UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2023/24
Subject (*)	Physical-chemistry of polymers		Code	730495011
Study programme	Mestrado Universitario en Materiais Complexos: Análise Térmica e Reoloxía (plan 2012)			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	1st four-month period	First	Obligatory	3
Language	English			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Naval e Industrial			
Coordinador	López Beceiro, Jorge José	E-mail	jorge.lopez.beceiro@udc.es	
Lecturers	Mammeri , Fayna Piro , B.	E-mail	fayna.mammeri@univ-paris-diderot.fr piro@univ-paris-diderot.fr	
Web				
General description	This course is an introduction to the science of polymers and provides an overview of characterization, structure and properties of polymers. It is illustrated by examples of applications of polymers.			

Study programme competences / results	
Code	Study programme competences / results
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
B12	Communicate effectively in the work environment
B13	Analysis-oriented attitude
B14	Ability to find and manage the information
B18	Ability for abstraction, understanding and simplification of complex problems
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.
C4	Developing for the exercise of an open, educated, critical, committed, democratic and solidary citicenship, able to analyze reality, diagnose problems, formulate and implement solutions based on knowledge and oriented to the common good.
C6	Critically assessing the knowledge, technology and information available to solve the problems they face with.
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 / results

This course is designed as an introduction to the basic science of polymers and provides an overview of characterization, structure and properties of polymers. The course offers an introduction to the science underlying the synthesis and characterization of polymer morphology polymers, and information about their structures and properties. The course also illustrates some examples of applications of polymers.	AR5	BR1 BR2 BR4 BR8 BR12 BR13 BR14 BR18 BR21	CR2 CR4 CR6 CR8

Contents	
Topic	**Sub-topic**
1. Physicochemical fundamentals of polymers	Physicochemical of polymers
2. Synthesis and characterization of polymers	- Polymer synthesis: stepwise polymerization and PCR - Structure: chain conformations, amorphous polymers and semicrystalline polymers morphology - Molecular weight measurement)
3. Introduction to polymer processing	- Polymer processing techniques
4. Mechanical and rheological properties	- behavioral stress / strain - viscoelasticity - nonlinear mechanical behavior and rheological.

Planning				
Methodologies / tests	**Competencies / Results**	**Teaching hours (in-person & virtual)**	**Student?s personal work hours**	**Total hours**
Guest lecture / keynote speech	A5 B1 B2 B12 B13 B18	11	10	21
Laboratory practice	B8 B14 B21 C4 C6 C8	15	5	20
Objective test	A5 B1 B2 B4 B8 B12 B13 B18 B21 C2 C8	1	2	3
Supervised projects	B2 B4 B14 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..
Objective test	examination, objective assessment test
Supervised projects	Activities whose purpose is that the students enlarge the study of the topics pesented 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 Laboratory practice Supervised projects Objective test	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 / Results	Description	Qualification
Laboratory practice	B8 B14 B21 C4 C6 C8	Continuous assessment through monitoring of student work in the classroom, laboratory and / or tutorials.	20
Supervised projects	B2 B4 B14 B21 C2	Presentation (oral and written) of the supervised work.	30
Objective test	A5 B1 B2 B4 B8 B12 B13 B18 B21 C2 C8	examination, objective assessment test	50

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. The fraudulent completion of exams or evaluation activities, once confirmed, will directly result in a failing grade in the session in which it occurs: the student will be awarded a 'fail' (numerical grade of 0) in the corresponding academic year session, whether the offense is committed during the first opportunity or the second. To this end, their grade will be modified in the first opportunity transcript, if necessary.

Sources of information	
Basic	Notes and documentation provided in class or via email.Notes and documentation provided in class or via email.
Complementary	

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 supportIt 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 usedDouble-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.