

# Radiographic Testing (RT) Level I

## Outline of Instruction

### Course Information

<b>Project Type</b>	NDT Certification
<b>Organization</b>	Monroe County Community College, Industrial Technology Division
<b>Developers</b>	Ed Schultz and Roop Chandel
<b>Development Date</b>	2/6/2012
<b>Course Number</b>	NUET 105
<b>Instructional Level</b>	Certificate
<b>Instructional Area</b>	Nuclear Engineering Technology
<b>Division</b>	Industrial
<b>Potential Hours of Instruction</b>	45
<b>Total Credits</b>	2

### Description

This is a first level course in Radiographic Testing. The students will study volumetric discontinuities using radiographic tests; understand penetrating radiation, its properties and limitations; and safety precautions. The principle of image formation, sensitivity and quality of radiographic process, codes and standards will be studied. Development of film, reading the films for discontinuities, film interpretations, procedures and codes for acceptance and rejection criteria for flaws will be learned in practical sessions.

Major Units:

1. Radioactive materials, radiation sources and types of radiation
2. Interaction of radiation with matter and biological effects of radiation
3. Radiation detection and exposure devices
4. Personnel monitoring and radiation survey reports
5. Storage and shipment of exposure devices
6. Emergency procedures
7. State and federal regulations
8. Darkroom procedures and practices
9. Radiographic interpretation
10. Radiographic 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**

### **Instruction Type**

Classroom Presentation

### **Contact Hours**

45

### **Credits**

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 effective inspection techniques
- D. Demonstrate knowledge of equipment competency
- E. Apply technical writing skills

## **General Education Outcomes**

- A. Communicate information in writing using the rules of standard English
- B. Apply mathematical approaches to the interpretation of numerical information
- C. Demonstrate an understanding of the process of scientific inquiry
- D. 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. **Identify and select radiographic testing technique and process variables**

2. **Perform applications of the RT method**
3. **Describe the scope and limitations of the RT method**
4. **Demonstrate safety practices in RT**
5. **Prepare reports describing test results**
6. **Prepare for ANST Level I test battery**