



## COURSE OUTLINE: MPF0123 - ELECTRICAL II - CICE

Prepared: Jamie Schmidt

Approved: Martha Irwin, Dean, Community Services and Interdisciplinary Studies

<b>Course Code: Title</b>	MPF0123: ELECTRICAL II FOR CICE
<b>Program Number: Name</b>	1120: COMMUNITY INTEGRATN
<b>Department:</b>	C.I.C.E.
<b>Academic Year:</b>	2022-2023
<b>Course Description:</b>	<p>In this course the CICE student, with the assistance of a learning specialist, will gain an understanding of automotive and heavy duty electrical circuits, wiring diagrams, electro-magnetism and the use of applied test equipment. Construction and operating principals of starters and alternators will be discussed. You will perform basic starting and charging system testing. Electronic ignition system operation and design will be studied including manufactures maintenance and diagnostic procedures.</p> <p>The CICE student, with the assistance of a learning specialist, will be required to follow proper safety procedures when performing the above tasks according to both Sault College Motive Power Department Standards and Vehicle Manufacturers safety regulations and specifications.</p>
<b>Total Credits:</b>	3
<b>Hours/Week:</b>	5
<b>Total Hours:</b>	35
<b>Prerequisites:</b>	There are no pre-requisites for this course.
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>  Please refer to program web page for a complete listing of program outcomes where applicable.	<b>1120 - COMMUNITY INTEGRATN</b> VLO 1 Integrate fully in academic, social and community activities. VLO 2 Develop and apply transferrable learning strategies to promote self-determination, life satisfaction, and lifelong learning. VLO 3 Develop academic and employment skills related to the workplace and specified area of study. VLO 4 Apply interpersonal and communication skills to build relationships with community supports, resources, and prospective employers. VLO 5 Further develop confidence, self-awareness, and self-advocacy skills related to independence, employment, and personal well-being. VLO 6 Engage in strengths-based, individualized goal setting related to self-determination and independence, both personally and professionally.
<b>Essential Employability Skills (EES) addressed in this course:</b>	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately.



	<p>EES 4 Apply a systematic approach to solve problems.</p> <p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.</p> <p>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p> <p>EES 10 Manage the use of time and other resources to complete projects.</p> <p>EES 11 Take responsibility for ones own actions, decisions, and consequences.</p>				
<b>Course Evaluation:</b>	<p>Passing Grade: 50%, D</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>				
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<p>The following semester grades will be assigned to students:</p> <p>Grade Definition Grade Point Equivalent</p> <p>A+ 90 - 100% 4.00</p> <p>A 80 - 89%</p> <p>B 70 - 79% 3.00</p> <p>C 60 - 69% 2.00</p> <p>D 50 59% 1.00</p> <p>F (Fail)49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded.</p> <p>S Satisfactory achievement in field /clinical placement or non-graded subject area.</p> <p>U Unsatisfactory achievement in field/clinical placement or non-graded subject area.</p> <p>X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.</p> <p>NR Grade not reported to Registrar`s office.</p> <p>W Student has withdrawn from the course without academic penalty.</p>				
<b>Books and Required Resources:</b>	<p>Heavy Duty Truck Systems by Sean Bennet Edition: 6 ISBN: 9781305686229</p> <p>Automotive Technology a Systems Approach by Erjavec, Restole ISBN: 9780176501679</p>				
<b>Course Outcomes and Learning Objectives:</b>	<p>Upon successful completion of this course, the CICE student, with the assistance of a Learning Specialist will acquire varying levels of skill development relevant to the following learning outcomes:</p> <table border="1" data-bbox="505 1291 1450 1454"> <thead> <tr> <th data-bbox="505 1291 802 1333">Course Outcome 1</th> <th data-bbox="802 1291 1450 1333">Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td data-bbox="505 1333 802 1454">Outline the fundamentals of wiring diagrams</td> <td data-bbox="802 1333 1450 1454"> <ul style="list-style-type: none"> <li>• Prepare a valley forge style diagram for a relay controlled circuit</li> <li>• Follow the path of current flow in a circuit using a wiring schematic</li> <li>• Relate troubleshooting procedures for opens, shorts and</li> </ul> </td> </tr> </tbody> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	Outline the fundamentals of wiring diagrams	<ul style="list-style-type: none"> <li>• Prepare a valley forge style diagram for a relay controlled circuit</li> <li>• Follow the path of current flow in a circuit using a wiring schematic</li> <li>• Relate troubleshooting procedures for opens, shorts and</li> </ul>
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	high resistance faults to a wiring schematic
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
Connect and operate diagnostic test equipment	<ul style="list-style-type: none"> <li>• Use a test lamp to diagnose an open in a circuit</li> <li>• Use a DVOM to diagnose an open in a circuit</li> <li>• Locate unwanted resistance in a circuit using voltage drop testing <ul style="list-style-type: none"> <li>• Measure resistance in a circuit using a DVOM</li> <li>• Measure parasitic drain</li> <li>• Measure current flow using an inductive ammeter</li> <li>• Remove and replace electrical components</li> </ul> </li> </ul>
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
Describe the principals of operation and construction of starting and charging systems.	<ul style="list-style-type: none"> <li>• Describe the construction and operation of an alternator</li> <li>• Describe the construction and operation of a starter motor</li> <li>• Explain the motor principle</li> <li>• Describe electromagnetic induction</li> </ul>
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
Test starting and charging system operation.	<ul style="list-style-type: none"> <li>• Perform charging system tests following manufactures recommended procedures</li> <li>• Perform starting system tests following manufactures recommended procedures</li> </ul>
<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
Explain the construction, operation and maintenance of ignition systems.	<ul style="list-style-type: none"> <li>• Identify ignition system components</li> <li>• Describe the fundamental operation of a spark ignition system <ul style="list-style-type: none"> <li>• Perform visual inspection of ignition system components</li> <li>• Perform a spark test</li> <li>• Measure secondary voltage using a KV meter</li> </ul> </li> </ul>

**Evaluation Process and Grading System:**

<b>Evaluation Type</b>	<b>Evaluation Weight</b>
Assignments	10%
Employability Skills	10%
Shop	45%
Tests	35%

**CICE Modifications:**

**Preparation and Participation**

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.



**A.** Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and must be discussed with and agreed upon by the instructor.

**B. Tests may be modified in the following ways:**

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

**C. Tests will be written in CICE office with assistance from a Learning Specialist.**

***The Learning Specialist may:***

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

**D. Assignments may be modified in the following ways:**

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

***The Learning Specialist may:***

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

**E. Evaluation:**

Is reflective of modified learning outcomes.

**NOTE:** Due to the possibility of documented medical issues, CICE students may require alternate methods of evaluation to be able to acquire and demonstrate the modified learning outcomes

**Date:**

December 20, 2022



**Addendum:**

Please refer to the course outline addendum on the Learning Management System for further information.

