COURSE PLAN

FIRST: BASIC INFORMATION

College	
College	: Al-Karak University College
Department	: Mechanical Engineering
Course	
Course Title	: GAS Welding 1
Course Code	020209126
Credit Hours	: 2 (0 Theoretical, 2 Practical)
Prerequisite	:
Instructor	
Name	: **Dr Khaleel Abushgair**
Office No.	:
Tel (Ext)	:
E-mail	:**abushgair@bau.edu.jo**
Office Hours	:

Class Times	The building	today	Start time	End time	Hall number

Text Book	
Title	:

References

1. Modern Welding; last Edition Althouse/Turnquist/Bowditch/Bowditch Goodheart-Wilcox Co., Inc.
2. Welding Technology American Technical Society Chicago last edition,
3. J. W Giachino W. weeks G.s Johnson 2. Modern Welding, by A.D Althouse C.H Turnquist and W.A. Bowditch, South Holland Illinois, last edition

SECOND: PROFESSIONAL INFORMATION

COURSE DESCRIPTION

This course covers the fundamentals and principles of oxy-fuel gas welding, oxyacetylene gas welding, description and operating procedures of oxy-Acetylene welding and cutting equipment's., description and safe operating procedures of oxy-acetylene regulators, maintenance of oxy acetylene welding and cutting blow pipes, types of oxy-acetylene flames and their uses, gas welding parameters, selection of nozzle size and oxy acetylene gas pressure to cut different thickness of metals and gas welding filler rods and fluxes and welding techniques, brazing principles, selection of nozzle size, filler metals and fluxes.

COURSE OBJECTIVES

The main objectives of this course are to enable the student to do the follows;

- Explain the processes and safety issues involved in usage of the various gas welding processes, operating principles of oxy-fuel welding and cutting.
- Explain and describe safe operating procedures of oxy-acetylene regulators, oxy acetylene welding and cutting blow pipes
- Explain types of oxy-acetylene flames and their uses, gas welding filler rods and fluxes and welding techniques.
- Develop manipulative proficiency in the use of oxyfuel metal welding in the horizontal (2F-2G), vertical (3F-3G), and overhead (4F-4G) positions.

COURSE LEARNING OUTCOMES

On successful completion of this course, students are expected to be able to:

CLO1. Explain a basic knowledge of gas welding such as joint designs and positions used in industry, types of gas flames, flame length and effect, gas welding machine, etc.
CLO2. Perform oxyacetylene gas welding process, complete oxyacetylene gas welding technology in flat position, horizontal positon and vertical position
CLO3. Perform how to cut metal using oxyacetylene gas, and the effects according to the gas conditions
CLO4. Perform oxyacetylene welding methods for nonferrous metals of copper and aluminum
CLO5. Perform oxyacetylene welding methods for cast iron
CLO6. Perform thick plates welding and cutting using oxyacetylene flame

COURSE SYLLABUS

Week	Topic	Topic details	Related L.O. and Reference (chapter)	Proposed assignments
1	Introduction to oxyfuel gas welding and safety in welding workshops	• Course introduction • Welding and general shop safety • Personal protection equipment's (PPE) used in welding and functionality • Basic weld joints and positions • Measuring and cutting materials	CLO1	
2	Fundamentals of oxyfuel gas welding	• Selecting the appropriate oxyfuel gas welding process • Metallurgy mechanical and physical properties of metals • Types of joints • Types of welding position • Welding problems • Producing good welds • Gas welding rods and fluxes • Welding torches • Gas pressure regulators	CLO1	

