Course guide
240EO321 - 240EO321 - Industrial Scheduling Techniques

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 732 - OE - Department of Management.
Degree: MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2012). (Optional subject).
MASTER'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2019). (Optional subject).
MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2021). (Optional subject).

Academic year: 2023  ECTS Credits: 3.0  Languages: Spanish

LECTURER
Coordinating lecturer: Bautista Valhondo, Joaquín
Others: Bautista Valhondo, Joaquín
Rami Rivas, Ruben

PRIOR SKILLS
- Numerical and modelling skills
- Reflexive, analytical and a synthesis attitude
- Proactivity and responsibility

REQUIREMENTS
- Production and Management

TEACHING METHODOLOGY
Master class: The professor exposes the theory and practical contents of the course, with the active participation of the students
Practical class: the Professor solves, with the active participation of the students, exercises related to the theory contents of the course
Realization of the Project: consists on taking part in a project to solve a problem of management engineering nature. Depending on the characteristics of the matter, the student can carry out the project individually or in teams. The student/s will have to write the memory of the project. Besides, the Professor may require the oral defense of the memory in front of a university court. The defense includes the exposition of the most relevant contents of the memory and a debate with the court about the facts related to the project

LEARNING OBJECTIVES OF THE SUBJECT
Present, from a practical point of view, tools and procedures of general use generally used in the resolution of problems in industrial management.
This course aims to:
- Introduce the students the set of knowledge, aptitudes and attitudes which will allow them to solve generic problems of industrial management, known as "problemsolving".
- Provide the students a structured methodology to face the possible problems in their future working life
- Provide the students a wide range of tools and techniques, more intuitive (soft techniques) that the ones exposed on other courses of the degree, to act in each one of the resolution phases of a problem: definition, data gathering, analysis, search of solution, selection of alternatives, implementation.
STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>48.0</td>
<td>64.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>27.0</td>
<td>36.00</td>
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</tbody>
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Total learning time: 75 h

CONTENTS

UNIT 1. HUMAN FACTOR IN INDUSTRY

Description:

Related activities:
Practice 1.1 Simulation of a negotiation
Exposition by the Professor
Teamwork in class
Coursework outside the class
Teamwork outside the class

Full-or-part-time: 7h
Theory classes: 1h 30m
Practical classes: 2h 30m
Self study: 3h

UNIT 2. METHODOLOGY FOR THE SELECTION AND PROJECT MANAGEMENT I

Description:
PHASE I: DEFINITION
Stratification: Sources of problems. Tools: brainstorming, affinity diagram, SWOT.
Exercises. Definition of the Project. Tools: IN-OUT, SIPOC, QFA. Exercises

Related activities:
Practice 2.1: Development of the Definition phase of a project.
Teamwork in class
Coursework outside class
Teamwork outside of class
Exposition by the Professor
Teamwork in class

Full-or-part-time: 16h
Theory classes: 2h 30m
Practical classes: 7h 30m
Self study: 6h
UNIT 3. METHODOLOGY FOR THE SELECTION AND PROJECT MANAGEMENT II

Description:
PHASE II: ANALYSIS OF THE SITUATION
The client. VOC. Metrics. Tools, survey, process map, Pareto, histograms, boxplot. Exercises

Related activities:
Practice 3.1 Development of the Analysis phase of a project
Exposition by the professor.
Teamwork in class
Coursework outside of the class
Teamwork outside of the class

Full-or-part-time: 15h
Theory classes: 2h 30m
Practical classes: 6h 30m
Self study : 6h

UNIT 4. METHODOLOGY FOR THE SELECTION AND PROJECT MANAGEMENT III

Description:
PHASE III: ROOT-CAUSE ANALYSIS

Related activities:
Practice 4.1 Development of the ROOT-CAUSE analysis phase of the project
Exposition by the Professor
Teamwork in class
Coursework out of class
Teamwork out of class

Full-or-part-time: 30h
Theory classes: 6h 30m
Practical classes: 5h 30m
Self study : 18h

UNIT 5. METHODOLOGY FOR THE SELECTION AND PROJECT MANAGEMENT IV

Description:
PHASE IV: PROPOSED SOLUTIONS

Related activities:
Practice 5.1 Development of the Proposal Phase of a project
Exposition by the Professor
Teamwork in class
Coursework out of class
Teamwork out of class

Full-or-part-time: 9h
Theory classes: 2h 30m
Practical classes: 6h 30m
UNIT 6. METHODOLOGY FOR THE SELECTION AND PROJECT MANAGEMENT V

Description:
PHASE V: EXECUTION

Related activities:
Practice 6.1 Development of the Execution phase of a project
Exposition by the Professor
Teamwork in class
Coursework out of class
Teamwork out of class

Full-or-part-time: 9h
Theory classes: 2h 30m
Practical classes: 6h 30m

ACTIVITIES

PRACTICE 1.1 SIMULATION OF A NEGOTIATION

PRACTICE 2.1 DEVELOPMENT OF THE DEFINITION PHASE IN A PROJECT

PRACTICE 3.1 DEVELOPMENT OF THE ANALYSIS PHASE IN A PROJECT

PRACTICE 4.1 DEVELOPMENT OF THE ROOT-CAUSE ANALYSIS PHASE IN A PROJECT

PRACTICE 5.1 DEVELOPMENT OF THE PROPOSAL PHASE IN A PROJECT

PRACTICE 6.1 DEVELOPMENT OF THE EXECUTION PHASE IN A PROJECT

SMALL-PROJECT OF AN INDUSTRIAL PROBLEM
GRADING SYSTEM

In this course, the work carried out along the course will be particularly valued, in such a way that the mark of the continuous evaluation has a very important weight on the total course mark. The continuous evaluation is based on the qualification of the practices and projects which, either individually or in groups, are carried out by the students. Along the course, at least 10 of these qualifications will be obtained, making up the continuous evaluation mark.

The final exam will consist on a public presentation by teams related to a small-project requested to the students.

Final qualification system:
The final qualification will be obtained from an addition of the partial marks, individual and by teams, corresponding to the continuous evaluation, and the mark related to the evaluation of the fulfillment of the presentation in teams in the final exam.

EXAMINATION RULES.

The final exam is a presentation in teams of a small-project. It does not state any additional rule to the ones natural from a civic behaviour, common sense and respect for other colleagues when doing the presentations.

BIBLIOGRAPHY

Basic:

RESOURCES

Hyperlink:
- [https://ocw.upc.edu/curs_publicat/240AU018/2016/1](https://ocw.upc.edu/curs_publicat/240AU018/2016/1). 240EO321 - 240EO321 - TÉCNICAS DE ORGANIZACIÓN INDUSTRIAL ETSEIB MUEO