

COURSE ELT1130: ROBOTICS 1**Level:** Introductory**Theme:** Robotic and Control Systems**Prerequisite:** ELT1010 Electro-assembly 1**Description:** Students apply the fundamentals of robotic systems and basic robotic functions.**Parameters:** No specialized equipment or facilities.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> describe the evolution and applications of robotic systems 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> description of trends and evolution of robotic system. <i>Assessment Tool</i> <i>ELT1130–1: Presentations/Reports: Robots</i> <i>Standard</i> <i>Performance rating of 1 for each applicable task</i> 	15
<ul style="list-style-type: none"> identify and classify robotic systems and subsystems 	<ul style="list-style-type: none"> identifying and classifying robotic systems and subsystems. <i>Assessment Tool</i> <i>ELT1130–1: Presentations/Reports: Robots</i> <i>Standard</i> <i>Performance rating of 1 for each applicable task</i> 	15
<ul style="list-style-type: none"> design and build a direct control robotic system 	<ul style="list-style-type: none"> observation of performance on designing and building a direct wire robotic system. <i>Assessment Tool</i> <i>ELTLAB–1: Laboratory Practice, Parts 3 and 4</i> <i>Standard</i> <i>Performance rating of 1 for each applicable task</i> 	65

COURSE ELT1130: ROBOTICS 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate established laboratory procedures and safe work practices demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance in following: <ul style="list-style-type: none"> established laboratory procedures pertaining to robotics. <p><i>Assessment Tool</i> <i>ELTPSP: Assessment Checklist: Laboratory Procedures and Safety Practices</i></p> <p><i>Standard</i> <i>Performance rating of 1 for each applicable task</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>5</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Safety/Resource Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> follow laboratory safety procedures adhere to safe equipment practices and personal protection. 	
System Identification	<ul style="list-style-type: none"> distinguish between various robotic geometric systems. distinguish between subsystems and their applications. 	Power supply, actuators, sensors, program, CPU drivers.
Designing and Prototyping	<ul style="list-style-type: none"> prototype a direct control robotic unit to illustrate the: <ul style="list-style-type: none"> use of computer-aided design (CAD) hydraulic, pneumatic and electromechanical interfacing cumulative serial and parallel operations. 	Note: Link with MEC1010: Modes & Mechanisms.

COURSE ELT1130: ROBOTICS 1 (continued)

Concept	Specific Outcomes	Notes
Fundamentals	<i>The student should:</i> <ul style="list-style-type: none">• demonstrate an understanding of AC/DC motor controls to include switching motor states.	
Problem Solving	<ul style="list-style-type: none">• identify problem/task for robotic system• demonstrate operation of a robot through its predetermined set of functions.	Difference between coded and uncoded control.

