Course guide
240215 - 240AU055 - Models and Tools of Decision Science

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 732 - OE - Department of Management.
Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2014). (Optional subject).
MASTER'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2019). (Compulsory subject).

Academic year: 2022   ECTS Credits: 6.0   Languages: Spanish

LECTURER
Coordinating lecturer: Joaquín BAUTISTA-VALHONDO
Others: Joaquín BAUTISTA-VALHONDO

PRIOR SKILLS
- Number capacity.
- Reflective, analytical and synthesis attitude.
- Proactivity and responsibility.

REQUIREMENTS
- Infinitesimal calculation.
- Linear algebra.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEAU5. Direct and organize enterprises and production systems and services, applying knowledge and skills in industrial organization, business strategy, planning and logistics, commercial and labor law, financial and cost accounting.

General:
CGAU1. Ability to apply appropriate knowledge of mathematical aspects, analytical, scientific, instrumental, technological and management, the resolution of the problems of the automotive
CGAU7. Integrate knowledge and handle complexity, making judgments and decisions, from incomplete or limited information, including reflections on the social and ethical responsibilities of professional practice
CGAU9. Communicate and discuss proposals and conclusions in forums multilingual, skilled and unskilled, in a clear and unambiguous

Transversal:
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.
TEACHING METHODOLOGY

Master class: the faculty exposes the theoretical and practical contents of the subject, with the active participation of the students.
Practical class: the student solves practices and problems proposed by the teaching staff and with the help of this one.
Business Case: The students, in groups of 4 to 6 people, will develop team projects throughout the course. The follow-up of the development of the projects by teams will be weekly with oral presentations and discussions in class. There will be final defenses of each project (BCD) in which all the members of each team must participate.

LEARNING OBJECTIVES OF THE SUBJECT

The student by the end of the course must be able to solve in a rational way situations of decision making in complex systems. He or she will have to identify and apply the different tools which have been explained. The student will have to value the analysis, formulate the corresponding abstraction and describe the synthesis of the complex situations, where multiple elements take part. The tools will have to be compared, evaluating the limitations which can be in each stage of the process of the decisions making and decide consequently.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>18,0</td>
<td>12.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>36,0</td>
<td>24.00</td>
</tr>
<tr>
<td>Self study</td>
<td>96,0</td>
<td>64.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

Title: English
Description: content English
Full-or-part-time: 2h
Theory classes: 2h

Title: English
Description: content English
Full-or-part-time: 11h 36m
Theory classes: 2h
Self study: 9h 36m
<table>
<thead>
<tr>
<th>Title English</th>
<th>Description: content english</th>
</tr>
</thead>
</table>
| **Full-or-part-time:** 17h 06m | Theory classes: 2h 30m  
Practical classes: 2h 30m  
Laboratory classes: 2h 30m  
Self study: 9h 36m |
| | |
| Title English | Description: content english |
| **Full-or-part-time:** 17h 06m | Theory classes: 2h 30m  
Practical classes: 2h 30m  
Laboratory classes: 2h 30m  
Self study: 9h 36m |
| | |
| Title English | Description: content english |
| **Full-or-part-time:** 17h 06m | Theory classes: 2h 30m  
Practical classes: 2h 30m  
Laboratory classes: 2h 30m  
Self study: 9h 36m |
| | |
| Title English | Description: content english |
| **Full-or-part-time:** 15h 36m | Theory classes: 2h  
Practical classes: 2h  
Laboratory classes: 2h  
Self study: 9h 36m |
| | |
| Title English | Description: content english |
| **Full-or-part-time:** 16h 06m | Theory classes: 2h 10m  
Practical classes: 2h 10m  
Laboratory classes: 2h 10m  
Self study: 9h 36m |
**title english**

**Description:**
content english

**Full-or-part-time:** 17h 06m  
Theory classes: 2h 30m  
Practical classes: 2h 30m  
Laboratory classes: 2h 30m  
Self study : 9h 36m

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**title english**

**Description:**
content english

**Full-or-part-time:** 15h 36m  
Theory classes: 2h  
Practical classes: 2h  
Laboratory classes: 2h  
Self study : 9h 36m

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**title english**

**Description:**
content english

**Full-or-part-time:** 17h 06m  
Theory classes: 2h 30m  
Practical classes: 2h 30m  
Laboratory classes: 2h 30m  
Self study : 9h 36m

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**title english**

**Description:**
content english

**Full-or-part-time:** 6h 40m  
Theory classes: 2h  
Practical classes: 1h 30m  
Laboratory classes: 1h 30m  
Self study : 1h 40m

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**title english**

**Description:**
content english

**Full-or-part-time:** 2h  
Theory classes: 2h
BIBLIOGRAPHY

Basic:

Complementary:

RESOURCES

Hyperlink:
- https://ocw.upc.edu/curs_publicat/24OEO023/20171. Models i eines de decisió Course