

Electronics Technologies

electronics.chemeketa.edu

Career opportunities in the electronics field are diverse, exciting, and rewarding. Chemeketa's electronics department offers three programs of study to meet the present and future challenges of the electronics industry: Electronic Engineering Technician, Computer Electronics, and Industrial Electronics.

You may be interested in our Cooperative Work Experience program, which allows you to earn college credit for work you do related to your program. You will need department approval before you may enroll in ELT280A-H Cooperative Work Experience. For more information, look under Cooperative Work Experience in the catalog index or contact Roger White at 503.399.5068.

For additional information or tours of the electronics laboratory, visit educationwithafuture.com.

Program outcomes:

Students completing the Electronic Engineering AAS will:

- Use communication, interpersonal, and leadership skills to establish and maintain collaborative relationships with supervisors, co-workers, and customers.
- Identify and solve technology problems related to electronic circuits and devices, mechanical systems, and computer hardware or software.
- Perform test procedures and use equipment to diagnose, maintain, and/or repair electronic/computer-based circuits and systems.
- Read and interpret written materials, including manuals, technical bulletins, schematics, and procedures to maintain and repair equipment or systems.
- Use standard terminology and clarifying language to communicate orally and in writing with customers, suppliers, supervisors, and co-workers.
- Practice skills and attitudes—individually and as a member of a team—that reflect quality management procedures and professional standards in the workplace.
- Apply professional and environmental safety practices associated with the workplace.

In addition to the Electronic Engineering outcomes, students completing the Computer Electronics AAS will:

- Identify and solve technology problems related to the manufacture, install, or maintenance of computers or computer-like equipment.

In addition to the Electronic Engineering outcomes, students completing the Industrial Electronics AAS will:

- Identify and solve technology problems related to the development, manufacturing, installation, and servicing of computer integrated manufacturing systems, semiconductor and microelectronic manufacturing equipment, process control equipment, and robotic and other electromechanical systems.

Getting started

The first step to entering the following programs is to take part in an assessment process, which includes taking the college's free placement test and meeting with Counseling and Career Services staff. You may need to complete pre-program courses. Then, your advisor will help you develop an individualized program of study, which may include one or more of the following:

CA121	Keyboarding (if less than 25 wpm).....	3
CIS101	Introduction to Microcomputer Applications.....	3
MTH070	Elementary Algebra.....	4
RD090	College Textbook Reading.....	3
WR090	Fundamentals of Writing.....	4

If you have questions about the requirements, call Counseling and Career Services at 503.399.5120 or 503.399.5114. Failure to be assessed may delay your entry into program classes.

Computer Electronics Associate of Applied Science

Graduates of the Computer Electronics program begin careers with companies that manufacture, install, debug, or maintain computers or computer-like equipment. This equipment includes, but is not limited to, mainframe computers, mini and microcomputers, automated office equipment and systems (word processors, point-of-purchase terminals, local area and wide area networks), computer peripherals, engineering work stations, automated factory products, and data communication networks.

The training includes both specific technical skills needed in the field and broader skills in communications and human relations, which are necessary for career success. You'll have hands-on practice working with computer hardware and software. Classes emphasize both component and system-level troubleshooting as well as installation and maintenance of equipment and networks.

As a graduate of this program, you may also choose to transfer to a school such as Oregon Institute of Technology to complete the coursework required for a bachelor's degree. If you wish to transfer, declare your intent before the first term and work closely with electronics advisor Gene Moore (503.399.6506), and the institution to which you plan to transfer.

Students entering this program must have an Intel-compatible computer (Pentium III or better) and be computer literate (type approximately 20 wpm, and be familiar with the Windows operating system, a word processor, and a spreadsheet).

In addition to tuition, estimated costs for students who complete the entire program listed below are books, \$2,490; class fees, \$430; universal fee, \$840; equipment and supplies, \$210; and Intel-compatible computer, \$900. Contact the Financial Aid Office at 503.399.5018 to find out if you qualify for help with these costs.

Chemeketa Community College

www.chemeketa.edu • 4000 Lancaster Dr. NE • Salem, Oregon 97305

Chemeketa Community College is an equal opportunity/affirmative action employer and educational institution. To request this publication in an alternative format, please call 503.399.5192

You may earn an Associate of Applied Science degree by successfully completing the required 105 credit hours with a grade of "C" or better in all courses.

