QUALITY CONTROL OF WELDED JOINT

COURSE SYLLABUS ABSTRACT
TO THE CURRICULUM OF A HIGHER EDUCATION INSTITUTION

6-05-0714-02: Mechanical Engineering Technology, Metal-Cutting Machines and Tools, Equipment and Technologies for Highly Efficient Material Processing

	STUDY MODE
	Full-time
Year	4
Semester	8
Lectures, hours	12
Lab classes, hours	12
Pass/fail, semester	8
Contact hours	24
Independent study, hours	66
Total course duration in hours / credit units	90/3

1. 1. Course outline

The objective of this course is to develop students' understanding, knowledge, and skills in the 6-05-0714-02 "Mechanical Engineering Technology, Metal-Cutting Machines and Tools" specialization, "Equipment and Technologies for Highly Efficient Material Processing Processes," regarding the composition and capabilities of modern weld quality control methods, as well as the specifics of their use in metalworking.

The following testing methods are covered: visual and measuring; capillary; magnetic particle; radiographic; acoustic; and leak testing methods. Laboratory classes are conducted using these methods.

2. 2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- welded joint defects, their impact on structural performance, and methods for eliminating defects;
- methods, tools, and technologies for non-destructive testing of welded joints;
- operating principles of non-destructive testing instruments;
- safety regulations for the operation of quality control equipment;
- principles for selecting equipment for testing specific welded structures.

Be able to:

- select non-destructive testing methods for assessing the quality of welded joints in metal structures;
- utilize modern methods for organizing quality control areas in production;
- develop process charts for welded joint testing;
- utilize new, advanced non-destructive testing methods and tools.

to possess a skill::

- master the following:
- methods for selecting and justifying process modes for specific non-destructive testing methods for welded joints;
- safe work practices when operating non-destructive testing equipment.

3. Competencies

Knowledge of welding equipment, types, and technological processes, ability to perform quality control of welded joints, and selection and development of a welding process.

4. Requirements and forms of midcourse evaluation and summative assessment

Laboratory work defense – in writing;

Credit – oral.

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