



## Teaching Guide

Identifying Data					2022/23
<b>Subject (*)</b>	Physics of Soft Matter, Interfaces		<b>Code</b>	730495013	
<b>Study programme</b>	Mestrado Universitario en Materiais Complexos: Análise Térmica e Reoloxía (plan 2012)				
Descriptors					
<b>Cycle</b>	<b>Period</b>	<b>Year</b>	<b>Type</b>	<b>Credits</b>	
Official Master's Degree	1st four-month period	First	Obligatory	3	
<b>Language</b>	English				
<b>Teaching method</b>	Face-to-face				
<b>Prerequisites</b>					
<b>Department</b>	Enxeñaría Naval e Industrial				
<b>Coordinador</b>	López Beceiro, Jorge José	<b>E-mail</b>	jorge.lopez.beceiro@udc.es		
<b>Lecturers</b>	Buhler , Eric López Beceiro, Jorge José	<b>E-mail</b>	eric.buhler@univ-paris-diderot.fr jorge.lopez.beceiro@udc.es		
<b>Web</b>					
<b>General description</b>	This course introduces the fundamental concepts of colloids and interfaces of science by covering the central aspects of the basic concepts for the understanding of structural phenomena and adhesion in complex fluids.				

## Study programme competences

Code	Study programme competences
A1	Set up and conduct tests using the techniques of thermal analysis and rheology most appropriate in each case, within the scope of complex materials
A2	Identify and evaluate the different types of complex materials
A3	Knowing the different types of thermal and rheological behaviors of the materials
A5	Understanding the relationships between structure and properties of materials
B1	Knowledge and understanding to provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context
B2	The students have the skill to apply their knowledge and their ability to solve problems in new or unfamiliar contexts within broader (or multidisciplinary) contexts related to their field of study
B4	That the students can communicate their conclusions and the knowledge and last reasons behind that conclusions to specialized and non specialized audience in a clear and unambiguous way
B8	Applying a critical, logical and creative way of thinking
B9	To work autonomously with initiative
B12	Communicate effectively in the work environment
B13	Analysis-oriented attitude
B21	To assess the importance of research, innovation and technological developments in the socio-economic and cultural progress of society
C2	Have a good command of spoken and writing expression and understanding of a foreign language.
C6	Critically assessing the knowledge, technology and information available to solve the problems they face with.
C7	To assume as a professional and citizen the importance of learning throughout life.
C8	To assess the importance of research, innovation and technological development in the socio-economic and cultural progress of society.

## Learning outcomes

Learning outcomes	Study programme competences



To know and understand both theoretical and practical aspects related to soft matter. Acquire knowledge of fundamental concepts related to colloids and interfaces physics and physical chemistry of complex fluids. Understanding the various structural phenomena in complex fluids.	AR1	BR1	CR2
	AR2	BR2	CR6
	AR3	BR4	CR7
	AR5	BR8	CR8
		BR9	
		BR12	
		BR13	
		BR21	

Contents	
Topic	Sub-topic
Intermolecular interactions and forces at the molecular level	
Surfactants, micelles, emulsions, membranes	
Effects resulting from interactions	

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A3 A5 B1 B2 B21 C6	9	15	24
Laboratory practice	A1 A2 B8 B9 B13 C7 C8	15	5	20
Supervised projects	B4 B9 B12 B13 B21 C2	5	25	30
Personalized attention		1	0	1

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

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Presentation given by the professor, on a schematic basis, focusing on the main topics, covering both theoretical and practical issues.
Laboratory practice	Performance of practical activities such as demonstrations, exercises, experiments, etc..
Supervised projects	Activities whose purpose is that the students enlarge the study of the topics presented in the program and consolidate their acquired knowledge and capabilities. These activities should also help the students learn and improve their capabilities in literature survey.

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech	The personalized attention to students, understood as a support in the teaching-learning process, will take place in the hours of tutoring of the professor.  No academic dispensation is accepted.

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A3 A5 B1 B2 B21 C6	Examination or objective test.	50
Laboratory practice	A1 A2 B8 B9 B13 C7 C8	Continuous assessment through monitoring of student work in the classroom, laboratory and / or tutorials	20



Supervised projects	B4 B9 B12 B13 B21 C2	Presentation (oral and written) of the supervised work.	30
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#### Assessment comments

No academic dispensation is accepted.

The evaluation criteria for the second opportunity and the extraordinary opportunity are the same as for the first opportunity.

#### Sources of information

<b>Basic</b>	Apuntes e documentación facilitada en clase ou a través do correo electrónico.
<b>Complementary</b>	<ul style="list-style-type: none"><li>- Jacob Israelachvili (2011). Intermolecular and Surface Forces. Academic Press</li><li>- Arthur W. Adamson, Alice P. Gast (1997). Physical chemistry of surfaces. Wiley, New York</li><li>- David Chandler (1987). - Introduction to Modern Statistical Mechanics . Oxford University Press, USA</li><li>- D. Tabor (1991). Gases, Liquids and Solids and Other States of Matter. Cambridge University Press</li></ul>

#### Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

#### Other comments

To help achieve a sustained immediate environment and meet the objective of action number 5: "Healthy and sustainable environmental and social teaching and research" of the "Green Campus Ferrol Action Plan: The delivery of the documentary work carried out in this subject: They will be requested in virtual format and/or computer support. It will be done through Moodle, in digital format without the need to print them. If it is necessary to make them on paper: Plastics shall not be used. Double-sided printing shall be carried out. Recycled paper will be used. Printing of drafts shall be avoided. - A sustainable use of resources and the prevention of negative impacts on the natural environment must be made. - It will work to identify and change gender biases and attitudes, and influence the environment to change them and promote values of respect and equality. - Situations of discrimination should be identified and actions and measures proposed to correct them.

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.