Syllabus

Course Title: Introduction to Welding Metallurgy-MIG
Course Code: WLDG 1002
Course Length: 60 hours/session 1

Course Description: Instruction in safety, welding and cutting processes, the physics of welding, joints and positions and guided practices with oxy-fuel gas cutting and welding, Gas Metal Arc Welding (SMAW) and Flux Core Arc Welding (FCAW).

Learning Outcome:
- Identify hazards in a welding lab
- Identify proper ventilation for fume extraction
- Identify and wear proper PPE
- Understand the importance of safety programs
- Identify the advantages of welding over other joining techniques
- Identify the processes of hardening, annealing and tempering
- Identify 5 basic weld joints
- Identify parts of a fillet weld
- Identify parts of a groove weld
- Identify common welding positions
- Describe the difference between DC and AC current
- Assemble all of the components of a GMAW machine
- Set flow rates on welding gas
- Identify the two adjustments used to adjust a GMAW machine
- Understand how to change polarity of machine for FCAW process
- Describe three types of metal transfer
- Demonstrate proper technique using GMAC and FCAW in the 1G, 2G and 3G positions
- Demonstrate proper technique using GMAC and FCAW in the 1F, 2F and 3F positions

Pre-requisites: None
## Course Structure:

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<td>Weld Joints and Positions</td>
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<td>Plasma Arc Cutting</td>
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## Schedule:

20 three hour sessions or any combination for 60 hours of instruction.
6:00 PM – 9:00 PM or as scheduled

## Evaluation:
Student Assessments, Passing 70%

## Books:
New Lessons in ARC WELDING

## Reference:
N/A
Course Outline

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Delivery Method: Small group discussions/Demonstrations/Classroom
Introduction to Welding Metallurgy
07/21/2014

Blinn College
Workforce Education

Audience: Beginners

Pre-requisites: None

Course Structure: Content: 60 hours

- Shop Safety 3
- Welding and Cutting Processes 3
- Physics of Welding 3
- Weld Joints and Positions 3
- Gas Metal Arc Welding (GMAW) 21
- Plasma Arc Cutting 12
- Oxyfuel Gas Processes 3
- Equipment, Supplies 6
- Assessments 3

Schedule: 20 three hour sessions or any combination for 60 hours of instruction.
6:00 PM – 9:00 PM or as scheduled

Evaluation: Student Assessments:
- Safety Test
- Weld Joints and Positions
- GMAW safety, setup and parts identification test, 1G test plate, 1F test plate
- GMAW safety, setup and parts identification test, 2G test plate, 2F test plate
- GMAW safety, setup and parts identification test, 3G test plate, 3F test plate
- FCAW safety, setup and parts identification test, 1G test plate, 1F test plate
- FCAW safety, setup and parts identification test, 2G test plate, 2F test plate
- FCAW safety, setup and parts identification test, 3G test plate, 3F test plate

Books: New Lessons in ARC WELDING

Reference: N/A
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*Introduction to Welding Metallurgy*

*07/21/2014*
Session 19  FCAW

Session 20  Final Assessments  
            Issue Certificates of Completion

C. Closing:

• Re-Cap
  • Shop Safety
  • Welding and Cutting Processes
  • Physics of Welding
  • Weld Joints and Positions
  • Gas Metal Arc Welding (GMAW)
  • Flux Core Arc Welding (FCAW)
  • Plasma Arc Cutting
  • Oxyfuel Gas Processes
  • Equipment, Supplies, Electrodes
  • Assessments

D. Evaluation:
  Practical Assessments