

PO 19 Machine parts and design foundations. Course project

Discipline	Machine parts and design basics. Course project
Course	3, spring semester
Volume	1.5 ECTS credits (45 hours)
Language of study	Ukrainian
Department	Applied hydroaeromechanics and mechanotronics
Lecturers	Andriy Petryshyn, Pavlo Protsenko
Requirements for the beginning of the study	Knowledge and skills in "Ukrainian language", "Technology of structural materials", "Linear algebra and analytic geometry", "Higher mathematics. Part 1, 2, 3", "Engineering and computer graphics", "General physics. Part 1, 2," "Materials Science", "Electrical Engineering and Electronics", "Theoretical Mechanics. Part 1, 2, 3", "Informatics", "Mechanics of materials and structures. Part 1, 2", "Metrology, standardization and certification", "Theory of mechanisms and machines", "Machine parts and design foundations".
What will be studied	Principles and basics of machines and mechanisms design used both in general engineering and in industry. The most rational approaches to the new machine creation. Modern materials that allow machines to acquire the necessary properties, ensure their durability and manufacturing. Approaches to the machines and machine units assembling, as well as their utilization.
Why it's interesting/should be studied	Acquired knowledge and skills lay a professional base for the development engineer training of modern mechanisms and machines.
What you can learn (learning outcomes)	Perform calculations for strength, endurance, stability, durability, rigidity of machine parts; Perform geometric modeling of parts, mechanisms and structures and draw up the result in the form of technical and design drawings; Create and theoretically justify the designs of machines, mechanisms and their elements using applied mechanics methods, general principles of design, theory of interchangeability, standard methods for machine parts calculation; Skills in the practical use of computer design systems (CAD) and engineering research (CAEs).
How to use the acquired knowledge and skills (competence)	Solve practical design and calculation problems of parts, mechanisms and machines. Develop fundamental design diagrams and drawings of machine mechanisms, assemblies and parts; develop products technical documentation.
Classes	Consulting sessions
Information support	Educational and working programs of the discipline, rating system, textbook (electronic edition), course project manuals (electronic edition)
Individual semester tasks	course project individual task
Current control	Monitoring of the course project stages completion
Semester control	Test