Majors in the Hungarian Education System have generally been instituted and ruled by the Act of Parliament under the Higher Education Act. The higher education system meets the qualifications of the Bologna Process. Requirements on qualification and output of the program for Engineering Management MSc are regulated by regulation No. 18/2016. (VIII. 5.) EMMI (Ministry of Human Capacities) as follows:

## ENGINEERING MANAGEMENT MASTER’S PROGRAM

|  |  |
| --- | --- |
| **Name of master’s program:** | Engineering Management |
| **Specializations available (to be selected prior to enrolling on the program, minimum number of applicants per specialization: 10):** | Industrial Process Engineering Specialization, Construction Industry Specialization, Material Handling and Logistics |
| **Field, branch:** | Engineering; Engineering management |
| **Level:** | MSc (master) |
| **Qualification:** | Engineering Manager |
| **Mode of attendance:** | Full-time |
| **Faculty:** | Faculty of Engineering |
| **Program coordinator:** | Dr Edit Szűcs, College Professor |
| **Program length:** | 4 semesters |
| **Credits total:** | 120 (Thesis: 30, Optional subjects: 6) |
| **Total number of contact hours:** | 1102 |
| **Length, credit points, type of internship:** | Length: four weeks after the completion of two semesters  Credit points: 0  Type: at business entities |

**1. Entry requirements:**

At least 60 credit points can be recognized from earlier studies in the following fields:

- Natural Sciences (Mathematics, Physics, Chemistry, Mechanics, Materials Science, Biology): 20 credit points;

- Economics and Humanities (Economics, Corporate Finance, Quality Assurance, Environmental Management, Statistics in Economics, Social Science) 10 credit points;

- Professional Skills (Technical Drawing; Machines, Constructions, Computer Science and Applications; Manufacturing and Technological Skills; Management; Finances; State Administration and Law; complex professional skills from the field of engineering, technology, management and economics): 20 credit points.

Entry requirements: Students are expected to earn at least 30 credit points from earlier BSc studies in the fields listed above. Missing credit points have to be made up for in the master’s program as set out in Rules and Regulations of the University.

**1.1. Credit points can be fully recognized from**: Technical Management Bachelor’s degree

**1.2. Completing the credit points defined in 1., Bachelor’s degrees from the following fields can be taken into account**: Engineering, Computer Science, Economics, Agriculture: Mechanical Engineering in Agriculture and Food Industry.

**2. Professional fields which define the training program:**

- Natural Sciences (Mathematics, Physics, Chemistry and other subjects, e.g. Quantitative Methods, Mechanics, Ecology, Nanotechnology, Econometry) 20-35 credit points;

- Economics and Humanities (International Management and Economics, Analysis of Competitiveness, Labour Economics, Sustainable Development, Organisational Improvement, Human Resources Management, Communication Skills), other professional skills defined in the curriculum: 10-20 credit points;

- Engineering Management [System Analysis, Design and Control of Systems, Process Control, Technologies in different branches (engineering industry, chemical industry, nanotechnology, biotechnology, waste management), other professional skills defined in the curriculum]: 15-35 credit points.

*Professional competencies to be acquired*

1. **Knowledge**

* He/she understands the general and specific principles, rules, relations and procedures pertaining to natural sciences, engineering sciences, agricultural science, organisational science necessary to work in the field of engineering.
* He/she knows the functional operation, requirements of engineering devices, production systems.
* He/she knows the conditions, methods of creating and improving economical maintenance.
* He/she knows the operational principles of organisations as purposeful systems.
* He/she knows the engineering-, agriculture- and management-like activities and their relations.
* He/she knows the theory and methodology necessary to found production and service organisations and to control and improve their operation.
* He/she knows the engineering, economic and legal regulations relating to quality management, environmental protection, consumer protection, product responsibility, health and safety at work.
* He/she possesses the widely-used problem-solving techniques necessary for research and scientific work.
* He/she knows the main quantitative analytical methods and the basics of operation research, programming in mathematics, probability theory and statistics in mathematics.

1. **Ability**

* He/she is capable of the practical application of the acquired knowledge and using problem-solving techniques.
* He/she is able to review production and service processes from engineering, economic, human and other social perspectives and communicate with representatives from different professional fields.
* He/she is able to prepare and realise business plans, complete pre-decision-making tasks and make decisions, work out and implement innovation strategies.
* He/she is capable of the application of integrated knowledge from the following areas: engineering devices, technological processes, materials and technologies, electronics, informatics.
* He/she is able to complete the tasks of engineering value analysis, quality assurance of production systems and technologies, improve the quality and efficiency indicators of economy.
* He/she is able to harmonize the design and implementation of innovation processes.
* He/she is able to harmonize tasks which need multidisciplinary engineering skills and control their realisation.
* He/she is capable of creativity, flexibility, has good communication, argumentative, cooperative and problem-solving skills.
* He/she is able to apply statistical and econometric devices to deepen research activity.

1. **Attitude**

* He/she is open and sensitive to professional and technological development and innovation and their proactive application.
* He/she undertakes the professional and ethical value system relating to his/her professional field.
* He/she endeavours to design and complete the tasks at a professionally high level individually or in teamwork.
* Continuous readiness to learn, profound and in-depth education, highly developed analytic and synthetic skills, environmental sensitivity characterize him/her.
* Ethical strength, critical and self-critical sense characterise him/her.
* He/she is capable of cooperation, teamwork and completing leadership tasks individually followed by the necessary amount of practice.
* He/she shows respect for other people’s professional opinion, results.
* System-based thinking, approach characterize him/her.

1. **Autonomy and responsibility**

* He/she is capable of solving engineering-economic-like tasks individually.
* He/she is careful before individually making decisions in consultation with representatives from diverse fields (primarily that of engineering, economics, law). He/she takes responsibility for his/her decisions.
* Initiative, responsibility and decision-making ability characterize him/her.
* When making decisions he/she takes into account health and safety at work; engineering, economic and legal regulations; professional-ethical aspects.
* He/she evaluates his/her inferiors’ work, facilitates professional development through his/her critical remarks, educates them to take responsibility and show ethical behaviour in their professional field.
* He/she is able to individually keep track of technical, technological, economic, financial, legal, social changes, problem-solving techniques, global social and economic processes in relation to his/her professional field.