

**SYLLABUS**

**STUDY YEAR 2019/2020**

# **Master Programme in Maintenance Engineering**

## **Enrollment semester Autumn 2019**

DATE

**2018-10-10**

REFERENCE NO.

**LTU-1282-2018**

DECISION MAKER

**Dean of the Faculty of Engineering**

## 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 advanced maintenance techniques and methods such as Condition monitoring, Operation research and eMaintenance. The second year includes advanced studies of Reliability engineering and a project courses where students carry out specialised studies in Design for maintenance with an emphasis on industrial applications. The program concludes with a degree project within the main field of study.

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 credits 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.

Documented skills in English language.

## 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	Grundnivå	
D0019B	Human Factors for Safety in the Work Environment	7.5	Grundnivå	
D0020B	Internet of Things and Signal Analysis for Condition Monitoring	7.5	Grundnivå	
D7007B	Maintenance Engineering	7.5	Avancerad nivå	
D7008B	Condition Monitoring and Condition Based Maintenance	7.5	Avancerad nivå	
D7010B	eMaintenance from Data to Decision	7.5	Avancerad nivå	
D7011B	Design for Maintenance	7.5	Avancerad nivå	
D7012B	Advanced Reliability Engineering	7.5	Avancerad nivå	
L7001A	Experimental Acoustics and Dynamics	7.5	Avancerad nivå	
X7013B	Degree Project in Maintenance Engineering, master	30	Avancerad nivå	

### 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	Avancerad nivå	Selectable
E7012E	Mechatronics	7.5	Avancerad nivå	Selectable
F0040T	Sustainable Energy systems	7.5	Grundnivå	Selectable
F7011T	Energy Plant and Systems Engineering	7.5	Avancerad nivå	Selectable
M7010T	Dynamics in mechanical systems	7.5	Avancerad nivå	Selectable
M7012T	Fracture mechanics and fatigue	7.5	Avancerad nivå	Selectable
R7003E	Automatic Control	7.5	Avancerad nivå	Selectable
R7008E	Industrial automation	7.5	Avancerad nivå	Selectable
S7001E	Stochastic signals	7.5	Avancerad nivå	Selectable
T7001T	Deformation and Fracture	7.5	Avancerad nivå	Selectable
T7016T	Material mechanics	7.5	Avancerad nivå	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	Grundnivå	Selectable

## Study schedule

### Year of study 1 Enrollment semester Autumn 2019, Is offered in 2019/2020

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	D0019B	Human Factors for Safety in the Work Environment	7.5	
3	D7010B	eMaintenance from Data to Decision	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 2019, Is offered in 2020/2021, planned study schedule

Study-period	Course code	Course	Cr	Comment
1	D7011B	Design for Maintenance	7.5	
1	F0040T	Sustainable Energy systems	7.5	Selectable
1	S7001E	Stochastic signals	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	