UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: OPERATIONAL RESEARCH FOR BUSINESS

Type: ELECTIVE

Degree: 329 - UNDERGRADUATE DEGREE PROGRAMME IN BUSINESS MANAGEMENT AND ADMINISTRATION (TA)

Center: 15 - FACULTY OF SOCIAL SCIENCES AND INFORMATION TECHNOLOGIES

Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 54337

ECTS credits: 4.5

Academic year: 2023-24

Group(s): 60

Duration: First semester

Second language:

English Friendly: Y

Bilingual: N

Lecturer: ALVARO MARTINEZ PEREZ - Group(s): **60**

Building/Office	Department	Phone number	Email	Office hours
Despacho 2.9	ANÁLISIS ECONÓMICO Y FINANZAS	926051370	alvaro.martinezperez@uclm.es	First semester:Mondays from 10 to 11 and from 16 to 18 Tuesdays from 13 to 14 and from 16 to 18. 2º Semester: Thusrdays and Fridays from 10 to 12 and from 14 to 15.

2. Pre-Requisites

Having passed Mathematics for Business I and II

3. Justification in the curriculum, relation to other subjects and to the profession

Not established

4. Degree competences achieved in this course

Course competences

Code	Description
E07	Understand the economic environment as a result and application of theoretical or formal representations on how the economy works. To do so, it will be necessary to be able to understand and use common handbooks, as well as articles and, in general, leading edge bibliography in the core subjects of the curriculum.
E08	Ability to produce financial information, relevant to the decision-making process.
G01	Possession of the skills needed for continuous, self-led, independent learning, which will allow students to develop the learning abilities needed to undertake further study with a high degree of independence.
G03	Develop oral and written communication skills in order to prepare reports, research projects and business projects and defend them before any commission or group of professionals (specialised or non-specialised) in more than one language, by collecting relevant evidence and interpreting it appropriately so as to reach conclusions.
G04	Ability to use and develop information and communication technologies and to apply them to the corresponding business department by using specific programmes for these business areas.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Search for information in order to analyze it, interpret is meaning, synthesize it and communicate it to others.

Work out problems in creative and innovative ways.

Know the tools and methods for the quantitative analysis of the company and its environment, including models for business decision making as well as economic forecast models.

Know the analytical models and techniques of the economic and legal environment currently faced by enterprises, with special attention given to the search for opportunities and the anticipation of potential changes.

Additional outcomes

Being able to translate an optimization problem expressed in literal terms into mathematical language, identifying the most appropriate mathematical context for it. Being able to solve this problem, identifying the optimal solution, and issue a reasoned recommendation on the procedure to follow to achieve it.

6. Units / Contents

Unit 1: Introduction to Operations Research

Unit 2: Informatic Tools

Unit 3: Graph Theory

Unit 4: Game Theory

Unit 5: Probabilistic Methods

ADDITIONAL COMMENTS, REMARKS

The contents of this teaching guide have been agreed by the mathematics area and therefore are similar in every campus in the UCLM where this degree is offered.

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	E07 E08	0.7	17.5	N	-	Teaching the subject by lecturer (MAG)
Class Attendance (practical) [ON-SITE]	Project/Problem Based Learning (PBL)	E07 E08 G03 G04	0.6	15	N	-	Worked example problems and cases resolution by the lecturer and the students (PRO)
Writing of reports or projects [OFF-SITE]	Guided or supervised work	E07 E08 G01	0.5	12.5	Y	N	Small evaluable asignmentes or autonomous development problem resolution (EVA)
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	E07 E08 G03 G04	0.35	8.75	Y	N	Defense of individual asignments (EVA)
Writing of reports or projects [OFF-SITE]	Guided or supervised work	E07 E08 G01	0.2	5	Y	N	Group assignment carried out between 3 or 4 students. Study and development of a problem (EVA)
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	E07 E08 G03 G04	0.05	1.25	Y	N	Defense of the group asignment (EVA)
Study and Exam Preparation [OFF-SITE]	Self-study	E07 E08 G01	2	50	N	-	Self study (EST)
Final test [ON-SITE]	Assessment tests	E07 E08 G03 G04	0.1	2.5	Y	Y	Final test of the complete syllabus of the subject (EVA)
Total:			**4.5**	**112.5**			
Total credits of in-class work: 1.8				**Total class time hours: 45**			
Total credits of out of class work: 2.7				**Total hours of out of class work: 67.5**			

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Theoretical papers assessment	30.00%	0.00%	Study, development and defense of individual asignments.
Theoretical papers assessment	30.00%	0.00%	Study, development and defense of group asignments.
Final test	40.00%	100.00%	Final test of the whole syllabus.
Total:	**100.00%**	**100.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The final grade will consist of 40% of the grade obtained in the final test, 30% of the grade obtained in the preparation and defense of individual asignments and 30% of the grade obtained in the preparation. and defense of group group asignmets, as long as the exam grade is not less than 4.

If the final exam score is less than a 40%, the continous evaluation will not be considered and the final grade of the course will be the grade of the final exam.

Non-continuous evaluation:

The final exam will consist of the necessary tests (written or oral) to validate the competencies on the subject.

Specifications for the resit/retake exam:

Assessment test/s that represent 100% of the final grade for the subject. A 5 over 10 is required to pass the course.

Specifications for the second resit / retake exam:

It will be a final test which gives the 100% of the final grade.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	17.5
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	15
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	12.5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	8.75
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	1.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
Final test [PRESENCIAL][Assessment tests]	2.5

Global activity

Activities	hours

Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	15
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	12.5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	8.75
Class Attendance (theory) [PRESENCIAL][Lectures]	17.5
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	1.25
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
Final test [PRESENCIAL][Assessment tests]	2.5
Total horas:	112.5

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Diestel, R.	Graph theory.	Electronic Edition			2005	
Eppen, G.D. y otros	Investigación de operaciones en la ciencia administrativa.	Prentice Hall			2000	
Gibbons, A.	Un primer libro de teoría de juegos.	Antoni Bosch			2005	
Martín, Q.	Investigación Operativa	Prentice Hall			2003	
Mathu, K. y Solow, D.	Investigación de operaciones.	Prentice Hall			1996	
Rosa Barbolla, E.C.	Optimización: Programación matemática y aplicaciones a la economía.	Garceta			2010	
Taha, H.A.	Investigación de operaciones. Una introducción.	Prentice Hall			1997	