



**Budapesti Műszaki és Gazdaságtudományi Egyetem
(Budapest University of Technology and Economics
Faculty of Economics and Social Sciences**

ENGINEERING MANAGER

Full-Time MA programme

Academic Pre-requisites, Course Guide and Programme

Plan (from the autumn term of 2023, modified)

Budapest, 27 September 2022

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Basic information

Level of studies: MA
Mode of study: full-time
Qualification: engineering manager
Form of financing: state scholarship / fee-paying
Duration of the programme: 4 semesters

Short Description of the Programme

The graduates of our Engineering Manager MA programme are equipped with the theoretical and methodological background to solve and coordinate complex problems in technological and business environments and to manage organisations operating in such environments.

It is designed for people who want to acquire versatile, up-to-date and practical knowledge in economics, organisation and management, as well as technical skills, and who are open to complex problems requiring versatility. To support this, students will demonstrate their independent problem-solving skills in their chosen specialisation by preparing a thesis over two semesters.

The harmony of natural sciences, engineering, as well as management and organisation is a crucial aspect of the engineering manager programme of Budapest University of Technology and Economics. It provides a good opportunity for graduates from different bachelor programmes to continue their studies, while the diversity of the participating students also helps to develop the ability to work with different actors in a business environment.

Abbreviations in the Programme Plan

Course unit type

C: Compulsory (Core) Unit **CE:** Compulsory Elective Unit
E: Elective Unit **CR:** Criterion Requirement

Final Examination Course Unit

FC: Final Examination Course Unit

Weekly Hours

Weekly Hours = Lectures + Practicals/Seminars + Laboratory work

Assessment Type

e: examination
t: (mid-)term grade

Credits (ECTS)

Section 108 (24) of the Higher Education Act: Credit: a unit of the student's work which represents, in relation to the subject or curricular unit, the estimated time necessary for the acquisition of a specific body of knowledge and the fulfilment of requirements; one credit equals 30 study hours on average, and the value of a credit – supposing that the student's performance was accepted – does not depend on the evaluation of the student's knowledge.

Example of Notation**Quantitative Methodology C – 4/t/5**

Meaning: Compulsory (Core) Unit, 4 contact hours a week, performance assessed by means of term grade, totalling 5 ECTS credits.

Miscellaneous Remarks on the Programme Plan

The Programme Plan is the recommended curriculum pursuant to Section 49 (4) of the Higher Education Act. It is a course schedule including a breakdown of subjects and criteria requirements by term. Scheduling their studies according to the Programme Plan, students can complete their studies based on an even workload within the length of training specified in the training and outcome requirements and meeting the preliminary study requirements for all subjects. The Code of Studies and Examinations (TVSZ) regulates the rights and obligations of students arising from their student status. In addition, the frameworks and possibilities for continuing the studies are described in the descriptions of the programmes and subjects.

During the programme, some of the subjects are built on another, so the previous completion of one or more subjects is a prerequisite of taking certain courses. This is the so-called prerequisite, which is a completed subject prescribed for the enrolment of a particular subject or curricular unit. The completion of these prerequisites are defined by the preliminary course schedule of the programme, which is the list of prerequisites for all the subjects included in the programme plan.

Keeping up with the recommended schedule and the list of prerequisites outlined in the Programme Plan is highly recommended, as the timetable for each semester is prepared based on the Programme Plan. Deviating from the Programme Plan may result in unexpected timetable clashes. Furthermore, it must be noted that certain course units are offered exclusively in either the Autumn or the Spring semester, but not in both.

