

# Study programme Industrial Engineering

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| <b>Faculty</b>                     | Faculty of Mechanical Engineering  |
| <b>Type of study</b>               | Follow-up Master   |
| <b>Language of instruction</b>     | English  |
| <b>Code of the programme</b>       | N0715A270009   |
| <b>Title of the programme</b>      | Industrial Engineering   |
| <b>Regular period of the study</b> | 2 years  |
| <b>Cost</b>                        | 50,000 CZK per semester  |
| <b>Coordinating department</b>     | Department of Mechanical Technology  |
| <b>Coordinator</b>                 | prof. Ing. Radek Čada, CSc.  |
| <b>Key words</b>                   | quality control, management methods, industrial logistic, production design, production technologies |

## About study programme

Are you a natural leader? Do you like to organize events around you? So join us. You will understand the basics of engineering technology, learn to design production systems and organize pre-production and production processes. In addition, we will prepare you for the work of an operations manager who is able to make independent and responsible decisions. Thanks to the study you will also gain knowledge regarding the assessment of production quality, product certification, demonstration of conformity and accounting. You will master the fundamentals of both general and business economics. You can be used in engineering and other industries in pre-production, development or research. You will not be lost as a production system designer, technologist, project manager or inspection and quality expert. In the financial world, you will succeed as a specialist in assessing the level of technology projects.

## Hard skills

- Product certification
- Knowledge of the influence of forming on the properties and structure of a material
- Design of production units
- Knowledge of the basics of business economics
- Knowledge of direct methods of sheet metal testing
- Knowledge of mechanical engineering technologies
- Designing production
- Knowledge of material and technological formability of materials
- Preparation of production
- Assessment of formability of materials
- Knowledge of unconventional methods of engineering forming
- Design of technological processes of production
- Knowledge of management methods and techniques
- Knowledge of the basics of marketing activities
- Design of technological workplaces
- Management of production and pre-production processes
- Evaluation of production and pre-production processes
- Perform technical supervision at workplaces

- Organization management
- Production organization and management
- Industrial engineering
- Marketing
- Knowledge of basic metallurgical factors influencing the formability of sheet metal
- Business administration
- Demonstration of product conformity
- Knowledge of industrial management methodology
- Managerial knowledge
- Management methods
- Optimization of extract drawing processes
- Knowledge of basic technologies of plastics processing
- Quality management
- Assessing the level of technological projects
- Industrial logistics
- Knowledge of unconventional criteria for evaluating the formability of sheets
- Quality control
- Production quality management
- Designing production systems

## **Graduate's employment**

Graduates of this study program will find employment in engineering and engineering departments of other industries in production preparation, development and research, as well as technologists, designers of production systems, project managers, operational technicians or specialists for quality control and quality management. In the business and financial sphere as specialists assessing the level of technology projects.

## **Study aims**

Students of this study program acquire the necessary knowledge of the basics of engineering technology, knowledge necessary for designing technological workplaces, production units, organization and management of production and pre-production processes and their evaluation, basic knowledge of organization and production management, on knowledge of production quality and attestation of conformity, product certification, and accounting. They can be used in engineering and engineering departments of other industries in production preparation, development and research, as well as technologists, designers of production systems, project managers, operation technicians or specialists for quality control and quality management. In the business and financial sphere as specialists assessing the level of technology projects.

## **Graduate's knowledge**

Graduates of this study program have broad expertise in the basics of engineering technology, knowledge necessary for designing technological workplaces, production units, organizing and managing production and pre-production processes and their evaluation. They will also acquire knowledge of the methodology of industrial management, basics of marketing activities, quality management systems of industrial companies and basics of general and business economics. They will also acquire knowledge of basic legal, safety and hygiene regulations necessary for designing and managing engineering companies, knowledge of methods and techniques of management.

## **Graduate's skills**

Graduates of this study program will be able to:

- ensure and organize technological preparation of production,
- design technological workplaces (design of machines and fixtures, material flow, workplaces continuity and ensure other technical

conditions),

- to read technical drawings and to design the most efficient methods and procedures for manufacturing, assembly, assembly and surface treatment,
- organize, manage and evaluate production and pre-production processes,
- to verify new production processes,
- establish the quality control and technical testing arrangements and cooperate on production quality management,
- carry out technical supervision at workplaces,
- check compliance with technological procedures,
- apply tools of economic and financial management of the company,
- conduct marketing activities,
- apply managerial decision-making methods to find optimal solutions to problems,
- evaluate, improve and design business processes in industrial sectors (metallurgy, mechanical engineering, automotive),
- apply the basic legal, safety and hygiene rules necessary for the design and management of engineering undertakings,
- use industrial quality management systems,
- practically use the fundamentals of both general and business economics,
- address practical problems in the areas concerned,
- find, organize and interpret information for solving practical problems
- to use some basic research procedures of the field to the extent necessary to solve specific problems in the given areas.

### **Graduate's general competence**

Graduates of this study program are able to:

- to make independent and responsible decisions within the assigned tasks, projects,
- defend their work and their views on problem-solving,
- to coordinate the team's activities and take responsibility for their results,
- summarize clearly the views of other team members,
- on the basis of practical experience, independently acquire further expertise and skills,
- to complete theoretical knowledge of the field by independent study.

### **Study curriculum**

- form Full-time (en)