

THEORY OF MECHANISMS AND MACHINES

(course title)

COURSE SYLLABUS ABSTRACT

6-05-0715-03 Automobiles, tractors, mobile and technological complexes

specialization: Computer engineering

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

specialization: Technical operation of cars and car service

STUDY MODE				
	full-time		part-time	part-time (shortened program)
	6-05-0715-03	6-05-0715-07	6-05-0715-07	6-05-0715-07
Year	2,3	2	3	2
Semester	4,5	4	5	4
Lectures, hours	34	34	6	6
Practical classes (seminars), hours	34	34	6	6
Course paper, semester	5	—	—	—
Exam, semester	4	4	5	4
Classroom hours for the academic discipline	68	68	14	14
In-class test (semester, hours)	—	—	5 semester (2 hours)	4 semester (2 hours)
Independent study, hours	76	76	130	130
Total course duration in hours / credit units	144/4	144/4	144/4	144/4

1. Course outline

The academic discipline includes training future engineers in general methods of research and design of circuits of mechanisms applicable to any practical tasks. This knowledge is necessary not only when designing new mechanisms, but also for their proper operation.

2. Course learning outcomes

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

- basic theoretical principles of 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:

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

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

to possess a skill:

- design, analysis and synthesis of various mechanisms;

- designing the main types of mechanisms;

- calculation of dynamic loading of machines and mechanisms.

3. Competencies

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

Possess the ability to analyze the processes of state-building in different historical periods, identify the factors and mechanisms of historical change, determine the socio-political significance of historical events (personalities, artifacts and symbols) for modern Belarusian statehood, and use the identified patterns perfectly in the process of forming a civic identity. Work in a team and be tolerant of social, ethnic, religious, cultural and other differences. To use the basic concepts and terms of the special vocabulary of the Belarusian language in professional activity. To communicate in a foreign language to solve problems of interpersonal and intercultural interaction. Use methods of research, construction, analysis of kinematics and dynamics of mechanisms and machines, calculate mechanical systems of cars, tractors, mobile and technological complexes.

6-05-0715-07 Operation of ground transport and technological machines and complexes

Possess the skills of structural analysis of mechanisms.

4. Requirements and forms of midcourse evaluation and summative assessment

- oral and written: defense of the course work;

- written: lecture survey, test assignments, exam.