



Course Code MENG-410	Course Title Welding	ECTS Credits 6
Department Engineering	Semester Fall, Spring	Prerequisites MENG-312
Type of Course Elective	Field Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 4 th	Lecturer(s) Dr Andreas Chrysanthou
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Provide a basic knowledge of oxyacetylene welding, shielded metal arc welding, and MIG welding
- To provide a technical understanding of common processes to aid in appropriate material selection for a predetermined process
- Develop an appreciation for the skills, expertise, and responsibilities of skilled workers and their impact on the manufacturing environment.

Learning Outcomes:

After completion of the course students are expected to:

- use welding equipment safely
- employ the appropriate welding process
- weld to an acceptable standard
- recognize common welding faults
- understand how safety can be compromised by poor weld quality
- test completed welds

Course Contents:

- Safety in welding
- Shielded metal arc welding equipment, setup and operation
- Cutting and gouging (flame cutting, plasma arc cutting and related cutting processes)
- Gas shielded welding
- Gas Metal Arc Welding
- Flux Cored Arc Welding Equipment, Setup, and Operation
- Gas Tungsten Arc Welding Equipment, Setup, Operation, and Filler Metals
- Gas Tungsten Arc Welding of Plates and pipe
- Welding Joint Design, Welding Symbols, and Fabrication
- Welding Codes, Standards and Costs

- Testing and Inspection of Welds
- Welding Metallurgy
- Weldability of Metals
- Filler Metal Selection
- Oxyfuel Welding and Cutting Equipment, Setup, and Operation
- Oxyfuel Gases and Filler Metals
- Oxyacetylene Welding
- Soldering, Brazing, and Braze Welding

Learning Activities and Teaching Methods:

Lectures, in-class examples and exercises, in-class activities, laboratory work.
 The course format is 2 h lectures and 1 h laboratory work per week.

Assessment Methods:

Lab reports, midterm exam, final exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Larry Jeffus	Welding Principles and Applications	Delmar Cengage Learning	2011	978-1111039172

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Mikell P. Groover	Fundamentals of Modern Manufacturing; Materials, Processes, and Systems	Wiley	2007	