

THEORETICAL FUNDAMENTALS OF WELDING

ANNOTATION TO THE CURRICULUM OF HIGHER EDUCATION INSTITUTIONS

Speciality:7-06-0714-02 “Innovative technologies in mechanical engineering”

Profiling: “Welding technologies”

	Form of higher education	
	Full-time (day)	Correspondence
Well	1	1
Semester	1	1
Lectures, hours	34	8
Laboratory classes, hours	34	8
Exam, semester	1	1
Classroom hours per academic discipline	68	16
Independent work, hours	40	92
Total hours per academic discipline/credit units**	108/3	108/3

1. Brief content of the academic discipline: Calculation of the energy intensity of welding processes, elementary processes in arc plasma, ideal plasma, elements of plasma thermodynamics, cathode and anode regions, welding arcs with a non-consumable electrode, coherent radiation, thermal processes during welding, thermodynamic methods for analyzing processes during welding, calculation of thermal dissociation and ionization in the arc, physical and chemical processes during welding, technological strength of welded joints.

2. Learning outcomes

know: physical processes in welding sources of thermal energy; thermodynamic methods for analyzing metallurgical processes;

be able to: classify sources of thermal energy for welding; calculate the probability of metallurgical reactions occurring in the welding zone; evaluate the weldability of metals;

have the skills: solving theoretical and practical problems for the formation of welded joints when welding various metals and alloys.

3. Competencies being developed: SK-8 – Know the basic physical and metallurgical processes occurring during welding and related processes. Have in-depth knowledge of the physical essence of phenomena and the predicted results of directed influence on the kinetics of technological processes during welding and surfacing.

4. Requirements and forms of current and intermediate certification: Questions for the exam, exam papers, test tasks