

AATA 102A: PENETRANT TESTING LEVEL 1

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 principles 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; and become familiar with codes and standards.

Course Objectives

The student will be able to:

1. Understand the physical principles and purpose of liquid penetrant testing
2. Name and understand the categories of test processes, types of dye, methods of removal, and sensitivity levels
3. Select the correct process for testing
4. Understand the limitations of liquid penetrant testing
5. Perform the basic steps of a test

Course Content

1. Principles
2. Purpose of liquid penetrant testing
3. Physical properties: Wetting ability and contact angle, surface tension, capillary action, reverse capillary action, viscosity
4. Visibility of indications: Types, visual indicators
5. Categories of test processes
6. Types of dye: Type I (Fluorescent), Type II (Visible)
7. Methods of removal: Excess penetrant, water washable, emulsifiers, solvent removable
8. Sensitivity levels: 1/2 - 4, the appropriate uses
9. Limitations
 - a. When liquid penetrant should not be used and why
 - b. Using liquid penetrant with other methods of testing

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 2, section 2-4
2. Writing: Complete Quiz 2 on page 13. Quiz results will be reviewed in class as a group

Discipline(s)

Industrial Maintenance