

Academic Year: ( 2023 / 2024 )

Review date: 24-05-2023

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: ISASI SANCHEZ, LUIS

Type: Compulsory ECTS Credits : 3.0

Year : 4 Semester : 2

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Statistics and Programming of 1 Course

**SKILLS AND LEARNING OUTCOMES**

CB1. Students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study

CB2. Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.

CG1. Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Industrial Engineering.

CG3. Ability to design a system, component or process in the field of Industrial Technologies to meet the required specifications

CG6. Applied knowledge of company organisation.

ECRT12. Knowledge and skills adequate to organise and manage companies.

ECRT13. Knowledge of management information systems, industrial organisation, production and logistics systems and quality management systems.

RA1. Knowledge and understanding: Have basic knowledge and understanding of science, mathematics and engineering within the industrial field, as well as knowledge and understanding of Mechanics, Solid and Structural Mechanics, Thermal Engineering, Fluid Mechanics, Production Systems, Electronics and Automation, Industrial Organisation and Electrical Engineering.

RA2. Engineering Analysis: To be able to identify engineering problems within the industrial field, recognise specifications, establish different resolution methods and select the most appropriate one for their solution

RA3. Engineering Design: To be able to design industrial products that comply with the required specifications, collaborating with professionals in related technologies within multidisciplinary teams.

RA5. Engineering Applications: To be able to apply their knowledge and understanding to solve problems and design devices or processes in the field of industrial engineering in accordance with criteria of cost, quality, safety, efficiency and respect for the environment.

RA6. Transversal Skills: To have the necessary skills for the practice of engineering in today's society.

**OBJECTIVES**

By the end of this content area, students will be able to have:

1. knowledge and understanding of the basic concepts about production planning and control and logistics.
2. awareness of the wider multidisciplinary context of engineering applying knowledge of mathematics, statistics, economics and other scientific fields to the analysis of business situations.
3. the ability to apply their knowledge and understanding to identify, formulate and solve problems of industrial organization using established methods;
4. the ability to apply their knowledge and understanding to analyse engineering products, processes and methods;
5. the ability to apply their knowledge to develop and realise design and operation of productive and logistic systems;
6. the ability to select and use appropriate tools and methods in industrial organization;
7. an awareness of the non-technical implications of engineering practice;
8. demonstrate an awareness of project management and business practices, such as risk and change management, and understand their limitations;

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Operations management in the supply chain
  - 1.1 Introduction to operations management
  - 1.2 Strategy
- 2 Product and process design
  - 2.1 Product design
  - 2.2 Process design
- 3 Demand forecasting
  - 3.1 Forecasting in operations management
  - 3.2 Methods for demand forecasting
- 4 Stock management in supply chain
  - 4.1 Stock management for independent demand
  - 4.2 Continuous and periodic revision methods
- 5 Material requirements planning
  - 5.1 Introduction
  - 5.2 MRP (without capacity constraints)
- 6 Lean manufacturing
  - 6.1 Lean philosophy in operations management
  - 6.2 Implementation

## LEARNING ACTIVITIES AND METHODOLOGY

Lectures, exercises, practical sessions in laboratory with cases and assignments to be carried out by the students and discussed in the sessions, readings assigned by the instructor

The students must assist to sessions of theory and practice and also must take practices with

\* Case analysis

\* Working in groups

All the activities could be place in live or on line, using the "aula global" tools, depend of the situation.

## ASSESSMENT SYSTEM

CONTINUOUS ASSESMENT (40%)

FINAL ASSESMENT (60%) (MIN. 4 POINTS TO PASS THE SUBJECT)

|                            |    |
|----------------------------|----|
| % end-of-term-examination: | 60 |
|----------------------------|----|

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|----------------------------------------------------------------------|----|
| % of continuous assessment (assignments, laboratory, practicals...): | 40 |
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## BASIC BIBLIOGRAPHY

- R.B. Chase, F. R. Jacobs, N.J. Aquilano Administración de Operaciones. Producción y cadena de suministros, Mc Graw Hill, 2009
- Rg Schroeder, S.M Goldstein, M. J Rungtusanatham Administración de operaciones, Mc Graw Hill, 2011

## ADDITIONAL BIBLIOGRAPHY

- J. Heizer/ B. Render Dirección de Producción Vol 1 y 2, Prentice Hall, 2007