

Electronics Technology ET

Associate in Science Degree
Certificate of Achievement

Division of Advanced Technology
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Automated Systems Technician, Degree and Certificate of Achievement
Electronics Facilities Maintenance Technician, Degree and Certificate of Achievement
Microcomputer Technician, Degree and Certificate of Achievement
Telecommunications Technician, Degree and Certificate of Achievement
Electronics Mechanic, Certificate of Achievement

Career Opportunities

The Electronics Technology Program consists of five major career preparation options:

Automated Systems Technician: Designed to prepare students for employment in the programming, testing, repair and maintenance of digital and analog computer controlled systems.

Electronics Facilities Maintenance Technician: Designed to prepare students for employment in Federal Aviation Administration facilities or any facilities with advanced computer and communications electronics

Microcomputer Technician: Designed for Electronics Technology or Computer Information Science students pursuing employment in the area of programming and maintaining microcomputer systems

Telecommunications Technician: Designed to prepare students for employment in the calibrating, testing, repair and maintenance of electronic communications equipment.

Electronics Mechanic: Designed to prepare students for employment in the assembly and testing of electronic circuit devices.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry and computers.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Automated Systems Technician

Associate in Science Degree
Certificate of Achievement

Career Opportunities

This program is designed for students pursuing employment in the programming, testing, repair, and maintenance of digital and analog computer controlled systems.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry and computers.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Upon completion of this program, the student will be able to:

- demonstrate safe work practices for automated systems equipment.
- demonstrate the proper use of basic test equipment to include DMM, oscilloscopes, and digital or analog signal sources.
- use a standard schematic diagram of an automated system to identify its digital or analog parts.
- explain common automated systems terminology for digital and analog devices.
- estimate automated system circuit performance using mathematical tools.
- analyze and compare calculated automated system circuit performance to actual performance.
- measure common automated system parameters using appropriate test equipment.
- set up and install basic automated system equipment
- design proper preventive maintenance, calibration and system testing procedures for automated equipment.
- perform proper preventive maintenance, calibration and system testing on automated equipment.
- diagnose common automated system failures down to the source of the problem.
- solve automated system problems by replacing failed hardware or software parts.

Required Program	Units
ET 300 DC Theory and Circuit Fundamentals	2.5
ET 301 AC Theory and Circuit Fundamentals	2.5
ET 306 Electronics Fabrication and Soldering Techniques	2
ET 310 Mathematics for DC Circuit Fundamentals, Part I.....	1.5
ET 311 Mathematics for AC Circuit Fundamentals, Part II.....	1.5
ET 315 Mathematics for Semiconductor Theory.....	3
ET 320 Semiconductor Theory.....	5
ET 330 Analog and Digital Integrated Circuit Applications.....	5
ET 340 Basic Microprocessors.....	5
ET 360 Electronic Servicing and Calibration Techniques.....	3
ET 390 Microprocessor Systems - Troubleshooting	3
ET 400 Microwave Communications Techniques	4
CISC 310 Introduction to Computer Information Science	3
ET 490 Advanced Student Projects Laboratory	2
ET 490 Advanced Student Projects Laboratory	2
Total Units Required	45

Suggested Electives

EDT 310, 352

Associate in Science (A.S.) Degree

The Associate in Science Degree may be obtained by completion of requirements in the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement

The Certificate of Achievement may be obtained by completion of all courses in the required program with grades of "C" or better.

Electronics Facilities Maintenance Technician

Associate in Science Degree

Certificate of Achievement

Career Opportunities

This program is designed for students pursuing internships and employment in the Federal Aviation Administration and other related industries in the areas of computer systems, environmental systems, communication equipment, and navigation equipment maintenance and repair.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry and computers.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Upon completion of this program, the student will be able to:

- demonstrate safe work practices for electronic facilities equipment.
- demonstrate the proper use of electronic test equipment to include DMM, oscilloscopes, signal sources and supplies.
- use a standard schematic diagram of an electronic system to identify and test its parts.
- explain common electronic facilities systems terminology
- estimate electronic facilities circuit performance using mathematical tools.

- analyze and compare calculated electronic facilities circuit performance to actual performance.
- measure common electronic facilities circuit parameters using appropriate test equipment.
- set up and install basic electronic facilities system equipment.
- design proper preventive maintenance, calibration and system testing procedures for facilities equipment.
- perform proper preventive maintenance, calibration and system testing on electronic facilities equipment.
- diagnose common electronic system failures down to the source of the problem.
- solve electronic system problems by replacing failed hardware or software parts.

