

## MECHANICS OF MATERIALS

### COURSE SYLLABUS ABSTRACT

**Specialty**    1-37 01 02 – Automotive industry (by direction)

	STUDY MODE
	full-time
Year	2
Semester	3, 4
Lectures, hours	68
Practical classes (seminars), hours	68
Laboratory classes, hours	34
Pass/fail, semester	3
Graded exam, semester	4
Contact hours	170
Independent study, hours	154
Total course duration in hours / credit units	324/9

**1 The purpose of the discipline** – is to form students' skills in carrying out calculations of typical structural elements, mechanical gears, working bodies of machines and mechanisms for strength, rigidity, stability and durability.

**2. Upon completion of this course, the students will be expected to know:**

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

**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;

**possess:**

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

### **3. Competencies to be developed**

Upon completion of this course the following competencies must be developed:  
BPC-4 (basic professional competence) – To carry out calculations of structures for strength, rigidity and stability, to choose and apply materials depending on the specific working conditions of machine parts and equipment, to perform calculations in the design of parts and assemblies.

### **4. Summative and mid-course assessment requirements and methods**

When studying the discipline, a modular rating system for assessing students' knowledge is used. Forms of classes: traditional.

