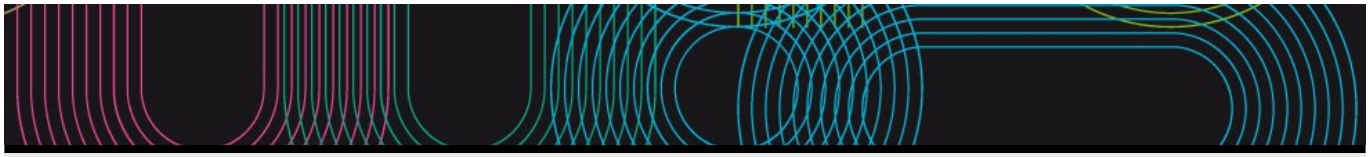

IDENTIFYING DATA				
Systems for data analysis, simulation and validation				
Subject	Systems for data analysis, simulation and validation			
Code	V12G380V01933			
Study programme	Grado en Ingeniería Mecánica			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	Spanish			
Department				
Coordinator	Suárez Eiroa, David			
Lecturers	Suárez Eiroa, David			
E-mail	dsuarez@uvigo.es			
Web	http://moovi.uvigo.gal/			
General description	Design, calculation and analysis of elements of machines			

Skills	
Code	
B1	CG1 Skills for writing, signing and developing projects in the field of industrial engineering, whose purpose, specializing in Mechanics, construction, alteration, repair, maintenance, demolition, manufacturing, installation, assembly or operation of: structures, mechanical equipments, energy facilities, electrical systems and electronic installations and industrial plants, and manufacturing processes and automation.
B3	CG3 Knowledge in basic and technological subjects that will enable students to learn new methods and theories, and provide them the versatility to adapt to new situations.
B4	CG4 Ability to solve problems with initiative, decision making, creativity, critical thinking and the ability to communicate and transmit knowledge and skills in the field of industrial engineering in Mechanical specialty.
C19	CE19 Knowledge and skills to apply the techniques of engineering graphics.
C20	CE20 Knowledge and abilities to calculate, design and test machines.
D2	CT2 Problems resolution.
D9	CT9 Apply knowledge.
D10	CT10 Self learning and work.
D17	CT17 Working as a team.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
Know and apply the computational technicians of simulation to the mechanical design.	B1	C19	D2
Know and apply the computational technicians for the classical calculation of design of machines.	B3	C20	D9
Know and apply the computational technicians of numerical analysis in the design of machines.	B4		D10 D17

Contents	
Topic	
Presentation of the subject	-Introduction to the matter, planning and evaluation -Previous knowledges: design of machines; theory of mechanisms; materials
Gears	- Definition and context - Theoretical calculation and selection - Software of calculation

Axes and shafts	- Definition and context - Theoretical calculation and selection - Software of calculation
Bearings	- Definition and context - Theoretical calculation and selection - Software of calculation
Tolerances of elements of machine	-Dimensional and geometrical tolerances -Interpretation of manufacturing and assembly drawgins
Unions between elements of machine	-Bolted unions -Shaft-Cube unions -Welding unions
Advanced design and integration in engineering	-Pneumatic systems: linear, totative and vacuum -Design and import of elements of machine -Module of metalsheet and welding -Calculation of pieces and assemblies

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	14.5	10	24.5
Problem and/or exercise solving	4	10	14
Laboratory practice	30	40	70
Project	1.5	40	41.5

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

Methodologies

	Description
Lecturing	Exhibition of subjects of the subject

Personalized assistance

Tests	Description
Problem and/or exercise solving	Personalised attention to the *alumn@ for the resolution of problems and/or exercisesproposed.
Project	Personalised attention to the *alumn@ to solve the doubts arisen developingof the works and projects

Assessment

	Description	Qualification	Training and Learning Results		
Problem and/or exercise solving	Resolution of exercises and theoretical short questions and of reasoning	40	B1 B3 B4	C19 C20	D2 D9 D10
Laboratory practice	Questions about the exercises made in the practices of laboratory	20	B3 B4	C19 C20	D2 D9 D10 D17
Project	Resolution of a realistic case proposed.	40	B4		D2 D9 D10 D17

Other comments on the Evaluation

The subject will approve if it obtains an equal qualification or elder that a 5 like final note. For this 40% of the note corresponds with the resolution of exercises and answers to short questions of the contents of theory and practical; 20% achieves from the exercises made in practices of laboratory; 40% will come of a project proposed to make during the semester.In any case is necessary to obtain 30% in each one of the three sections exposed previously to approve the subject.

