ELECTRONICS TECHNOLOGY

Alternative Energy, Biomedical Equipment, Electrical Substation Technology, Electro-Mechanical Manufacturing, Electronics Technologist, and Nanotechnology Options
Workforce Development Degree

Program Description:
This program prepares the student with the necessary knowledge and skills to gain employment in the field of electronics and to be able to advance to a position of increasing responsibility in their career. Six different program options are available.

Degree Awarded: Associate in Applied Science

For more information, contact:
Business, Information, and Engineering Technologies Division
Northeast: 918-595-7439

General Education Requirements Credit Hours: 20-22

English 6 hours
*ENGL 1113 Composition I
and select one course from the following:
**ENGL 1213 Composition II
*ENGL 2333 Technical/Professional Writing

Mathematics 4-6 hours
*MATH 1454 Technical Mathematics
or the following two courses:
**MATH 1513 College Algebra
**MATH 1613 Plane Trigonometry

Science 4 hours
Select one course from the following:
*PHYS 1114 General Physics
*PHSC 1114 General Physical Science

Social Science 6 hours
POLS 1113 American Federal Government
and select one course from the following:
HIST 1483 U.S. History 1492 to Civil War Era
HIST 1493 U.S. History Civil War Era to Present

Specialized Course Requirements Credit Hours: 41-44

Core Courses 19 hours
CSCI 1203 Computer Concepts and Applications

Drafting and Design 4 hours
DRFT 1324 Engineering Drawing with CAD

Electronics Technology 12 hours
*ELET 1212 Introduction to Electricity
*ELET 1303 DC Circuit Analysis
*ELET 1313 AC Circuit Analysis
*ELET 2244 Amplifiers I

Select from one of the following six (6) degree options:

1) Alternative Energy Option 22-23 hours
This multi-functional program is designed for students interested in working with alternative/renewable energy. Oklahoma is ranked 8th in the United States for wind mill utility operation and is growing with the reduced cost of manufacturing solar cells. The student will measure and analyze both wind and solar power systems. This program will also study biofuels and hydrogen power conversion systems.

Alternative Energy 12 hours
*ALTE/ELET 1223 Hydraulics and Pneumatics
*ALTE/ELET 1443 Introduction to Alternative Energy
*ALTE 1464 Wind and Solar Energy Systems
*ALTE 1472 Renewable Design Project

Electronics Technology 6 hours
*ELET 1503 Programmable Control
*ELET 2533 Automation Control

Controlled Electives 4-5 hours
*CHEM 1114 Principles of Chemistry
*DRFT 1363 Civil Drafting
*ELET 1232 Introduction to Substation Safety
*ELET 2215 Digital Circuits
ENGT 1463 Composite Materials
ENGT 1212 Introduction to Fabrication Lab
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2) Biomedical Equipment Technology Option 25 hours
This program prepares the student with the necessary knowledge and skills to gain employment as a biomedical equipment technician. The biomedical equipment technician is qualified for positions in medical research and development, operation calibration, and maintenance of medical equipment for hospitals, equipment suppliers, and manufacturers. Upon completion of the program, the graduate may apply for the certification test given by the board of examiners for the International Certification Commission for the Certified Biomedical Equipment Technician (CBET).

Biomedical Equipment 12 hours
*BMET 1304 Introduction to Biomedical Electronics
*BMET 2343 Biomedical Electronics Theory I
*BMET 2353 Biomedical Electronics Theory II
*BMET 2382 Contemporary Issues in Biomedical Electronics

Computer Information Systems 3 hours
*CSCI 1263 Networking Fundamentals

Electronics Technology 7 hours
*ELET 2525 Wireless Communication
*ELET/NANT 2632 Introduction to Nanotechnology

Controlled Electives 3 hours
Select one course from the following:
*BMET 2373 Biomedical Electronics Clinical
*ITCV 2023 Wireless Networking

3) Electrical Substation Technology Option 22 hours
This program will train technicians to work in the electrical substation environment. Students will learn about high voltage safety, operations, testing of power components such as transformers, relays, and control systems operation and programming. Upon completion, the student will have the background to work for a power utility company or the many companies that support the power industry with equipment, testing and installation, and industry specific software.

Electronics Technology 22 hours
*ELET 1232 Introduction to Substation Safety
*ELET 1442 Introduction to Alternative Energy
*ELET 1463 Wind Energy Systems
*ELET 1503 Programmable Control
*ELET 2533 Automation Control

4) Electro-Mechanical Manufacturing Option 22 hours
This multi-functional program is designed for students to gain a successful career in many of Tulsa's manufacturing jobs. Automation is the lead technology used to control processes in manufacturing circles. Students will receive training in electronics, fluid power, PLCs, and motor control systems that apply to industry needs. Energy and composite material will be introduced with laboratory experiences. This program is also designed to provide upgrade training to those already employed in a manufacturing environment.

Electronics Technology 9 hours
*ELET/*ALTE 1223 Hydraulics and Pneumatics
*ELET 1503 Programmable Control
*ELET 2533 Automation Control

Controlled Electives 13 hours
*ELET/ALTE 1442 Introduction to Alternative Energy
*ELET 1232 Introduction to Substation Safety
*ELET 2215 Digital Circuits
ENGT 1313 Manufacturing Processes
ENGT/NANT 1463 Composite Materials
ENGT 1212 Introduction to Fabrication Lab
QCTT 1313 Introduction to Quality

5) Electronics Technologist Option 22 hours
This program prepares the student with the necessary knowledge and skills to gain employment as an engineering technician, field service technician, research and development technician, or production technician in the field of electronics and be able to advance to positions of increasing responsibility. This program will help the graduate prepare to take the examination to become a Certified Engineering Technician given by the Institute for Certification of Engineering Technicians. This program also allows incoming credit from approved Military Electronics Training Facilities.

General education requirements can be found at: www.tulsacc.edu/gened
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Workforce Development Degree

Electronics Technology 20 hours
*ELET 1503 Programmable Control
*ELET 2215 Digital Circuits
*ELET 2333 Amplifiers II
*ELET 2514 Microprocessors
*ELET 2525 Wireless Communications

Engineering Technology 2 hours
ENGT 1212 Introduction to Fabrication Lab

6) Nanotechnology Option 24-25 hours
This program prepares the student with a background in the 
growing field of nanotechnology. Nanotechnology is currently 
in the forefront of all other new technologies because nano 
and micro substances are a large part of electrical, chemical, 
and biological science. This option will help the graduate to 
earn employment in the nano sciences or as a field service 
technician, engineering and research technician or systems 
electronic technician.

Biology 4 hours
BIOL 1114 General Biology for Non-Majors
BIOL 1224 Introduction to Biology for Majors

Chemistry 4-5 hours
*CHEM 1114 Principles of Chemistry
*CHEM 1315 General Chemistry I

Electronics Technology 5 hours
*ELET 2525 Wireless Communications

Engineering 3 hours
ENGT 1463 Composite Materials

Nanotechnology 8 hours
*NANT/ELET 2632 Introduction to Nanotechnology
*NANT/ELET 2643 Nanoelectronics
*NANT/ELET 2653 Nanoscience

Total Credit Hours: 61-66
*Course has prerequisite (See course description section of the catalog).
**Recommended for students who plan to transfer to a four-year 
program.

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