UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: STRUCTURAL AND MACHINERY ENGINEERING
Code: 310624
Type: CORE COURSE
ECTS credits: 6
Degree: 2328 - MASTERS DEGREE PROGRAMME IN INDUSTRIAL ENGINEERING
Academic year: 2019-20
Center: 605 - SCHOOL OF INDUSTRIAL ENGINEERS. AB
Group(s): 10 20 21
Year: 1
Duration: C2
Main language: Spanish
Second language: English
Use of additional languages:
English Friendly: N
Web site:
Bilingual: Y

Lecturer: **MIGUEL ANGEL CAMINERO TORIJA** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Politécnico/2-A03 (Coordinador)	MECÁNICA ADA. E ING. PROYECTOS	926052664	miguelangel.caminero@uclm.es	Presencial: se publicará al comienzo del semestre. Telemática: permanente en campus virtual (Plataforma Moodle) y en la dirección de mail: miguelangel.caminero@uclm.es

Lecturer: **ANGEL LUIS MORALES ROBREDO** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Politécnico / 2-A12	MECÁNICA ADA. E ING. PROYECTOS	926051995	angelluis.morales@uclm.es	A determinar al comienzo del curso

2. Pre-Requisites

Not established

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
A01	To have appropriate knowledge of the scientific and technological aspects of mathematical, analytical and numerical methods in engineering, electrical engineering, energy engineering, chemical engineering, mechanical engineering, continuous medium mechanics industrial electronics, automation, manufacturing, materials, quantitative management methods, industrial computing, town planning, infrastructures, etc.
A02	To plan, calculate and design products, processes, facilities and plants.
A12	Knowledge, understanding and capacity to apply the required legislation in the industrial engineering profession
B03	Capacity to design and test machines.
CB06	Knowledge and skills to organise and manage enterprises.
CB07	Strategy and planning knowledge and skills applied to different organisational structures.
CB08	Knowledge of commercial and labour law.
CB09	Knowledge of financial and costs accounting.
CB10	Knowledge of information systems for management, industrial organisation, production, logistics and quality management systems.
D01	Ability to design, construct and exploit industrial plants.
D02	Knowledge of construction, building, installations, infrastructures and urban planning in the scope of industrial engineering.
D03	Knowledge for the calculation and design of structures.
D04	Knowledge and abilities to plan and design electrical and fluid installations, lighting, heating and ventilation, energy saving and efficiency, acoustics, communications, domotics, Smart buildings and security installations.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Study, mainly by means of numerical methods, different structural elements, how they work and are calculated. They will study structures made of metal, reinforced concrete, new materials and compound materials, in static and dynamic conditions. These elements are integrated in such a way that the student will be able to analyse a complete structural complex.

Design and calculate structures in the field of industrial engineering.

Acquire the knowledge needed to perform a dynamic study of machines and mechanisms, determining the loads on the different structural components: external loads, inertial load and kinematic pair reaction load.

6. Units / Contents

Unit 1:

Unit 2:

Unit 3:
Unit 4:
Unit 5:
Unit 6:
Unit 7:
Unit 8:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Lectures	A01 A02 A12 B03 D01 D02 D03	1	25	N	-	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	A01 A02 A12 B03 D01 D02 D03	0.4	10	N	-	-	
Final test [ON-SITE]	Assessment tests	A01 A02 A12 B03 CB07 CB08 D01 D02 D03	0.2	5	Y	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	A01 A02 A12 B03 D01 D02 D03	3.6	90	N	-	-	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	A01 A02 A12 B03 D01 D02 D03	0.4	10	Y	N	N	
Workshops or seminars [ON-SITE]	Workshops and Seminars	A01 A02 A12 B03 D01 D02 D03	0.2	5	Y	N	N	
Individual tutoring sessions [ON-SITE]	Other Methodologies	A01 A02 A12 B03 D01 D02 D03	0.2	5	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
R: Rescheduling training activity

8. Evaluation criteria and Grading System

	Grading System		
Evaluation System	**Face-to-Face**	**Self-Study Student**	**Description**
Final test	70.00%	0.00%	
Theoretical papers assessment	30.00%	0.00%	
Total:	**100.00%**	**0.00%**	

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours **hours**

Unit 1 (de 8):

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	.75
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.5

Unit 2 (de 8):

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	16
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	.75
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.5

Unit 3 (de 8):

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	.75
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.5

Unit 4 (de 8):

Activities	**Hours**

Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	.75
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.5
Unit 5 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.5
Unit 6 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.75
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.75
Unit 7 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	.75
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	.75
Unit 8 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Final test [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	1
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	1
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	1
Global activity	
Activities	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Final test [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	10
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	5
Individual tutoring sessions [PRESENCIAL][Other Methodologies]	5
	Total horas: 150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
E. Alarcon	Calculo Matricial de Estructuras	Reverte				
Erdman, A. G.	Mechanism Design: Analysis and Synthesis, Vol. I	Prentice-Hall			1997	
Mabie, Hamilton H.	Mecanismos y dinámica de maquinaria	Limusa Wiley		978-968-18-4567-4	2007	
Pintado, P.	Teoría de Máquinas	UCLM			1999	
R. Arguelles Alvarez	Estructuras de acero	Bellisco		84-95279-97-5	2005	
Shames, Irving H.	Mecánica para ingenieros : dinámica	Prentice Hall		84-8322-045-8	1999	
Shames, Irving H.	Mecánica para ingenieros: estática	Prentice Hall		84-8322-044-X	2001	