



Course guide

220559 - 220559 - Operations Management

Last modified: 19/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2012). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Sunyer Torrents, Albert

Others: Sánchez García, José Luis

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. Apply concepts and techniques of descriptive and statistical inference under uncertainty.
2. Apply quantitative and experimental methods for making decisions in situations where intangibles appear
4. Apply theories and inherent principles in the production and logistics area in order to analyze uncertainty complex situations and make decisions using engineering tools.
3. Apply theories and inherent principles in the general direction of an organization with the aim of analyzing uncertainty complex situations and make decisions using engineering tools.

Generical:

5. Ability to apply knowledge to solve problems in new environments or unfamiliar environments within broader contexts (or multidisciplinary) related to engineering.
8. Ability to integrate knowledge and formulate judgments with the aim of making decisions based on information that, with incomplete or limited include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
7. Ability to effectively communicate their findings, knowledge and concluding reasons to skilled and unskilled audiences, clearly and unambiguously.
10. Ability to operate and lead multidisciplinary and multicultural groups, with negotiation skills, group work, relationships in an international setting, and conflict resolution.
6. Self-learning capacity to independent continuous training.
9. Ability to understand the impact of engineering solutions in a global and social context .

TEACHING METHODOLOGY

The course is developed by the use of three types of methodology:

- Lecture sessions.
- Case study debates and problem-solving classes (case studies and exercises).
- Self-study for doing exercises and activities.

In the lecture sessions, lecturers will introduce the theoretical basis of the concepts, methods and techniques and will show them with examples to facilitate their understanding.

In the case study debates and problem solving sessions, lecturers will guide students in applying theoretical concepts to solve problems and cases, always using critical reasoning. We will propose exercises and cases to be solved in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by lecturers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The lecturers provide the curriculum and monitoring of activities (by ATENEA).

LEARNING OBJECTIVES OF THE SUBJECT

The course Operations Management introduces students to the concepts, principles and techniques associated with the production system design process, the production process, the equipment maintenance process, as well as the process of improving the manufacturing system.

STUDY LOAD

Type	Hours	Percentage
Hours large group	8,0	6.40
Self study	80,0	64.00
Guided activities	22,0	17.60
Hours medium group	15,0	12.00

Total learning time: 125 h

CONTENTS

Module 1: Design of the production system

Description:

Value Stream Analysis
Production process design
Plant layout
Time studies
Workplace design
Assembly line balancing
Quality Assurance

Full-or-part-time: 62h 30m

Theory classes: 4h
Practical classes: 7h 30m
Guided activities: 11h
Self study : 40h



Module 2: Maintenance and improvement of the production system

Description:

Equipment Maintenance System
Improvement System
Adjusted production
JIT-kanban
Smed

Full-or-part-time: 62h 30m

Theory classes: 4h
Practical classes: 7h 30m
Guided activities: 11h
Self study : 40h

GRADING SYSTEM

The final grade depends on the following assessment criteria:

- Mid-term exam, weight: 30%
- Final exam, weight: 50%
- Team work, weight: 20%

At the end of the course, there will be a recovery exam which weight will be 80%.

BIBLIOGRAPHY

Basic:

- Rajadell Carreras, M.; Sánchez García, J. L. Lean manufacturing: la evidencia de una necesidad [on line]. Madrid: Díaz de Santos, 2010 [Consultation: 20/09/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=3196599>. ISBN 9788479789671.
- Heizer, Jay H. Dirección de la producción y de operaciones: decisiones tácticas. 8a ed. Madrid: Prentice Hall, 2007. ISBN 9788483223611.
- Suñé Torrents, Albert [et al.]. Manual práctico de diseño de sistemas productivos [on line]. Madrid: Díaz de Santos, 2004 [Consultation: 20/09/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=3171411>. ISBN 8479786426.
- Heizer, Jay H. Dirección de la producción y de operaciones: decisiones estratégicas [on line]. 11a ed. Madrid: Prentice Hall, 2015 [Consultation: 15/06/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=5779. ISBN 9788490352878.

Complementary:

- Hirano, Hiroyuki. Manual para la implantación del JIT: una guía completa para la fabricación "just-in-time". 2a ed. Madrid: TGP Hoshin, 2001-2002. ISBN 8487022871.
- Shirose, Kunio. TPM para mandos intermedios de fábrica. 2a ed. Madrid: TGP Hoshin, 1994. ISBN 8487022111.
- Domínguez Machuca, José A. [et al.]. Dirección de operaciones: aspectos tácticos y operativos en la producción y los servicios. Madrid: McGraw-Hill, 1995. ISBN 8448118030.
- Cuatrecasas Arbós, Lluís. TPM: hacia la competitividad a través de la eficiencia de los equipos de producción. Barcelona: Gestión, 2000. ISBN 848088360X.
- Imai, Masaaki. Cómo implementar el kaizen en el sitio de trabajo (Gemba). Colombia: McGrawHill, 1998. ISBN 9789586007986.
- Davis, John W. Fabricación libre de despilfarro: ruta rápida para la reconversión de fábricas. Madrid: TGP Hoshin, 2003. ISBN 8495605068.
- Sekine, Kenichi. Mejora de la productividad en diseño e ingeniería. Madrid: TGP Hoshin, 2000. ISBN 8487022464.
- Kobayashi, Iwao. 20 claves para mejorar la fábrica. 2a ed. Madrid: TGP Hoshin, 2002. ISBN 8495605058.

