



ADDENDUM A

TO THE NATIONAL UNIVERSITY DIVISION OF EXTENDED LEARNING CATALOG 18-19

Effective February 1, 2019

MARINE TECHNOLOGY CERTIFICATE

General Manager: William Hyder; whyder@nu.edu

Concentration in Underwater Inspection Technology

In this concentration the student will learn theoretical, practical, and industry-specific knowledge as an inspector-level (ASNT Level II) capability in visual, liquid, penetrant, magnetic particle, and ultrasonic testing in underwater and traditional settings.

PROGRAM LEARNING OUTCOMES

Upon successful completion of this program, students will be able to:

- Perform visual, liquid penetrant, magnetic particle, and ultrasonic testing.

REQUIREMENTS FOR THE CONCENTRATION

4 courses; 12 quarter units

PMTX 2205X VT II/Underwater Inspection

3 quarter units

Prerequisite: PMTX 2160X with a minimum grade of C, PMTX 2162X with a minimum grade of C

Co-requisite: PMTX 2165X, PMTX 1900X

Fundamentals of visual testing to include; visual limitations, inspector responsibilities, codes and standards, weld joint geometry, welding terminology, welding/NDT symbols, mechanical and chemical properties of metals, destructive testing, metallurgy, weld processes, and weld/base metal discontinuities. Learn to use and maintain a variety of visual enhancing test equipment and assorted measuring tools including cathodic potential meters and ultrasonic thickness gauges and their underwater applications.

PMTX 2210X MT/PT II

3 quarter units

Prerequisite: PMTX 2205X with a minimum grade of C, PMTX 2165X with a minimum grade of C

Co-requisite: PMTX 2170X, PMTX 1900X

Extensive instruction in the theory and practicum of topside and underwater survey inspections using the magnetic particle process and topside inspection using

the liquid penetrate process. Gain knowledge in the process of identifying, evaluating, and categorizing discontinuities with respect to their acceptance or rejection in accordance with industry codes and standards.

PMTX 2220X Ultrasonic Testing I

3 quarter units

Prerequisite: PMTX 2210X with a minimum grade of C, PMTX 2170X with a minimum grade of C

Co-requisite: PMTX 2180X, PMTX 1900X

Covers both theory and practical techniques used in ultrasonic inspections, set-up and calibration techniques of A-Scan presentations and effects of location, size, and shape of discontinuities, and flooded member, corrosion, and erosion inspection.

PMTX 2230X Ultrasonic Testing II

3 quarter units

Prerequisite: PMTX 2220X with a minimum grade of C, PMTX 2180X with a minimum grade of C

Co-requisite: PMTX 2190X with a minimum grade of C, PMTX 1900X

Covers ultrasonic shear wave inspection theory and the set-up and calibration for shear wave inspection using a Distance Amplitude Correction (DAC) curve or 80 percent Full Screen Height (FSH) flaw evaluation technique. Students gain practice inspecting a wide range of plate and pipe welds with known discontinuities. Students also learn to identify, evaluate, and categorize discontinuities as to their acceptance or rejection in accordance with various industry codes and standards.