UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2017/18
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	Obligatoria	3
Language	English			
Teaching method	Face-to-face			
Prerequisites				
Department				
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	
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	
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	15	10	25
Laboratory practice	B8 B14 B21 C4 C6 C8	15	5	20
Supervised projects	B2 B4 B14 B21 C2	5	25	30
Personalized attention		0		0
(*)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 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	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.

Assessment

Methodologies	Competencies / Results	Description	Qualification
Guest lecture / keynote speech	A5 B1 B2 B12 B13 B18	Examination or objective test.	50
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

Assessment comments

Sources of information	
Basic	
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

(*)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.