



QUALITY MANAGEMENT

Enrollment year	2019/2020
Academic year	2021/2022
Regulations	DM270
Academic discipline	ING-IND/17 (INDUSTRIAL AND MECHANICAL PLANT)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	INDUSTRIAL ENGINEERING
Curriculum	Energia
Year of study	3°
Period	2nd semester (07/03/2022 - 17/06/2022)
ECTS	6
Lesson hours	45 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	BETTANTI ALBERTO (titolare) - 6 ECTS
Prerequisites	Basic knowledge of Management and Organization
Learning outcomes	The course aims at providing to students: basics of enterprise organisation related to quality management; techniques, most used in enterprise, concerning design of quality, quality control applied to production processes, products/services, measurement equipment; main topics on quality management practices in accordance to international standard.
Course contents	Course introduction: The enterprise and the historical evolution of organizational theories and quality notion. The enterprise frame work: • organizational structures, business targets and stakeholders, value

chain analysis;

- historical evolution of quality techniques, non-quality costs analysis, Juran's and Taguchi's models.

Quality Design:

- Statistical insight to enterprise quality control: frequency distribution tabulation and charts, statistical descriptive indicators, population and sample, Central Limit Theorem, go-backs on probability theory;
- Design techniques of new products/services development: QFD (Quality Function Deployment), DFMEA (Design Failures Modes and Effect Analysis), FTA (Fault Tree Analysis).

Quality control:

- Statistical quality control of production processes: tolerances and capacity (PCR, Cpk and quality defectiveness in p.p.m.), Statistical Process Control (SPC) techniques, bar charts, cause-effect diagrams, interrelation diagrams, Pareto's diagrams, variables and attributes control chart;
- Statistical control of products/services quality: confidence ranges esteem for the median and other expectation distributions for populations of unknown distribution forms;
- Statistical control of measurement equipments: calibration and uncertainty determination;
- Products/services reliability.

Quality Management:

- Technical standards on quality management systems.

Teaching methods

Lectures (hours/year in lecture theatre): 45

Practical class (hours/year in lecture theatre): 0

Practicals/Workshops (hours/year in lecture theatre): 0

Reccomended or required readings

A. Bettanti. Il controllo e la gestione in azienda. MG Editori, Milano, 2004.

Assessment methods

A written examination shall be undertaken by students. Students passing the written examination shall go through to a final oral exam.

Further information

Sustainable development goals - Agenda 2030

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