Linnæus University

Jnr: 2019/2466-3.1.2.2

Course syllabus

Faculty of Technology
Department of Mechanical Engineering

1ZT002 Kvalitetsteknik, 7,5 högskolepoäng
Quality Management, 7.5 credits

Main field of study
Mechanical Engineering

Subject Group
Mechanical Engineering

Level of classification
First Level

Progression
G1N

Date of Ratification
Approved 2009-12-15
Revised 2019-08-12 by Faculty of Technology. Change of examination.
The course syllabus is valid from autumn semester 2020

Prerequisites
General entry requirements and Mathematics 3b / 3c or Mathematics C (Field-specific entry requirements 12/A12).

Objectives

The course provides basic knowledge of quality management, as well as how a company's management system can be built and operated with a well thought out quality and eco-system, so that it becomes competitive internationally.

After completing the course the student will:

- demonstrate knowledge and understanding of the quality management system and its role in an industrial activity, including the knowledge of the basic concepts, methods and models, as well as awareness of current research issues,
- demonstrate knowledge and understanding of design, management and development of industrial activities with a focus on quality management systems,
- demonstrate the ability to design, manage and develop industrial activities by analyzing the activities from a quality perspective and implement quality and environmental management,
- demonstrate the ability to search, collect, evaluate and critically interpret information in the relevant quality management problems.

Content

This course focuses on methods and tools to manage, improve and ensure the quality of products and services in order to exceed customer expectations and provide understanding and practical implementation of a sustainable quality and environmental management.

The course includes the following topics:

- The concept of quality,
- Operation and tools that facilitate customer focused product,
- Operation and tools for continuous improvement,
- Basic understanding of variation,
- Design of experiments and robust design,
- Problem solving techniques and improvement tools,
- Statistical Process Control,
- Capability,
- Client-Centered Planning,
- Methods and tools for risk analysis and reliability assessment,
- Different business system characteristics,
- Processes and Process Management,
- Relationship between environmental and quality,
- Quality Management and ISO 9000,
- Business management from a quality and environmental perspective,
- Quality of the societal perspective.

Type of Instruction

Lectures and exercises. The course includes tasks to be solved in groups. Participation in the course of exercises is mandatory.

Examination

The course is assessed with the grades U, 3, 4 or 5.
The course will be examined through written asignments (1,5 credits F/P) and written exam (6,0 credits, F/3/4/5). The assessment of student performances is usually written and normally takes place during special examination periods. To pass the course students must pass the exam and passed on all the exercises.

In order to pass, the objectives of the course should be achieved.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customized exam or to have the student conduct the exam in an alternative way.

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Required Reading and Additional Study Material

Required reading
Bo Bergman och Bengt Klefsjö,
Kvalitet från behov till användning
Latest edition, Studentlitteratur, 704 pages

Reference literature

Bo Bergman, *Industriell försöksplanering och robust konstruktion*, ISBN 9789144368610, Studentlitteratur AB, 1992.

Lars Sörqvist, *Ständiga förbättringar*,
Latest edition, Studentlitteratur AB.