

COURSE ELT2130: MAGNETIC CONTROL DEVICES

Level: Intermediate

Prerequisite: ELT1010: Electro-assembly 1

Description: Students demonstrate the fundamentals of electromagnetic control devices.

Parameters: Access to a multimeter, a clamp-on ammeter, a power supply, hand tools and related resources.

Outcomes: The student will:

- 1. identify and state the function of electromagnetic control devices**
 - 1.1 research the benefits and drawbacks of electromagnetic and solid-state relays
 - 1.2 identify coil voltage and frequency ratings
 - 1.3 identify contact voltage and current ratings
 - 1.4 compare and contrast the use of relays, solenoids and actuators in electrical circuits
 - 1.5 demonstrate knowledge of electromagnetism
- 2. explain the operation of electromagnetically controlled systems**
 - 2.1 demonstrate knowledge of activation principles
- 3. design and construct electromagnetic circuits, using ladder logic systems and wiring diagrams**
 - 3.1 draw a schematic and wiring diagram and construct the following electromagnetic circuits:
 - 3.1.1 toggle switch controls load
 - 3.1.2 stop/start button controls load
 - 3.1.3 toggle switch controls
 - 3.1.4 limit switches
 - 3.1.5 stop/start from two locations
 - 3.1.6 jogging
 - 3.1.7 reversing
 - 3.1.8 annunciator and indicators
 - 3.2 create a flowchart of various magnetic control systems
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities