

COURSE ELT1080: CONTROL SYSTEMS 1**Level:** Introductory**Theme:** Computer Logic Systems**Prerequisite:** ELT1010 Electro-assembly 1**Description:** Students construct process control systems, demonstrate their basic operation, and demonstrate procedures for testing them.**Parameters:** Digital/analog multimeters, pressure devices and related resources.**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"> identify how control systems are used in residential and commercial applications 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> listing and describing four different control systems used in home and industrial settings. <p><i>Assessment Tool</i> <i>ELT1080-1: Presentations/Reports: Control Systems</i></p> <p><i>Standard</i> <i>Performance rating of 1 for each applicable task</i></p>	15
<ul style="list-style-type: none"> identify basic process control systems, and explain how they function 	<ul style="list-style-type: none"> describing basic process control systems including open and closed-loop systems. <p><i>Assessment Tool</i> <i>ELT1080-1: Presentations/Reports: Control Systems</i></p> <p><i>Standard</i> <i>Performance rating of 1 on each criteria</i></p>	15
<ul style="list-style-type: none"> construct basic process control circuits, using passive devices 	<ul style="list-style-type: none"> observed performance when constructing and testing a system using four passive devices. <p><i>Assessment Tool</i> <i>ELTLAB-1: Laboratory Practice, Parts 3 and 4</i></p> <p><i>Standard</i> <i>Performance rating of 1 on each criteria</i></p>	65

COURSE ELT1080: CONTROL SYSTEMS 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 safe and correct procedures in measuring voltage, current and resistance. <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"> demonstrate safe and correct procedures in measuring voltage, current and resistance using digital and analog meters. 	
Fundamentals	<ul style="list-style-type: none"> draw and explain a process control system using block diagrams depicting each functional component and the flow of signals through the systems explain the difference between open-loop and closed-loop control systems 	<p>Use any control system found in a home or car; e.g.,</p> <ul style="list-style-type: none"> car thermostat home thermostat fuel quantity measurement coolant temperature measurement.

COURSE ELT1080: CONTROL SYSTEMS 1 (continued)

Concept	Specific Outcomes	Notes
Fundamentals (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain process control terms: <ul style="list-style-type: none"> – precision – standard – calibration – accuracy – sensor – transducers – distortion – transients – sampling – interrupt – frequency • demonstrate knowledge in measuring voltage, current and resistance in any control system using analog and digital instruments. 	Use digital/analog multimeters.
Fabricating/Testing	<ul style="list-style-type: none"> • construct a basic process control system using passive devices, such as: <ul style="list-style-type: none"> – thermistor – pressure sensor – proximity switch – light control resistor – float switch – reed switch – photo cell. • explain how to test process control circuit(s), voltage, current, continuity, opens, shorts. 	Use analog and digital meters.

