Electro-Mechanical Equipment Technician (EMET)

Contact Occupational & Noncredit Programs for further information, (760) 744-1150, ext. 2284

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAM OF STUDY

Electro-Mechanical Equipment Technician

Specifically for individuals employed or seeking employment in a medium to large distribution center and to prepare candidates to pass the mail processing equipment (EMET) technician's examination.

CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
CI 105	Electrical Codes I	3
CI 106	Electrical Codes II	3
CSIS 105	Computer Concepts/Microcomputer	3
DT 140	Electrical Drafting and Design	3
ECHT 100	Electronic Components and Circuits	4.5
EMET 50	Servicing Electro-Mechanical Equipment	3
EMET 51	Mail Equipment Mechanic Exam Prep	3
Electives (Select 6 units)		
ECHT 203	Digital/Computer Electronics	4.5
IT 100	Technical Mathematics	3
WELD 100	Welding I	3
CE 100*	Cooperative Education	1-4
TOTAL UNITS		**28.5**

* Cooperative Education must be related to this major.

COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

EMET 50 Basic Mechanics for Servicing Electro-Mechanical Equipment (3)

3 hours lecture

Recommended preparation: Knowledge of simple algebraic equations; different number systems; different types of gears; mechanical advantage; and fluid dynamics

Provides students with a basic overview of the maintenance process for postal service electro-mechanical equipment. Topics of study include levers and lever assemblies, gears and gear trains, sprockets and pulleys, basic hydraulics.

EMET 51 Mail Processing Equipment Mechanic Exam Preparation (3)

3 hours lecture

Recommended preparation: Technical Mathematics-Ability to perform simple algebraic equations; Electricity-Understand DC and AC fundamentals; Electronics-Understand basic electronic principles; Mechanics-Understand basic mechanic fundamentals; Digital Electronics-Understand basic digital electronic principles.

Designed to prepare students for the U.S. Postal Service Maintenance Mechanic, MPE-7 Entrance Examination. Highly recommended for students interested in a U.S. Postal Service Career focusing on equipment maintenance. Topics will cover all the aspects of mail processing equipment (MPE) maintenance, such as mechanics, electrical, and basic electronic systems.

Electronics and Computer Hardware Technology (ECHT)

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PROGRAMS OF STUDY

Advanced Electronic Technician

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
ECHT 100	Electronic Components and Circuits	4.5
ECHT 101	Discrete Electronic Circuits	4.5
ECHT 102	Integrated Electronic Circuits	4.5
ECHT 203	Digital/Computer Electronics	4.5
ECHT 204	Microcomputer Architecture	4.5
ECHT 205	Telecommunication Systems	4.5
Electives (Select a minimum of 12 units). It is recommended that students include one math course and one English or speech course.		
DT 110	Technical Drafting I with AutoCAD	4
DT/R DT 125	AutoCAD Introduction to Computer Aided Drafting	3
DT 140	Electronic Drafting and Design	3
DT 210	Printed Circuit Board Design	3
ECHT/ENGR 126	Introduction to Electrical/Computer Engineering	4
ECHT 160	Electronics for Everyone	3
ECHT 162	Electronic Printed Circuit Board Assembly	3
ENG 50 or	Introductory Composition	
ENG 100	English Composition	4
ENGR 210	Electrical Network Analysis	3
MATH 60 or	Intermediate Algebra	
MATH 110 or	College Algebra	
MATH 115	Trigonometry	3,4
PHYS 120	General Physics	4
R CSIS/CSIS 120	Microcomputer Applications	3
R CSIS 140	Command Line Operations	3
R CSIS 155	Computer Technology Hardware	3
R CSIS 156	Computer Technology Software	3
R CSIS 160	Introduction to Local Area Networking	3
R CSIS/CSIS 170	Windows	1
SPCH 100	Oral Communication	3
TOTAL UNITS		**39**

Students are recommended to take the required ECHT courses in the following sequence:

ECHT 100, ECHT 101, ECHT 102, ECHT 203, ECHT 204, ECHT 205

Computer Hardware/ Telecommunication Technician

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
ECHT 100	Electronic Components and Circuits	4.5
ECHT 101	Discrete Electronic Circuits	4.5
ECHT 102	Integrated Electronic Circuits	4.5
ECHT 203	Digital/Computer Electronics	4.5
ECHT 204	Microcomputer Architecture	4.5
ECHT 205	Telecommunication Systems	4.5
TOTAL UNITS		**27**

Students may earn a certificate in two semesters by completing the required ECHT courses in the following sequence:

ECHT 100, ECHT 101, ECHT 102, ECHT 203, ECHT 204, ECHT 205.

Electronics Assembler

This certificate is intended to prepare students for immediate employment in the electronics assembly industry as an electronics assembler.

CERTIFICATE OF PROFICIENCY

Required Courses		Units
ECHT 100	Electronic Components and Circuits	4.5
ECHT 162	Printed Circuit Board Assembly	3
TOTAL UNITS		**7.5**

Recommended Electives: ECHT 20; 160; MATH 15; READ 30, 47, 50; ESL 98.1

COURSE OFFERINGS

Courses numbered under 50 are non-degree courses. Courses numbered under 100 are not intended for transfer credit.

