

WELDING TECHNIQUES

Program Outline

Major:	WETC
Length:	1 Year
Delivery:	2 Semesters
Credential:	Ontario College Certificate
Effective:	2012-2013
Location:	Midland, Owen Sound
Start:	Fall (Midland, Owen Sound), Winter (Midland)

Description

This program provides students with the theoretical and practical training to perform most basic welding techniques. At the completion of the program, students will be eligible to test for welding tickets based on their level of expertise. It is expected that most of the graduates will be prepared to enter the workforce as a Welder following the successful completion of this program.

Students will be exposed to topics including health and safety, blueprint reading and sketching, applied math, communication, shielded metal arc welding, gas metal arc welding, introduction to computers, and all position pipe welding.

Career Opportunities

Graduates may find a range of occupations in the welding field, including manufacturing and fabricating, automotive and heavy equipment production, automation, and construction. Self employment or working in heating are also viable options upon graduation.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- perform work responsibly and in compliance with the Occupational Health and Safety Act;

- interpret engineering drawings and blueprints and produce basic graphics as required by industry;
- recognize and understand use of welding symbols;
- use layout and fabrication processes typical to the industry to determine correct form with accuracy;
- select appropriate tools and devices to perform mathematical calculations and technical measurements for successful completion of a project.

The Program Progression:

Fall Intake - Midland, Owen Sound

Sem 1		Sem 2

Fall		Winter
2012		2013

Winter Intake - Midland

Sem 1		Sem 2

Winter		Summer
2013		2013

Admission Requirements:

Applicants must meet ONE of the following requirements to be eligible for admission to this program:

- OSS Curriculum: OSSD or equivalent with Grade 12 English (C) or (U) (ENG4C, ENG4U)
- Academic and Career Entrance Certificate (ACE) program with: Communications
- Ontario High School Equivalency Certificate (GED)
- Mature applicant with standing in the required courses and/or mature student testing that meets the minimum standards for admission

Applicants who are 19 years of age or over by the first day of classes, and who lack the academic entrance qualifications, may be considered for entrance to an appropriate post-secondary diploma or certificate program as mature applicants. Each applicant will be considered on an individual basis and acceptance will be determined by counselling, Communication Placement Assessment (CPA), previous post-secondary education and evaluation of experience. Some programs also have specific prerequisite requirements that must be met prior to admission. Mature applicants must meet all program specific prerequisites. Those applying as mature students and having no documentation of

Grade 12 education must supply, if required, proof of age, such as a copy of an official birth certificate or driver's licence. Refer to Section 2.5 and 2.6 of the Academic Calendar for further details.

Graduation Requirements:

10 Mandatory Courses

- 1 Communications Course
- 1 General Education Course

Graduation Eligibility:

To graduate from this program, the passing weighted average for promotion through each semester, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Mandatory Courses

- WETC1000 Manufacturing Trade Safety
- WETC1001 Blue Print Reading for the Trades
- WETC1002 Trade Calculations for Welders
- WETC1003 Welding and Cutting Processes
- WETC1004 Shielded Metal Arc Welding 1
- WETC1005 Metallurgy for Welding
- WETC1006 Shielded Metal Arc Welding 2
- WETC1007 Gas Metal Arc Welding
- WETC1008 Gas Tungsten Arc Welding
- WETC1009 Layout and Fabrication

Communications Course

To be selected at time of registration from the College list, as determined by testing.

General Education Course

To be selected from College list

Course Descriptions:

WETC1000 Manufacturing Trade Safety 42.0 Hours

In this course, students learn how to work safely in a potentially dangerous environment. Specifically, they learn how to identify hazardous conditions and how to identify workplace accidents. Personal, workplace and welding machinery/equipment are emphasized throughout the course. Students learn how to research safety related issues (i.e.: legislation and regulations) using the internet.

WETC1001 Blue Print Reading for the Trades 42.0 Hours

In this course students learn how to interpret a variety of drawings and schematics typically found in a welding and fabricating environment. Emphasis is placed on drawing interpretation, basic drafting, sketching, and common welding symbols.

WETC1002 Trade Calculations for Welders 42.0 Hours

In this course students learn basic analytical skills typically used in a trades environment. Topics include basic number operations, basic algebraic and geometric operations, units and measurements, and the solving of word problems.

WETC1003 Welding and Cutting Processes 56.0 Hours

In this course, students are introduced to the principles and fundamental processes of arc welding, oxy-fuel cutting, power units and their controls. Emphasis is placed on the safe set up and operation of oxy-fuel welding and cutting equipment.

WETC1004 Shielded Metal Arc Welding 1 98.0 Hours

In this course, students learn how to use the Shielded Metal Arc Welding (S.M.A.W.) process in both the flat and horizontal positions. Students examine the equipment requirements for the S.M.A.W. process along with the characteristics of mild steel electrodes. On successful completion of this course, students can apply for CWB certification.

WETC1005 Metallurgy for Welding 42.0 Hours

In this course students examine the basic metallurgical properties of steel and the changes that take place during cutting and welding operations. Students develop an understanding of the problems associated with these changes and strategies on how to avoid or minimize their adverse effects. In addition, various weld defects and faults which can occur in the shop floor environment are examined. Additional topics including heat treatment, stress relief and distortion are discussed in depth.

WETC1006 Shielded Metal Arc Welding 2 70.0 Hours

In this course students build on their basic knowledge and skills of welding in order to weld mild steel in all positions. Topics include equipment requirements, developments in the many different welding processes, welding codes and governing organizations.

WETC1007 Gas Metal Arc Welding 84.0 Hours

In this course students learn how to use the Gas Metal Arc Welding (GMAW) process on mild steel, stainless steel and aluminum. Students also learn the application of Flux

Cored Arc Welding (FCAW). Throughout the course safety principles and equipment requirements of GMAW are emphasized. Students successfully completing this course will be eligible to take the Canadian Welding Bureau Certificate test (CWB).

WETC1008 Gas Tungsten Arc Welding 42.0 Hours

In this course students learn the Gas Tungsten Arc Welding (GTAW) process. They complete welding projects on mild steel, stainless steel and aluminum to acceptable industry standards. Throughout the course safety principles and equipment requirements are emphasized.

WETC1009 Layout and Fabrication 42.0 Hours

In this course students develop a working knowledge of the concepts and principles of layout and fabrication using accepted methods and conventions typically found in industry. Students develop their skills in laying out flat and circular objects including using the triangulations, radial line and parallel line developments in sheet and pipe.

Course Description Legend

P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.