



Module Descriptor

Oxy-Acetylene Welding

Award Type: Minor
Award Level: 3
Award Code: 3N0918
FÁS Assessment Code: 3N0918-025
Validation date 22nd August 2011

Version 2.0

Module Descriptor

Purpose: The purpose of this module is to provide the learner with the knowledge, skill and competence to use oxy-acetylene equipment to weld a limited range of mild steel under supervision

Module Duration: 50 hours

Learning Outcomes: By the end of this module, the learner will be able to:

1. Select the tools, materials and equipment required to complete a limited range of welding tasks
2. List the functions of the various elements of oxy-acetylene welding equipment
3. Describe the procedures to be followed when setting up oxy- acetylene welding equipment to weld mild steel, to include nozzle installation, correct regulator pressure setting, correct flame setting, lighting the torch, shutdown
4. Complete welding tasks, including lap joints, fillet welds and steel pipes using oxy- acetylene equipment
5. Apply appropriate health, safety and personal hygiene procedures when using oxy-acetylene welding equipment

Key Learning Points

Learning Outcome 1: Select the tools, materials and equipment required to complete a limited range of welding tasks

Key Learning Points

- Welding tools and equipment
- Identifying and selecting regulators, flash back arresters, hoses, hose check valves and welding torch and its components
- Types of nozzle and torches
- Colour and sizes of oxygen and oxy-acetylene cylinders
- Types of metals to include flat bar, round, plate, sheet, angle, tee section, channel and pipe
- Personal Protective Equipment
- Safety considerations
- Distinguishing between bright mild steel and black mild steel

Learning Outcome 2: List the functions of the various elements of oxy- acetylene welding equipment

Key Learning Points

- Function of the equipment including, regulators, gases, connectors, check valves, flash back arresters, torches, manifold etc.
- Pressures within cylinders
- Different flame types and their properties i.e. Oxidising, neutral, carbonizing
- Specifying where right-hand and left-hand threads are used in oxy-acetylene equipment, marking system
- Position of gas cylinder valve key when in use
- Listing the hazards associated with transportation, storage and handling of gas cylinders under pressure
- Identification of empty cylinders

Learning Outcome 3: Describe the procedures to be followed when setting up oxy-acetylene welding equipment to weld mild steel, to include nozzle installation, correct regulator pressure setting, correct flame setting, lighting the torch, shutdown

Key Learning Points

- Procedures to include:
 - Setting up the oxy-acetylene welding equipment in series
 - Installation of nozzle
 - correct oxygen and acetylene pressure for oxy-acetylene welding of different materials
 - Testing equipment for gas leaks, leak detection fluid
 - Carrying out adjustments to regulators
 - Checking for Purging

- Lighting the torch
- Adjusting torch control to achieve the following: neutral flame, carbonising flame and oxidising flame
- Shutting down
- Hazards associated with oil or grease on thread settings
- Safety considerations
- Listing the safety procedures associated with using gas cylinders under pressure
- Description of weld positions
- Differentiate between leftward and rightward technique
- Applications of the techniques

Learning Outcome 4: Complete welding tasks, including lap joints, fillet welds and steel pipes using oxy- acetylene equipment

Key Learning Points

- Reading drawings to include orthographic single component drawings
- Welding terminology to include weld profile, leg length, throat thickness, root weld, weld pool etc
- Interpretation of weld symbols: T joint, Lap joint, Butt joint, corner joint symbols
- Joint representation using symbols
- Carrying out torch lighting up procedures and flame adjustment
- Torch direction, welding rod angle, torch distance from material, travel speed
- Preparation of metals
- Preparation of equipment
- Safety considerations
- Melting parent and filler metals
- Joint fusion and solidification
- Identification of weld defects
- Welding runs on flat plate
- Welding lap joints with and without CCMS filler rod
- Welding mild steel pipe with and without CCMS filler rod
- Welding fillet welds

Learning Outcome 5: Apply appropriate health, safety and personal hygiene procedures when using oxy-acetylene welding equipment