Required Program

Units

ET 300 DC Theory and Circuit Fundamentals	2.5
ET 301 AC Theory and Circuit Fundamentals	2.5
ET 306 Electronics Fabrication and Soldering Techniques	2
ET 310 Mathematics for DC Circuit Fundamentals, Part I.....	1.5
ET 311 Mathematics for AC Circuit Fundamentals, Part II.....	1.5
ET 315 Mathematics for Semiconductor Theory.....	3
ET 320 Semiconductor Theory.....	5
ET 330 Analog and Digital Integrated Circuit Applications.....	5
ET 340 Basic Microprocessors.....	5
ET 350 Receiver Circuits.....	5
ET 390 Microprocessor Systems - Troubleshooting	3
ET 400 Microwave Communications Techniques	4
ET 410 Transmitter Fundamentals.....	5
MATH 334 Trigonometry	4
Total Units Required	49

Suggested Electives

CISC 310, 355; CISN 300, EDT 310, 352; ET 490

Associate in Science (A.S.) Degree

The Associate in Science Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement

The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better.

Microcomputer Technician

Associate in Science Degree

Certificate of Achievement

Career Opportunities

This program is designed for Electronics Technology and Computer Information Science students pursuing employment in the area of programming and maintaining microcomputer systems.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry and computers.

Upon completion of this program, the student will be able to:

- use the operating system on a personal computer to manipulate files and folders.
- use the operating system on a personal computer to configure hardware and applications.
- explain common computer terminology used in computer information science and electronics technology.
- diagnose common computer errors that occur because of hardware, software, or network problems.
- predict common computer error solutions in hardware, software, or network systems.
- resolve common computer errors that occur in hardware, software, or network systems.

Required Program**Units**

CISC 310 Introduction to Computer Information Science	3
CISP 301 Algorithm Design and Implementation	4
CISP 363 Structured Programming with BASIC.....	2
CISC 320 Operating Systems (1).....	1
or CISC 323 Linux Operating System (1)	
CISA 310 Introduction to Electronic Spreadsheets.....	1
CISA 311 Intermediate Electronic Spreadsheets	1
CISA 323 Database Management using Microsoft Access	2
ET 145 Basic Computer System Repair I (1).....	4
and ET 146 Basic Computer System Repair II (3)	
or CISC 360 Microcomputer Support and Maintenance (4)	
ET 340 Basic Microprocessors.....	5
ET 390 Microprocessor Systems - Troubleshooting	3
ET 490 Advanced Student Projects Laboratory	2
CISC 355 Introduction to Data Communications (1.5).....	1.5-3
or CISC 300 Network Systems Administration (3)	
or CISC 303 Network Administration - Linux Server (3)	
A minimum of 4 units from the following:.....	4
ET 300 DC Theory and Circuit Fundamentals (2.5)	
and ET 301 AC Theory and Circuit Fundamentals (2.5)	
ET 306 Electronics Fabrication and Soldering Techniques (2)	
ET 310 Mathematics for DC Circuit Fundamentals, Part I (1.5)	
and ET 311 Mathematics for AC Circuit Fundamentals,	
Part II (1.5)	
ET 320 Semiconductor Theory (5)	
EDT 310 Computer Aided Drafting (3)	
EDT 352 Electrical and Electronics Drafting Design (4)	
CISC 300 Network Systems Administration (3)	
CISC 351 Introduction to Local Area Networks (1)	
CISC 303 Network Administration - Linux Server (3)	
CISC 304 Networking Technologies (3)	

Total Units Required**33.5 - 35****Associate in Science (A.S.) Degree**

The Associate in Science Degree may be obtained by completion the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement

The Certificate of Achievement may be obtained by completion of all courses in the required program with grades of "C" or better in all courses or equivalent.

Telecommunications Technician**Associate in Science Degree
Certificate of Achievement****Career Opportunities**

This program is designed for students pursuing employment in the calibration, testing, repair and maintenance of electronic communications equipment.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry, and computers.

