



Course guide

205108 - 205108 - Asset and Facility Management

Last modified: 30/04/2024

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: MASTER'S DEGREE IN TECHNOLOGY AND ENGINEERING MANAGEMENT (Syllabus 2016). (Optional subject).

Academic year: 2024 **ECTS Credits:** 7.5 **Languages:** English

LECTURER

Coordinating lecturer: Núria Forcada Matheu

Others: Jordi Sánchez Castilla

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

- CE01-MEM. The ability to describe the main management theories.
- CE02-MEM. The ability to analyse data for pattern recognition.
- CE03-MEM. The ability to optimise problems and systems using mathematical models and make decisions in conditions of uncertainty.
- CE04-MEM. The ability to apply theoretical and fundamental principles of technology and engineering business management in conditions of uncertainty.
- CE05-MEM. The ability to analyse the need for physical and financial resources in process and project management in technological settings.
- CE06-MEM. The ability to optimally assign physical and financial resources in process and project management in technological settings.
- CE07-MEM. The ability to manage processes and projects in technological settings subject to levels of uncertainty.
- CE08-MEM. The ability to evaluate the results of process and project development in technological settings subject to levels of process uncertainty.
- CE09-MEM. The ability to include aspects of internationalisation in decision making.
- CE10-MEM. The ability to develop and defend a comprehensive technology and engineering business management project.

Transversal:

- CT1a. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding how companies are organised and the principles that govern their activity, and being able to understand employment regulations and the relationships between planning, industrial and commercial strategies, quality and profit.
- CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.
- CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.
- CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.



TEACHING METHODOLOGY

Lecture: Lecturers present concepts, principles and techniques, with the active participation of students.

Problem Based Learning: Lecturers and students resolve exercises and standard problems through specific techniques related to the theoretical contents and principles of the course.

Project Based learning: Students resolve complex problems through specific techniques related to the theoretical contents and principles of the course.

Self-study: Students diagnose their learning needs, in collaboration with the lecturers, and plan their own learning process.

LEARNING OBJECTIVES OF THE SUBJECT

The course Asset and Facility Management introduces students to the concepts, principles and techniques of Real Estate, Industrial Planning, Facility Planning and Management for industries, Asset Management of physical assets during its lifecycle, Energy management for industrial plants. It also introduces students to the technologies for gathering equipment, machinery and property data and analyzing it to get information for improving the management and profitability of the Assets and Facilities in industrial environments.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	30,0	16.00
Self study	127,5	68.00
Hours large group	30,0	16.00

Total learning time: 187.5 h



CONTENTS

Module 1: Facility Management for industries

Description:

The goal of this module is to determine the strategic role of facility management in supporting the core activities of the industry focusing on the operational aspects of the built assets and examine the influence of facilities management practices on corporate strategy, procurement, human resource management and financial decision making. This module will also address basic knowledge and operational skills required for the good management of industrial plants, their environments, facilities and support services, and personnel.

- The role of a facility manager.
- Hard services: Building services management, Operation and Maintenance management, Space management, Maintenance planning and scheduling, etc.
- Soft services: security management, cleaning management, gardening management, catering and vending management, etc.
- Managing Quality Facilities.
- Communications and New Facility Management Skills.
- Planning and coordination techniques.
- Cost effectiveness management.
- Financial Management.
- Facility Emergency Preparedness and Business Continuity.
- Computerized Maintenance Management Systems (CMMS)
- Computer-Aided Facility Management Systems (CAFM)
- Integrated Workplace Management Systems (IWMS).

Related activities:

Distance and in-class activities
Group project
Final exam
Online self-Assessment

Full-or-part-time: 40h

Theory classes: 8h
Practical classes: 8h
Self study : 24h

Module 2: Space Planning and Management

Description:

The aim of this module is to understand how buildings and the space configuration within them support the strategic objectives of the organization.

- Principles and applications of the legislation affecting industrial settlements and the workplace.
- Strategic business space planning and usage.
- Tactical methodologies towards solutions for space planning and utilization.
- Decision-making tools for strategic space planning and management.

Related activities:

Distance and in-class activities
Group project
Final exam
Online self-Assessment

Full-or-part-time: 40h

Theory classes: 6h
Practical classes: 6h
Self study : 28h



Module 3: Asset Management of Physical Assets: Life cycle of physical assets

Description:

The aim of this module is to understand the fundamentals of Asset Management, as much when the company does large investments in equipment and machinery as when the company has to maintain and operate them in accordance with the own business objectives and the ones of its stakeholders. Both a business vision and technical aspects will be addressed.

- Asset Management Fundamentals.
- Managing Equipment Reliability.
- Optimizing Asset Management decisions.
- Materials Management Optimization.
- Total Cost of Ownership Management.
- Finance in Asset Management.

Related activities:

Distance and in-class activities

Group project

Final exam

Online self-Assessment

Full-or-part-time: 40h

Theory classes: 6h

Practical classes: 6h

Self study : 28h

Module 4: Energy management in operational functions

Description:

The aim of this module is to go further into the various energy and environmentally-friendly technologies which are essential to tackle the problems related to environmental and energy sustainability.

- Energy efficiency for industrial plants.
- Energy monitoring and audits.
- Energy management in operational functions: ISO 50001.
- Environmental certification systems: LEED, BREEAM, etc.

Related activities:

Distance and in-class activities

Group project

Final exam

Online self-Assessment

Full-or-part-time: 40h

Theory classes: 6h

Practical classes: 6h

Self study : 28h



Module 5: Other supporting and integrating technologies

Description:

The goal of this module is to present different technologies to support and integrate Asset and Facility Management within the organizational structure of the company.

- Enterprise Asset Management Systems (EAMS)
- Building Information Modeling :O&M phase (BIM)

Related activities:

Distance and in-class activities
Group project
Final exam
Online self-Assessment

Full-or-part-time: 27h 30m

Theory classes: 4h
Practical classes: 4h
Self study : 19h 30m

GRADING SYSTEM

The final grade depends on the following three elements:

- * 30%, Distance and in-class activities
- * 40%, Group project (report and dissertation)
- * 30%, Final exam

BIBLIOGRAPHY

Basic:

- Collado, Víctor; Montoya, Gonzalo; Sanz, Jesús. Manual de gestión valor añadido de facility management. 2ª ed. Madrid: IFMA España, 2019.
- Facility management [on line]. PMM Institute of Learning, 2016 [Consultation: 29/04/2024]. Available on: <https://www.pmmlearning.com/wp-content/uploads/2020/08/Servivios-PMM-Learning-Facility.pdf>.
- Rondeau, Edmond P.; Brown, Robert K.; Lapedes, Paul D. Facility management [on line]. 2ª ed. Hoboken, NJ: John Wiley & Sons, 2006 [Consultation: 28/05/2024]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=699985>. ISBN 9780471700593.

Complementary:

- Roper, Kathy; Payant, Richard. The facility management handbook. 4th ed. AMACOM, 2014. ISBN 9780814432150.
- Wiggins, Jane M. Facilities manager's desk reference [on line]. 3rd ed. Hoboken, NJ: Wiley, 2021 [Consultation: 29/05/2024]. Available on: <https://onlinelibrary-wiley-com.recursos.biblioteca.upc.edu/doi/book/10.1002/9781119633624>. ISBN 9781119633594.