Course Information
Division: Applied Science & Engineering Technology
Contact Hours: 250
Theory: 85
Lab Hours: 165
Total Credits: 12

Prerequisites: NONE

Course Description
This course is designed to meet or exceed the skill and knowledge requirements for the welding and cutting processes established by the “American Welding Society” for the qualification of “QC10 Level I Entry Level Welder” certification. AWS reference document EG2.0-2017 mandates requirements of this course. Additional “Welding Exercises” are included to assure each participant the greatest possible opportunity to successfully complete all “Performance Qualifications Tests” for the AWS Level I Certification. WELD115 is an introduction to various welding processes and procedures with emphasis on developing safe work habits in a lab/shop environment. Topics may include: machine functions, filler metal chemistry, blue print and welding symbol interpretation, basic fabrication techniques, as well as code and procedure requirements for a variety of industrial needs. Welding/cutting processes covered with laboratory applications include: OFC, PAC, CAC-A, CNC-PAC, SMAW, GTAW, FCAW, and GMAW. Welder performance qualification tests must meet AWS QC10 standards in addition to passing written examinations to receive each process certification.

Course Outcomes
In order to evidence success in this course, students will be able to:

1. Prepare time cards, welder reports, and records.
2. Perform housekeeping duties.
3. Follow verbal and written instructions to complete work assignments.
4. Demonstrate proper use and inspection of personal protection equipment (PPE).
5. Demonstrate proper safe operation practices in the work area.
6. Demonstrate proper use and inspection of ventilation equipment.
7. Demonstrate proper Hot Zone operation.
8. Demonstrate proper work actions for working in confined spaces.
9. Demonstrates proper use of precautionary labeling as well as DSD and MSDS information.
10. Interprets basic elements of a drawing or sketch.
11. Interprets welding symbol information.
12. Fabricates parts from a drawing or sketch.
13. Performs safety inspections of SMAW, GMAW, FCAW, & GTAW equipment and accessories.
14. Make minor external repairs to SMAW, GMAW, FCAW, & GTAW equipment and accessories.
15. Sets up for SMAW, GMAW, FCAW, & GTAW operations on carbon steel.
16. Operates SMAW, GMAW, FCAW, & GTAW equipment on carbon steel.
17. Makes fillet welds, in all positions, on carbon steel, using SMAW, GMAW-S, FCAW-S, FCAW-G, & GTAW-CS.
18. Makes groove welds, in all positions, on carbon steel, using SMAW, GMAW-S, FCAW-S, FCAW-G, & GTAW-CS.
20. Sets up for GMAW-Spray operations on carbon steel.
22. Makes fillet welds in the 1F & 2F positions, on carbon steel, with GMAW-Spray.
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23. Makes groove welds, in the 1G position, on carbon steel, with GMAW-Spray.
24. Sets up for GTAW operations on austenitic stainless steel and aluminum.
25. Operates GTAW equipment on austenitic stainless steel and aluminum.
27. Makes groove welds in the 1G and 2G positions, on austenitic stainless steel.
28. Passes GTAW workmanship qualification test on austenitic stainless steel and aluminum.
29. Makes fillet welds in the 1F & 2F positions, on aluminum.
30. Makes groove welds in the 1G position, on aluminum.
35. Performs straight, square edge cutting operations, in the flat position, on carbon steel using manual OFC, mechanized OFC, & manual PAC equipment.
36. Performs shape, square edge cutting operations, in the flat position, on carbon steel using manual OFC, mechanized OFC, and manual PAC equipment and accessories.
37. Performs straight, bevel edge cutting operations, in the flat position, on carbon steel using manual and mechanized OFC equipment and accessories.
38. Performs scarfing and gouging operations to remove base and weld metal, in the flat and horizontal positions, on carbon steel using manual OFC and manual CAC-A equipment and accessories.
40. Examines tacks, root passes, intermediate layers, and completed welds.

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