Upon completion of this program, the student will be able to:

- demonstrate safe work practices for telecommunication equipment.
- demonstrate the proper use of basic telecommunication test equipment to include DMM, oscilloscopes, signal sources.
- use a standard schematic diagram of a telecommunication system to identify and test its parts.
- explain common telecommunication terminology.
- estimate telecommunication system circuit performance using mathematical tools
- analyze and compare calculated telecommunication system circuit performance to actual performance.
- measure common telecommunication system circuit parameters using appropriate test equipment.
- set up and install basic telecommunication equipment.
- design proper preventive maintenance, calibration and system testing procedures for telecommunication equipment.
- perform proper preventive maintenance, calibration and system testing on telecommunication equipment.
- diagnose common telecommunication system failures down to the source of the problem.
- solve telecommunication system problems by replacing failed parts.

Required Program**Units**

ET 300 DC Theory and Circuit Fundamentals	2.5
ET 301 AC Theory and Circuit Fundamentals.....	2.5
ET 306 Electronics Fabrication and Soldering Techniques	2
ET 310 Mathematics for DC Circuit Fundamentals, Part I.....	1.5
ET 311 Mathematics for AC Circuit Fundamentals, Part II.....	1.5
ET 315 Mathematics for Semiconductor Theory.....	3
ET 320 Semiconductor Theory.....	5
ET 330 Analog and Digital Integrated Circuit Applications.....	5
ET 340 Basic Microprocessors.....	5
ET 350 Receiver Circuits.....	5
ET 360 Electronic Servicing and Calibration Techniques (3)	
or ET 390 Microprocessor Systems - Troubleshooting (3).....	3
ET 400 Microwave Communications Techniques	4
ET 410 Transmitter Fundamentals.....	5

Total Units Required**45**

Suggested Electives

CISC 310, 355; CISC 300, EDT 310, 352; ET 490

Associate in Science (A.S.) Degree

The Associate in Science Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement

The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better in all courses or equivalent.

Electronics Mechanic**Certificate of Achievement****Career Opportunities**

This program is designed for students pursuing employment in the assembly and testing of electronic circuit devices.

Program Costs

In addition to the normal student expenses (for textbooks, personal equipment and supplies), laboratory materials fees may be required. Students will be responsible for providing some of their own parts and a basic Electronics tool kit. These will be available as ready-made sets in the College Store. For specific class required materials and texts, check with the Electronics faculty or the College Store. These fees may vary each semester. If these fees create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation

Courses in electricity, electronics, English, algebra, physics, chemistry, and computers

Upon completion of this program, the student will be able to:

- demonstrate safe work practices for electronic equipment.
- demonstrate the proper use of basic electronic test equipment to include DMM, oscilloscopes, and power sources.
- use a standard schematic diagram of electronic devices to identify and assemble the component parts.
- explain common electronic circuit terminology.
- estimate electronic circuit performance using mathematical tools.
- analyze and compare calculated electronic circuit performance to actual performance.
- measure common electronic circuit parameters.
- implement performance testing on simple electronic devices.

Required Program**Units**

ET 300 DC Theory and Circuit Fundamentals	2.5
ET 301 AC Theory and Circuit Fundamentals	2.5
ET 306 Electronics Fabrication and Soldering Techniques	2
ET 310 Mathematics for DC Circuit Fundamentals, Part I.....	1.5
ET 311 Mathematics for AC Circuit Fundamentals, Part II.....	1.5
ET 315 Mathematics for Semiconductor Theory.....	3
ET 320 Semiconductor Theory.....	5

A minimum of 13 units from the following:

- CISC 310 Introduction to Computer Information Science (3)
- ET 490 Advanced Student Projects Laboratory (2)
- ET 494 Topics in Electronics Technology (0.5 - 4)
- ET 495 Independent Studies in Electronics Technology (1 - 3)
- MET 256 Fundamentals of Instruments and Electricity (1.5)

MET 257 Fundamentals of Workplace Success (1.5)

MET 351 Basic Mechanical Systems (5)

MET 352 Mechanical Systems Calculations (3)

Total Units Required**31****Certificate of Achievement**

The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent.

Electronics Technology (ET)**ET 15 Beginning Mathematics for 3 Units**
Electronics

Prerequisite: None.

Hours: 54 hours LEC

This is a basic course for those interested in electronics who do not meet the requirements for ET 300 and ET 301. Units of instruction include DC and AC circuit mathematics, scientific calculators, powers of ten, and introduction to algebraic concepts as related to electronics.

ET 145 Basic Computer System 1 Unit
Repair I

Prerequisite: None.

