THEORY OF MECHANISMS AND MACHINES
(course title)

COURSE SYLLABUS ABSTRACT

Specialty **1-36 01 06 – "Equipment and technology of welding production"**

	STUDY MODE		
	full-time	**part-time**	**part-time (shortened program)**
Year	2,3	2,3	2
Semester	4,5	4	4
Lectures, hours	50	8	6
Practical classes (seminars), hours	16	4	6
Laboratory classes, hours	16	4	4
Course project, semester	5	5	4
Exam, semester	4	4	4
Independent study, hours	82	16	16
Contact hours	38	104	104
Total course duration in hours / credit units	120/3	120/3	120/3

1. Course outline
The objectives of the discipline are to study the basics of the structure of mechanisms, numerical methods in solving equations of motion, force analysis, friction and wear in mechanisms, synthesis of lever, cam, gear mechanisms, intermittent motion mechanisms, control systems of automatic machines and their design, the structure of manipulators and industrial robots, kinematic and dynamic analysis of manipulators; motion research machines and mechanisms with elastic links, vibrations in mechanisms and machines; mathematical modeling of the movement of machines and mechanisms with rigid connections and geometric and kinematic connections in mechanisms.

2. Course learning outcomes
to know:
– the basic theoretical provisions of the structure, kinematics, dynamics and control of machine systems, individual machines and mechanisms, their components, taking into account the conversion and transfer of energy, materials and information;
- measuring equipment for determining the kinematic and dynamic parameters of mechanisms and machines;
– fundamentals of the structure of mechanisms;
be able to:
– make calculation schemes (models)machines and mechanisms suitable for solving technical problems arising at various stages of machine design;
– develop algorithms for calculating parameters on a computer, perform specific calculations;
– to conduct research on the movement of machines and mechanisms with elastic links;
possess:
– the principles of designing the main types of mechanisms;
– kinematic and dynamic calculations;
– calculations to obtain optimal characteristics of mechanisms and machines in terms of their energy intensity and energy consumption.

3. Competencies
BOD-11 – Master the principles of design, kinematic and dynamic calculations of optimal parameters of the main types of mechanisms and machines.

4. Requirements and forms of midcourse evaluation and summative assessment
– oral; oral-written.
– interviews;
–reports on practical classes;
–reports on classroom practical work with their oral defense;
–reports on home practical work with their oral defense.