COURSE ELT1050: ELECTRONIC POWER SUPPLY 1

Level: Introductory

Theme: Power Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students construct different types of alternating and direct current power supplies, and demonstrate their application in electrical/electronic systems.

Parameters: Basic hand tools, multimeter and related resources; direct teacher supervision for line voltage connections.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• identify and describe various types of alternating and direct current power supplies	• an oral or written report that: – distinguishes between voltage, current and power ratings and between various AC and DC power supplies – describes power supply ratings – describes the configuration of a rectifier. *Assessment Tool* *ELT1050–1: Presentations/Reports: Power Supplies* *Standard* *Performance rating of 1 for each applicable task*	20
• construct a simple power supply	• observed performance when identifying, designing and constructing a power supply for a: – battery tester – battery eliminator – battery charger. *Assessment Tool* *ELTLAB–1: Laboratory Practice, Parts 3 and 4* *Standard* *Performance rating of 1 for each applicable task*	55

COURSE ELT1050: ELECTRONIC POWER SUPPLY 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• test a regulated, filtered power supply for output characteristics	• accurate measurement of power supply characteristics using a multimeter. *Assessment Tool* *ELTLAB–1: Laboratory Practice, Part 4* *Standard* *Performance rating of 1 for each applicable task*	20
• demonstrate established laboratory procedures and safe work practices	• observed performance in following: – established laboratory procedures – grounding precautions – proper handling of high voltage current devices. *Assessment Tool* *ELTPSP: Assessment Checklist: Laboratory Procedures and Safety Practices* *Standard* *Performance rating of 1 for each applicable task*	5
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Outcomes	Notes
Safety/Resource Management	*The student should:* • demonstrate a positive attitude of personal safety • identify, locate and use proper personal protective equipment.	Demonstrate proper grounding of high voltage and current devices. Use only Canadian Standards Association (CSA) approved equipment.

COURSE ELT1050: ELECTRONIC POWER SUPPLY 1 (continued)

Concept	Specific Outcomes	Notes
System Identification	*The student should:* • distinguish and describe voltage, current and power ratings on a power supply • describe AC and DC power supplies • distinguish between various power supplies, such as transformers, inverters, converters, eliminators, battery, solar, voltage doubler, voltage tripler • identify stages of a power supply in transformer, rectifier, filter and regulator • appraise the merits and deficiencies of half wave, full wave bridge and centre tap rectifiers.	Investigate television, radio, stereo and appliance ratings. Simple, AC/DC power supplies, battery tester, battery eliminator, battery charger.
Fabricating/Testing	• construct simple power supplies, using perforated circuit board • measure power supply output using a multimeter.	Simple, AC/DC power supplies, battery tester, battery eliminator, battery charger. Measuring voltage and current.