Programme Plan (autumn semester start)

Name of Course Unit	Type	FC	1.	2.	3.	4.
semester 1						
Quantitative Methods	C	FC	4/t/5			
Operations Research for Engineering Managers	C		2/t/3			
Management	C	FC	2/t/3			
Marketing Management	C	FC	2/t/3			
Production and Operations Management	C	FC	4/e/5			
Accounting	C		4/e/5			
Results and Applications of Modern Physics	C		2/t/3			
Engineering 1	CE		4/e/5			
semester 2						
The Science of Nanotechnology	C			2/t/3		
Applied Product Management	C			2/t/3		
Management and Human Science	CE			2/t/3		
Sustainable Environmental and Natural Resource Economics	C			2/t/3		
Quality Management	C	FC		4/e/5		
Technology Management	C			4/e/5		
Engineering 2	CE			4/e/5		
Elective Course Unit 1	E			2/t/3		
semester 3						
Project Management	C				4/e/5	
Decision Support Systems	CE				2/e/3	
Business Economics	C				4/e/5	
Specialisation 1	CE	FC			2/t/3	
Thesis 1	C				12/t/15	
Internship	C				4 weeks	
semester 4						
Risk and Reliability	C					2/e/3
The Science of Biotechnology	C					2/t/3
Elective Course Unit 2	E					2/t/3
Specialisation 2	CE	FC				2/t/3
Thesis 2	C					12/t/15
Total						
			24/3e/32	22/3e/30	24/3e/31	20/1e/27

Programme Plan (spring semester start)

Name of Course Unit	Type	FC	1.	2.	3.	4.
semester 1						
The Science of Nanotechnology	C		2/t/3			
Applied Product Management	C		2/t/3			
Management and Human Science	CE		2/t/3			
Sustainable Environmental and Natural Resource Economics	C		2/t/3			
Quality Management	C	FC	4/e/5			
Technology Management	C		4/e/5			
Engineering 2	CE		4/e/5			
Elective Course Unit 1	E		2/t/3			
semester 2						
Quantitative Methods	C	FC		4/t/5		
Operations Research for Engineering Managers	C			2/t/3		
Management	C	FC		2/t/3		
Marketing Management	C	FC		2/t/3		
Production and Operations Management	C	FC		4/e/5		
Accounting	C			4/e/5		
Results and Applications of Modern Physics	C			2/t/3		
Engineering 1	CE			4/e/5		
semester 3						
Risk and Reliability	C				2/e/3	
The Science of Biotechnology	C				2/t/3	
Specialisation 2	CE	FC			2/t/3	
Thesis 1	C				12/t/15	
Elective Course Unit II	E				2/t/3	
semester 4						
Project Management	C					4/e/5
Decision Support Systems	CE					2/e/3
Business Economics	C					4/e/5
Specialisation 1	CE	FC				2/t/3
Thesis 2	C					12/t/15
Internship	C					4 weeks
Total						
			22/3e/30	24/3e/32	20/1e/27	24/3e/31

Curriculum details of specialisations

There are five specialisations within the programme: Value Management specialisation (Department of Management and Business Economics), Management 4.0 specialisation (Department of Management and Business Economics), Financial Management specialisation (Department of Finance), Product Management specialisation (Department of Ergonomics and Psychology) and Environmental Management specialisation (Department of Environmental Economics and Sustainability).

In order to complete the specialisation, the Thesis 1 and Thesis 2 course units, as well as the specialisation courses (6 credits) must be completed.

Specialisation subjects (2/t/3)

Value Management

- Specialisation 1: Basics of Value Methodology
- Specialisation 2: Value-driven Service Marketing

Environmental Management

- Specialisation 1: Environmental Performance Evaluation
- Specialisation 2: Sustainable Business Models

Management 4.0

- Specialisation 1: Strategic Management
- Specialisation 2: Today's Quality Management Challenges

Financial Management

- Specialisation 1: Investments
- Specialisation 2: Macro Finances

Product Management

- Specialisation 1: Human-centered Product Management
- Specialisation 2: Methods in Ergonomics

Compulsory Elective Course Units and Elective Course Units

The Engineering and Management and Human Science subjects are Compulsory Elective (CE) units, of which the student must complete 10 and 3 credits respectively, according to the Programme Plan.

