THEORY OF MECHANISMS AND MACHINES

(course title)

COURSE SYLLABUS ABSTRACT

Specialty **1-37 01 07 – "Car service"**

	STUDY MODE	
	full-time	**part-time (shortened program**
Year	2	2
Semester	3	4
Lectures, hours	34	6
Practical classes (seminars), hours	16	4
Classroom control work	–	4,(2 hours)
Exam, semester	3	4
Independent study, hours	50	12
Contact hours	58	96
Total course duration in hours / credit units	108/3	108/3

1. Course outline.

The objectives of the discipline are the basics of the structure of mechanisms; modeling of geometric and kinematic connections in mechanisms; mathematical modeling of the movement of machines and mechanisms with rigid connections, the use of numerical methods and computers to solve equations of motion; force analysis, friction and wear in mechanisms; assessment of energy consumption and dynamic loading of machines and mechanisms; study of the movement of machines and mechanisms with elastic links; vibrations in mechanisms and machines; synthesis of lever, cam, gear mechanisms, intermittent motion mechanisms; the structure of automatic machines; control systems of automatic machines and their design.

2. Course learning outcomes

to know:

– the basic theoretical provisions of the structure, kinematics, dynamics and control of machine systems, individual machines and mechanisms;

- measuring equipment for determining the kinematic and dynamic parameters of mechanisms and machines;

– principles of designing the main types of mechanisms;

be able to:

– make calculation schemes (models)machines and mechanisms suitable for solving technical problems, performing kinematic and dynamic calculations, apply the results of calculations to obtain optimal characteristics of mechanisms and machines;

– develop algorithms for calculating parameters on a PC, perform specific calculations;

possess:

– basic principles of design, analysis and synthesis of various mechanisms;

– methods of designing the main types of mechanisms;

– methods of calculating the dynamic loading of machines and mechanisms.

3. Competencies

BOD -9 – Be able to analyze the operation of mechanisms and carry out the necessary calculations when designing them.

4. Requirements and forms of midcourse evaluation and summative assessment

– oral; oral-written.

– interviews;

–reports at seminars;

–reports on classroom practical work with their oral defense;

–reports on home practical work with their oral defense.