Hours: 12 hours LEC; 18 hours LAB

This is an introductory course to personal computer repair. The course will begin with an overview of the history of computer repair and discussion of common computer repair nomenclature, diagnostic software, and the theory of computer operations. The course will also introduce the student to the use of the Internet for locating technical repair documentation on the Web.

ET 146 Basic Computer System 3 Units
Repair II

Prerequisite: ET 145 with a grade of "C" or better or equivalent.

Hours: 36 hours LEC; 54 hours LAB

This is the second of three courses in computer repair. It will use knowledge and skills of ET 145 to expand the students' familiarization with computer hardware and software at a component level. This will give students an overview of repair procedures of a computer system. The scope of the course will include personal computer fabrication and common problem solutions. Troubleshooting philosophies and techniques are emphasized.

ET 147 Basic Computer System 3 Units
Repair III

Prerequisite: ET 146 with a grade of "C" or better or equivalent.

Hours: 36 hours LEC; 54 hours LAB

This is the third of three courses in computer system repair. It will use knowledge and skills of ET 145 and ET 146 to train the student in the advanced skills needed for desktop and network computer repair. The scope of the course will include PC board and component level repair of a typical desk top computer system. Troubleshooting philosophies and techniques are emphasized.

ET 210 Applied Mathematics for Electronics 3 Units

Prerequisite: None.
Hours: 54 hours LEC

This is a basic course for those interested in cabling and installation electronics who do not meet the requirements for ET 300. Units of instruction include DC and AC circuit application mathematics, scientific calculators, powers of ten and introduction to algebraic concepts as related to electronics.

ET 220 A Survey of AC and DC Circuit Fundamentals 5 Units

Prerequisite: ET 210 and 230 with grades of "C" or better or equivalent.

Hours: 54 hours LEC; 108 hours LAB

This course is designed to provide instruction in the basic concepts of AC and DC theory including a study of resistors, capacitors and inductors in series and parallel circuits. Laboratory use of meters, oscilloscopes, signal generators and power supplies will be stressed.

ET 230 Laboratory Practices and Techniques 1 Unit

Prerequisite: None.
Advisory: Concurrent enrollment in ET 210.
Hours: 54 hours LAB

This course provides instruction in the language of electronics, safe and efficient use of tools, equipment, and chemical processes used in the laboratory including: high voltage precautions, printed circuit fabrication, equipment panel fabrication silkscreen, and state-of-the-art soldering techniques.

ET 240 A Survey of Semiconductor Theory 5 Units

Prerequisite: ET 220 with a grade of "C" or better or equivalent.
Hours: 54 hours LEC; 108 hours LAB

This course provides a survey of diodes, transistors, FET's, linear and digital IC's and how they are installed and used in modern electronic equipment. Laboratory will stress the hands-on manufacturing and troubleshooting of modern electronic equipment.

ET 295 Independent Studies in Electronics Technology 1-3 Units

Prerequisite: None.
Hours: 54 hours LEC

Independent study of an electronic topic or research project. This course is for students who wish to develop an in-depth understanding in fundamental topics of electronics technology and to learn to work in a collaborative atmosphere with instructors and other students. Instructor approval is required to enroll in this course.

ET 299 Experimental Offering in Electronics Technology .5-4 Units

Prerequisite: None
Hours: 72 hours LEC
 See Experimental Offerings

ET 300 DC Theory and Circuit Fundamentals 2.5 Units

Prerequisite: One year of high school algebra or ET 15 with a grade of "C" or better or equivalent prerequisite.

Advisory: Concurrent enrollment in ET 306 and ET 310.

Course Transferable to CSU

Hours: 27 hours LEC; 54 hours LAB

This course is designed to provide instruction in the basic concepts of DC theory including a study of the composition of matter, circuit fundamentals, voltage, current, and resistance in series, parallel and combination circuit configurations. Laboratory activities provide hands-on projects that include operation and use of electronic equipment required by industry.

ET 301 AC Theory and Circuit Fundamentals 2.5 Units

Prerequisite: Successful completion of ET 300 with a grade of "C" or better or equivalent prerequisite.

Advisory: Concurrent enrollment in ET 306 and ET 311.

Course Transferable to CSU

Hours: 27 hours LEC; 54 hours LAB

This course is designed to provide instruction in the basic concepts of AC theory including a study of circuit fundamentals, voltage, current, resistance and RLC impedances in series, and parallel and combination circuit configurations. Laboratory activities provide hands-on projects that include operation and use of electronic equipment required by industry.

