

## VEHICLE ENGINES

(course title)

### COURSE SYLLABUS ABSTRACT of higher education institution speciality

1-37 01 06 "Technical operation of vehicles"

(speciality code and name)

	STUDY MODE		
	full-time	part-time	part-time (shortened program)
Year	3	4	3
Semester	6	7	6
Lectures, hours	34	6	6
Practical classes (seminars), hours	14	4	4
Laboratory classes, hours	34	6	6
Exam, semester	6	7	6
Contact hours	82	16	16
Independent study, hours	114	182	182
Total course duration in hours / credit units	198/5	198/5	198/5

#### 1. Course outline

Workflows occurring in the cylinders of automobile engines, kinematics and dynamics of the crank mechanism, design principles and methods for calculating the main mechanisms and systems of the engine.

#### 2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- the essence of theoretical and real cycles in internal combustion engines; - principle of operation, design features, performance indicators of modern automobile engines and prospects for their development; - modes and operating conditions of automobile engines and their elements; - indicators of environmental safety and efficiency of automobile engines; - principles of design and calculation of vehicle engines;

be able to:

- evaluate the degree of perfection of automobile engines; - choose the optimal vehicle with the appropriate engine for the given operating conditions; - to ensure the efficient operation of automobile engines and the implementation of their resource and maintainability:

possess:

- calculation of the indicator parameters of the internal combustion engine; - organizing tests of the engine and fuel equipment, - taking the main characteristics; - calculation of the main parts and systems of automobile internal combustion engines.

#### 3. Competencies

Mastering this academic discipline should ensure the formation of the following competencies:

UC-5 - be able to apply basic scientific and theoretical knowledge to solve theoretical and practical problems in the field of car service; UC-6 - to have basic communication skills in oral and written forms in state and foreign languages to solve problems of interpersonal and intercultural interaction; UC-9 - to master the skills of health saving; BPC-1 - be able to apply the basic rules of safety, industrial sanitation, fire safety and methods of protecting production personnel and the public from the possible consequences of accidents, natural disasters; BPC-2 - have basic skills in assessing the environmental consequences of the implementation of production processes and develop a set of measures to reduce energy consumption; BPC-4 - to have the ability to solve the calculation and search tasks of professional activity with the help of information technologies; BPC-6 - be able to select materials for professional activities in the maintenance and repair of vehicles and determine the composition and basic properties of materials by brand; BPC-7 - be able to study and analyze the mechanical interaction in the units and assemblies of vehicles; BPC-9 - be able to analyze the operation of mechanisms and carry out the necessary calculations in their design; BPC-10 - be able to select a measuring tool and take measurements.

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

To assess the level of knowledge of students, the following diagnostic tools are used:

- oral-written.

Oral and written forms include:

Reports on laboratory work with their oral defense; term papers with their oral defense; exam in oral or written form.