UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: INTRODUCTION TO GEOMETRY
Code: 38506
Type: BASIC
ECTS credits: 6
Degree: 423 - UNDERGRADUATE DEGREE IN MATHEMATICS
Academic year: 2023-24
Center: 603 - E.T.S. CIVIL ENGINEERS OF CR
Group(s): 20
Year: 1
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site: https://campusvirtual.uclm.es
Bilingual: N

Lecturer: **ERNESTO ARANDA ORTEGA** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico/2-A19	MATEMÁTICAS	926295457	ernesto.aranda@uclm.es	To ensure proper individualized student attention, the tutoring schedule will be arranged with the student via email.

2. Pre-Requisites

This subject covers very basic concepts that should have been addressed in primary and secondary education and only requires elementary mathematical skills.

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

Geometry is one of the fundamental knowledge that every Mathematics graduate should be familiar with. Its relevance cannot be underestimated for disciplines outside of Mathematics, such as Physics or the study of structures in continuous media, to name two well-known examples. In particular, the task of properly introducing students to the geometric study of spaces is of vital importance. At this more basic introductory level, the aim is to promote content, skills, and competencies directly related to intuition and spatial vision, which are often overlooked in previous studies. Building upon the tools of Linear Algebra, emphasis will be placed on fluency and dexterity in manipulating figures and basic transformations in the plane.

4. Degree competences achieved in this course

Course competences

Code	Description
INFO-2023	

5. Objectives or Learning Outcomes

Course learning outcomes

Description

6. Units / Contents

Unit 1: Euclid's Elements
Unit 2: Hilbert's foundations of Geometry
Unit 3: Similarity
Unit 4: Circles
Unit 5: Analitic Geometry
Unit 6: Triangle's Geometry
Unit 7: Area
Unit 8: Transformations
Unit 9: Inversion

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]	Combination of methods	INFO-2023	1.58	39.5	N	-	
Problem solving and/or case studies [ON-SITE]	Combination of methods	INFO-2023	0.4	10	N	-	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	INFO-2023	0.1	2.5	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	INFO-2023	3.6	90	N	-	
Final test [ON-SITE]	Assessment tests	INFO-2023	0.12	3	Y	Y	
Progress test [ON-SITE]	Problem solving and exercises	INFO-2023	0.2	5	Y	N	

Total:	**6**	**150**	
Total credits of in-class work: 2.4			**Total class time hours: 60**
Total credits of out of class work: 3.6			**Total hours of out of class work: 90**

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
Final test	70.00%	90.00%	
Progress Tests	20.00%	0.00%	
Laboratory sessions	10.00%	10.00%	
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).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Class Attendance (theory) [PRESENCIAL][Combination of methods]	42.5
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	15
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90

Global activity

Activities	**hours**
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	2.5
Class Attendance (theory) [PRESENCIAL][Combination of methods]	42.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	15
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
M.J. Greenberg	Euclidean and non-Euclidean geometries	W.H. Freeman and Company		978-0-7167-9948-0	2008	
G.A. Venema	Exploring Advance Euclidean Geometry with GeoGebra	The Mathematical Association of America		978-0-88385-784-7	2013	
L.S. Shively	Introduction to modern Geometry	Wiley			1984	
B.E. Reynolds, W.E. Fenton	College Geometry: using the geometer's sketchpad	Wiley		978-'-470-53493-9	2012	
D. Pedoe	Geometry: a comprehensive course	Dover Publications		978-0-486-65812-4	1970	
R. Rusczyk	The art of Problem Solving: Introdution to Geometry	AoPS Incorporated		978-1-934124-08-6	2015	
Walter Meyer	Geometry and its applications	Elsevier Academic Press		978-0-12-369427-0	2006	
M. Hvidsten	Exploring Geometry	CRC Press. Taylor & Francis Group		978-1-4987-6080-5	2017	
E.E. Moise, F. Downs	Geometría moderna	Addison-Wesley Iberoamericana		968-50-0017-4	1986	
R. Hartshorne	Geometry: Euclid and Beyond	Springer		978-1-4419-3145-0	2000	
G.A. Venema	Foundations of Geometry	Pearson		978-0-13-602058-5	2012	
L.J. Hernández Paricio, E.M. Letkova, M.T. Rivas Rodríguez	Geometría plana neutral	Universidad de la Rioja		978-84-09-30139-3	2021	
I.E. Leonard, J.E. Lewis, A.C.F. Liu, G.W. Tokarsky	Classical Geometry: Euclidean, transformational, inversive, and projective	Wiley		978-1-118-67919-7	2014	