

# VEHICLE DESIGN METHODOLOGY

## **COURSE SYLLABUS ABSTRACT**

**Speciality 1-37 80 01 «Vehicles»**

**Profiling Technical operation of vehicles**

	STUDY MODE	
	full-time	part-time
Year	1	2
Semester	2	3
Lectures, hours	40	10
Laboratory classes, hours	16	4
Practical classes (seminars), hours	16	4
Exam, semester	2	3
Contact hours	72	18
Independent study, hours	108	162
Course project, semester	50/2	50/2
Total course duration in hours / credit units	180/6	

### 1. Course outline

Study of the system approach and its capabilities in solving the problems of road transport, methods of modeling modern technological processes arising during testing and conformity assessment of vehicles, improvement of methods for analyzing test results and criteria for assessing the conformity of vehicles.

### 2. Course learning outcomes

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

clutch design methodology; general layout and calculation of gearbox elements; suspension design methodology; brake design methodology; rear axle design methodology; methodology for conducting a system analysis aimed at solving the problems of making the optimal decision based on a choice of many possible alternatives; methods of solving strategic problems that require the development of a complex goal and multi-criteria optimization in conditions of uncertainty; fundamental principles that must be observed in the formation of a system methodology and its practical implementation; methods for determining the parameters of conformity of vehicles;

be able to:

compile algorithms for modeling vehicle systems; develop a procedure for assessing the conformity of vehicles; simulate and optimize vehicle configurations; prepare scientific and technical reports on the results of modeling; conduct a system analysis aimed at solving the problems of making the optimal decision based on the choice of many possible alternatives;

possess:

methods of modeling the processes of vehicle systems; methods of processing and analyzing the results of modeling; methods of solving strategic problems that require the development of a complex goal and multi-criteria optimization in conditions of uncertainty; methods for determining the parameters of conformity of vehicles.

### 3. Competencies

SK-4 Own the methodology and be able to design wheeled vehicles taking into account operational requirements, environmental safety requirements, road safety and other regulations

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

oral-written form: reports on practical works with their oral defense, reports on laboratory work with their oral protection, course project with oral defense, exam.