

College of Micronesia – FSM  
P.O. Box 159  
Kolonia, Pohnpei

Course Outline Cover Page

General Welding  
Course Title

VWE 115  
Dept and number

Course Description: This course introduces the students the technical understanding of shielded metal arc welding and oxy-acetylene welding. Provide intensive hands-on training to develop the manual skill in making quality weld on similar and dissimilar metals.

Prepared by: Esteban, Bertoldo Jr. B

State: Pohnpei Campus

	Hours/week	No. of weeks	Total Hours	Semester Credits
Lecture	3	16	48	3
Laboratory	3	16	48	<u>1</u>
Total Semester Credits				4

Purpose of Course	Degree Requirements	_____
	Degree Elective	_____
	Advance Certificate	_____
	Certificate	_____XX_____
	Apprentice	_____XX_____
	Remedial	_____
Other (Workshop)	_____	

Pre-requisite Course(s):

\_\_\_\_\_  
Signature, Chairman, Curriculum Committee

\_\_\_\_\_  
Date Approved by Committee

\_\_\_\_\_  
Signature, President, COM-FSM

\_\_\_\_\_  
Date Approved by the President

General Objective: This course is design for beginners and short bead welders. It provides the participants with a thorough technical understanding of shielded metal arc welding and oxy-acetylene welding fundamentals. Develop manual skill in making quality weld on similar and dissimilar metals.

Learning Outcomes: Upon successful completion of this course students will be able to:

1. Define welding.
2. Display high safety standards when using welding equipment.
3. Determine types of weld and joints.
4. Set-up and operate oxy-acetylene welding equipment.
5. Perform oxy-acetylene welding methods.
6. Set-up shielded metal arc welding equipment.
7. Perform electric arc welding.
8. Identify the causes and appropriate remedies of welding defects.

Outline of Content: This course contains:

1. Introduction to welding.
  - Importance of welding
  - Development of welding processes
  - Occupational opportunities in welding
2. Welding safety
  - Common causes of welding accidents
  - Safety in cutting
  - Safety in gas welding
  - Safety in arc welding
3. Weld and joint design
  - Weld types
  - Joint selection
  - Welding positions
  - Basic welding terms
4. Oxy-acetylene equipment
  - Primary components and accessories
  - Setting-up and operating
  - Types of flame
5. Oxy-acetylene practices
  - Carrying puddle without a filler rod
  - Laying beads with filler rods
  - Welding a butt joints in the flat position
  - Welding a flange joint in the flat position

Welding a corner joint in the flat position  
Welding a lap joint in the flat position

6. Setting up electric arc welder
  - Parts and accessories
  - Classification of welding machines
  - Setting-up equipment
7. Perform arc welding practices
  - Preparation of work piece
  - Striking the arc
  - Making a straight run
  - Square edge butt joint
  - Stopping and restarting a weld
  - Tack welding
8. Welding faults causes and remedies
  - Blowhole
  - Incomplete penetration
  - Undercut
  - Lack of fusion
  - Excessive penetration

Learning Outcomes:	On completion of this course the learner will be able to:
Learning Outcome 1	Define welding.
Assessment Criteria	Discuss the significance of welding Explain the development of welding processes Identify occupational opportunities in welding
Assessment Method	Multiple choice questions Short answer questions
Learning Outcome 2	Display high safety standard when using welding equipment.
Assessment Criteria	Enumerate common causes of welding accidents Discuss safety in cutting Explain safety in gas welding Demonstrate safety in arc welding
Assessment Method	Multiple choice questions Short answer questions

Learning Outcome 3	Determine types of weld and joints.
Assessment criteria	Identify the different types of weld Select appropriate weld joint design Demonstrate welding positions Explain basic welding terms
Assessment Method	Multiple choice questions Short answer questions Practical tasks
Learning Outcome 4	Set-up and operate oxy-acetylene welding equipment.
Assessment criteria	Identify primary components and accessories Set-up equipment Operate gas welder Adjust proper flame
Assessment Method	Multiple choice questions Short answer questions Direct observation Practical tasks
Learning Outcome 5	Perform oxy-acetylene welding methods
Assessment criteria	Carry puddle without a filler rod Practice laying beads with filler rods Weld butt joints in the flat position Weld flange joint in the flat position Weld corner joint in the flat position Weld lap joint in the flat position
Assessment Method	Multiple choice questions Short answer questions Practical task
Learning Outcome 6	Set-up shielded metal arc welding equipment.
Assessment criteria	Identify the parts and accessories of an arc welder Classify welding machines Operate arc welding equipment
Assessment Method	Multiple choice questions Short answer questions

Practical task

Learning Outcome 7	Perform electric arc welding
Assessment criteria	Prepare work piece prior to welding Demonstrate striking an arc Practice a straight run Perform square edge butt joint Demonstrate restarting a weld run Demonstrate tack weld
Assessment Method	Direct observation Short answer questions Practical tasks
Learning Outcome 8	Identify the causes and appropriate remedies of welding defects
Assessment criteria	Identify blowhole defects Determine incomplete penetration problem Discuss undercut Explain the cause of lack of fusion Enumerate the causes of excessive penetration
Assessment Method	Multiple choice questions Short answer questions

Required Textbook: Joseph W. Giachino and William Weeks; Welding Skills, American Technical Publishers, Inc.; Homewood, Illinois 60430

Required Course Materials:

1. Instructor:
  - a. CAI classroom with whiteboard or chalkboard
  - b. Laboratory equipment with tools of the trade
  - c. Text, Teacher's Resource Guide, workbook
  - d. Overhead projector, transparencies
  
2. Student:
  - a. Text
  - b. Handouts provided by instructor
  - c. Ring binder
  - d. College ruled note sheet, pencil or pen

Reference Materials: Joseph W. Giachino and William Weeks; Welding Skills, American Technical Publishers, Inc.; Homewood, Illinois 60430

Method of Instruction:

1. Computer Aided Instruction
2. Practical/Experimentation
3. Lecture/Demonstration

Evaluation:

Final grade for this course will be based on meeting the course requirements at the following percentages rates:

90% - 100%	A – Superior
80% - 89%	B – Above Average
70% - 79%	C – Average
60%-69%	D – Below Average
0% - 59%	E – Failure

Attendance:

The COM-FSM attendance policy will apply.

Honesty:

The COM-FSM Honesty policy will apply.