

AATA 102B: PENETRANT TESTING LEVEL 2

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2025
Units:	1.5
Hours:	20 lecture per quarter (20 total per quarter)
Prerequisite:	This course is limited to students admitted to the Nondestructive Testing Technician Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Description

This course covers the application of liquid penetrant testing and prepares students to understand the different products/equipment; select equipment and setup test equipment and area; understand the steps to conduct a test; interpret and evaluate indications; and become familiar with standards and codes.

Course Objectives

The student will be able to:

1. Understand all applicable industry codes and standards
2. Interpret results with respect to applicable codes and standards
3. Understand limitation of the test method
4. Write test reports

Course Content

1. Application and removal of penetrants
 - a. Selection of penetrant materials
 - i. Cleaners
 - ii. Penetrant
 - iii. Developer
 - iv. Selection based on family
 - b. Application of penetrant
 - c. Standard temperature limits
 - d. Dwell time
 - e. Drying
 - i. Drying parameters
 - ii. Drying time limits
 - f. Application of developers
 - i. Types of developers
 1. Aqueous
 2. Non-aqueous
 - ii. Developing time
 - g. Fluorescent inspection

- i. Black light warm up time
 - ii. Minimum intensity and light meter
 - iii. Visual adaptation
- h. Visual inspection
 - i. Minimum light intensity and light meter
 - i. Post cleaning
 - j. Limitation of penetrant testing
2. Interpretation
 - a. Interpretation of test results
 - i. Flow chart for interpretation
 - ii. True, false, relevant and non-relevant indications
 - iii. Categories of indications: Rounded and linear
 3. Examination of indications
 - a. ASTM E-433 Reference Photographs of Indications Types
 - b. MODULE 7: CODES & STANDARDS (Specific Training)
 - c. Codes
 - i. ASME Section V, Article 6
 - ii. ASME Section VIII, Appendix 8 (Accept/Reject Criteria)
 - d. Standards
 - i. ASTM E-165 Standard Practice for Liquid Penetrant Examination
 - ii. ASTM E-1209 Fluorescent Water Washable Liquid Penetrant Testing
 - e. Other codes and standards can be discussed at the request of the student, at the time of registration

Lab Content

Not applicable.

Special Facilities and/or Equipment

When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Results of written test

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Discussion
 Slideshow
 Video
 Demonstration

Representative Text(s) and Other Materials

American Society for Nondestructive Testing. [Personnel Training Publications: Liquid Penetrant Testing \(PT\) Classroom Training Book, 2nd ed.](#), 2019.

This text is still widely used within the industry and is the most current text used for training.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading: Read Chapter 5, section 3
2. Writing: Complete Quiz 5 on page 57. Quiz results will be reviewed in class as a group

Discipline(s)

Industrial Maintenance