ET 306 Electronics Fabrication and Soldering Techniques 2 Units

Prerequisite: None.
Advisory: Successful completion of or concurrent enrollment in ET 300 and ET 301.

Course Transferable to CSU

Hours: 18 hours LEC; 54 hours LAB

This course covers the skills needed for identification and the safe and efficient use of hand tools and soldering equipment used in basic electronics repair. Familiarization with fabrication, soldering/de-soldering techniques, electrostatic discharge (ESD), assembly, and safety practices are covered.

ET 310 Mathematics for DC Circuit Fundamentals, Part I 1.5 Units

Prerequisite: One year of high school algebra or ET 15 with a grade of "C" or better, or qualifying mathematics assessment test scores or equivalent.

Advisory: Concurrent enrollment in ET 300.

General Education: AA/AS Area II(b)

Course Transferable to CSU

Hours: 27 hours LEC

This course focuses on the application of the basic concepts of algebra to solve electronic problems in DC resistive series parallel circuits. Instruction will be given in the use of powers of ten, algebra, and other mathematical concepts necessary for calculation of resistance, DC voltage, and current distribution in series, parallel, and combination circuits.

ET 311 Mathematics for AC Circuit Fundamentals, Part II 1.5 Units

Prerequisite: Successful completion of ET 310 with a grade of "C" or better or equivalent prerequisite.

Advisory: Concurrent enrollment in ET 301.

General Education: AA/AS Area II(b)

Course Transferable to CSU

Hours: 27 hours LEC

This course focuses on the application of the basic concepts of algebra and trigonometry to solve electronic problems in AC-RLC series/parallel circuits. Instruction will be given in the use of powers of ten, logarithms, algebra, and other mathematical concepts necessary for calculation of resistances, reactances, AC voltage, and current distribution in series, parallel, and combination circuits.

ET 315 Mathematics for Semiconductor Theory 3 Units

Prerequisite: ET 300, 301, 310, and 311 with grades of "C" or better.

Advisory: Concurrent enrollment in ET 320 and 330.

Course Transferable to CSU

Hours: 54 hours LEC

This course provides a detailed study of the mathematics required to solve problems in semiconductor circuit theory. Some of these math functions include: vector algebra, load line plotting, decibel theory and application, common and natural log functions, power supply analysis, calculation of input and output bandwidth characteristics of semiconductor amplifiers, use of rate-of-change functions to study slope of lines and their relationship to amplifier impedances, and use of network theorems to simplify complex biasing networks.

ET 320 Semiconductor Theory 5 Units

Prerequisite: ET 300, 301, 310, and 311 with grades of "C" or better or equivalent.

Advisory: Concurrent enrollment in ET 315.

Course Transferable to CSU

Hours: 54 hours LEC; 108 hours LAB

This course provides a detailed study of diodes, transistors, FET's, linear IC's and their use in power supplies, AC and DC small signal and large signal amplifiers. Laboratory will stress the troubleshoot and repair of each type of power supply and amplifier circuit.

ET 330 Analog and Digital Integrated Circuit Applications 5 Units

Prerequisite: ET 300, 301, 310, and 311 with grades of "C" or better or equivalent.

Advisory: Concurrent enrollment in ET 315 and ET 320.

Course Transferable to CSU

Hours: 54 hours LEC; 108 hours LAB

This course focuses on logic gates, and truth tables for TTL and CMOS circuits. Theory and practical applications of decoders, flip-flops, latches, and counters will be covered. Theory and practical applications for operational amplifiers and comparators will be covered. Theory and applications of timers, phase-lock loops, op-amp integrators and active filters will be covered.

ET 340 Basic Microprocessors 5 Units

Prerequisite: None.

Advisory: Concurrent enrollment in ET 490.

Course Transferable to CSU

Hours: 54 hours LEC; 108 hours LAB

This is a beginning course dealing with the circuitry and use of the microprocessor. Peripheral hardware is also considered so that the student may gain an overview of a complete computer system. The scope of the course includes machine language programming in order to provide a base for understanding the dynamic operation of the entire system. Troubleshooting philosophy is stressed.

ET 350 Receiver Circuits 5 Units

Prerequisite: ET 315, 320, and 330 with grades of "C" or better or equivalent.

Course Transferable to CSU

Hours: 54 hours LEC; 108 hours LAB

This course focuses on the principles of radio receivers using AM, FM, and single sideband modulation systems. The course will also present associated control circuits and power supply circuitry for receivers.

