COURSE OUTLINE: MTF237 - AUTOMATED CUTTING

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Course Code: Title	MTF237: AUTOMATED CUTTING
Program Number: Name	4051: METAL FABRICATION
Department:	IRONWKR APPR./WELDING RELATED
Semesters/Terms:	19W
Course Description:	Students will be learning top of the line CNC (Coordinate Numerical Controlled) equipment as well as coordinate drive track cutter. Each will be taught how to properly operate desk CNC software, complete start-up sequence, verify material and plasma components to produce quality parts.
Total Credits:	2
Hours/Week:	2
Total Hours:	30
Prerequisites:	MTF139
Corequisites:	There are no co-requisites for this course.
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 1 Interpret blueprints and produce basic drawings and bills of materials. 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 4 Create and use patterns and templates using common layout and measuring tools. 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.
Essential Employability Skills (EES) addressed in this course:	EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. 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
Other Course Evaluation & Assessment Requirements:	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. 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.
3. Re-writes are NOT allowed for any written assignment, quiz or test.
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 for unexcused* absence.

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

Valid reasons would include:
Doctors note
Family Death or Serious Illness supported by a written note.

Books and Required Resources:

Instructor Supplied Handouts by Instructor

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 the CNC controlled Plasma cutting table and Coordinate drive track cutter processes.	Define safety related concepts. Potential Elements of the Performance: Personal protection electrical safety grounding bonding radiation heat noise fumes high open circuit voltage compressed air pressure Explain the features of plasma arc cutting and Oxy/fuel gas equipment. Potential Elements of the Performance: Types of Power Supplies Torch models Gauge settings Hoses Fittings Tips and consumables Pressures Speed of travel Types of cuts Material types Material thickness Quality control Complete equipment start-up sequence and procedures. Potential Elements of the Performance: Turn on desktop computer. Confirm torch consumables match material thickness and cut quality desired for part. Verify air/gas supply. Power-up THC (height control). Main control box. Hypertherm plasma unit.

	Operate Desk CNC Software Potential Elements of the Performance: Initiate Desk CNC software. Follow operations instruction manual. Verify torch coordinates Ensure all safety screens or shields are in place Check measurements of cut piece Cut full quantity Follow proper shut-down procedures. Demonstrate the ability to produce templates for cutting. Potential Elements of the Performance: Complete traceable drawing that conforms to part requirements. Calculate kerf for inside and outside cuts to ensure correct dimensions. Conserve material with layout techniques. Use multiple cutting attachments to complete production requirements. Clean finished components for fabrication.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
CNC Plasma	50%	
Tracking Cutter	50%	

Date: August 22, 2018

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