

Maintenance Engineering II

Code: MK3UZK2G05G117-EN

ECTS Credit Points: 5

Evaluation: exam

Year, Semester: 3rd year, 2nd semester

Its prerequisite(s): MK3UZK1G05G117

Further courses are built on it: Yes

Number of teaching hours/week (lecture + practice): 2+2

Topics:

Organization and management of maintenance functions. Environmental impacts. Concept of safety, reliability and risk. The concept and basics of reliability-centered maintenance (RCM) and total productive maintenance (TPM). The overall efficiency of the equipment. The control of maintenance costs while improving reliability. Avoid or mitigate of the impact of operational failures. Root cause analysis (RCA) and Root cause failure analysis (RCFA). This course provides students with safety and risk assessment tools and techniques they need to work effectively in any safety- or reliability-critical environment. In laboratory practice students are involved in installation projects and make reports of them.

Literature:

Compulsory:

- R. K. Mobley, L. R. Higgins, D. J. Wikoff: Maintenance Engineering Handbook McGraw-Hill, 2008. 2. J. Moubray: Reliability-Centered Maintenance Industrial Press Inc., 2001. ISBN-13: 978-0831131463 ISBN-10: 0831131462
- R. Smith, R. K. Mobley: Rules of Thumb for Maintenance and Reliability Engineers Elsevier, 2007. ISBN: 9780750678629

Schedule

1st week Registration week

2nd week:

Lecture: Organization and Management of the Maintenance Function. Environmental impacts. Corrective, Preventive, Predictive Maintenance

Practice: Case studies

4th week:

Lecture: The concept and basics of reliability centered maintenance (RCM)

Practice: RCM in practice

6th week:

Lecture: The overall efficiency of the equipment (OEE)

Practice: Calculation of overall efficiency of the equipment and OEE losses

3rd week:

Lecture: Concept of safety, reliability and risk

Practice: Safety equipments, Safety engineering

5th week:

Lecture: The concept and basics of total productive maintenance (TPM)

Practice: TPM plan design

7th week:

Lecture: The control of maintenance costs while improving reliability. Avoid or mitigate of the impact of operational failures

	Practice: Introduction to FMEA
8th week: 1st drawing week	
9th week:	10th week:
Lecture: Company visit	Lecture: Root cause analysis (RCA) and Root cause failure analysis (RCFA)
Practice: Company visit	Practice: RCFA in practice
11th week:	12th week:
Lecture: Computerized maintenance management system (CMMS)	Lecture: Measuring and improvement of productivity. Terotechnology
Practice: Industry 4.0	Practice: Industry 4.0
13th week:	14th week:
Lecture: Maintenance and TQM, quality control in maintenance	Lecture: Company visit
Practice: Maintenance and product quality	Practice: Company visit
15th week: 2nd drawing week	

Requirements

A, for a signature:

Attendance at lectures is recommended, but not compulsory. Participation at practice is compulsory. Students must attend the practice classes and may not miss more than three occasions during the semester. In case a student does so, the subject will not be signed and the student must repeat the course. Students can't make up a practice with another group. Attendance at practice classes will be recorded by the practice leader. Being late is counted as an absence. In case of further absences, a medical certificate needs to be presented. Missed practice classes should be made up for at a later date, being discussed with the tutor. Active participation is evaluated by the teacher in every class. If a student's behaviour or conduct doesn't meet the requirements of active participation, the teacher may evaluate his/her participation as an absence because of the lack of active participation in class.

B, for grade:

The course ends in an exam grade (ESE). The grade for the test is given according to the following table: Score Grade 0-59 fail (1) 60-69 pass (2) 70-79 satisfactory (3) 80-89 good (4) 90-100 excellent (5)