ET 360 Electronic Servicing and Calibration Techniques 3 Units

Prerequisite: ET 315, 320, and 330 with grades of "C" or better or equivalent.

Course Transferable to CSU

Hours: 36 hours LEC; 54 hours LAB

This course focuses on developing familiarization with laboratory and test instruments and techniques of calibration and repair. It is a practical step-by-step approach for the beginning technician to the art of troubleshooting techniques on all the electronic equipment available in the electronics laboratory.

ET 390 Microprocessor Systems - Troubleshooting 3 Units

Prerequisite: ET 340 with a grade of "C" or better or equivalent.

Course Transferable to CSU

Hours: 18 hours LEC; 108 hours LAB

This course will focus on the principles of microprocessor system control and troubleshooting. Study will include measurement transducers, analog-to-digital and digital-to-analog converters, power supplies, and power users. All concepts processes will be coordinated by a microprocessor to perform a desired function.

ET 400 Microwave Communications 4 Units
Techniques

Prerequisite: ET 315, 320, and 330 with grades of "C" or better or equivalent.

Course Transferable to CSU

Hours: 36 hours LEC; 108 hours LAB

This course is a study of electromagnetic waves and antennas. The course will present types of microwave generators, microwave communications systems, and antenna guidance systems. The use of lasers and fiber optics in communications systems and as a source of high tech energy control will also be presented.

ET 410 Transmitter Fundamentals 5 Units

Prerequisite: ET 315, 320, and 330 with grades of "C" or better or equivalent.

Course Transferable to CSU

Hours: 54 hours LEC; 108 hours LAB

This is a fundamental course in AM/FM and single side-band transmitters. The course will present students with preparation for employment in the communications industry. It will include instruction in adjustment and tuning of transmitters. Students will be presented with symptoms of malfunctions and remedies in troubleshooting transmitters.

ET 490 Advanced Student Projects 2 Units
Laboratory

Prerequisite: ET 306 with a grade of "C" or better or equivalent.

Advisory: ET 300 and ET 301 with grades of "C" or better. Concurrent enrollment in ET 340 is advised.

Course Transferable to CSU

Hours: 108 hours LAB

This course provides an opportunity for students to pursue advanced projects selected by the Electronics Technology Department staff. This course may be taken twice for credit.

ET 494 Topics in Electronics .5-4 Units
Technology

Prerequisite: None.

Course Transferable to CSU

Hours: 9 hours LEC; 216 hours LAB

This is a specialized course developed in cooperation with industry to address emerging training needs. This course may be taken four times for credit for a maximum of 16 units provided no topics are repeated. Units are awarded on the basis of .5 unit for each 9 hours of lecture or 27 hours of lab.

ET 495 Independent Studies in 1-3 Units
Electronics Technology

Prerequisite: None.

Course Transferable to CSU

Hours: 162 hours LAB

Independent study of an electronic topic or research project. This course is for students who wish to develop an in-depth understanding in fundamental topics of electronics technology and to learn to work in a collaborative atmosphere with instructors and other students. Instructor approval is required to enroll in this course.

ET 498 Work Experience in 1-4 Units
Electronics Technology

Prerequisite: None

Enrollment Limitation: According to Education Code Title V regulations, a student cannot earn academic credits in a Work Experience class unless s/he has either a job or an internship.

Course Transferable to CSU

Hours: 18 hours LEC; 300 hours LAB

This course provides students with opportunities to develop or add marketable skills related to their vocational study programs. Course content will include understanding the application of the student's education to the workforce; the responsibilities of an internship (where applicable); completion of Title V Education Code papers (the student's Application, Learning Objectives, Time sheet, and Evaluations), which document the student's progress and hours spent at the work or internship site; and developing workplace (soft) skills identified by the Secretary's Commission on Achieving Necessary Skills (SCANS) Competencies, as well as by local employers. In addition, the student is required to fulfill 18 hours lecture and 75 hours of related, paid work experience or 60 hours of volunteer work experience for one unit; 75 or 60 hours of related work experience for each additional unit. The program allows the transfer student to combine practical, paid or non-paid work experience with college training. The course may be taken up to four times when there is new or expanded learning on the job for a total of 16 units. Only one Work Experience course may be taken per semester.

ET 499 Experimental Offering in .5-4 Units
Electronics Technology

Prerequisite: None

Course Transferable to CSU

Hours: 54 hours LEC; 36 hours LAB

See Experimental Offering