

COMPUTER MODELING OF ENGINEERING FACILITIES AND PROCESSES

COURSE SYLLABUS ABSTRACT

Specialty 7-06-0715-01 «Transport»

Concentracion – Technical operation of vehicles

	Study mode	
	Full-time	Part-time
Year	1	1
Semester	1	1
Lectures, hours	34	8
Laboratory classes, hours	34	8
Credit, semester	1	1
Contact hours	68	16
Independent study, hours	132	184
Total course duration in hours / credit units	200/6	

1. Course outline

The main objective of the discipline is to develop competencies in the field of application of modern information technologies for solving scientific and technical problems, designing transport facilities and systems.

2. Course learning outcomes:

know: – methods for constructing mathematical models of technical systems with lumped parameters; – methods for modeling specific vehicle mechanisms: internal combustion engines, clutches, mechanical transmissions, torque converters, vibration protection systems, hydraulic volumetric drives, etc.; – numerical methods for solving algebraic and differential equations; – methods for assessing the quality indicators of transient processes.

be able to: – determine the parameters of elements of dynamic models, construct dynamic and mathematical models of mechanisms and systems of vehicles; – model and analyze static states of systems and transient processes in them; – determine the performance indicators of technical systems.

to possess a skill: – constructing mathematical models of vehicle mechanisms; – solving systems of algebraic and ordinary differential equations.

3. Competencies:

Solve research and innovation tasks using information and communication technologies; Ensure communications, demonstrate leadership skills, be capable of team building and developing strategic goals and objectives; Develop innovative receptivity and the ability to innovate; Apply modern computer technologies in conducting research and designing transport facilities and systems; Apply computer-aided design systems in creating transport facilities.

4. Requirements and forms of midcourse evaluation and summative assessment

The form of midcourse evaluation is an oral defense of laboratory work.

The form of summative assessment is an exam in the form of a computer test.