Weldment Evaluation and Testing
Outline of Instruction

Course Information
Organization: Monroe County Community College, Applied Science and Engineering Technology
Developers: R.S. Chandel
Development Date: 8/23/2007
Revised Date: 8/27/2009
Course Number: WELD-103
Instructional Level: Associate Degree
Instructional Area: Welding Technology
Division: Applied Science and Engineering Technology
Potential Hours of Instruction: 60
Total Credits: 3

Description
This course provides an introduction to the various methods used to inspect weldments for reliability using both nondestructive and destructive techniques. Weld quality and procedure requirements of the AWS Structural Welding Code will be introduced. The knowledge and skills required for certification as an AWS welding inspector will be covered in-depth. Laboratory experience will be gained in nondestructive test methods (visual, ultrasonic, magnetic particle, radiographic, eddy current, and dye penetrant testing).

Major Units
- Welding Inspector and Inspection Operations
- Qualification of Welding Procedure and Welders
- Codes and Standards
- Weld Measurements and Discontinuities
- Visual Examination
- Non Destructive testing
- Destructive Testing
- Welding Procedure specifications
- Welder Qualifications
- Testing & Inspection Reports

Methods of Instruction
The methods of instruction utilized in this course will include but not be limited to Lecture, Demonstration, Discussion, in Class Activity, Video, and
Lab exercises.

Lab Work and Lab Reports
There will be a number of Lab experiments, some lasting one session, while others lasting 2 sessions. For this purpose, students will form the Lab Groups comprising 3-4 students. The Lab Groups will be formed before the first experiment and the group members are expected to stick together for the remainder of the term. The Lab report will, however, be submitted individually and graded.

Types of Instruction

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<tr>
<th>Instruction Type</th>
<th>Contact Hours</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Classroom Presentation</td>
<td>60</td>
<td>4</td>
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Textbooks

Learner Supplies
None.

Prerequisites
WLD-100
MECH-102

Exit Learning Outcomes

General Education Outcomes
A. Demonstrate an understanding of the process of scientific inquiry
B. Communicate information in writing using the rules of standard English
C. Apply mathematical approaches to the interpretation of numerical information
D. Use computer technology to retrieve information

Course Outcomes
1. Evaluate the weldments as per the requirements of engineering drawings
2. Utilize gauges and measuring instruments to evaluate weld sizes and joint geometry
3. Perform mechanical tests of welded joints.
4. Perform LPI, MPI, RT and UT for the detection of weld flaws
5. Formulate welding procedure specifications from AWS prequalified welding procedures, and the fabrication of a conforming weldment
6. Conduct appropriate test specimens and records for procedure qualification and welder qualification in accordance with AWS, ASME, and API welding codes.