

MATERIALS SCIENCE

COURSE SYLLABUS ABSTRACT

Specialty:

6-05-0715-03 Automobiles, tractors, mobile and technological complexes. Specialization: Computer engineering;

6-05-0715-07 Operation of land transport and technological machines and complexes. Specialization: Technical operation of automobiles and car service

	STUDY MODE	
	full-time (daytime)	Correspondence (6-05-0715-07)
Year	2	2
Semester	3	3
Lectures, hours	16	4
Laboratory classes, hours	34	6
Pass/fail, semester	3	3
Classroom test (semester, hours)		3 (2 hours)
Contact hours	50	12
Independent study, hours	58	96
Total course duration in hours / credit units	108/3	108/3

1. Course outline

While studying the discipline, students will learn how to select structural materials of a certain composition and functional properties during maintenance and repair of cars. They will gain knowledge about the structure and properties of metals, alloys and other structural materials, as well as about the methods of their preparation and processing to obtain parts with specified properties and configuration.

2. Course learning outcomes

Upon completion of the course, students will be expected to:

know: - methods of studying the structure and properties of materials; - fundamentals of theory and practice of thermal, chemical-thermal, thermomechanical processing of metal materials; - practical ways to study the structure, properties of materials and their heat treatment; -modern materials and effective methods of their heat-hardening treatment.

be able to: - rationally use reference literature on the choice of materials, technologies of their processing, providing the necessary indicators of properties; - correctly determine the application areas of a particular material; - assign methods and modes of structure-changing processing that ensure optimal properties of materials when working under certain operating conditions.

to possess a skill: - methods of studying the structure and properties of materials; - methods for determining the structure and properties of materials; - the practice of using various materials.

3. Formed competencies

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6-05-0715-07: Master the basics of research, search, analyze and synthesize information. To select structural materials of a certain composition and functional properties during car maintenance and repair.

6-05-0715-03: Select and determine the composition and basic properties of materials by brand for the production of automobiles, tractors and electric vehicles.4. Requirements and forms of midcourse evaluation and summative assessment.

The defense of laboratory work is carried out orally. The exam is conducted in writing in the form of answers to test questions.