



**CENTER FOR MECHANICAL ENGINEERING STUDIES, UNIVERSITI
TEKNOLOGI MARA, PULAU PINANG**

Program : Diploma in Mechanical Engineering
Course : Workshop Practice II
Code : MEM 261

**WORKSHOP PRACTICE II LABORATORY SHEET
(GAS WELDING)**

1.0 OBJECTIVE:

1. Introduction of Oxy-Acetylene Welding
2. To set up gas welding station
3. To practice gas welding joint

2.0 THEORY:

There are many welding processes used for melting and joining different metals and materials together. The type of project being worked on, as well as what kind of materials are being fused, help determine which process is used.

Gas welding is one of the oldest forms of heat-based welding and is utilized in many industries. There are also welds that employ the use of a shielding gas to help protect the weldment from contaminants, such as gas metal arc welding (GMAW) and gas tungsten arc welding (GTAW).

3.0 MATERIALS:



Figure1 : Mild Steel Plate

4.0 APPARATUS/ EQUIPMENT:

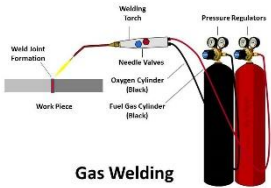
			
i. Gas Welding	ii. Electrode	iii. Apron	iv. Glove
			
v. Goggles	vi. Safety Boot	vii. Jacket	Safety Wear

5.0 HAND TOOLS:

			
i. Chipping Hammer	ii. Plier	iii. Wire Brush	iv. Chalk
			
v. Tips Cleaners	vi. Spark Lighter	vii. Grip Plier	viii. Nozel

6.0 PROCEDURE:

No.	Figure	Explanation
1	 WELDING GOGGLES (DAW) LEATHER APRON LEATHER GLOVES WELDING / SAFETY SHOES Helm Las Masker Las	Use all safety equipment during welding practice such at welding goggles, leather apron dan leather glove. • Wear Approved Eye Protection • Wear Flame Resistant Clothing • Wear Long Sleeves, Pocket Flaps and No Cuffs • Wear Approved safety boot • Wear Approved Hand Protection
2		Open the Acetylene control valve and adjusted at the pressure regulator 0 – 1.5 bar
3		Open the Oxygen control valve and adjusted at the pressure regulator 0 – 1.0 bar
4		Open half turned the acetylene control valves at the blow pipe
5		Open the oxygen control valves at the blow pipe and adjust requirement flame according to the workpieces
6		You can start to practice

7		Close up the flame, off the oxygen valve at the blowpipe first than off the acetylene valves
8		Close all the valve pressure regulator and both of cylinders

7.0 RESULT AND DISCUSSION:

Perform all the task as an individual and team work.

Students are required to document the working procedure by taking photos during the workshop session (work as an individual and team members).

a. Theoretical Background

- i. Briefly explains the Gas Welding process.

b. Describe material selection-material standards, selecting appropriate tools and sizes, performing machining operations, SOP and adhering to working procedures.

c. Present any measurement/ standard calculations/ measurement data/ result/ graph/ sketching, tolerance, or machining parameter etc.

d. Identifies and corrects any related issues.

Required to analyses and discuss the welding process and techniques involved.

e. Snap, record and describe all the safety procedures, regulations, and personal protective equipment (PPE) relevant to each workshop activities.

based on established standards and codes of practice.

ISO standards or environmental regulations

f. Conclusion and recommendation

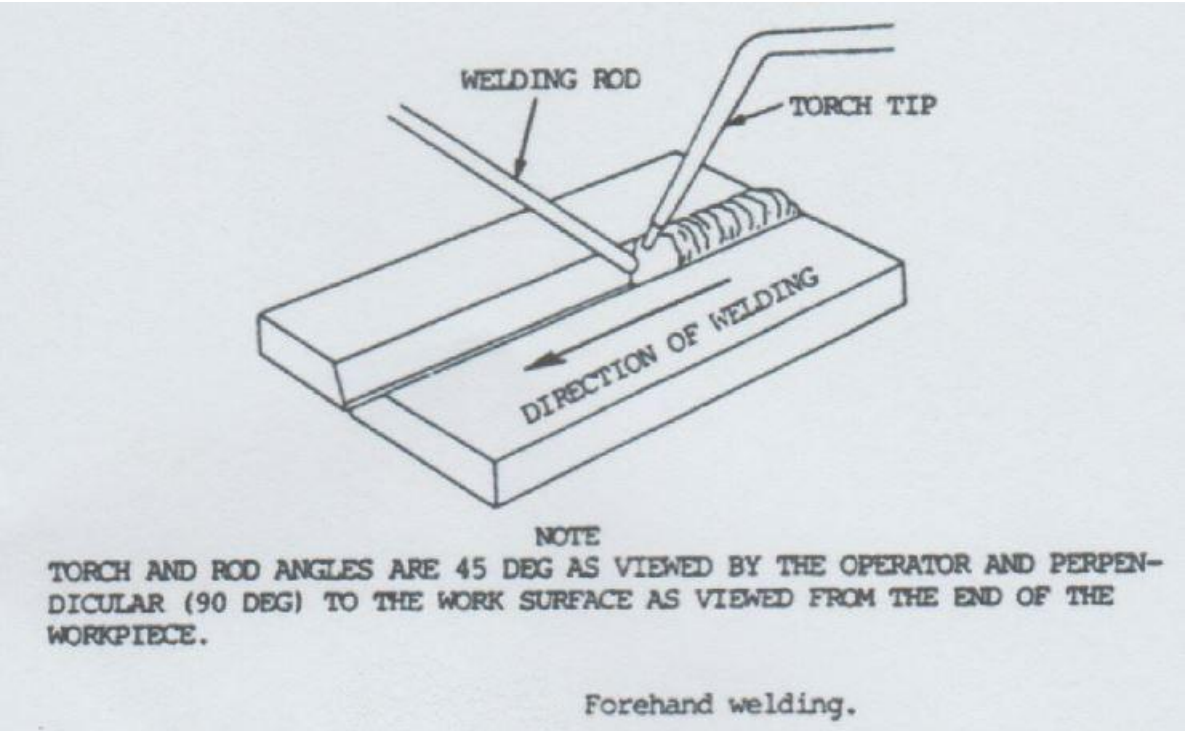
g. References

State all the references that you have been used in order to complete this report.

For technical report:

Prepare the report according to the Technical Report & Rubric Requirements

Appendix A: Drawing



Appendix B: Description of complete project/Welding imperfection defect



Welding Imperfection/Defect (refer appendix A)	40	Two (2) defect
		Three (3) defect
		Four (4) defect
		Five (5) defect and above

- WELDING IMPERFECTION/DEFECT
1. Uniformity-(linear and angular misalignment)
 2. Gas Cavities – (Porosity,blow hole and gas pore)
 3. Slag Inclusion
 4. Incomplete Penetration & incomplete filled groove
 5. Excess Weld Metal
 6. Undercut
 7. Spatter
 8. Poor Stop and Start

Appendix C: Description of complete project



Complete Project	10	instructor
		Able to complete SMAW and oxy-acetylene welding project.
		Able to complete only SMAW or oxy-acetylene welding project.