Engineering (4/e/5):

Energy Management (GPK)	Enterprise Logistics (KJK)
Introduction to CAD (GPK)	Intelligent Transport Systems (KJK)
Infocommunication Systems (VIK)	Transport Geo-Informatics (EMK)
Environmental Impacts of Transport (KJK)	Real Estate Development MM (EPK)
Investment Management MM (EPK)	Energy in Buildings MM (EPK)
Hungarian Cities (EPK)	Urbanism and Urban Management (EPK)

Management and Human Science (2/t/3):

Foreign language	Management	Human Science
Business Communication	Introduction to Case Solving	Research Methodology in Economics
Crosscultural Communication	Preparation for the Case Competition	Corporate Law
	Quality Management Methods	History of Science
	Strategic Marketing	Science and Pseudoscience
	Nonprofit Management	Organisational and Leadership Psychology in Practice
	Management Information Systems	Human-centred Software Development and User Experience–
		Design Thinking Training
		How to be successful at work?

Decision Support Systems (2/e/3):

Machine Learning Methods	Heuristic Algorithms
Nonlinear Optimization	Operations Research Software

Elective Units (E) include all master programme subjects of the Faculty and the University as well. Of these, 6 ECTS credits are required.

Thesis Subjects and Submission of the Thesis

Students prepare their thesis under the supervision of their thesis advisors, within the framework of the Thesis 1 and Thesis 2 course units (in semester 3 and 4). These are credit subjects, for the completion of which grades are awarded.

The theses are assessed by the reviewer(s). The students will then receive a grade for their theses in the final examination, which counts towards their degree.

Internship

Students are required to participate in an internship during their studies. This compulsory 0-credit course is included in the 3rd semester of the model curriculum, but the student may take the course earlier if the specialisation selection process has been successfully completed. Only the fulfilment of the requirements specified in the subject profile is accepted.

The details can be found here: <https://www.gtk.bme.hu/en/for-students/school-year/internship/>

Academic Prerequisites

The prerequisite for choosing a specialisation is the acquisition of minimum 39 credits from the subjects of the first two semesters of the programme plan. The prerequisite for each specialisation is the completion of the specified subjects:

Value Management: Management and Marketing Management

Environmental Management: Sustainable Environmental and Natural Resource Economics

Management 4.0: Management and Quality Management

Financial Management: Accounting

Product Management: Applied Product Management

The prerequisite for the Thesis 2 unit is the completion of Thesis 1. The prerequisite for Thesis 1 is the same as for choosing a specialisation.

The prerequisite for the Risk and Reliability unit is the completion of the Quantitative Methods subject.

Certificate of Completion of Studies (absolutorium)

Upon the completion of the academic requirements specified in the Programme Plan - i.e. having obtained 120 ECTS credits - the student is issued with a Certificate of Completion of Studies (Absolutorium). Obtaining the Absolutorium is a prerequisite of being admitted to the final examination.

According to Section 67 (1) of the Code of Studies and Examinations, the student's legal status is terminated upon the completion of their studies, on the last day of the semester in which they obtained their Certificate of Completion of Studies (absolutorium).

Final Examination

The final examinations shall serve to verify and evaluate the knowledge, skills and abilities required for obtaining the degree certificate, during the course of which the students shall also attest that they are capable of applying the knowledge acquired. Students must take separate finals for each programme. The Final Examination will test the students' synthesised knowledge, as specified in the curriculum, and will consist of several parts. Its successful completion shall mark the end of the student's studies. The Final Examination consists of: (1) oral examination on the questions compiled from the body of knowledge of Final Examination Course Units, demonstrating a complex understanding and knowledge; (2) public presentation and defence of the Thesis.

The current list of final examination questions are public. In the exam, the student takes two questions, one in management and one in their specialisation. The compulsory subjects indicated in the Programme Plan are included in the list of questions for Management, and for each specialisation 2 specialisation course units form the list of questions for the specialisation subject. In addition to the final examinations, students are required to present their thesis in the form of a 10-minute presentation and then defend it on the basis of the corresponding questions.

Rules and regulations governing final examinations are contained in the Code of Studies and Examinations. The detailed rules on the master's programme and the content covered in the Final Examination are determined by the Faculty, based on the opinion of the Department in charge of the programme. If the student fails to turn up at the finals, their performance cannot be evaluated. In case of an unexcused and unverified absence the student will have one less available repeat options for the final examinations. The final examinations are deemed as successful if the examinee has completed each part with a minimum pass grade. A successful final examination cannot be retaken. A thesis graded as failed by the finals committee may be repeated once by submitting a new thesis in the next final examinations period at the earliest. If only one of the exams in the final examination subjects was unsuccessful, the student only has to sit a retake exam in that subject. Failed first or repeated retake exams in a subject cannot be

repeated within two months of the failed final examination. A Thesis may be resubmitted or replaced once; an (unsatisfactory) failed final examination subject may be repeated twice.

