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
3. Calibration
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, Technicans, Engineers and Electicians 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

Instruction Type	Contact Hours	Credits
Classroom Presentation	45	2

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 efective 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

SNT-TC-1A, The American Society for Nondestructive Testing, Recommended Practice, Personnel Qualification and Certification in Nondestructive Testing

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**