Course guide
240744 - 240744 - Quality Management

Unit in charge:	Barcelona School of Industrial Engineering
Teaching unit:	715 - EIO - Department of Statistics and Operations Research.

Degree:	BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGIES AND ECONOMIC ANALYSIS (Syllabus 2018). (Compulsory subject).

Academic year: 2023   **ECTS Credits:** 3.0   **Languages:** English

LECTURER

Coordinating lecturer:	Tort-Martorell Llabres, Javier Marco Almagro, Lluís
Others:	Tort-Martorell Llabres, Javier Marco Almagro, Lluís

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
01 EIN. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

TEACHING METHODOLOGY

Three methodologies will be used:
· Expositive participative classes
· Cooperative learning
· Learning based on cases and problems

LEARNING OBJECTIVES OF THE SUBJECT

It is expected that the students will know and be able to apply (design and implement) both organizational and technical methods of quality management.
In particular, by the end of the course the students will be able to:
. Understand the importance of improving and organizing an improvement system as Six Sigma or Lean applying the corresponding techniques
. Solve complex and unstructured problems using Statistical Engineering
. Apply techniques such as: Experimental design and process control
. Understand and use the main quality management models

STUDY LOAD

Type	Hours	Percentage
Hours small group	15,0	20.00
Hours large group	15,0	20.00
Self study	45,0	60.00

Total learning time: 75 h

CONTENTS

Quality Mangement

Description:
Introduction to Total Quality. Historical Background. The quality gurus. Juran's trilogy.
Quality management models and standards
Data quality
Data based decision making

Full-or-part-time: 8h
Theory classes: 6h
Practical classes: 2h

Improvement

Description:
Methodologies for improvement.
Six Sigma: required organization. Project and team selection. Steps to follow: Define, Measure, Analyze, Improve and Control.
Lean Methodologies. The seven wastes. The continuous flow.
Statistical Engineering. Basic principles. The 6 phases and the 5 core processes

Full-or-part-time: 8h
Theory classes: 6h
Practical classes: 2h

Tools

Description:
- Data transformation and visualization. Exploratory data analysis
- Multivariate analysis (PCA and cluster analysis)
- Design of experiments
- Statistical Process Control

Full-or-part-time: 14h
Theory classes: 10h
Practical classes: 4h

GRADING SYSTEM

- Continuos evaluation: 50%
- Final exam: 50%

EXAMINATION RULES.

The regulations in force according to the current regulations of the UPC and the ETSEIB.