

Quality Engineering - course description

General information	
Course name	Quality Engineering
Course ID	06.1-WM-ER-MiBM-16_18
Faculty	Faculty of Mechanical Engineering
Field of study	WM - oferta ERASMUS
Education profile	-
Level of studies	Erasmus programme
Beginning semester	winter term 2019/2020

Course information	
Semester	1
ECTS credits to win	3
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none">dr inż. Edward Tertel

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	15	1	-	-	Credit with grade
Laboratory	15	1	-	-	Credit with grade

Aim of the course

To acquaint students with the basic terms in the field of quality assurance and quality management. Knowledge of methods and the evaluation procedures of the quality evaluation of products, services and activities. Understanding the basic concepts of quality management. Acquaint with the ISO9000 quality standards, industry standards. Discussion of basic procedures for implementing and maintaining quality management systems.

Prerequisites

Mathematics, Metrology, Elements of statistics, the ability to use fundamental IT-tools

Scope

Lecture content.

The concept of quality and its definitions. Fundamental factors affecting the quality of production processes. Aspects and criteria for evaluation of the quality. The concept of quality and its definitions. Fundamental factors affecting the process and quality of production processes. Aspects and criteria for evaluation of the quality. Reliability, reliability functions. Quality systems according to the ISO series of standards, ISO 9000: basics and terminology. Quality management according to the DIN EN ISO 9001. The quality system documents. The implementation of quality management systems. Quality of processes, quality of work, quality of products quality of service. TQM - Total Quality Management objectives, concept and implementation. Six sigma - quality management by measurement of efficiency. The basic principles of Six Sigma, the implementation of the system, the use of statistical methods. Selected quality management tools.

Laboratory content:

Evaluation of the quality of the selected product. Determination of the reliability function for selected devices. Mapping process flow for a given production task. Elements of QMS documentation in accordance with DIN EN ISO 9001 - discussion, comparative assessment. The use of selected quality management tools. Six sigma - determining of the Six Sigma quality measure for specific products/processes. Statistical Measures of Quality in the Six Sigma, setting short-term and long-term capability of the process.

Teaching methods

Lectures with audiovisual aids. Working with the books and journals.

Individual and group work in laboratory classes. Presentation of solutions, discussion of the obtained solutions.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Is able to define basic concepts of quality of and quality management		<ul style="list-style-type: none">a check worka multiple choice and open questions test	<ul style="list-style-type: none">Lecture
He can name the standards of ISO9000 family of standards, and give a short description of their subject matter. Is able to characterize elements of the QMS documentation in accordance with ISO9001. Can apply the requirements of ISO9000 to create a quality management system documentation.		<ul style="list-style-type: none">a check worka multiple choice and open questions test	<ul style="list-style-type: none">Lecture

Outcome description	Outcome symbols	Methods of verification	The class form
He can carry out an evaluation of the quality of the product by choosing appropriate evaluation criteria. Properly interprets the results.		<ul style="list-style-type: none"> an observation and evaluation of activities during the classes carrying out laboratory reports 	<ul style="list-style-type: none"> Laboratory
Can apply and implement the basic tools of quality management.		<ul style="list-style-type: none"> an observation and evaluation of activities during the classes carrying out laboratory reports 	<ul style="list-style-type: none"> Laboratory
Is aware of the consequences, both good as well as poor quality of products and processes.		<ul style="list-style-type: none"> an observation and evaluation of activities during the classes carrying out laboratory reports 	<ul style="list-style-type: none"> Laboratory
Is able to characterize the basic principles of quality management. Can describe the basic concepts of quality management, explain the basic differences and similarities.		<ul style="list-style-type: none"> a check work a multiple choice and open questions test 	<ul style="list-style-type: none"> Lecture

Assignment conditions

Lecture: Assessment of of the course is determined on the basis of ratings for audit work (weight = 0.4) and test (weight = 0.6).

Assessment of the laboratory is based on: the laboratory exercises and reports/programs resulting from the execution of all exercises to be exercised.

To get a credit the student has to receive all passing grades.

The final grade received by the student is the arithmetic mean of the above grades.

Recommended reading

1. Hamrol Adam, Mantura Władysław: Zarządzanie jakością. Teoria i praktyka, Wydawnictwo Naukowe PWN, 2006
2. Hamrol Adam: Zapewnianie jakości w procesach wytwarzania, Wydawnictwo Politechniki Poznańskiej, Poznań, 1995
3. Praca zbiorowa, red. Tabor Adam, Zając Andrzej, Rączka Marek: Zarządzanie jakością Tom I – Jakość i systemy zapewnienia jakości, Tom II – Jakość w procesach wytwarzania – podręcznik dla studentów wyższych szkół technicznych. Kraków 2000
4. M. Urbaniak: Zarządzanie Jakością. Teoria i praktyka, Wyd. Difin, Warszawa 2004,
5. M. Urbaniak: Systemy zarządzania w praktyce gospodarczej, Wyd. Difin, Warszawa 2006.
6. Normy ISO serii 9000,

Further reading

Miesięczniki:

1. Problemy Jakości,
2. Normalizacja

Notes

Modified by dr inż. Edward Tertel (last modification: 07-05-2019 14:33)

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