



## COURSE OUTLINE: MTF139 - THERMAL CUTTING

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	MTF139: THERMAL CUTTING
<b>Program Number: Name</b>	4051: METAL FABRICATION 4053: WELDING TECHNIQUES
<b>Department:</b>	IRONWKR APPR./WELDING RELATED
<b>Semesters/Terms:</b>	20W
<b>Course Description:</b>	In this course, students will learn the equipment and skills behind a number of main thermal cutting processes, including Plasma Arc Cutting and Air Carbon Arc Cutting. A review and more detailed cuts using Oxyfuel cutting is also included in the course.
<b>Total Credits:</b>	1
<b>Hours/Week:</b>	1
<b>Total Hours:</b>	15
<b>Prerequisites:</b>	There are no pre-requisites for this course.
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Substitutes:</b>	MTF106
<b>This course is a pre-requisite for:</b>	MTF237
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<p><b>4051 - METAL FABRICATION</b></p> <p>VLO 2 Apply knowledge of various welding and metal cutting techniques and theories to produce components and sub-assemblies.</p> <p>VLO 3 Prepare materials by utilizing fabrication machinery and equipment.</p> <p>VLO 7 Complete all work in compliance with health and safety legislation and prescribed organizational practices and procedures to ensure safety of self and others.</p> <p>VLO 8 Work responsibly and effectively in accordance with government safety regulations, manufacturer's recommendations and approved industry standards.</p>
<b>Essential Employability Skills (EES) addressed in this course:</b>	<p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</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>	Passing Grade: 50%, D
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<ol style="list-style-type: none"> <li>1. Late hand in penalties will be 10% per day. Assignments will not be accepted past one week late unless there are extenuating and legitimate circumstances.</li> <li>2. If a student misses a test/lab he/she must have a valid reason (i.e. medical or family emergency documentation shall be required). In addition, the instructor MUST be notified PRIOR to the test or lab sitting. If this procedure is not followed the student will receive a mark of zero on the test/lab with no make-up option.</li> <li>3. Re-writes are NOT allowed for any written assignment, quiz or test.</li> </ol>



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4. Repeats are NOT allowed for any shop test  
 5. Course attendance is mandatory. One percent (1 %) per hour will be deducted from the final course grade.

[Any absence without a written, valid reason will be deemed unexcused.]

Valid reasons would include:

Doctors note

Apprenticeship Ministry note

Family Death or Serious Illness supported by a written note.

**Course Outcomes and Learning Objectives:**

Course Outcome 1	Learning Objectives for Course Outcome 1
<p>A trades curriculum that has been designed to provide students with a combination of theoretical knowledge and hands on skill in relation to the safe use and operation of both Plasma Arc Cutting and Carbon Arc Gouging equipment.</p>	<p>1. Define safety related concepts.            - Personal protection            - Electrical safety            - grounding            - bonding            - radiation            - heat, noise, fumes            - high open circuit voltage            - high pressure cylinders            - compressed air pressure</p> <p>2. Explain the features of plasma arc cutting equipment            - power supplies            - torches            - secure cylinders            - gauges, hoses, fittings            - tips            - pressures            - speed of travel            - types of cuts            - material types            - material thickness            - piercing            - quality control</p> <p>3. Cut manually using plasma arc equipment.            -set-up parameters for            -square cuts            -bevel cuts            -piercing            -straight cutting            -shape cutting            -shut down</p> <p>4. Correct common cutting faults.            - Cut edge quality</p>



- Kerf lines
  - Cutting direction based on square side of cut
  - Dross adherence (slag)
5. Demonstrate the ability to set up, light, cut and shut down OXY fuel equipment.
- set-up parameters for
    - -square cuts
    - -bevel cuts
    - -piercing
    - -straight cutting
    - -shape cutting
    - -shut down

**Evaluation Process and Grading System:**

<b>Evaluation Type</b>	<b>Evaluation Weight</b>
Carbon Arc Set up/Operation	20%
OXY Fuel	30%
Plasma Set up/Operation	50%

**Date:**

July 25, 2019

**Addendum:**

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

