Ultrasonic Testing (UT) Level I
Outline of Instruction

Course Information
Project Type          NDT Certification
Organization          Monroe County Community College, Applied Science and Engineering Technology
Developers            Ed Schultz and Roop Chandel
Development Date      2/6/2012
Course Number         NUET 107
Instructional Level   Certificate
Instructional Area    Nuclear Engineering Technology
Division              Industrial
Potential Hours of Instruction 45
Total Credits         2

Description
This is a first level course in Ultrasonic Testing (UT). The students will learn the principles of sound wave propagation and attenuation, generation, nature, types and properties of sound waves and modes will be studied. Testing methods and techniques, responses from a variety of flaws, equipment and its operating principles to detect flaws by using different detectors will be taught during the practical sessions. Standard reference blocks and calibration will be used. Procedure and codes for acceptance and rejection criteria for flaws will be taught.

Major Units:
1. Basic principles of acoustics
2. UT Equipment
3. Basic testing methods
4. Straight beam examination
5. Angle beam examination
6. Terminology and Reporting

Target Population
NDT Certification is designed for two year career and technical education programs or for those with experience.

Students, Inspectors, Welders, CWI's, Technicians, Engineers and Electricians find that a career in nondestructive testing offers many opportunities, and there is a big demand for technicians and engineers trained in NDT. The NDT personnel work at various levels.

Level I technicians are only qualified to perform specific calibrations and tests, and acceptance or rejection determinations allow little or no deviation from the procedure. Level I technicians working at this level are under close supervision, guidance and direction of a higher level tester, such as Level II or Level III. The Level I position is not the trainee level, but the first level a trainee reaches upon demonstrating ability in specific tests. They are usually trained to a specific procedure and can perform only certain types of inspections on a certain set of components.
Level II technicians are able to set up and calibrate equipment, conduct the inspection according to procedures, interpret, evaluate and document results in all the testing method(s) utilized by the certificate holder. The technician can provide on the job training for Level I and Level I Limited and act as a supervisor. The technician at this level can also organize and document the results of the inspection. They must be familiar with all applicable codes, standards, and other documents that control the NDT method being utilized.

Types of Instruction

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<tr>
<th>Instruction Type</th>
<th>Contact Hours</th>
<th>Credits</th>
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<tr>
<td>Classroom Presentation</td>
<td>45</td>
<td>2</td>
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Textbooks

*TBD.*

Learner Supplies

Scientific Calculator.
3-Ring Binder.

Prerequisites

RDG 090 and/or ENGL-090

Exit Learning Outcomes

Program Outcomes

A. Demonstrate problem solving skills
B. Acquire a willingness to learn independently
C. Recognize effective inspection techniques
D. Demonstrate knowledge of equipment competency
E. Apply technical writing skills

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. Use computer technology to communicate information

External Standards


Course Outcomes

1. Demonstrate ultrasonic testing (UT) inspection methods
2. Identify ultrasonic inspection techniques and process variables
3. Select the tools and set ups for the UT method
4. Explain the scope and limitations of the UT methods
5. Calibrate a UT tester
6. Prepare reports describing test results
7. Prepare for ANST UT Level I test battery