Ethical commitment: it expects that the present student a suitable ethical behaviour. In the case to detect a no ethical behaviour (copy, plagiarism, utilisation of unauthorised electronic devices, and others) considers that the student does not gather the necessary requirements to surpass the matter. In this case the global qualification in the current academic course will be of suspense (0.0).

Will not allow the utilisation of any electronic device during the proofs of evaluation except permission expresses. The fact to enter an unauthorised electronic device in the classroom of examination will be considered reason of no *superación of the matter in the present academic course and the global qualification will be of suspense (0.0).

Sources of information

Basic Bibliography

varios autores, **Diseño en Ingeniería Mecánica de Shigley**, 0, McGraw-Hill, 0

Complementary Bibliography

Norton, R., **Diseño de Máquinas**, Pearson, 2000
Mott, R.L., **Diseño de elementos de máquinas**, 0, Pearson, 2006
Larburu, N., **Máquinas prontuario. Técnicas, máquinas, herramientas**, Paraninfo, 1989

Recommendations

Subjects that it is recommended to have taken before

Resistance of materials/V12G380V01402
Mechanism and machine theory/V12G380V01306
Machine design I/V12G380V01304

Other comments

The students that want to *cursar these two subjects will have to show sufficient basic knowledges of the reality of the engineering of machines.

Said sufficiency will consider achieved having worked the contents of the following matters:

- Resistance of materials
- Theory of machines and mechanisms
Design of machines I

Therefore it would be recommended to have *cursado said matters of previous form in the inferior courses to take advantage of the matter with guarantees.

In case of discrepancies will prevail the version in Spanish of this guide.

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===
* educational Methodologies that keep and modify
In the case to be necessary, would use mechanisms of virtual classroom to carry out theoretical and practical classes. Once it have taken the dynamics of classes and work, to measure that advances the course the students would have capacity to make the tasks of a more independent form.

* Mechanism no face-to-face of attention to the students (*tutorías)
would use email and in case of not being sufficient, would proceed to use some system of on-line communication to way meeting.

* Modifications (if they proceed) of the contents to give
The contents will keep independently of the situation.

=== ADAPTATION OF THE EVALUATION ===
The proofs will keep of the same form that the course was face-to-face or no face-to-face, since it would not see affected to

the hour to make the evaluation.

=== ANOTHER INFORMATION ===
estimates an average of some 30 students in the subject taking into account data of previous years.
In the case of the sessions of classroom, is used to to assist 70% of the students, by which these could exert respecting the distances of security in the classroom assigned to the subject of face-to-face form. Anyway and to be necessary, the teaching of hours of theory could make of form no face-to-face to measure that goes advancing the course; once explained the dynamics of classes could happen to work by means of virtual classrooms.
In the case of the classes of laboratory alternate weeks of one and two practices so that they complete the 15 sessions. When being two subgroups from theory, is used to to have an average of 10-12 people in the Classroom of Computer-4 or in the Laboratory of Mechanical Engineering, by what equally could keep the distances of security, although have of the classroom of theory to do the practices also would be an option that would solve the subject. Of equal way, if they do the first practices of face-to-face form so that the students familiarise with the software to use and take *soltura, could pose the rest of the practices of form no face-to-face. Said this:
-The *presencialidad in the classes of laboratory goes to suppose an elder *aprovechamiento of the matter by part of the students, since it will be easier to solve the doubts that arise during his work and *interactuar in discussions of classroom about obtained and possible results alternative.
-They pose in the first weeks those sessions that require of more work by part of the professor, and to the end those sessions that require of a more autonomous work by part of the student.
-They have *intercalado with the theory so that they would give the 15 practices between the weeks 2 and 11 (week 1 hardly contained to explain the matter and system of work) and therefore #finish with two weeks of *antelación.
-The students need licences of software to be able to do the project and work from house or from the classroom of theory in case to move the practices to the classroom.