

AATA 102A: PENETRANT TESTING LEVEL 1

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
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:	Pass/No Pass 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:

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

Course Content

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

- [Reading: Read Chapter 2, section 2-4](#)
- [Writing: Complete Quiz 2 on page 13. Quiz results will be reviewed in class as a group](#)

Discipline(s)

Industrial Maintenance