Course	Title	Credit Hours
Term 1		
ELT111	Electronics Orientation.....	1
ELT131	Electronic Concepts 1.....	4
MTH111	College Algebra+ (or higher).....	5
	or	
MTH081	Technical Mathematics 1+.....	4
NET123	Computer Operating Systems.....	4
WR121	English Composition—Exposition+	3
Term 2		
ELT132	Electronic Concepts 2.....	4
ELT141	Transistor Fundamentals.....	5
ELT151	Digital Fundamentals.....	4
MTH112	Trigonometry (or higher).....	5
	or	
MTH082	Technical Mathematics 2	4
Term 3		
ELT133	Electronic Concepts 3.....	4
ELT142	Semiconductor Devices.....	3
ELT143	Pulse Circuit Fundamentals.....	3
ELT161	Linear IC Fundamentals.....	4
WR227	Technical Writing.....	3
Term 4		
ELT121	Programming Concepts 1	4
ELT244	Electronic Circuit Analysis	4
ELT252	Digital Circuit Applications	3
FE205B	Résumés and Job Search Correspondence.....	1
PH201	General Physics	4
	or	
PH121	Applied Physics	4
SP111	Fundamentals of Public Speaking	3
Term 5		
CIS278	Data Communications.....	3
ELT253	Microprocessor Systems.....	5
ELT254	Computer Hardware	4
	or	
CIS145	Microcomputer Hardware	4
PH202	General Physics	4
	or	
PH122	Applied Physics	4
PSY104	Psychology in the Workplace+	3
Term 6		
ELT222	Programming Concepts 2	4
	or	
CIS140U	UNIX/LINUX.....	3
	or	
CIS140S	Solaris-UNIX Operating System.....	5
	or	
CIS179	Introduction to Client-Server Networks	4
ELT255	Advanced Data Communications.....	5
	or	
CIS279	Network Management	5
ELT256	Advanced Computer Architecture.....	4
ELT283	Logical Troubleshooting.....	5

Electronic Engineering Technician Associate of Applied Science

Upon graduation from the Electronic Engineering Technician program, you may begin a career assisting in the design, manufacturing, installation, and service of microelectronics and semiconductor manufacturing systems, telecommunication equipment and systems, electronic test instruments, medical measuring and monitoring equipment, computers, video systems, automation products, security and safety systems, process control systems, and flexible automation systems (robots). Training includes specific technical skills needed in the field and broader skills in communications, teamwork, and human relations, which are necessary for career success.

As a graduate of this program, you may choose to transfer to a school such as Oregon Institute of Technology to complete the coursework required for a bachelor's degree. If you wish to transfer, declare your intent before the first term and work closely with the electronic engineering advisor (Gene Moore, 503.399.6506) and the institution to which you plan to transfer. Students entering this program must have an Intel-compatible computer (Pentium III or better), and be computer literate (type approximately 20 wpm, be familiar with the Windows operating system, a word processor, and a spreadsheet).

In addition to tuition, estimated costs for students who complete the entire program listed below are books, \$2,520; class fees, \$430; universal fee, \$816; Intel-compatible computer, \$900; equipment and supplies, \$210. Contact the Financial Aid Office at 503.399.5018 to find out if you qualify for help with these costs.

You may earn an Associate of Applied Science degree by successfully completing the required 102 credit hours with a grade of "C" or better in all courses.

Course	Title	Credit Hours
Term 1		
DRF101	Basic CAD for Electronics.....	2
ELT111	Electronics Orientation.....	1
ELT131	Electronic Concepts 1.....	4
MTH111	College Algebra+ (or higher).....	5
	or	
MTH081	Technical Mathematics 1+.....	4
WR121	English Composition—Exposition+	3
Term 2		
ELT132	Electronic Concepts 2.....	4
ELT141	Transistor Fundamentals.....	5
ELT151	Digital Fundamentals.....	4
MTH112	Trigonometry (or higher).....	5
	or	
MTH082	Technical Mathematics 2	4
Term 3		
ELT133	Electronic Concepts 3.....	4
ELT142	Semiconductor Devices.....	3
ELT143	Pulse Circuit Fundamentals.....	3
ELT161	Linear IC Fundamentals.....	4
WR227	Technical Writing.....	3

Term 4

ELT121	Programming Concepts 1	4
ELT244	Electronic Circuit Analysis	4
ELT252	Digital Circuit Applications	3
FE205B	Résumés and Job Search Correspondence.....	1
PH201	General Physics	4
	or	
PH121	Applied Physics	4
SP111	Fundamentals of Public Speaking	3

Term 5

ELT253	Microprocessor Systems.....	5
ELT262	Linear IC Applications.....	3
ELT281	Antennas and Transmission Lines.....	2
ELT282	Telecommunications	3
PH202	General Physics	4
	or	
PH122	Applied Physics	4

