

# EMERGING TECHNOLOGY (ETEC)

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## **ETEC 110 Energy Master Planning for Commercial Facilities 2 Units**

Students will learn and apply methods of energy master planning for commercial and institutional facilities for increased user comfort, lower operating costs, and climate resiliency. They will learn how to develop metrics in support of energy master planning and design investments. Integration of renewable energy and high performance solutions will be covered as well as related subject areas of efficient water use and waste reduction strategies. Students will receive training in performing energy master planning audits for facilities and prepare an energy systems retrofit proposal.

Lecture Hours: 1.5 Lab Hours: 1.5 Repeatable: No Grading: L  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None

## **ETEC 116 Introduction to Computer Integrated Manufacturing 3 Units**

Students will receive theory, practical knowledge, skills, and abilities that will readily apply to automation technology. They will gain skills in automation control including sensors, actuators, programmable logic controllers (PLCs), industrial robotics, and computerized numerical control (CNC) technology.

Lecture Hours: 3 Lab Hours: None Repeatable: No Grading: L  
Advisory Level: Read: 2 Write: 2 Math: 3  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None

## **ETEC 150 Commercial Wiring and Lighting Facilities 4 Units**

Students are introduced to commercial and industrial wiring, including conduit bending, wire fill, load calculations, raceways, LED lighting, high pressure sodium lighting, metal halide and fluorescent lighting. The students will be bending conduit, pull wires and learn how to wire commercial and industrial lighting circuits.proposal.

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: AIRC 121 with C or better  
Advisory Level: Read: 3 Write: 3 Math: 2  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None

## **ETEC 151 Motor Controls Facilities 5 Units**

Students will acquire knowledge and skills working with various types of motor controls used in a commercial or industrial facility. They will wire multiple commercial projects using ladder and schematic diagrams, including timer circuits, motion sensors, photo cells, pilot duty relays, safety and overload controls.

Lecture Hours: 4 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: AIRC 121 with C or better  
Advisory Level: Read: 3 Write: 3 Math: 2  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None

## **ETEC 501 Fundamentals of Energy Efficiency 4 Units**

Students will be introduced to an overview of energy production and transmission, energy conservation and efficiency, renewable energy, and careers in energy efficiency. Students will also engage in hands-on learning through lab activities that include operation of a hydroelectric kit, practical application of electrical circuitry of solar charging units, calculation of energy efficient appliance energy use, and completion of an energy audit for conservation. Students also will gain information regarding career and employment opportunities in the field and develop a career roadmap towards these goals.

Lecture Hours: 1 Lab Hours: 1.5 Repeatable: Yes Grading: N  
Transfer Status: None Degree Applicable: NC  
CSU GE: None IGETC: None District GE: None