

# **MECHANICS OF MATERIALS**

## **COURSE SYLLABUS ABSTRACT**

### **6-05-0715-03 Cars, tractors, mobile and technological complexes**

(speciality code and name)

Computer engineering in lifting and transport engineering,

Computer engineering in construction and road engineering,

Computer engineering in the automotive industry

(concentration)

### **6-05-0715-07 Operation of land transport and technological facilities machines and complexes**

Technical operation of cars, Car service

	STUDY MODE			
	full-time		part-time	part-time (shortened program)
Speciality	6-05-0715-03	6-05-0715-07	Concentration «Technical operation of cars»	
Year	2	2	3	1
Semester	4	4	5	2
Lectures, hours	34	34	8	8
Practical classes, hours	34	34	8	4
Laboratory classes, hours	16	16	4	4
In-class test (semester, hours)	-	-	5 (2 часа)	-
Exam, semester	4	4	5	2
Contact hours	84	84	22	16
Independent study, hours	96	60	122	128
Total course duration in hours / credit units	180/5	144/4	144/4	144/4

#### **1. Course outline**

The study of the basic concepts, laws and methods of mechanics of materials and their application for the calculation of typical structural elements, mechanical gears, working bodies of machines and mechanisms for strength, rigidity and stability.

#### **2. Course learning outcomes**

Upon completion of the course, students will be expected to

##### **know:**

- the main hypotheses of the mechanics of materials about the properties of structural materials and the character of deformation;
- general requirements for structural materials;
- methods for calculating typical structural elements for strength, rigidity and stability;
- methods of experimental investigation of stresses and strains;

##### **be able to:**

- to apply in practice methods and approaches to solving engineering problems of calculating structures, parts and assemblies of machines for strength, rigidity and stability;
- to investigate stresses and deformations by experimental methods;
- to carry out the formulation of tasks taking into account the complex operational conditions of the functioning of the object under study;

##### **to possess a skill:**

- theoretical and experimental analysis of structures for strength, rigidity and stability, taking into account the properties of structural materials;
- calculation of structures for their optimal use;
- calculation of parts and assemblies for strength.

#### **3. Competencies**

Specialty 6-05-0715-03: «To carry out calculations for strength, rigidity and stability of structures»;

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#### **4. Requirements and forms of midcourse evaluation and summative assessment**

When studying the discipline, a modular rating system for assessing students' knowledge is used, intermediate certification – exam.