Term 6

ELT283	Logical Troubleshooting.....	5
ELT291	Advanced Industrial Electronics.....	4
PSY104	Psychology in the Workplace+	3
	Electronics electives*	6

***Electronics electives (select 6 credits):**

CH121	College Chemistry	5
CH201	Chemistry for Engineers	4
CIS145	Microcomputer Hardware	4
ELT222	Programming Concepts 2	4
ELT254	Computer Hardware	4
ELT255	Advanced Data Communications.....	5
ELT256	Advanced Computer Architecture.....	4
ELT280C	Cooperative Work Experience*	3
ELT293	Flexible Manufacturing Systems.....	3
MT110	Microelectronics.....	3
MT221	Fluid and Vacuum Systems.....	4
MT223	High Vacuum Technology.....	3
MT227A	Pneumatics and Hydraulics Fundamentals	3
MTH241	Elementary Calculus	4
MTH243	Probability and Statistics 1	4
MTH251	Differential Calculus (or higher)	5
PH203	General Physics	4

* For second-year students only; must have prior approval of program chair.

Industrial Electronics Associate of Applied Science

Students selecting the Industrial Electronics program may begin careers—upon graduation—assisting in the development, manufacturing, installation, and servicing of computer-integrated manufacturing systems, semiconductor, and microelectronic manufacturing equipment, process control equipment, and robotic, and other electromechanical systems. This program stresses mechanical, computer, and electronic theory, as well as the communication and human relation skills needed for career advancement.

As a graduate of this program, you may choose to transfer to a school such as Oregon Institute of Technology to complete the coursework required for a bachelor's degree. If you intend to transfer, declare your intent before the first term and work closely with the Industrial Electronics advisor (Gene Moore at 503.399.6506) and the institution to which you plan to transfer. Students entering this program must have an Intel-compatible

computer (Pentium III or better), and be computer literate (type approximately 20 wpm and be familiar with the Windows operating system, a word processor and a spreadsheet).

In addition to tuition, estimated costs for students who complete the entire program listed below are books, \$2,300; class fees, \$430; universal fee, \$808; Intel-compatible computer, \$900; equipment and supplies, \$210. Contact the Financial Aid Office at 503.399.5018 to find out if you qualify for help with these costs.

You may earn an Associate of Applied Science degree by successfully completing the required 101 credit hours with a grade of "C" or better in all courses.

Course	Title	Credit Hours
Term 1		
DRF101	Basic CAD for Electronics.....	2
ELT111	Electronics Orientation.....	1
ELT131	Electronic Concepts 1.....	4
MT110	Microelectronics.....	3
MTH111	College Algebra+ (or higher).....	5
	or	
MTH081	Technical Mathematics 1+.....	4
WR121	English Composition—Exposition+	3
Term 2		
ELT132	Electronic Concepts 2.....	4
ELT141	Transistor Fundamentals.....	5
ELT151	Digital Fundamentals.....	4
MTH112	Trigonometry (or higher).....	5
	or	
MTH082	Technical Mathematics 2	4
Term 3		
ELT133	Electronic Concepts 3.....	4
ELT142	Semiconductor Devices.....	3
ELT143	Pulse Circuit Fundamentals.....	3
ELT161	Linear IC Fundamentals.....	4
WR227	Technical Writing.....	3
Term 4		
ELT121	Programming Concepts 1	4
	or	
CIS133J	Fundamentals of Java Programming 1.....	4
ELT244	Electronic Circuit Analysis	4
ELT252	Digital Circuit Applications	3
FE205B	Résumés and Job Search Correspondence.....	1
PH201	General Physics	4
	or	
PH121	Applied Physics	4
SP111	Fundamentals of Public Speaking	3
Term 5		
ELT253	Microprocessor Systems.....	5
ELT262	Linear IC Applications.....	3
PH202	General Physics	4
	or	
PH122	Applied Physics	4
	Technical elective*	3
Term 6		
ELT291	Advanced Industrial Electronics.....	4
PSY104	Psychology in the Workplace+	3
	Technical electives*.....	9

***Technical electives (select 12 credits):**

CH121	College Chemistry	5
CH201	Chemistry for Engineers	4
CIS145	Microcomputer Hardware	4
DRF251	Power Transmission Design.....	3
ELT254	Computer Hardware	4
ELT283	Logical Troubleshooting.....	5
ELT293	Flexible Manufacturing Systems	3
MT221	Fluid and Vacuum Systems.....	4
MT223	High Vacuum Technology.....	3
MT227A	Pneumatics and Hydraulics Fundamentals	3
MTH243	Probability and Statistics 1	4