Language Requirements

The language requirement for a master's degree is a state accredited, intermediate level (B2), complex language exam in any modern foreign language (in which scientific literature is published in the given field), or an equivalent secondary school leaving certificate.

Learning Languages

The Centre of Modern Languages helps students to develop and expand their language skills, while the BME Language Examination Centre, operating within the Centre of Modern Languages, is responsible for the organisation of language examinations.

The **general language course units are awarded 0 credits** and include English, French, German, Italian or Spanish courses from beginner (A1) to advanced (C1) or even near-native speaker (C2) level, in 1x2 or 2x2 lessons per week. These courses are offered by the university to full-time students **with free subsidised units: 1*2 hours = 1 unit / 2*2 hours = 2 units**. 4 units at Master's level (MSc/MA). Additional units can be purchased at 10 000 HUF/unit.

Credit courses (Foreign Language for Engineers; Communication Skills Development; Business Language; Managerial Communication; Crosscultural Communication; Erasmus Abroad; Academic English; Deutsch in Unternehmen; Communication Development based on TED lectures) can be taken **free of charge** 1x2 per week by full-time students with a minimum of B2 proficiency at any time during their studies at the University, and are therefore not included in the language units. Each of them is **worth 2 credits**, and their admission rules are the same as for the other elective courses at the university.

For more information, visit the website of the Centre of Modern Languages (www.inyk.bme.hu) and follow the links to courses/subject registration.

Physical Education and Sport

In master training programmes Physical Education (P.E.) is not a compulsory unit, but an elective one (for further details regarding the possible payment obligations, please visit the website of the [Physical Education Centre](#) . Completion of course units offered by the Centre for Physical Education is attested by a signature.

The range of subjects and sports facilities is provided by the Physical Education Centre. The BME Sports Centre is available for completing the course as well as for further sporting opportunities. More than 30 different sports are offered for students.

Further information about registration for P.E., the completion options and the available sports facilities may be obtained directly from the Centre for Physical Education or its website.

Fundamental rules, based on the National Higher Education Act and BME's Code of Studies and Examinations, for maintaining the state scholarship form of training and the student status

The relevant fundamental rules for studies are defined in the BME Code of Studies and Examinations, based on the sections of the National Higher Education Act. The most important or fundamental rules, which lay down the duration of the programmes and the minimum performance requirements for the students are the following:

- Reclassification from state scholarship form of training to fee-paying:
 - Hungarian students with (partial) state scholarship have to be reclassified to the fee-paying form of training who did not obtain at least 36 credit points in their last

two active terms in which the student did not take part in studies abroad in an EEA member state, where the studies pursued count towards the studies pursued in the University's programme, or in their field of studies did not reach the grade point average required by Government Decree 139/2015 to be taken into account for reclassification. (This average is different for different periods.)

- Students with Hungarian state scholarship training may pursue their studies in higher education for twelve semesters (individual financed period). If the student exhausted the individual financed period, only fee-paying programmes will be available in higher education.

- The time available for a given programme is 2 semesters longer than the duration of the programme specified in the respective training and outcome requirements. If the student is unable to obtain the degree (diploma) during the individual financed period available for the programme, they can continue their studies in this course in a fee-paying form, even if the individual financed period has not yet been exhausted.

