



IDENTIFYING DATA

Quality Control of Materials

Subject	Quality Control of Materials			
Code	V09G310V01634			
Study programme	(*)Grao en Enxeñaría dos Recursos Mineiros e Enerxéticos			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish			
Department				
Coordinator	Cabeza Simo, Marta María			
Lecturers	Cabeza Simo, Marta María Iglesias Rodríguez, Fernando			
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General description	Failure of engineering materials; creep, fatigue, corrosion and other environmental degradation processes. Prevention of service failures. Prevention of the failure in service. Standards They study also the controls necessary to the materials employed in the distinct fields of Construction or of Industrial and Energetic Plants (refineries, wind, nuclear). Projects key in hand that have to fit to certification of quality and security.			

Competencies

Code	
A53	(*)CERECE10 Control da calidade dos materiais empregados
B1	(*)CG1 Capacidade de interrelacionar todos os coñecementos adquiridos, interpretándoos como compoñentes dun corpo do saber cunha estrutura clara e unha forte coherencia interna.
B3	(*)CG3 Propoñer e desenvolver solucións prácticas, utilizando os coñecementos teóricos, a fenómenos e situacións-problema da realidade cotiá propios da enxeñaría, desenvolvendo as estratexias adecuadas.
B5	(*)CG5 Coñecer as fontes necesarias para dispoñer dunha actualización permanente e continua de toda a información precisa para desenvolver o seu labor, accedendo a todas as ferramentas, actuais e futuras, de busca de información e adaptándose aos cambios tecnolóxicos e sociais.
B6	(*)CG6 Coñecer e manexar a lexislación aplicable ao sector, coñecer o medio social e empresarial e saber relacionarse coa administración competente integrando este coñecemento na elaboración de proxectos de enxeñaría e no desenvolvemento de calquera dos aspectos do seu labor profesional.
B7	(*)CG7 Capacidade para organizar, interpretar, assimilar, elaborar e xestionar toda a información necesaria para desenvolver o seu labor, manexando as ferramentas informáticas, matemáticas, físicas, etc. necesarias para iso.
B10	(*)CG10 Tomar conciencia da necesidade dunha formación e mellora continua de calidade, desenvolvendo valores propios da dinámica do pensamento científico, mostrando unha actitude flexible, aberta e ética ante opinións ou situacións diversas, en particular en materia de non discriminación por sexo, raza ou relixión, respecto aos dereitos fundamentais, accesibilidade, etc.

Learning aims

Expected results from this subject	Training and Learning Results
(*)	A53
(*)	B1
(*)	B3
(*)	B5
(*)	B6
(*)	B7
(*)	B10

Contents	
Topic	
Introduction	Control of quality. Importance of the control of quality in material (metallic, ceramic, composed, polymeric) in the industry related with the energetic resources. Rules. Standards and Procedures
Destructive testing	Metallography. Mechanical tensting. Toughness, Fracture. Creep, Fatigue. Standards.
Non destructive Testing	Metallic materials. Units of Concrete. Standards
Welding	Metallic unions. Testing and control of quality. Standards
Corrosion	Alta and low temperature. Types of corrosion, Normative associated.

Planning			
	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Laboratory practises	10	10	20
Master Session	15	19	34
Troubleshooting and / or exercises	20	10	30
Autonomous practices through ICT	0	5	5
Autonomous troubleshooting and / or exercises	0	20	20
Outdoor study / field practices	5	2.5	7.5
Integrated methodologies	4	18.5	22.5
Short answer tests	1	4	5
Troubleshooting and / or exercises	2	3	5

*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	- Description of the subject and its importance in the degree. - Syllabus. - Methodology - Evaluation System - Review of the Subject Guide with the students.
Laboratory practises	In the laboratory the student will do some testing under standards. We will evaluate the capacity of result discussion.
Master Session	Explanation of each topic. Peer instruction during the master class. 2 examinations during the course.
Troubleshooting and / or exercises	Resolution in class of distinct types of exercises related with the subjects. It will evaluate the participation.
Autonomous practices through ICT	Participation in the distinct forums that propose of each subject and in the questionnaires related.
Autonomous troubleshooting and / or exercises	Realisation of individual exercises and in group that will evaluate.
Outdoor study / field practices	Visits to Centres: Testing of materials in Galicia
Integrated methodologies	Realisation of a project in groups in which they will realise a page WEB. The WEB will accumulate information on the several energetic industries and his controls of quality.

Personalized attention	
Methodologies	Description
Integrated methodologies	By email or at the desk: Look the professor schedule for the tuition.
Autonomous troubleshooting and / or exercises	By email or at the desk: Look the professor schedule for the tuition.

Assessment		
	Description	Qualification
Laboratory practises	Report of the testing work at the laboratory.	20
Master Session	2 test (5% each)	10
Troubleshooting and / or exercises	We will collect exercises to correct in each session. We will evaluate and they will give back (5%)	5

Autonomous troubleshooting and / or exercises	Evaluation of autonomous exercises.	5
Outdoor study / field practices	Report of the visit	2
Integrated methodologies	It will evaluate the WEB realised by each group in function of some parameters. Besides each member will value to his mates.	15
Short answer tests	Date of examination an examination of short questions that will value all the knowledges	28
Troubleshooting and / or exercises	Problems related the exercices done during the course.	15

Other comments on the Evaluation

The continuous evaluation does not save and in the second edition in July will proceed to realise an examination in two parts: theory and problems. Each part 50%.

For the continuous evaluation it is necessary to deliver 90% of the activities

The date consults in the Pagina WEB

Sources of information

ASTME INTERNATIONAL, **Standards WorldWide**,
Zhan S. Li L., Kumar A., **Materials Characterización Techniques**, 3,
Pyzdek T, Berger R.W., **Manual de Control de Calidad en Ingeniería**, 1,
AENOR, **Normas UNE**,
Ashby, Jones, **Materiales para la Ingeniería**, 1,
INTA, **Introducción a los métodos de Ensayos no Destuctivos**, 2,

Recommendations

Subjects that are recommended to be taken simultaneously

(*)Operaci3n b3sicas e procesos de refinado, petroqu3micos e carboqu3micos/V09G310V01532
Electrical Technology/V09G310V01531

Subjects that it is recommended to have taken before

Physics: Physics I/V09G310V01102
Physics: Physics II/V09G310V01202
(*)Xeolox3a: Xeolox3a/V09G310V01205
Informatics: Statistics/V09G310V01203
Material Technology/V09G310V01303
Ore Concentration (Mining) Ver si corresponde a Miner3a o al Directorio de Tesis Doctorales (Concentraci3n de Mena)/V09G310V01511