

SYLLABUS

STUDY YEAR 2024/2025

Master Programme in Maintenance Engineering

Enrollment semester Autumn 2024

DATE

2023-10-12

REFERENCE NO.

LTU-4261-2023

DECISION MAKER

Dean of the Faculty of Science and Technology

Programme content and structure

For a Master's degree with a major in Maintenance Engineering a total of 120 credits in accordance to curriculum of the programme are required. A minimum of 90 credits at advanced level, including the degree project in the subject of Maintenance Engineering, is required.

The first study period addresses the scientific bases of Maintenance Engineering. The first year also includes studies in Internet of Things, Condition monitoring, Industrial AI, Reliability Engineering, and Operation research. In the second year, students gain practical insights in advanced data analytics, Industrial AI and advanced condition monitoring techniques, emphasizing data driven decision-making and predictive maintenance. The program concludes with a degree project.

Swedish for beginners is offered for overseas students. The course is not included in the degree and is read in addition to the obligatory courses.

Credits

120 credits

Degree

- Degree of Master of Science (120 credits) - Major; Maintenance Engineering

Entry requirements

Bachelor degree of at least 180 ECTS or equivalent, which includes courses of at least 60 ECTS in one of the following areas: Maintenance Engineering, Energy Engineering, Mechanical Engineering, Materials Science, Civil Engineering or equivalent, and a minimum of 15 ECTS in mathematics.

Good knowledge in English, equivalent to English 6

Selection

The selection procedure is based on academic qualifications, quality and quantity aspects

Selection group

Academic: 100%

Compulsory courses

Compulsory courses 97.5 credits

Course code	Course	Cr	Level	Comment
D0001B	Applied Operations Research	7.5	Bachelor's level	
D0020B	Internet of Things and Signal Analysis for Condition Monitoring	7.5	Bachelor's level	
D7007B	Maintenance Engineering	7.5	Master's level	
D7008B	Condition Monitoring and Condition Based Maintenance	7.5	Master's level	
D7012B	Advanced Reliability Engineering	7.5	Master's level	
D7013B	Human Factors in Maintenance	7.5	Master's level	
D7015B	Industrial AI and eMaintenance - Part I: Theories & Concepts	7.5	Master's level	
D7016B	Industrial AI and eMaintenance - Part II: Practical Implementation	7.5	Master's level	
L7001A	Experimental Acoustics and Dynamics	7.5	Master's level	
X7013B	Degree Project in Maintenance Engineering, master	30	Master's level	

22.5 credits

Selective space is 22.5 credits. It is mandatory to select elective courses up to the given number of credits. The given number of credits of elective courses listed must be met for degree.

Course code	Course	Cr	Level	Comment
D7001B	Mine Automation	7.5	Master's level	Selectable
E7012E	Mechatronics	7.5	Master's level	Selectable
F0040T	Sustainable Energy systems	7.5	Bachelor's level	Selectable
F7011T	Energy Plant and Systems Engineering	7.5	Master's level	Selectable
M7010T	Dynamics in mechanical systems	7.5	Master's level	Selectable
M7012T	Fracture mechanics and fatigue	7.5	Master's level	Selectable
R7003E	Automatic Control	7.5	Master's level	Selectable
R7008E	Industrial automation	7.5	Master's level	Selectable
S7001E	Stochastic signals	7.5	Master's level	Selectable
T7001B	Fundamentals of Rock Mechanics	7.5	Master's level	Selectable

Course code	Course	Cr	Level	Comment
T7001T	Deformation and Fracture	7.5	Master's level	Selectable
T7016T	Material mechanics	7.5	Master's level	Selectable

Course offered outside the obligatory courses - not compulsory - For non Scandinavian students

Course code	Course	Cr	Level	Comment
S0046P	Swedish for International Students 1	3	Bachelor's level	Selectable

Study schedule

Year of study 1 Enrollment semester Autumn 2024, Is offered in 2024/2025

Study-period	Course code	Course	Cr	Comment
1	D0020B	Internet of Things and Signal Analysis for Condition Monitoring	7.5	
1	D7007B	Maintenance Engineering	7.5	
1	S0046P	Swedish for International Students 1	3	Selectable
2	D7012B	Advanced Reliability Engineering	7.5	
2	L7001A	Experimental Acoustics and Dynamics	7.5	
3	D7013B	Human Factors in Maintenance	7.5	
3	D7015B	Industrial AI and eMaintenance - Part I: Theories & Concepts	7.5	
4	D0001B	Applied Operations Research	7.5	
4	E7012E	Mechatronics	7.5	Selectable
4	M7010T	Dynamics in mechanical systems	7.5	Selectable
4	M7012T	Fracture mechanics and fatigue	7.5	Selectable
4	R7008E	Industrial automation	7.5	Selectable

Year of study 2 Enrollment semester Autumn 2024, Is offered in 2025/2026, planned study schedule

Study-period	Course code	Course	Cr	Comment
1	D7016B	Industrial AI and eMaintenance - Part II: Practical Implementation	7.5	
1	F0040T	Sustainable Energy systems	7.5	Selectable
1	S7001E	Stochastic signals	7.5	Selectable
1	T7001B	Fundamentals of Rock Mechanics	7.5	Selectable
1	T7001T	Deformation and Fracture	7.5	Selectable
2	D7001B	Mine Automation	7.5	Selectable
2	D7008B	Condition Monitoring and Condition Based Maintenance	7.5	
2	F7011T	Energy Plant and Systems Engineering	7.5	Selectable
2	R7003E	Automatic Control	7.5	Selectable
2	T7016T	Material mechanics	7.5	Selectable
3-4	X7013B	Degree Project in Maintenance Engineering, master	30	Entry requirements