Linnæus University

Course syllabus

Faculty Board of Science and Engineering
School of Engineering

4SE301 Underhållssystem, 15 högskolepoäng
Maintenance systems, 15 credits

Main field of study
Total Quality Maintenance

Subject Group
Industrial Engineering and Management

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved by Organisational Committee 2009-11-16

The course syllabus is valid from autumn semester 2010

Prerequisites
To be admitted to the course basic eligibility for studies on advanced level is required as well as knowledge corresponding to English B and the courses Maintenance Planning 7,5 hec (SE9052), Asset Health Management I 7,5 hec (SE9013) and Engineering Economics 7,5 hec (JE9041).

Expected learning outcomes

After completing the course the student is expected to be able to

- account for the structure of different maintenance organizations and their advantages and disadvantages
- understand the role of the maintenance organisation, with its levels of responsibility and power in the maintenance

process

- design a maintenance organisation on the basis of given criteria
- account for the responsibilities of the maintenance management
- describe and explaing the concepts of maintenance and maintenance support and their role in the different life cycle phases of a system
- describe and explain commonly used maintenance resources
- analyse requirements and selection of resourses for different situations
- choose suitable performance measures (KPI, key performance indicators) for the measurement of maintenance performance

- interpret and analyse measurements of maintenance performance
- identify, judge and give suggestions of the management of maintenance related risks
- give suggestions of improvement areas and activities within maintenance on the basis of a business (current state) analysis
- understand the possibilities and problems connected to the implementation of different maintenance philosophies, for example TPM and RCM

Content
The course comprises the following elements:

- The maintenance organisation: its tasks, roles and management
- The maintenance process and processes for maintenance support
- Maintenance philosophies and policies
- Methods and tools for maintenance resurce allocation
- Methods and tools for maintenance performance measurement
- Methods for maintenance improvement projects
- Methods and tools for the management of maintenance related risks

Type of Instruction
The teaching consists of lectures, group work, seminars, assignments and a case study.

Examination
The course is assessed with the grades U,3,4 or 5.
On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

The examination is based on submitted reports and oral or written presentation of compulsory assignments.

Course Evaluation
A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Credit Overlap
Overlaps completely with SE9054, to about 4 hp with SE9004 and to about 4 hp with SE9983.

Other
Some elements of the course may entail costs defrayed by the course participant.

The course language is English if international students attend the course.

Required Reading and Additional Study Material
Required reading
The course material primarily consists of scientific articles and lecture materials. This material is recommended and/or supplied by the course coordinator. 400 pages.

Recommended Literature
Crespo Márquez, A., *The Maintenance Management Framework*, London: Springer, 2007.

Mather, D., *The maintenance scorecard: creating strategic advantage*, New York, N. Y. : Industrial Press, cop. 2005.

Campbell, J. D. and Jardine, A K. S. eds., *Maintenance excellence : optimizing equipment lifecycle*
decisions, New York : Dekker, cop. 2001.

Nakajima, S., *Introduction to TPM : total productive maintenance*, Cambridge, Mass. : Productivity Press, cop., 1988.

Moubray, J., *Reliability-centred maintenance : [RCM II]*, Oxford : Butterworth Heinemann, 1997.