

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Nondestructive Testing Technology Program
Revision Date: August 2025

I. CATALOG DESCRIPTION

Course Number: NDTT1260
Course Title: NDT Methods
Prerequisite(s): None
Catalog Description: Introduction to Ultrasonic's Testing (UT), Radiography Testing (RT), Penetrant Testing (PT), Magnetic Particle Testing (MT), and Eddy Current Testing (ET). Fundamental operating principles and traditional applications. Laboratory work on instrument and equipment familiarization, instrument calibration, inspection, procedures, and basic reporting of inspection results.
Credit Hours: 3.0
Class Hours: 30
Lab Hours: 45
Total Contact Hours: 75

II. COURSE OBJECTIVES: *Course will:*

- A. This course is intended for individuals with little or no prior experience with NDT inspections, and is also suitable for experienced examiners with a desire to increase their knowledge and/or upgrade skills.
- B. Discusses the major variables of examinations and provide a solid foundation in the principles of these non-destructive testing methods.
- C. Introduces students to the basic principles of NDT examination. Discuss NDT as part of everyday life and equipment used to perform NDT inspections.
- D. Address major variables of NDT examination and provide a broad base from which the student will expand his/her knowledge. Traditional and emerging uses of NDT are also presented, providing students with the knowledge needed to envision future applications of the non-destructive testing methods.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Understand the basic principles and theory for each of the five main testing techniques and practices in an industrial/manufacturing environment.
 - 2. Become familiar in the use of equipment/instrumentation for the purposes of inspection, measurement, and calibration, in each of the testing methods.
 - 3. Exhibit proficiency in his/her ability to perform basic tasks in each of the five major methods.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO 3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A. Introduction to Penetrant Testing
- B. Introduction to Magnetic Particle Testing
- C. Introduction to Ultrasonic Testing
- D. Introduction to Radiography Testing
- E. Introduction to Eddy Current Testing

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Curtis Evans Introduction to NDT, 1st Edition ISBN 978-1-57117-441-3
- B. Other Resources:
 - 1. Scientific calculator
 - 2. Pocket pen light (with batteries/flashlight)
 - 3. 0-1 in OD micrometer (with Vernier scale)
 - 4. Fillet gauge
 - 5. V-WAC gauge
 - 6. 6" steel rule
 - 7. Notebook and 1/4" graph paper
 - 8. Vis-à-vis water markers (pkg. of 4)
 - 9. Writing utensil (pencil and pen)
 - 10. 12ft tape measure
 - 11. French curves (set)
 - 12. No. 81 circle template
 - 13. Stop watch
 - 14. PPE (Appropriate for lab activities, i.e. safety glasses)

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecturing
 - 2. Group discussion
 - 3. Video presentations
 - 4. Demonstrations
 - 5. Handouts
 - 6. Observations
 - 7. Assigned lab projects

VII. METHODS OF EVALUATION (*course outline may provide more detailed information*)

- A. Methods of evaluations, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Quizzes
 - 2. Tests
 - 3. Lab grades
 - 4. Homework
 - 5. Practical exams

VIII. SPECIFIC COURSE REQUIREMENTS

- A. Attendance
- B. Examination
- C. Homework
- D. Lab Projects
- E. Must earn a final grade of 70% (2.0) or higher