Week	Topic	Topic details	Related L.O. and Reference (chapter)	Proposed assignments
3	Oxyacetylene welding process	• Oxyacetylene welding equipment and supplies • Oxyacetylene welding equipment, welding torches • Regulators • Flame types and control equipment's • Introduction to the process of oxyacetylene welding in the flat and horizontal position	CLO2	
4	Oxyacetylene welding process practice	• Oxyacetylene welding gasses and torches • Welding fillers & numbering • Types of gas cylinders and regulators • Techniques for starting the flame • Practical experience in the use and application of Oxyacetylene welding	CLO2	
5	Oxyacetylene welding process practice	• Practical experience in the use and application of Oxyacetylene welding on various mild steel sheet in Flat positions 1- Fillet Lap 2. Fillet T joints 3. Outside corner joint 4. Square butt joint • Visual inspection of welded joints	CLO2	
6	Oxyacetylene welding process practice	• Practical experience in the use and application of **Oxyacetylene** welding on various mild steel sheet in Horizontal positions 1- Fillet Lap 2. Fillet T joints 3. Outside corner joint 4. Square butt joint • Visual inspection of welded joints	CLO2	
7	Oxyacetylene welding process practice	• Practical experience in the use and application of **Oxyacetylene** welding on various mild steel sheet in Vertical positions 1- Fillet Lap 2. Fillet T joints 3. Outside corner joint 4. Square butt joint • Welding problems and solutions	CLO2	
8	**Midterm Exam**			
9	Oxyacetylene metal cutting process	• Oxyacetylene metal cutting equipment and supplies • Oxyacetylene metal cutting equipment, metal cutting torches • Regulators • Flame types and control equipment's • Introduction to the process of oxyacetylene metal cutting in the flat and horizontal position	CLO3	

Week	Topic	Topic details	Related L.O. and Reference (chapter)	Proposed assignments
10	Oxyacetylene metal cutting process practice	• Applications to used oxyacetylene cutting process in cutting of different plates with different thickness and poisons	CLO3	
11	Oxyacetylene pipes metal cutting process practice	• Applications to used oxyacetylene cutting process in cutting of different pipes with different thickness and poisons • Cutting problems and solutions	CLO3	
12	Oxyacetylene Welding methods for nonferrous metals	• Copper and its alloys welding problems • Aluminum and its alloys welding methods Problems • Testing and inspecting welds joints methods	CLO4	
13	Oxyacetylene metal cutting methods for nonferrous metals	• Copper and its alloys cutting process parameters • Aluminum and its alloys cutting parameters and problems • Testing and inspecting cutting area	CLO4	
14	Oxyacetylene metal welding of cast iron	• Cast iron and its alloys welding problems • Cast iron welding with copper wire • Cast iron welding without added material • Testing and inspecting welds joints methods	CLO5	
15	Practice on thick plates welding and cutting using Oxyacetylene flame	• Practice on thick plates welding and cutting using Oxyacetylene flame	CLO6	
16	**Final Exam**			

COURSE LEARNING RESOURCES

The methods used in teaching the program, are mentioned, sch as lectures, discussion sessions, practivity, and other activities)
-Discussion and explanation sessions
-Practical activity and execution

ONLINE RESOURCES

1) https://www.aws.org/home

ASSESSMANT TOOLS

Assessment Tools	%
Projects and Quizzes	20%
MID Exam	30%
Final Exam	50%
Total Marks	100%

THIRD: COURSE RULES

ATTENDANCE RULES

Attendance and participation are extremely important, and the usual University rules will apply. Attendance will be recorded for each class. Absence of 10% will result in a first written warning. Absence of 15% of the course will result in a second warning. Absence of 20% or more will result in forfeiting the course and the student will not be permitted to attend the final examination. Should a student encounter any special circumstances (i.e. medical or personal), he/she is encouraged to discuss this with the instructor and written proof will be required to delete any absences from his/her attendance records.

GRADING SYSTEM

Example:

Average	Maximum	Minimum
Excellent	100%	90%
Very Good	89%	80%
Good	79%	70%
Satisfactory	69%	60%
Weak	59%	50%
Failed	49%	35%

REMARKS

{The instructor can add any comments and directives such as the attendance policy and topics related to ethics}

COURSE COORDINATOR

Course Coordinator DR Khaleel Abushgair **Department Head:**

Signature: **Signature:**

Date: **Date:**