

MECHANICAL ENGINEERING*

MA Mechanical Engineering is designed to prepare the holders of Master's degree in mechanical engineering – workers capable of mathematical modelling, analysis, projecting optimal mechanical systems, applying numeric methods of engineering and experimental mechanics. Acquiring the qualification of Master's degree in Mechanics Engineering a graduate can work as an executive in various companies and organizations, perform scientific researches, or to be a lecturer at higher education institution. A holder of the Master's degree in Mechanical Engineering gains abilities of problems' solving and using different skills of information technologies' management, which can be applied at different circumstances. Moreover, he/she learns to formulate scientific problems and to solve them. He has capabilities of deepening and applying the knowledge independently, can take personal responsibility in a field of a career.

Degree awarded: Master's degree of Mechanical Engineering

Study duration: 2 years full-time

Knowledge and competences provided:

SUBJECT KNOWLEDGE:

- Thorough theoretical and applied knowledge about mechanics;
- About computer-based manufacture integration and mechanical system modelling;
- About reliability assurance of mechanical systems, vibro-monitoring and diagnostics;
- About ethical, environment protection and commercial restrictions of engineering activities.

COGNITIVE COMPETENCES:

- The ability to analyse the development of mechanical engineering, problem solving options of in local and global contexts.
- The ability to assess the influence of made decisions and projects for the environment;
- To identify, classify and analyse mechanical engineering tasks, to find rational solutions, and to apply innovative methods;
- To sort basic factors of various mechanical engineering processes and to compare the peculiarities of their interaction.

PRACTICAL COMPETENCES:

- The ability to work with complex and superficial information about manufacture technologies and processes using one's theoretical knowledge and perception;
- The ability to apply numeric methods of engineering and experimental mechanics;
- The ability to solve practical tasks of the theory of elasticity and plasticity;
- The ability to control work processes;
- The ability to critically evaluate data of analytic researches and experiments, and to compare them with practical experience and bibliographies;
- The ability to comprehend and inquire the application of newly emerging theories and technologies.

TRANSFERABLE COMPETENCES:

- To apply systematic approach towards existing and perspective problem solving of mechanical engineering;
- The ability to analyse given data clearly and briefly and to deliver a presentation for a universal audience;
- To collaborate with colleagues and clients in a professional and clear manner;
- The ability to conduct a scientific research both individually and in groups;
- The ability to prepare a presentation at a scientific conference and to write a scientific article.

Semester	Code	Course Title	Credits	No. of Academic Hours
M 1	T130M810	Tribology	6	64
	T210M100	Spatial Modelling	6	64
	T210M506	Mechanical Vibrations	6	48
	T210M509	Theory of Elasticity and Plasticity	6	48
		<i>Electives</i>		
	S192M138	<i>Audit Theory and Practice (P)</i>	6	64
	S274M104	<i>Organising Scientific Research Work (W)</i>	6	64
	T270M554	<i>Principles of Design and Implementation of Environmentally-friendly Technologies</i>	6	48
M 2	T130M555	Computer Integration to Manufacturing	6	64
	T210M512	Basics of Finite Elements' Method	6	64
	T210M526	Experimental Mechanics	6	64
	T210M527	Constructional Strength and Reliability	6	48
	T170M357	Research Work 1	6	0
M 3	T130M001	Quality Management (W)	6	64
	T170M366	Research Work 2	6	0
		<i>Alternative 1</i>		
	P160M148	<i>Methods and Algorithms of Optimisation</i>	6	48
	T210M103	<i>Reliability Engineering and Risk Analysis</i>	6	64
		<i>Alternative 2</i>		
	T210M525	<i>Numerical Mechanics of Deformable Bodies</i>	6	64
	T210M001	<i>Piezomechanics</i>	6	64
		<i>Alternative 3</i>		
	S189M066	<i>Management of Labour Processes</i>	6	64
T210M102	<i>Mechanics of Polymers and Composites</i>	6	64	
M 4	T210M578	Master's Thesis	30	0

* The content of the study programme may change.