



AACC PATHWAYS PROJECT Program Map Template

NAME OF PROGRAM OF STUDY:

Electronics & Computer Technology

EXPECTED CERTIFICATE/DEGREE (Total Number of Units):

AS Degree: 69 units
Certificate: 45 units

PROGRAM DESCRIPTION:

The Electronics and Computer Engineering Technology (ECET) degree and certificate programs prepare individuals either for initial employment or for enhancement of existing skills in the electronics field, or for transfer into B.S. programs in Electronics Technology or Industrial Technology offered in the California State University system. In addition to exposing students to core topics such as components, circuits, and fabrication techniques, the program includes coursework in advanced areas including microcontrollers and interfacing, communications, and industrial electronic controls. Nearly all laboratories have new, state-of-the-art equipment to provide students with quality, hands-on learning experiences.

Program completers will

- Apply knowledge of electronic principles to the areas of communications, industrial electronics, and microcontrollers.
- Demonstrate proper use of electronic test equipment and associate measurement results with circuit behaviors in the laboratory.
- Quantitatively determine unknown electrical parameters from given or measured values and use these results to assess or troubleshoot faults in circuit and system operation.
- Communicate, both verbally and in writing, knowledge of electrical concepts and their application to the observed behaviors of circuits and systems.
- In advanced courses, connect concepts learned in introductory courses to more general principles applicable in the employment context.

CAREER OPPORTUNITIES:

Students completing the ECET degree and certificate programs possess ample skills to make them versatile employees and fully competent electronics technicians. Typical technician-level job classifications include field service technician, field engineer, computer service technician, customer service technician, communications technician, maintenance technician, and electronics technician.

Graduates of programs in electronics technology find employment in a variety of industry sectors under many different job titles. Though by no means an exhaustive list, the following table offers a sampling of jobs, projections of growth, and average salary ranges within the state of California:

Occupational Title	Percent change 2012-2022	Annual Average Percent Change	Median Hourly Wage (2014)
Electrical and Electronics Engineering Technicians	1.9%	0.2%	\$30.10
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	12.7%	1.3%	Not reported by EDD
Radio, Cellular, and Tower Equipment Installers and Repairers	6.7%	0.7%	\$24.00
Telecommunications Equipment Installers and Repairers, Except Line Installers	21.7%	2.2%	\$30.72
Security and Fire Alarm Systems Installers	19.7%	2.0%	\$22.37
Telecommunications Line Installers and Repairers	22.2%	2.2%	\$31.12

Source: State of California Employment Development Department, Labor Market Information Division, Published September 19, 2014

With suitable additional education and training, completers can expect to enter a number of engineering or engineering-related fields for which a Bachelor's degree is normally required. Among them are the following:

Occupational Title	Percent change 2012-2022	Annual Average Percent Change	Median Hourly Wage (2014)
Electronics Engineers, Except Computer	8.5%	0.8%	\$52.02
Electrical Engineers	4.6%	0.5%	\$53.44
Computer Hardware Engineers	14.3%	1.4%	\$55.93
Sales Engineers	19.5%	2.0%	\$51.44

Source: State of California Employment Development Department, Labor Market Information Division, Published September 19, 2014

PROGRAM REQUIREMENTS:

FIRST SEMESTER (FALL)

Code	Course Name	Units	Milestones	Policies/structures needed to support student progression
ELEC 50A	Electronic Circuits (DC)	4	<ul style="list-style-type: none"> - First Milestone: Completion of ELEC 50A and 50B provides foundational preparation for all subsequent courses not marked with an asterisk. Courses marked with an asterisk are entry-level courses that may be taken any semester. - Minimum GPA requirement: 2.00 - Recognizing that students enter the department's programs with a wide variety of educational backgrounds and occupational experience levels, department faculty have not instituted "hard" (mandatory) prerequisites for any courses. This policy also affords students many possible 	<ul style="list-style-type: none"> • Would a student be able to enroll in a section of either English or Speech with the registration priority available? Will enough sections be offered? True for all Gen Ed courses. • Students are strongly encouraged to begin their electronics program at the beginning of their college experience. There are no general-education or basic-skills (developmental-education) prerequisites for
ELEC 50B	Electronic Circuits (AC)	4		
ELEC 11	Technical Applications in Microcomputers	3		
General Eds: English 1A or Speech 1A (4 units)				
Total		15		

		sequences for completing courses in the fastest time possible, thereby offering maximum flexibility.	entry into any electronics courses. Many department, division, and college resources are available to support student success throughout the program.
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SECOND SEMESTER (SPRING)

Code	Course Name	Units	Milestones	Policies/structures needed to support student progression
ELEC 56	Digital Electronics	4	-	-
ELEC 61	Electronic Assembly and Fabrication	3		
TECH 60*	Customer Relations for the Technician	2		
General Eds: Area C requirements: 1 from Arts and 1 from Humanities (6 units)				
Total		15		

THIRD SEMESTER (FALL)

Code	Course Name	Units	Milestones	Policies/structures needed to support student progression
ELEC 51	Semiconductor Devices	4	- Second milestone: Student eligible for certificate in Electronics Technology after completion of first- and second-semester courses AND ELEC 51	- ?
ELEC 54A	Industrial Electronics	4		
ELEC 53	Communications Systems	4		
General Eds: Area B Gen Ed elective (3 units)		15		

Total			
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FOURTH SEMESTER (SPRING)

Code	Course Name	Units	Milestones	Policies/structures needed to support student progression
ELEC 54B	Industrial Electronic Systems	3	-	- ?
ELEC 12	Computer Simulation and Troubleshooting	2		
ELEC 74	Microcontroller Systems	4		
ELEC 55	Microwave Communications	4		
General Eds: Area E requirement – 3 units				
Total		16		

Students would need to complete one Area A requirement (either English 1A OR Speech 1A) and the Area D requirement (6 units) during an intersession term in order to complete the AS Degree program in two years, assuming students limited themselves as much as possible to 15 units per semester.

TRANSFER PATHS AND REQUIREMENTS

The Mt. SAC Electronics Technology program has a number of courses that articulate directly to the Electronics Engineering Technology (EET) program at California State Polytechnic University, Pomona. Similar programs in EET or Industrial Technology are available from CSU Long Beach, CSU Los Angeles, and CSU San Jose. Current articulation agreements and specific courses recognized for articulation credit at each institution can be accessed at www.assist.org. More information regarding transfer resources and policies can be obtained at <http://www.mtsac.edu/electronics/employment/transfer.html>

COSTS AND FINANCIAL AID

Excluding textbooks and supplemental charges, enrollment fees for full-time, California resident students taking 12 units are \$552 per semester (\$46 per unit); state funding covers all other costs. Financial aid is available for those who qualify.

ONCE COMPLETED, THE PROGRAM MAPS FOR STUDENTS/ADVISORS SHOULD ANSWER THE FOLLOWING QUESTIONS:

- What are my career options? Are there careers in this region? How much will I make?
- What general education courses are recommended?
- What elective courses are recommended?
- What are the critical courses that students need to complete successfully in order to be successful in the program?
- What is the mathematics requirement (“the right math”) for the program of study?
- What courses should I take and when?
- Are there selective admissions requirements for the program? If so, what are they and how can I best prepare for admission?
- Will I have opportunities to do applied/ work-based learning or service learning?
- How long will it take to complete the program? Full-time? Part-time?
- How much will it cost to complete the program?
- What are the financial aid options?
- Will my credits transfer? Apply? At which institutions in the state?