COURSE ELT1130: ROBOTICS 1

Level: Introductory

Prerequisite: None

Description: Students apply the fundamentals of robotics systems and basic robotics functions.

Parameters: No specialized equipment or facilities.

Outcomes: The student will:

1. **describe the evolution and applications of robotics systems**
   - 1.1 distinguish between various robotics geometric systems
   - 1.2 distinguish between subsystems and their applications
2. **identify and classify programmable robotics systems and subsystems**
   - 2.1 demonstrate an understanding of AC/DC motor controls to include switching motor states
   - 2.2 identify problem/task for robotics systems
3. **identify and describe various alternative types of power sources**
   - 3.1 prototype a direct control robotics unit to illustrate the:
     - 3.1.1 use of computer-aided design
     - 3.1.2 hydraulic, pneumatic and electromechanical interfacing
     - 3.1.3 cumulative serial and parallel operations
   - 3.2 demonstrate operation of a robot through its predetermined set of functions
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. **make personal connections to the cluster content and processes to inform possible pathway choices**
   - 5.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
   - 5.2 create a connection between a personal inventory and occupational choices