MG2033 Quality Control 6.0 credits

Kvalitet

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

MG1001 Manufacturing Technology or

MG1006 Design and Product Realization - Manufacturing

or equivalent

English B

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

Upon completion of the course requirements, the student should be able to:

- Identify the difference between the qualitative and the quantitative measures of quality and classify the costs incurred from bad quality products/services.
- Describe the core principles of quality management and adopt these principles to improve the management of quality.
- Explain and illustrate seven popular management tools and apply them in real life.
- Apply Quality Function Deployment (QFD) technique to convert customers' needs to product/ service quality features and assess the competitive position of any organization.
- Explain ISO 9000 standards, certification procedures and requirements. Students will be able to apply ISO 9000 requirements to receive certification. Students will be able to review and analyze the quality standards of any supplier.
- Define the traits of effective leadership and different leadership styles; explain principles to lead an organization in effective ways.
- Guide the HR development to create effective organizations.
- Generate strategic planning and deploy the planning in the day-to-day activities.
- Implement TQM step-by-step as leader or as an efficient member of the TQM implementation team.
- Apply the fundamental techniques for gathering and processing measurement data, as well as visualizing and communicating the results.
- Using reliability principles in evaluating, predicting and achieving reliability in products and services in order to perform their functions both in routine and unexpected circumstances.
- Design experiments to study the effect of process variables and their influence on the final product.
- Create and review risk registers to identify and quantify risk elements to a process and also their potential impact.
- Get acquainted with control charts and use capability indices to quantify process capabilities to produce products which meet customer requirements.
- Carry out measurement system analysis to make sure that the available measuring instruments are adequate for taking measurements either on the product characteristics or the process variables of a given process.
- Use statistical sampling methods to verify that the products, submitted by a supplier conform to specifications.

Course contents

The course covers all aspects of quality control, assurance and management in organizations which includes leading quality practice and improvement, problem finding and solving using

statistical, managerial and risk assessment tools and techniques and methods of changing organization´s culture for ensuring quality and customer satisfaction.

Disposition

The course provides knowledge in both classical and modern quality tools, techniques and management philosophies to enable engineers/managers to transform any organization into effective organization.

Course literature

A first course in Quality Engineering

K.S. Krishnamoorthi (2006), Pearson/Prentice Hall

Handouts and slides from lectures

Examination

- INL1 - Assignments, 2.0 credits, grading scale: P, F
- TEN2 - Written exam, 4.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.