

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**SAULT  
COLLEGE**

**COURSE OUTLINE**

**COURSE TITLE:** Electrical and Electronic Systems

**CODE NO. :** MSE240 and MSE718      **SEMESTER:** TWO

**PROGRAM:** Motive Power Fundamentals – Small Engine Repair (5084)  
Small Engine Mechanic – Level 2 Apprenticeship (6091)

**AUTHOR:** Gord Strachan

**DATE:** January      **PREVIOUS OUTLINE**      January  
2015      **DATED:**      2014

**APPROVED:**

*“Corey Meunier”*

**CHAIR**      **DATE**

**TOTAL CREDITS:** THREE

**PREREQUISITE(S):**

**HOURS/WEEK:**

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**For additional information, please contact Corey Meunier, Chair**  
**School of Technology & Skilled Trades**  
**(705) 759-2554, Ext. 2610**

**I. COURSE DESCRIPTION:**

Upon successful completion of the reportable subject, the student is able to perform electrical and electronic system testing procedures and recommend repairs in accordance with government safety regulations, manufacturers' recommendations and specifications and approved industry standards.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

**1. *Interpret Electrical Schematics.*****Potential Elements of the Performance:**

- Identify standard symbols and the fundamentals of electrical block and schematic diagrams.
- Explain the design, layout and interpretation technique of manufacturers' wiring diagrams.
- Locate electrical components and trace circuits of systems with the prescribed manufacturers' wiring diagram.

**2. *Test and Service Electrical and Electronic Systems and Components.*****Potential Elements of the Performance:**

- Identify the features of the latest electrical and electronic system.
- Describe the construction features and applications of electrical and electronic systems and components.
- Explain the principles of operation of electrical and electronic systems.
- Inspect, test and diagnose electrical systems and components with the prescribed service tools and equipment.
- Inspect and test electrical systems and components with the prescribed service tool and equipment.
- Describe manufacturers' system maintenance procedures of electrical and electronic circuits and perform assigned operations.

**III. TOPICS:**

1. Electrical Schematics
2. Electrical and Electronic System Fundamentals and Applications

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

**Title:** Understanding the Outboard Motor

**Edition:** 3rd

**Author:** Stagner

**Publisher:** Pearson Education

**Title:** Boat Owner's Mechanical and Electrical Manual

**Edition:** 3rd

**Author:** Calder

**Publisher:** McGraw Hill

**Title:** Small Gas Engines

**Edition:** 10<sup>th</sup>

**Author:** Roth

**Publisher:** Goodheart-Willcox

**Title:** Small Gas Engines (workbook)

**Edition:** 10th

**Author:** Roth

**Publisher:** Goodheart-Willcox

**CSA Certified 6 inch Leather Safety Boots**  
**CSA Certified & Impact Resistant Safety Glasses**  
**Coveralls (non-flammable material - i.e. cotton)**  
**Shop Coat (optional)**

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Theory	35%
Application Experience	35%
Final Assessment	30%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**VI. SPECIAL NOTES:**Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

Attendance is mandatory except with a valid excuse. If late you will be marked absent for the whole hour. For every unexcused absence you will be deducted 1% per class period. Previous notification or a call the day of absence is required for excusal.

If you miss a test with an unexcused absence you will not be allowed to write that test.

If a class is missed or going to be missed it is your responsibility to notify your instructor and make arrangements for handouts and notes taken while you were away.

CSA approved safety glasses and safety boots must be worn in the shop at all times. Please have safety boots and safety glasses available because you may not have a lot of warning when going into the shop.

**CELL PHONES OR PAGERS MUST BE TURNED OFF IN ANY CLASS.**

**VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.