- Dismissal:

- Dismissal for academic reasons

- if the student fails to obtain the Certificate of Completion of Studies upon the expiry of twice the programme duration specified in the training and outcome requirements calculated from the start of the studies in the particular programme;

- if the total number of the student's unsuccessful exams (comprehensive exams), in the same programme and same subject reaches six;

- if the student fails to obtain the credit points for the same subject in the same programme after having taken the same subject six times;

- if the student's cumulative grade point average in a bachelor training programme does not reach the value of 2.25 at the end of the fourth active term after enrolment, or in a master training programme does not reach the value of 2.50 at the end of the second active term after enrolment;

- if the student did not obtain at least 20 credit points in the last three active terms in which the student did not take part in studies abroad in an EEA member state where the studies pursued count towards the studies pursued in BME's programme;

- if the student's legal status had been previously terminated, but the student was readmitted into the particular programme through the admission process and did not obtain at least 10 credit points in the first three active terms following enrolment in which the student did not take part in studies abroad in an EEA member state where the studies pursued count towards the studies pursued in BME's programme;

- Dismissal by reason of non-registration

- if the student fails on three consecutive occasions to report either the continuation or the suspension of their studies;

- if the student fails to register even after their student status has been

suspended for two terms;

- Dismissal by reason of transfer
 - if the student has been admitted to another programme, institution or training location, or has changed the language of instruction or the study mode;
- Dismissal by reason of exceeding the number of passive terms
 - if the total period of time of the suspension of a student's legal status in a given programme (training) exceeds four terms in programme forms divided into cycles, six terms in single-cycle programme forms;
- Dismissal by reason of payment arrears
 - if the student is still in arrears with payment after the expiry of the grace period given in the notice;
- Disciplinary dismissal
 - based on a decision on disciplinary dismissal from all of the student's programmes (trainings) at the intuition;

The details of the above-mentioned and further rules can be found in the Code of Studies and Examinations (TVSZ), here we have highlighted only the most important fundamental rules (which may change in the meantime).

From a practical point of view, it can be considered as a fundamental and recurring rule that the announcement, description, requirements for completion etc. of the subjects are specified by the regulations of the institute or department of the particular subject. Therefore, when taking a subject it is essential to study these rules. These descriptions are included in the subject datasheets.

Attention! This progress guide has been prepared in accordance with the Programme Plan, the preliminary course schedule and the related rules. This guide will help you to continue your studies in a successful and planned way. Please note that any future laws or regulations may alter the information contained in this guide. Any changes will be indicated during your studies in order not to cause problems in meeting your Programme Plan.

Expanding knowledge and managing young talents

BME's Faculty of Economics and Social Sciences is home of two colleges for advanced studies: Liska Tibor College of Economic and Social Sciences, founded in 2007, and KommOn Communication College, founded in 2012, which is active in the fields of society, communications and media studies. Furthermore, many GTK students are not only members of the College for Advanced Studies on Management, run by the Student Union of the University, but also have been taking the lead for years. There are also a good number of our students in ESTIEM Budapest BME, the local organisation of ESTIEM (European Students of Industrial Engineering and Management).

Our faculty has over 70 Erasmus+ and academic/administrative staff mobility agreements. Hundreds of students have taken part in Erasmus+ mobility over the past years, and almost the same number of students have spent one or two semesters at our faculty. The majority of students go on Erasmus+ mobility programmes to Germany, Italy, Austria, Portugal and Spain,

whilst most students arrive from France, Germany, Spain and Portugal.

In line with university regulations, GTK has been applying a rigorous application system for years, in which study and professional activities (TDK - Students' Scientific Association, College for Advanced Studies) are dominant.

Students have the opportunity to participate in the conference of Scientific Students' Associations.

One of the most important events of the Faculty of Economic and Social Sciences is the annual TDK (Students' Scientific Association) conference. Our events are intended to provide a forum for students to report on their first steps towards academic work. We expect the students, and thus the submitted papers, to deal with the chosen topic beyond the official curriculum. On the one hand, this is reflected in the methodology used, and on the other hand, in the chosen topics, when issues that were only briefly discussed in the academic programmes are examined more thoroughly, or having acquired the relevant knowledge, problem areas which were not included in classroom education are analysed. The authors of TDK papers are assisted by the academic staff member in their work; in many of the cases, this cooperation will also result in a thesis.

Furthermore, after graduating, talented students who are interested in becoming researchers or academics, may apply to study at the Doctoral School PhD School in Business and Management.

Education Management

The special feature of the education management is the independent Student Office. Details are available at gtk.bme.hu.