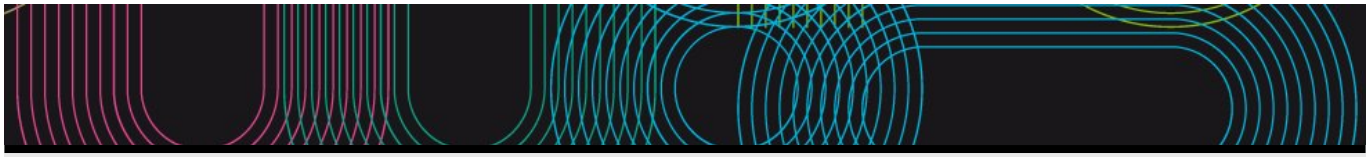

IDENTIFYING DATA				
Machine Calculation				
Subject	Machine Calculation			
Code	V04M141V01114			
Study programme	(*)Máster Universitario en Enxeñaría Industrial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Mandatory	1st	1st
Teaching language	English			
Department				
Coordinator	Casarejos Ruiz, Enrique			
Lecturers	Casarejos Ruiz, Enrique Segade Robleda, Abraham			
E-mail	e.casarejos@uvigo.es			
Web	http://faitic.uvigo.es			
General description	Classical and numerical calculation of Mechanical Elements			

Competencies	
Code	
C14	CTI3. Ability to design and test machines.
D9	ABET-i. A recognition of the need for, and an ability to engage in life-long learning.

Learning outcomes	
Expected results from this subject	Training and Learning Results
- Know the most common components of the machines and his use. - Know calculate the elements more commonly used in machines. - Know the general appearances of the construction and calculation of machines.	C14 D9

Contents	
Topic	
Presentation of the matter	# Introduction # Syllabus
Shafts	- Definition of the element - theoretical Calculation and selection - Software of calculation
Gears and bearings	- Definition of the element - theoretical Calculation and selection - Software of calculation
Belts, chains and springs. Lead screws.	- Definition of the element - theoretical Calculation and selection - Software of calculation
Joints: - shat-hub and tolerances - screws	- Definition of the element - theoretical Calculation and selection - Software of calculation
Introduction to FEM	# Calculation FEM
Analysis FEM	# Definition of a FEM case

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Master Session	5	0	5
Case studies / analysis of situations	4	0	4
Practice in computer rooms	5	0	5
Troubleshooting and / or exercises	5	0	5
Group tutoring	2	0	2
Troubleshooting and / or exercises	0	18	18
Practical tests, real task execution and / or simulated.	2	0	2
Jobs and projects	0	33	33

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Introductory activities	Review of previous contents of design / calculation of machines
Master Session	Presentation of syllabus
Case studies / analysis of situations	Presentation of particular cases.
Practice in computer rooms	Dedicated computer programs
Troubleshooting and / or exercises	Resolution of exercises
Group tutoring	Resolution of doubts of development of works and projects.

Personalized attention

Methodologies	**Description**
Practice in computer rooms	Personalised attention to solve the doubts arisen in the practices in classrooms of computing.
Tests	**Description**
Troubleshooting and / or exercises	Personalised attention for the resolution of problems and/or exercises proposed.
Jobs and projects	Personalised attention to solve the doubts arisen developing of the works and projects

Assessment

	Description	Qualification	Training and Learning Results	
Troubleshooting and / or exercises	Resolution of exercises and problems, by means of analytical calculation and/or by means of the use of software of calculation	50	C14	D9
Practical tests, real task execution and / or simulated.	Resolution and presentation of problems (examination **)	20	C14	D9
Jobs and projects	Resolution of a realistic case proposed by means of the use of technicians of design, analysis and simulation.	30	C14	D9

Other comments on the Evaluation

The continuous evaluation will be done considering both the regular exercises to be given back and the project. The quota of the exam will pass to the project.

In anyone refuses (officially) to the continuous evaluation, the examination for the evaluation will be done together with the project proposed, and the distribution of the evaluation will be of 50% for the examination.
It is expected an adequate ethical behaviour of the student. In case of detecting unethical behaviour (copying, plagiarism, unauthorized use of electronic devices, etc.) shall be deemed that the student does not meet the requirements for passing the subject. In this case, the overall rating in the current academic year will be Fail (0.0).
The use of any electronic device for the assessment tests is not allowed unless explicitly authorized. The fact of introducing unauthorized electronic device in the examination room will be considered reason for not passing the subject in the current academic year and will hold overall rating (0.0).

Sources of information

Norton, R., Diseño de Máquinas, Pearson, 2012

Shigley, J.E., Diseño en Ingeniería Mecánica, McGraw-Hill, 2008

Mott, Robert L., Diseño de elementos de máquinas, Pearson, 2006

ANSYS, documentation under licence

Recommendations