Electrical/Electronic Equipment Servicing

Award: DIPLOMA

**Length:** A full-time student may complete this program in six semesters, which includes two summers.

**Purpose:** The purpose of the Electrical/Electronic Equipment Servicing program is to train, upgrade and increase technical competence of qualified personnel to operate, maintain and service electrical-electronic equipment.

**Program Outcomes:**

Upon successful completion of this program, students will be able to:

- Design, draw, construct, analyze, and troubleshoot basic series and parallel AC and DC electrical circuits including all typical circuit elements and explain the function of each.

- Design, draw, construct, analyze, and troubleshoot basic analog and digital electronic circuits.

- Demonstrate an understanding of electronic digital and analog stages, devices, systems and equipment.

- Identify, select, set up and operate basic electronic test and measuring equipment including ammeters, ohmmeters, voltmeters, clamp-on ammeters, multi-meters, power supplies, function generators, RF generators, logic probes, curve tracers and oscilloscopes and explain the application of each.

- Connect, configure, install, program and modify Programmable Logic Controllers.

- Build, configure, analyze, maintain, upgrade and troubleshoot personal computers.

- Plan, construct, repair, operate and test custom designed basic robotic devices.

- Program microcontrollers and explain the function of each command and demonstrate an understanding of program flow. Construct and analyze the function of microcontroller interface circuits.

- Connect, configure, install and commission process control devices and systems.

- Identify, explain, and utilize safety measures and equipment in the lab and the workplace required by NFPA, NEC and OSHA.

- Explain the characteristics and theories of operation of DC and AC single and multi-
phase electric motors and motor control devices and circuits.

- Identify, select and properly use tools that are used in the electrical and electronics industry.

- Demonstrate an understanding of commercial 3-phase electric power generation, transmission, distribution and control, including three-phase power generation, delta and wye connections, transformers and all associated calculations.

- Demonstrate an understanding of alternative energy sources and how they relate to the generation, distribution and control of residential, commercial, and industrial power.

- Demonstrate a basic familiarity with fluid mechanics concepts and equipment.

- Identify, select and install residential, commercial and industrial electrical devices and equipment.

- Demonstrate experience in the field of Electrical Electronic Equipment Servicing or equivalent coursework.