

NE 127 – Codes, Standards & Regulations

Credits: 3

Contact Hours: 3 Lecture – 0 Lab

Instructor:

Textbook/Materials

No textbook is required. Reference handouts will be provided.

Course Description

This course is designed to introduce students to quality control practices commonly used by various industries to ensure public safety in accordance with appropriate codes, standards and regulations. Special emphasis shall be placed on the following topics; QA/QC practices, nondestructive testing as a QA tool, and QA/QC for the nuclear industry. This course shall make extensive use of the Code of Federal Regulations, American Society of Mechanical Engineers publications, and current nondestructive testing documents as published by ASNT, AWS, API, ASTM, and ANSI.

Prerequisites

N/A

Co-requisites

N/A

This is a required course in Engineering Technology: Non-Destructive Testing Technology concentration.

Program Educational Objectives

- PEO3. To produce graduates who continue their education in areas such as materials evaluation, engineering management, quality assurance, quality control, and engineering technology.
- PEO4. To produce graduates who possess the knowledge, skills and abilities to become effective members of an inspection team, earn nondestructive testing certifications, and become senior level technicians.
- PEO5. To produce graduates who have the ability to assume leadership positions within nondestructive inspection service organizations.

Course Outcomes

1. Outline key events that led to the development of codes, standards, and regulations in industry.
2. Define various acronyms frequently used in codes, standards, and regulations.
3. Explain the difference between codes, standards, and regulations, and how each is written, revised, and its enforcement.
4. Describe the framework of the Code of Federal Regulations.
5. Describe and compare different standards in use in industry: ASTM, SAE,

- ASME, AWS, etc.
6. Become familiar with industry test procedures and be able to use these procedures to evaluate test results.
 7. Describe the process for documenting test results and the requirements for record retention.
 8. Outline the requirements for obtaining Level I, Level II, and Level III certification and recertification in the various NDT methods and QA/QC.

Student Outcomes

- SO d. An ability to function effectively as a member of a technical team.
- SO f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- SO g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- SO i. A commitment to quality, timeliness, and continuous improvement.

Topics Covered

- Introduction to Codes, Standards, and Regulations
 - History of Code Development
 - Definitions, Acronyms
- Code of Federal Regulations
 - QA/QC and NDT requirements
 - 10CFR 50 Appendix B
 - 10CFR Part 21
- American Society of Mechanical Engineers
 - Section III, Section V, Section XI, NQA-1
- ASTM International
- American National Standards Institute (ANSI)
- International Organization for Standards (ISO)
- Air Transport Association (ATA) and Aerospace Industries Association (AIA)
- American Welding Society (AWS)
- Society of Automotive Engineers (SAE)
- Code development
- Code interpretation
- Certification requirements
 - Written Practices
 - QA/QC levels of certification
 - NDT levels of certification