ECHT 20 Supplemental Instruction for Electronics and Computer Hardware Technology (1)
2 hours lecture/laboratory
Note: May be taken 4 times
Instructor coordinated informal peer assisted study sessions in which students compare notes, discuss readings, review homework, perform laboratory experiments, and work on projects that are associated with any ECHT course. Instructor will provide mini-lessons in direct response to small group assessed needs.

ECHT 100 Electronic Components and Circuits (4.5)
3 hours lecture-3 hours lecture/laboratory
Transfer acceptability: CSU
Fundamentals of DC and AC: Ohm's Law, Kirchoff's Laws, Thevenin's Theorem, magnetism, transformers, capacitance, inductance, and tuned circuits. Laboratory covers application of theory, use of test equipment, circuit design, construction techniques, and troubleshooting carried out through traditional workstation procedures and by computer simulation programs.

ECHT 101 Discrete Electronic Circuits (4.5)
3 hours lecture-3 hours lecture/laboratory
Prerequisite: ECHT 100
Transfer acceptability: CSU
Fundamentals of discrete semiconductors, linear and non-linear, analog: diodes, power supplies, transistors, and amplifiers. Laboratory covers application of theory, use of test equipment, circuit design, reconstruction techniques, and troubleshooting carried out through traditional workstation procedures and by computer simulation programs.

ECHT 102 Integrated Electronic Circuits (4.5)
3 hours lecture-3 hours lecture/laboratory
Prerequisite: ECHT 101
Transfer acceptability: CSU
Fundamentals of linear and non linear, analog, integrated circuits: thyristors, frequency effects, operational amplifiers, feedback, non linear OPAMPS, oscillators, power supplies, and communication circuits. Laboratory covers application of theory, use of test equipment, circuit design, construction techniques, and troubleshooting.

ECHT 126 Introduction to Electrical and Computer Engineering (4)
3 hours lecture-3 hours laboratory
Prerequisite: Math 140
Note: Cross listed as ENGR 126
Transfer acceptability: CSU
Introductory concepts covering a broad range of topics in Electrical and Computer Engineering presented in an integrated approach at a hands-on level. Students work in small teams to analyze, build, and test a small programmable robot for competition at the end of the semester. Provides basic understanding and skills for students to later build their theoretical understanding in more advanced physics and engineering courses.

ECHT 160 Electronics for Everyone (3)
3 hours lecture
Transfer acceptability: CSU
Overview course designed and taught so anyone can understand the basic concepts and applications of electronics. Topics covered are direct and alternating current, Ohm's Law, magnetism, transformers, capacitance, inductance, tuned circuits, diodes, transistors, amplifiers, oscillators, power supplies and computers.

ECHT 162 Electronic Printed Circuit Board Assembly and Equipment Troubleshooting (3)
2 hours lecture-2 hours lecture/laboratory
Note: May be taken 4 times
Transfer acceptability: CSU
Fundamentals of printed circuit board assembly: workmanship standards and forms, surface mount and through hole technology, and solder training. Hands-on training on the repair and troubleshooting of electronic equipment.

ECHT 197 Electronics and Computer Hardware Technology Topics (.5-3)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU
Topics in Electronics and Computer Hardware Technology. See Class Schedule for specific topic offered. Course title will designate subject covered.

ECHT 203 Digital/Computer Electronics (4.5)
3 hours lecture-3 hours lecture/laboratory
Recommended preparation: ECHT 100
Transfer acceptability: CSU
Fundamental logic functions of AND'ing, OR'ing, and inverting will be studied in various combinational and sequential logic circuits such as: encoders, decoders, multiplexers, demultiplexers, flip-flops, registers, counters, clocks, memories, and microprocessors. The architecture and programming of the digital microprocessor will be emphasized. The primary components required for proper operation of a PC (personal computer) will be addressed. Designing, testing, and troubleshooting of computers and special projects.

ECHT 204 Microcomputer Architecture and Interfacing (4.5)
3 hours lecture-3 hours lecture/laboratory
Prerequisite: ECHT 203
Transfer acceptability: CSU
Advanced computer electronic concepts and applications using digital circuits and systems. Interfacing of microprocessors and PC's (personal computers) to peripherals. Upgrading of desktop PC's. Designing, testing, and troubleshooting of computer systems and special projects.

ECHT 205 Telecommunication Systems (4.5)
3 hours lecture-3 hours lecture/laboratory
Recommended preparation: ECHT 102 and 203
Transfer acceptability: CSU
Review of basic electronic analog and digital principles. Communication of information using analog/digital electronic transmission lines, antennas, testing and troubleshooting, as they relate to RADIO, RADAR, TV, Computers, Modems, Networks (Internet, World Wide Web [WWW]), Satellites, Cellular phones, and Fiber optic systems, will be addressed.

Emergency Medical Education (EME)

Contact the Emergency Medical Education Department for further information, (760) 744-1150, ext. 8150

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