VNIVERSITAT DE VALÈNCIA

Course Guide
43398 Methodologies for production quality

COURSE DATA

Data Subject	
Code	43398
Name	Methodologies for production quality
Cycle	Master's degree
ECTS Credits	2.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
2154 - Master's degree in Quality Management	Faculty of Economics	1	Second term

Subject-matter

Degree	Subject-matter	Character
2154 - Master's degree in Quality Management	5 - Production quality	Optional

Coordination

Name	Department
ESCRIBA MORENO, MARIA ANGELES	105 - Business Administration 'Juan José Renau Piqueras'

SUMMARY

In this subject, several topics relevant to quality in companies producing industrial or consumer goods are studied.

The first topic is reliability, an aspect of quality closely related to design, the analysis of which has an important statistical component. The most commonly used probability distributions in reliability (exponential and Weibull distributions), the calculation of component reliability using these models and the estimation of their parameters through reliability tests are studied. Finally, the subject of the reliability of complex systems is briefly introduced, as well as the tools for its evaluation and improvement.

The second topic introduces the most commonly used indicators for assessing reliability and process efficiency results.

The third topic is metrology and analysis of measurement systems. The importance of reliable measurements is emphasised. This information is the basis for the control of processes and products and

for making decisions with great economic impact (accepting or rejecting a correct or defective product, stopping a production process, reprocessing materials, etc.). Key concepts such as error, metrological traceability, calibration or measurement system are reviewed, and some techniques of analysis and validation of measurement systems are studied.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Los conocimientos previso para cursar la asignatura son los exigidos para la aceptación el ingreso en los estudios de este máster.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

2154 - Master's degree in Quality Management

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Capacidad para poder aplicar y utilizar de manera eficaz y eficiente el control estadístico de procesos.
- Capacidad para desarrollar una actitud de crítica constructiva y de mejora continua hacia las prácticas y el funcionamiento de la organización.
- Saber identificar y traducir a especificaciones de producto o servicio, según el caso, las necesidades y expectativas de los clientes de una organización.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Ser capaces de buscar, ordenar, analizar y sintetizar la información, seleccionando aquella que resulta pertinente para la toma de decisiones.
- Saber trabajar en equipo con eficacia y eficiencia.

- Ser capaces de tomar decisiones tanto individuales como colectivas en su labor profesional y/o investigadora.
- Be able to integrate new technologies in their professional and/or research work.
- Know how to write and prepare presentations to present and defend them later.
- Critically analyze both his/her work and that of the colleagues.
- Construir una actitud proactiva ante los posibles cambios que se produzcan en su labor profesional y/o investigadora.
- Aplicar el trabajo en equipo como mecanismo básico para la mejora continua del sistema de gestión de la calidad.
- Aplicar el diseño de experimentos a situaciones concretas en el ámbito productivo.
- Conocer técnicas de calibración y control de equipos de medida y ser capaz de utilizarlas de forma adecuada en cada contexto.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

English version is not available

DESCRIPTION OF CONTENTS

1. Reliability

The most commonly used probability distributions in reliability (exponential and Weibull distributions), the calculation of component reliability using these models and the estimation of their parameters through reliability tests are studied. Finally, the subject of the reliability of complex systems is briefly introduced, as well as the tools for the evaluation and optimisation of reliability results.

2. Efficiency indicators

The most common indicators used in industrial environments to assess the performance of operations as well as to measure inefficiencies are introduced.

3. Methodology and analysis of measurement systems

Description of reliable measurements. This information is the basis for the control of processes and products and for making decisions with a major economic impact (accepting or rejecting a correct or defective product, stopping a production process, reprocessing materials, etc.). Key concepts such as error, metrological traceability, calibration or measurement system are reviewed, and techniques of analysis and validation of measurement systems and error determination are studied.

WORKLOAD

ACTIVITY	Hours	% To be attended
Computer classroom practice	14,00	100
Tutorials	2,00	100
TOTAL	**16,00**	

TEACHING METHODOLOGY

English version is not available

EVALUATION

English version is not available

REFERENCES

Basic

- Mongomery Douglas C. (2008): Control estadístico de la calidad. Ed. Limusa Wiley