

Academic Year: ( 2022 / 2023 )

Review date: 20/05/2022 18:05:32

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: DURAN HERAS, ALFONSO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

## OBJECTIVES

The student who pass this subject will be reach skills to:

- \* Take the perspective from the artisan production to lean enterprise.
- \* Analysis of unstructured situations and decisions within the supply chain management.
- \* Identify and describe business process, considering supply chain as a open socio-technical system.
- \* Recognize different types of productive systems: Job shop, Flow shop and mixes. Taking special attention to layout and capacity.
- \* Analyze and propose improvements in productive systems with the supply chain perspective.
- \* Applying "lean" concepts and techniques in supply chain, taking account the strategic role of the human resources in the organization.
- \* Linking process: Push, pull and mixes. Kanban. Leveling process
- \* Recognize the inter and intra business process in the supply chain
- \* Use the Competence versus cooperation concepts and their consequences in the supply chain management
- \* Ability of communication and working in multidisciplinary and international groups

## DESCRIPTION OF CONTENTS: PROGRAMME

IMPORTANT NOTICE: In the academic year 2022/23 (as in 21/22) this subject will be taught online

Subjects SCM I and SCM II have been selected in the "1ª Convocatoria de Aprendizaje Activo en Docencia Digital (Active Learning in Digital Education) (Vicerrectorado de Estrategia y Educación Digital)", thus they will be taught entirely online (except the midterm tests and the final exam), through platforms such as BBC and/or Engageli. Thus, students enrolling in any of these elective courses must regularly attend the (online) sessions, and adhere to an active methodology, involving continuous individual and group work, as preparation and complement of the online sessions. Given the innovative and exploratory nature of this call ("Convocatoria"), by enrolling in these elective courses students accept that the (anonimized) results of these courses (academic results, surveys, experiences...) might be used for research and/or learning methodology development purposes, and eventually disseminated (e.g. in Education conferences, journals,...)

- 1 Introduction to supply chain management (SCM). ¿Lean¿ approaches
  - 1.1 From artisans to lean enterprise
  - 1.2 SCM and lean manufacturing
  - 1.3 TPM
  - 1.4 JIT
  - 1.5 Organizational behaviour and labour organization
- 2 Assembly Lines and Cellular manufacturing
  - 2.1 Mono/ multi product lines
  - 2.2 Cellular manufacturing. Batch versus "one piece flow"
  - 2.3 Cell design and implementation
- 3 Foundations of process management
  - 3.1 Business processes in the supply chain

- 3.2 Continuous improvement and innovation
- 3.3 Value and costs in the processes
- 3.4 Variability management
- 3.5 Intercompany processes
- 3.6 Competition and cooperation in the supply chain
- 4 Logistic Systems
  - 4.1 Integrated view of the supply chain
  - 4.2 Key logistic functions
  - 4.3 Risk Management
- 5 Sustainable Logistics
- 6 Digital Transformation of the supply chain

## 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.

Please see "Important Notice" in "Program": In the academic year 2021/22 they will take place online (except the midterm tests and the final exam)

## ASSESSMENT SYSTEM

**% end-of-term-examination/test:** 60

**% of continuous assessment (assignments, laboratory, practicals...):** 40

THE CONTINUOUS ASSESMENT (40%)

See "Important Notice" in the "Program" section, regarding active online methodology (at least in academic year 2021/22)

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

## BASIC BIBLIOGRAPHY

- Ponce, E. Prida, B Logística de Aprovisionamientos para la Integración de la Cadena de Suministros, Prentice Hall, 2006
- Sistema de Producción Toyota Monden, Y, Industrial Engineering , 1987
- Woomack, Jones Lean thinking, Gestión 2000, 2003

## ADDITIONAL BIBLIOGRAPHY

- Carlos MARTIN MAROTO LEAN KATA, leankata.es, 2020