

Anno Accademico 2021/2022

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.
Teaching methods	Lactures (bours/year in lecture theatre): 45
reading methods	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	<u>\$Ibl_legenda_sviluppo_sostenibile_</u>