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240215 - 240AU055 - Models and Tools of Decision Science

Coordinating unit: 240 - ETSEIB - Barcelona School of Industrial Engineering
Teaching unit: 732 - OE - Department of Management
Academic year: 2019
Degree: MASTER ' S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2019). (Teaching unit Compulsory)
ECTS credits: 6 Teaching languages: Spanish

Teaching staff

Coordinator: Joaquín BAUTISTA-VALHONDO

Others: Joaquín BAUTISTA-VALHONDO

Opening hours

Timetable:

Prior skills

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

Requirements

- Applied statistics: Theory of probability. Distribution laws. Combinatorial
- 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.

Generical:

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.

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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

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Content

title english	Learning time: 2h Theory classes: 2h
Description: content english	

title english	Learning time: 11h 36m Theory classes: 2h Self study : 9h 36m
Description: content english	

title english	Learning time: 17h 06m Theory classes: 2h 30m Practical classes: 2h 30m Laboratory classes: 2h 30m Self study : 9h 36m
Description: content english	

title english	Learning time: 17h 06m Theory classes: 2h 30m Practical classes: 2h 30m Laboratory classes: 2h 30m Self study : 9h 36m
Description: content english	

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title english	Learning time: 17h 06m Theory classes: 2h 30m Practical classes: 2h 30m Laboratory classes: 2h 30m Self study : 9h 36m
Description: content english	

title english	Learning time: 15h 36m Theory classes: 2h Practical classes: 2h Laboratory classes: 2h Self study : 9h 36m
Description: content english	

title english	Learning time: 16h 06m Theory classes: 2h 10m Practical classes: 2h 10m Laboratory classes: 2h 10m Self study : 9h 36m
Description: content english	

title english	Learning time: 17h 06m Theory classes: 2h 30m Practical classes: 2h 30m Laboratory classes: 2h 30m Self study : 9h 36m
Description: content english	

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title english	Learning time: 15h 36m Theory classes: 2h Practical classes: 2h Laboratory classes: 2h Self study : 9h 36m

Description:
content english

title english	Learning time: 17h 06m Theory classes: 2h 30m Practical classes: 2h 30m Laboratory classes: 2h 30m Self study : 9h 36m

Description:
content english

title english	Learning time: 6h 40m Theory classes: 2h Practical classes: 1h 30m Laboratory classes: 1h 30m Self study : 1h 40m

Description:
content english

title english	Learning time: 2h Theory classes: 2h

Description:
content english

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Bibliography

Basic:

Hillier, Frederick S; Gerald J. Lieberman. Introducción a la investigación de operaciones. 9ª ed. México, D.F.: McGraw-Hill, cop. 2010. ISBN 9786071503084.

Hammond, John S; Keeney, Ralph L; Raiffa, Howard. Decisiones inteligentes : guía práctica para tomar mejores decisiones. [2a ed]. Barcelona: Gestión 2000, cop. 2002. ISBN 8480887176.

Bierman, Harold; Bonini, Charles P; Hausman, Warren H. Análisis cuantitativo para la toma de decisiones. Wilmington, Del. [etc.]: Addison-Wesley Iberoamericana, cop. 1994. ISBN 0201601273.

Complementary:

Companys Pascual, Ramón. Programación dinámica. Barcelona: ETSEIB. CPDA, 2002. ISBN 8495355507.

Companys Pascual, Ramón. Teoría de la decisión : utilidad, decisión, juegos y multicriterio. [Barcelona]: CPDA-ETSEIB, 2004. ISBN 8495355833.

Others resources:

Hyperlink

http://www.prothius.com/docencia/?filtre=apunt&filtre2=MD&lang=es

Resource