COURSE OUTLINE: MTF139 - THERMAL CUTTING

Prepared: Dave Holley
Approved: Corey Meunier, Dean, Technology, Trades, and Apprenticeship

Course Code: Title	MTF139: THERMAL CUTTING
Program Number: Name	4051: METAL FABRICATION 4053: WELDING TECHNIQUES
Department:	IRONWKR APPR./WELDING RELATED
Academic Year:	2024-2025
Course Description:	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.
Total Credits:	1
Hours/Week:	1
Total Hours:	14
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	MTF106
This course is a pre-requisite for:	MTF237
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4051 - METAL FABRICATION** VLO 2 Apply knowledge of various welding and metal cutting techniques and theories to produce components and sub-assemblies. VLO 3 Prepare materials by utilizing fabrication machinery and equipment. 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. VLO 8 Work responsibly and effectively in accordance with government safety regulations, manufacturer's recommendations and approved industry standards. **4053 - WELDING TECHNIQUES** VLO 1 Perform work responsibly and in compliance with the Occupational Health and Safety Act. VLO 3 Recognize and understand use of welding symbols.
Essential Employability Skills (EES) addressed in this course:	EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.

	EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	1.Late hand in penalties will be -10% per day. 2.If a student misses a test, 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 sitting. If this procedure is not followed the student will receive a mark of zero on the test with no make-up option. 3.Re-writes are NOT allowed for any written assignment, quiz or test. 4.Course attendance is mandatory. Any student that is not present for the first 3 classes in each course, will be deemed to have not completed the required safety orientation for the course and will not be permitted to continue. One percent (1 %) per hour will be deducted from the final course grade for unexcused* absence. Any unexcused attendance beyond 15% of the total allocated course hours will result in the student receiving a failing grade for the course. Valid reasons would include: Doctors note Family Death or Serious Illness supported by a written note. Unexcused absence* will be determined in a case by case basis by the instructor of each course.
Books and Required Resources:	CWB Post Secondary Package by CWB Education Publisher: CWB Group IPT`s Guide To Blueprint Interpretation by Grant E. Jacobs Publisher: IPT Publishing & Training Ltd. Welding Supplies available at LINDE and Air Liquide Sault Ste. Marie by Welding Supplies

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
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.	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 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 3. Cut manually using plasma arc equipment. -set-up parameters for -square cuts -bevel cuts -piercing -straight cutting -shape cutting -shut down 4. Correct common cutting faults. - Cut edge quality - 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:

Evaluation Type	Evaluation Weight
Employability Skills	10%
Project 1	30%
Project 2	30%
Project 3	30%

Date:	July 12, 2024
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.