WELDING TECHNOLOGY

COURSE SYLLABUS ADSTRACT

6-05-0714-02 Mechanical engineering technology, metal-cutting machines and tools

(speciality code and name)

Equipment and technology for highly efficient material handling processes

(concentration)

	STUDY MODE
	Full-time
Year	4
Semester	7
Lectures, hours	50
Laboratory classes, hours	16
Practical classes(seminars), hours	16
Coursework, semester	7
Pass/fail, semester	7
Contact hours	82
Independent study, hours	62
Total course duration in hours / credit units	144 / 4

1. Course outline

The objective of this academic course is to develop students' understanding, knowledge, and skills in the physical principles of various fusion and pressure welding methods, the specifics of their use in industry, the principles of developing welding materials, the technical methods of welding various metals and alloys, and the effective use of acquired knowledge in practical activities.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- types and methods of fusion and pressure welding used in production;
- features of technological processes and welding technologies for various grades of steel, cast iron, and non-ferrous metals;
- design and basic characteristics of arc welding power sources and equipment for arc welding and surfacing, electroslag welding, and gas plasma processing;
- operating features and applications of power sources and welding equipment.

be able to:

- welding control procedures;
- welding safety requirements;
- rules for controlling process parameters of fusion welding, pressure welding, and thermal cutting;
- methods for calculating and selecting power sources and equipment;
- rules for operating power sources and equipment;

to prossess a skill:

- select fusion welding and thermal cutting methods, welding consumables, equipment, and modes that ensure high-quality welding;
- evaluate various fusion and pressure welding process options;
- develop effective welding technologies for a given design, taking into account actual production conditions;
- select power sources and welding equipment that ensure efficient welding processes.

3. Competencies

To know the equipment, types and technological processes of welding production, to be able to carry out quality control of welded joints, to select and develop a technological welding process.

4. Requirements and forms of midcourse evaluation and summative assessment

To assess the quality of students' learning, including acquired competencies, ongoing assessments are conducted during class periods based on the completion and defense of lab assignments, tests, and coursework. Midterm assessments are conducted based on the results of ongoing assessments and include an exam.

The ongoing assessment consists of an oral lab assignment defense, a written test (test assignments), and an oral coursework defense. Midterm assessments consist of an oral and written exam.