

Study programme Mechanical Engineering Technology

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Faculty	Faculty of Mechanical Engineering
Type of study	Doctoral
Language of instruction	English
Code of the programme	P0715D270010
Title of the programme	Mechanical Engineering Technology
Regular period of the study	4 years
Cost	500 CZK per semester
Coordinating department	Department of Machining, Assembly and Engineering Metrology
Coordinator	prof. Ing. Robert Čep, Ph.D.
Key words	layer and surface integrity, planning and management, production technologies, metrology and quality, materials and metalurgy

About study programme

The branch develops manufacturing technologies in mechanical engineering by deepening the knowledge of natural and economic disciplines. The latest knowledge and methods of research in the field of technological processes and their management are developed and applied. The aim of the study is to acquire competences and abilities for independent and team scientific and creative work. The graduate is prepared for research and teaching professions in structured departments of scientific and academic institutions and other technically oriented subjects and companies.

Hard skills

- Assessment of formability of materials
- Procedures for production of machined parts
- Ability to compile a report on the result of technical experiment
- Reading technical documentation
- Production organization and management
- Knowledge of process optimization
- Lifetime optimization
- Knowledge of materials
- Designing production
- Orientation in properties and use of molding materials
- Project management
- CNC machining technology
- Business administration
- Knowledge of construction of forming machines
- Metrology
- Nondestructive testing - ultrasound
- Orientation in the production and modifications of metallic materials
- Production quality management
- Orientation in the processing of materials and input raw materials
- Knowledge of the quality system ČSN EN ISO 9001
- Knowledge of non-destructive testing
- Quality control

- 2D design programmes
- Preparation of production
- Industrial engineering
- Knowledge of mechanical engineering technologies
- Design of technological workplaces
- Design of technological processes of production
- Procedures for introducing a product into series production
- Orientation in technical drawings
- Knowledge of methods for evaluating mechanical properties of technical materials
- Orientation in regulations, legislation for metrology, quality for the Czech Republic, and legislation common in the Union
- Creation of technical reports
- Knowledge of machine tool construction
- Experience with corrosion tests of materials

Graduate's employment

The branch develops basic engineering technologies by deepening the knowledge of natural science disciplines such as applied mathematics, physics, technical mechanics, cybernetics, theory of technological processes. The aim of the study is to educate scientists in the field of production technologies. The graduate is prepared for independent scientific, research, developmental and higher education professions in the field and related fields. Graduates will find employment in scientific, research and development institutions and their structured departments, universities and technical colleges.

Typical positions include: technologist, production manager, researcher, research group leader, manager, project manager, university or high school teacher, head or director of R&D department, researcher at university, Science Academy CZ or in the company.

Study aims

The branch develops basic engineering technologies by deepening the knowledge of natural sciences such as applied mathematics, physics, technical mechanics, cybernetics, theory of technological processes. The aim of the study is to educate scientists in the field of production technologies, namely forming, welding, machining, assembly, surface engineering, management, organization and design of engineering production. Theoretical training is focused mainly on natural and technical sciences, which are the foundations of the field. Practical training is focused especially on methods and means of physical and numerical modeling of technological processes. The study develops the scientific foundations of the field in order to strengthen the development of applications between the field of study and other scientific fields.

Graduate's knowledge

Graduates will acquire a broad physical-technological basis in the field of new engineering technologies, their equipment and automation. They will gain a comprehensive overview of experimental and numerical methods of scientific research in the field of production processes and technologies. The student demonstrates the acquired level at the state doctoral examination and the elaboration and defense of the dissertation.

Graduate's skills

Graduates of the doctoral study program Manufacturing Technology will acquire the theoretical knowledge, practical skills and experience necessary for independent scientific work in various fields of study: forming, welding, machining, assembly, surface engineering, management, organization and design of engineering products.

Graduate's general competence

The aim of the study is to acquire competences and abilities for scientific work in the field, namely in a creative way:

- apply theories and principles of production processes,
- design and interpret numerical and experimental methods of analysis of production processes,
- propose methods to investigate the development of material properties in the production process and their prediction,
- integrate material properties evaluation into technological design.

Study curriculum

- form Full-time (en)
- form Part-time (en)