Key Learning Points

- Workshop health and safety regulations
- Identifying hazards
- Hazards – Burns, exposure to naked flame, fume inhalation
- Importance of well ventilated environment
- Personal Protection equipment required
- Procedures for fire safety

- Procedures for accident reporting
- Applying health, safety and hygiene procedures in carrying out tasks in the workshop
- Safe use and storage of all tools and equipment
- Protection of exposed skin
- Application of appropriate hygiene practices

Assessment Specification

Award Title	Oxy-Acetylene Welding
Award Type	Minor
Framework Level:	3
Award Code:	3N0918
Credit Value :	5

Assessment No.	Duration	Assessment Details	Weighting	Stage at which assessment takes place
SD1, SD2 and SD3	N/A	3 Skills Demonstrations consisting of fillet welding a 'lapped piece' in a 3mm mild steel, welding a tee fillet in 3mm mild steel and butt welding a steel pipe.	80%	End of Module
PO1 and PO2	N/A	Questions on functions and procedures of elements of oxy acetylene welding equipment	20%	During module

Key: SD= skills demonstration, P= Portfolio

Suggested Learning Methodologies

- Skills Demonstration
- Practical Work Training
- Simulated Work Environment
- Note taking
- Discussion groups
- Activities and exercises
- Role play
- On line research

Specific Module Requirements

The following is a recommended list. The list is not definitive as some of the items listed may not be essential in order to run the course. Items other than those listed may also be acquired for the course at the discretion of the Manager

Oxy Acetylene Sets

Metal Cutting Band Saw

Torches, oxygen regulators, acetylene regulators, oxygen hoses and protectors, acetylene hoses and protectors, flashback arrestors, fire retardant overalls EN4701 EN531 EN533, appropriate safety boots 345S3, gloves EN388 EN407, apron CE

Oxy-Acetylene 2.5 copper coated gas welding rods 5 kilo packs, Black Mild Steel Plate 3mm X 50MM lengths, Rigger Gloves Pairs, Gas Welding Goggles, Welding Tips 3, Welding tips 5, Welding tips 7, Mild Steel Pipe (Blueband GB) 1.5" X 6 metre lengths,

Gas Storage Compound, Gas Manifold, Steel Store, Bin for safe disposal of hot steel after welding

Suggested Learning Resources

All of the highlighted Curriculum Resources mentioned below are available on the Moodle Community Services Curriculum and Assessment page

You can access the CSCA Moodle web page from this link:

<http://www.ecollege.ie/site/home.html>

Generic Skills: Literacy and Numeracy

The learners will keep and maintain a **Learning Diary** throughout the course in order to record and file any useful and relevant information on any aspect of Oxy-Acetylene Welding

Identify the tools, materials and equipment used in Oxy-Acetylene Welding. Find information from books and magazines. Record this information in your Learning Diary.

At the end of every week the learners will complete a short **Weekly Reflective Sheet** in order to reflect on their learning and progress during that week.

This Weekly Reflective Sheet will assist the learners to develop their generic skills of literacy, numeracy, communications and quality awareness and will give learners an opportunity to develop their writing skills.

The learners will create a **Personal Dictionary** of new words, key words and terms relating to Oxy-Acetylene Welding. This Dictionary will be updated each week and kept in the Learning Diary.

The learners, as a group, will add words and terms to a **Key Word and Terminology Bank** in the classroom, relating to Oxy-Acetylene Welding. The learners will find words listed in text books, class notes, DVDs and internet websites etc.

Generic Skill: Numeracy; Digital

Learners will practice **using a calculator**, identifying and locating all keys needed to carry out basic calculations.

The learners will practice solving various problems, involving metric measurement etc, set by the instructor. Refer to the **mathematical glossary** for measurement terms.

Generic Skill: Teamwork and Communications

Learners will discuss the importance of teamwork with the instructor using the **Teamwork Guide**.

Learners will take part in a teamwork exercise by designing, planning and carrying out a project which will incorporate group discussions.

Internet websites: Information can be accessed on the following suggested websites as of 14th October 2011:

<http://www.weldmyworld.com/> this website gives information on welding

Recommended by: _____

Manager Training Policy Development and Support

Approved by: _____

Director Training Policy Development and Support