School of Mechanical Engineering

MSc Program

Admission requirements[1]

Candidacy

To apply for admission to the Mechanical Engineering MSc program a candidate must meet all requirements specified in the Faculty of Engineering Manual, as well as:
A BSc in Engineering or the Exact Sciences from a recognized institution of higher education
Minimum weighted average grade of 80 in undergraduate studies

Minimum requirement

The minimum required for admission may vary from one year to another, and depends on the candidate's knowledge base, background of undergraduate studies, and a high relative placement in his/her undergraduate class. Candidates must submit documentation of their undergraduate placement.

According to the decision of the School's Academic Coordinator for MSc studies , a candidate whose grade average is lower than the required minimum, but not lower than 75, may be admitted to the MSc program in a provisional status for a maximum period of one year. For candidates who wish to be admitted as 'external' students a program of MSc courses will be set up, with conditions for admission to the Regular Student status.

Supplementary courses

Based on their knowledge base and background of undergraduate studies, some candidates will be required to take several supplementary undergraduate courses. Initially, they will be admitted to the program of supplementary studies.

The supplementary program will be determined by the School's Academic Coordinator[2] for MSc studies, based on the candidate's knowledge base and background of undergraduate studies. All proposed supplementary programs must include at least 4 of the following courses:

0542.2110	Dynamics of Rigid Bodies
0542.2200	Mechanics of Solids (1)
0542.2500	Fluid Mechanics (1)
0542.2600	Thermodynamics
0542.3243	Introduction to Control
0542.3620	Heat Transfer
0542.4221	Introduction to Theory of Elasticity
0542.4420	Theory of Machines
0509.1645	Ordinary Differential Equations
0509.2846	Partial Differential Equations

Conditions for advancement

Conditions for advancement to MSc studies in the Regular Student status: completing each supplementary course with a minimum grade of 70, and an average grade of 80 in all supplementary courses. Additional requirements determined by the Faculty must also be met.

Final failure twice in a row in one of the supplementary courses leads to termination of studies.

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[1] The mandatory version of registration and admission requirements, supplementary to the university's general requirements, published by the Registration Center

[2] The School's Academic Coordinator for MSc studies is authorized to reduce the number of required supplementary courses for outstanding students.

The study program

The School offers two different Tracks to the MSc in Mechanical Engineering:

Research Track

Requirements for completing this Track:
Completing courses for a minimum of 24 credit points in accordance with the curriculum, with a minimum grade average of 75
Participation in seminars – 14 hours
Writing a final thesis – equal to at least 12 hours, in accordance with the Faculty's Graduate Studies Regulations

Final Project Track
This Track is intended for students with a BSc in Engineering or the Exact Sciences, except for Mathematics (external students only).

Requirements for completing this Track:
Completing courses for a minimum of 36 credit points in accordance with the curriculum, with a minimum grade average of 75
Participation in seminars – 8 hours
A project for 3 credit points

Stages of study program[1]

In general, MSc studies at the Faculty of Engineering comprise two stages:
First - Accumulative Studies
Second –Studies in the Regular Student status

Fulltime students are admitted directly to the Regular Student status. MSc candidates requiring supplementary studies are admitted to a supplementary program.

Accumulative studies
The Accumulative Studies stage must be completed within a maximum of three academic years.

During the Accumulative Studies, students must take a minimum of three courses per year.

Students in the stage of Accumulative Studies must pass all the School's mandatory courses (including repetition after failing, if needed) no later than their fourth semester of studies. Therefore, it is advisable to take all mandatory courses in the first year, allowing any needed repetitions by the end of the second year.

Courses in the Accumulative Stage must be completed with a minimum grade average of 70. In addition, students must pass all the School's mandatory courses.

An Accumulative Studies student transferring to fulltime studies becomes a Regular Student.

In each Track, at least 25% of the courses must be taken in the status of Regular Student.

Fields of Research

The School of Mechanical Engineering offers courses in six main fields of research:
Materials
Fluid Mechanics
Mechanics of Solids
Heat & Energy Transfer
Environment (to be distinguished from the Environmental Engineering program)
Systems

Faculty members are ready to assist students in choosing study tracks and courses from the offered fields of research, including courses offered outside the School.

[1] **For admission requirements, a detailed description of study stages, requirements at each stage, conditions for continuing to the next year, and conditions for advancement to the Regular Student status, please see the new MSc Regulations.**

Courses required by the Faculty[1]

Course #	Course name	Credits	Hours	Prerequisites	Semester
0510.5001	Differential and Integral Equations	3	3	See School of Electrical Engineering	1/2
0510.5002	Functional Analysis	3	3	See School of Electrical Engineering	2
0510.5003	Discrete Mathematics	3	3	See School of Electrical Engineering	1
0540.5001	Mathematical Methods in Engineering	3	3	Composite Functions	1

Courses required by the School[2]

Course #	Course name	Credits	Hours	Prerequisites	Semester
0540.5000	School Seminar				1,2
0540.5300	Advanced Fluid Mechanics	3	3	Fluid Mechanics 1; Differential and Integral Equations	2

				or Mathematical Methods in Engineering	
0540.5400	Theory of Elasticity	3	3	Mechanics of Solids (1)	1
0540.5500	Heat Transfer - Conduction	3	3	Heat Transfer (for undergraduates)	1
0540.5600	Product Design: Theory and Advanced Methods[3]	3	3	Product Design: Introduction and Methods	2

Students in the Research Track (with thesis) must participate in 14 seminars. Students in the Final Project (no thesis) Track must participate in 8 seminars (see Regulations). Students may choose one of the following:
Weekly Seminar offered by the School of Mechanical Engineering
Monthly Mechanical Engineering Colloquium

Selected undergraduate courses defined as equivalent in their level are approved as courses for advanced degrees, provided that the student did not take them (or similar courses) during his/her undergraduate studies.

Research Track:
Students may take up to 3 courses for 9 credit points. An additional course requires the approval of the study unit's MSc Teaching Committee (up to 4 courses for 12 credits).

Project Track:
Students may take up to 4 courses for 12 credits.

[1] Every student must take 2 of the Mathematics courses, as approved by his/her supervisor, at the earliest possible time. Supervisors may recommend replacing one of the two courses with a course at Continuing Studies Program of the School of Mathematics'.
[2] Every student must take two of the mandatory courses, as approved by his/her supervisor, at the earliest possible time.
[3] The course is taught in the English language.

Elective Courses at the School

Recommended Research Programs

Courses according to fields of research[1]:

Environment

Materials

Fluid Mechanics

Mechanics of Solids

Heat and Energy Transfer

Systems

Students may register for a maximum of 3 courses outside the program.

Courses outside the Faculty must be approved by either the student's permanent supervisor or a representative of the Study Unit in the Unit Committee.

Courses must be relevant to the student's study or research program.

External courses are graded and weighted as customary in their own department and may count for up to 3 credit points.

Note: Equivalent level – see undergraduate curriculum.

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[1]Note: Classification of courses according to fields of research is merely informative.