

COURSE ELT2020: ELECTRICAL SERVICING**Level:** Intermediate**Theme:** Fabrication and Service Principles**Prerequisite:** ELT1010 Electro-assembly 1**Description:** Students demonstrate the fundamental concepts of repairing, servicing and maintaining electrical and electronic equipment.**Parameters:** Basic hand tools, testing equipment and related resources.**Supporting Course:** ELT2010 Electro-assembly 2**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"> develop a basic repair and maintenance schedule for an electrical/electronic device 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> preparation of a service schedule for an electrical/electronic system, including: <ul style="list-style-type: none"> basic information factors to consider. <p><i>Assessment Tool</i> <i>ELTCSR: Customer Service, Part 3</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each applicable task</i></p>	30
<ul style="list-style-type: none"> identify faults in an electrical/electronic device, and propose solutions for repair 	<ul style="list-style-type: none"> identifying the failure of an electrical/electronic device, and providing a repair/replacement solution and cost estimate. <p><i>Assessment Tool</i> <i>ELTCSR: Customer Service, Part 4</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each applicable task</i></p>	20
<ul style="list-style-type: none"> use appropriate testing procedures to assess/repair an electrical/electronic device 	<ul style="list-style-type: none"> testing and repairing an electronic/electrical device. <p><i>Assessment Tool</i> <i>ELTCSR: Customer Service, Parts 2, 3 and 4</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each applicable task</i></p>	45

COURSE ELT2020: ELECTRICAL SERVICING (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 electrical grounding current protection static protection. <p><i>Assessment Tool</i> <i>ELTPSP: Assessment Checklist: Laboratory Procedures and Safety Practices</i></p> <p><i>Standard</i> <i>Performance rating of 2 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 a professional attitude of personal safety use proper grounding techniques, current protection and static protection when testing electronic circuits. 	Fusing, grounding, ground fault, static grounding. WHMIS, soldering chemicals.
Fundamentals	<ul style="list-style-type: none"> define current, resistance, magnetic field, voltage rating, temperature and wattage. 	
System Identification	<ul style="list-style-type: none"> identify the types of data found on a name plate explain why the Canadian Standards Association (CSA) standards are applied to appliances identify stages of operation of various types of electrical/electronic systems interpret a flow connection chart or wiring schematic of the system. 	Have students locate CSA approval stickers.

COURSE ELT2020: ELECTRICAL SERVICING (continued)

Concept	Specific Outcomes	Notes
Problem Solving	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe standard procedures to locate circuit/component faults • identify the problem and propose a solution to effect the repair. 	
Testing	<ul style="list-style-type: none"> • use measurement techniques related to voltage, current, resistance, wattage and continuity to appraise the condition of the circuit. 	
Repair/Service/Maintenance	<ul style="list-style-type: none"> • troubleshoot an electrical/electronic device • create a service schedule, considering: <ul style="list-style-type: none"> – nameplate data – stages of operation – charts and wiring schematics – grounding techniques – protection devices; the schedule should also reflect the following variables: <ul style="list-style-type: none"> – function of the unit – frequency of use – subjected conditions – age – cost of service – cost of replacement service/maintain and repair electrical/electronic devices identifying potential problems and correcting • explain and demonstrate how to repair electronic printed circuit boards • measure the voltage, current and wattage of repaired items and compare the values with the nameplate ratings. 	Repair to printed circuit boards, electrical heating element appliance, motor appliance, incandescent and florescent light equipment, troubleshooting electrical house wiring, small radios.
Careers	<ul style="list-style-type: none"> • research employment opportunities in small appliance repair • create and/or add information to an existing portfolio. 	Apprenticeship. Appliance technicians.

