Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Quality Management
Course code	47501
Scientific sector	ING-IND/16
Degree	Master in Industrial Mechanical Engineering
Semester	1
Year	/
Academic year	2017/18
Credits	5
Modular	*No*

Total lecturing hours	28
Total lab hours	
Total exercise hours	18
Attendance	Extremely Recommended
Prerequisites	None
Course page	https://next.unibz.it/en/faculties/sciencetechnology/master-industrial-mechanical-engineering/course-offering/

Specific educational objectives	The course belongs to the general courses of the Master Industrial Mechanical Engineering. It aims at teaching both scientific foundations and practical applications of quality management methods. The lecture Quality Management provides the basics in quality management methods in various applications such as product development, production planning and production as well as the introduction of quality management systems (QMS). In the context of quality management methods, a special focus is on production-oriented statistical quality control methods (e.g. process capability, statistical process control). The use of statistical applications in the industrial environment is treated by means of exercises and practical case studies in the computer lab.

Lecturer	Elisabetta Ceretti Aldo Attanasio
Scientific sector of the lecturer	ING-IND/16
Teaching language	English
List of topics covered	The course covers the following topics: 1. Introduction to quality and quality management (e.g. evolution of quality thinking, TQM) 2. Quality management methods for problem solving (e.g. elementary QM methods, problem solving

	process) 3. Quality management in product planning (e.g. VOC, QFD) 4. Quality management in product development (e.g. FTA, FMEA, Poka Yoke) 5. Quality management in production planning (e.g. DoE, digital factory) 6. Quality management in production (statistical quality control methods: e.g. basics, distributions, process capability, SPC) 7. Quality management in application phase (e.g. reliability analysis) 8. Quality management systems (e.g. ISO 9000 ff., auditing, certifications)
Office hours	See on timetable
Teaching format	The course consists of classroom lectures in which the topics are presented by the lecturer. There are also practical lessons that will give practical examples of the application of the theoretical topics. Course topics will be presented through presentations. Teaching material will be given to the students; ant required additional material will be provided by the Professor.

Learning outcomes	<u>Knowledge and understanding</u> The student knows the basics of quality management, the current methods and tools for statistical quality control and normative rules for the introduction of QMS. <u>Applying knowledge and understanding</u> The student applies and practices theoretical contents through exercises, case studies and hours in computer lab. Theory contents are practiced through exercises using practical examples from industrial environment. The students have to solve given problems through the learned instruments and statistical approaches in the computer lab. <u>Making judgements</u> Depending on the application or the problem, the student can judge the use of appropriate methods, models and systems for quality management. He is also able to judge and interpret results from statistical quality control (quality control charts, process capability parameters) and to define measures for optimization of quality. <u>Communication skills</u> The student can make professional discussions on quality management techniques and tools and is able to structure, present and argue professional content through analog (flipchart) and digital (PowerPoint, Excel) media.

	Learning skills The student learns both by frontal teaching (theory part) as well as by exercises and presentations. The student is able to enlarge his knowledge through self-study and consultation of scientific and technical texts.

Assessment	Written and/or oral exam
Assessment language	English
Evaluation criteria and criteria for awarding marks	

Required readings	Lecture notes and documents for exercises/ presentations will be available on the reserve collections.
Supplementary readings	The teacher will suggest books, articles and further documents during the course.