Total Credits	98

### RECOMMENDED GENERAL EDUCATION

Code	Title	Credits
COMM 111Z	Public Speaking (COMM111=COMM111Z)	4
COMM 140	Introduction to Intercultural Communication	4
COMM 227	Nonverbal Communication	4
COMM 228	Mass Communication and Society	4
COMM 237	Gender and Communication	4
PHL 202	Ethics	4
PHL 205	Biomedical Ethics	4
PHL 206	Introduction to Environmental Ethics	4
PHL 209	Business Ethics	4
PSY 101	Psychology and Human Relations	4
PSY 214	Introduction to Personality	4
PSY 215	Human Development	4
PSY 216	Social Psychology	4
PSY 240	Personal Awareness and Growth	4
SOC 205		
SOC 206		
SOC 211	Peace and Conflict Studies	4

SOC 213	Diversity in the United States	4
WR 222	Writing Research Papers	4

# **ELECTRONIC ENGINEERING TECHNOLOGY** LESS THAN ONE-YEAR: CAREER PATHWAY **CERTIFICATE**

Minimum 43 credits. Students must meet all certificate requirements.

### **Course of Study**

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term		Credits
EET 101A	Electronic Lab and Essential Work Skills	2
EET 111	Electrical Circuit Analysis I	5
EET 121	Digital Systems 1	4
EET 100D	Introduction to Computers and Networking	3
MTH 111 or EET 100A	Precalculus I: Functions (MTH111=MTH111Z) <sup>Z</sup> or Math for Electronic Engineering Technology	4
Second Term		
EET 101B	Electronic Equipment and Lab Skills	2
EET 112	Electrical Circuit Analysis II	5
EET 122	Digital Systems 2: Computing Systems	5
EET 188	Industrial Safety <sup>1</sup>	2
Third Term		
EET 113	Electrical Power	5
EET 123	Digital Systems 3: Mixed-Signal Systems	5
EET 150	Introduction to Soldering	1
	Total Credits	43

OSHA industrial safety training can be substituted Z This course is part of Oregon Common Course Numbering. The following courses are equivalent: MTH 111 and MTH 111Z

 $<sup>^{\</sup>rm 1}\,$  OSHA industrial training can be substituted Z This course is part of Oregon Common Course Numbering. The following courses are equivalent: MTH 111 and MTH 111Z