Student Syllabus

Course Title: Introduction to Welding Metallurgy
Course Code: WLDG 1037
Course Length: 60 hours-Course 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, Shielded Metal Arc Welding (SMAW).

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
- Identify types of welding electrodes and their characteristics
- Describe three types of metal transfer
- Demonstrate proper technique using SMAW in the 1G, 2G and 3G positions
- Demonstrate proper technique using SMAW in the 1F, 2F and 3F positions

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
- Shielded Metal Arc Welding (SMAW) 33
- Plasma Arc Cutting 3
- Oxyfuel Gas Processes 3
<table>
<thead>
<tr>
<th>Equipment, Supplies, Electrodes</th>
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<tr>
<td>Assessments</td>
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</table>

**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 Title: Introduction to Welding Metallurgy
Course Code: WLDG 1037 – Course 1
Course Length: 60 hours

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, Stick Metal Arc Welding (SMAW).

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
- Identify types of welding electrodes and their characteristics
- Describe three types of metal transfer
- Demonstrate proper technique using SMAW in the 1G, 2G and 3G positions
- Demonstrate proper technique using SMAW in the 1F, 2F and 3F positions

Delivery Method: Small group discussions/Demonstrations/Classroom

Audience: Beginners

Pre-requisites: None

Course Structure: Content: 60 hours

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<td>Shop Safety</td>
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<td>Welding and Cutting Processes</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:
- Safety Test
- Weld Joints and Positions
- SMAW safety, setup and parts identification test, 1G test plate, 1F test plate
- SMAW safety, setup and parts identification test, 2G test plate, 2F test plate
- SMAW 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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<tr>
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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
- Shielded Metal Arc Welding (SMAW)
- Plasma Arc Cutting
- Oxyfuel Gas Processes
- Equipment, Supplies, Electrodes
- Assessments

D. Evaluation:

Practical Assessments