

IDENTIFYING DATA				
Ornamental and industrial rocks				
Subject	Ornamental and industrial rocks			
Code	V09G310V01611			
Study programme	(*)Grao en Enxeñaría dos Recursos Mineiros e Enerxéticos			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	Giráldez Pérez, Eduardo			
Lecturers	Giráldez Pérez, Eduardo			
E-mail	egiraldez@uvigo.es			
Web	http://faitic.uvigo.es/			
General description	In this subject intends that the student know the technological base envelope the one who support the most recent investigations in the sector of the arid, cements, concretes, asphalt mixtures, ornamental rocks and other industrial rocks. The knowledges to purchase in this subject go to center in comprising the basic aspects of the exploitation of arid and rocks *ornamentais, as well as the process of *machaqueo of arid, and the so much experimental techniques how at present available stop the start and manufacture of rocks *ornamentais. Also it intends to make known the main industrial minerals and his processes of production, as well as the basic aspects of the design, operation and maintenance of the plants of manufacture of cements, concretes and *aglomerados *asfálticos. All these aspects will treat inside the context of the his *afección to the half.			

Competencies	
Code	
B1	(*)Capacitación científico-técnica para o exercicio da profesión de Enxeñeiro Técnico de Minas e coñecemento das funcións consultivas, análise, deseño, cálculo, proxecto, construción, mantemento, conservación e explotación.
B2	(*)Comprender os múltiples condicionamentos de carácter técnico e legal que xorden no desenvolvemento, no ámbito da enxeñaría de minas, que teñan por obxecto, de acordo cos coñecementos adquiridos segundo o previsto no parágrafo 5 da orde CIN7306 / 2009, a prospección e investigación xeolóxica-mineira, as explotacións de todo tipo de recursos xeolóxicos, incluíndo as augas subterráneas, as obras subterráneas, os almacenamentos subterráneos, as plantas de tratamento e beneficio, as plantas de enerxía, as plantas mineralúrxicas e siderúrxicas, as plantas de materiais para a construción, as plantas de carboquímica, petroquímica e gas, as plantas de tratamentos de residuos e efluentes e fábricas de explosivos e capacidade para empregar métodos contrastados e tecnoloxías acreditadas, co obxectivo de acadar unha maior eficacia dentro do respecto polo Medio Ambiente e a protección da seguridade e saúde dos traballadores e usuarios das mesmas.
B3	(*)Capacidade para deseñar, redactar e planificar proxectos parciais ou específicos das unidades definidas no parágrafo anterior, tales como instalacións mecánicas e eléctricas e o seu mantemento, redes de transmisión de enerxía, instalacións transporte e almacenamento para materiais sólidos, líquidos ou gasosos, entullarías, balsas ou encoros, sostemento e cimentación, demolición, restauración, voaduras e loxística de explosivos.
B4	(*)Capacidade para deseñar, planificar, operar, inspeccionar, asinar e dirixir proxectos, plantas ou instalacións, no seu ámbito.
B5	(*)Capacidade de realización de estudos de ordenación do territorio e dos aspectos medioambientais relacionados cos proxectos, plantas e instalacións, no seu ámbito.
B6	(*)Capacidade para o mantemento, conservación e explotación dos proxectos, plantas e instalacións, no seu ámbito.
B7	(*)Coñecemento para realizar, no ámbito da enxeñaría de minas, de acordo cos coñecementos adquiridos segundo o disposto no apartado 5 da orde CIN /306/2009, medicións, replanteos, planos e mapas, cálculos, valoracións, análise riscos, peritaxes, estudos e informes, plans de traballo, estudos de impacto ambiental e social, plans de restauración, sistema control de calidade, sistema de prevención, análise e avaliación das propiedades dos materiais metálicos, cerámicos, refractarios, sintéticos e outros materiais, caracterización de solos e macizos rochosos e outros traballos semellantes.

B8	(*)Coñecemento, comprensión e capacidade de aplicar a lexislación necesaria no exercicio da profesión de Enxeñeiro Técnico de Minas.
C35	
D1	
D3	
D5	
D6	
D8	
D9	

Learning outcomes

Expected results from this subject	Training and Learning Results		
Know the technological base envelope the one who support the investigations but recent in the sector of the arid, cements, concretes, asphalt mixtures , ornamental rocks and other industrial rocks	B1 B3 B6 B7	C35	D1 D3 D6 D8
Comprise the basic aspects of the exploitation of the arid and ornamental rocks	B1 B2 B3 B4 B5 B7 B8	C35	D1 D3 D5 D6 D8 D9
Know the process of extraction and crushing of the arid	B1 B2 B3 B4 B5 B7 B8	C35	D1 D3 D5 D8 D9
Know aspects of the design, operation and maintenance of the cement plants, concretes and asphalt mixtures	B1 B3 B4 B6 B7 B8	C35	D1 D3 D5 D6 D8 D9
Know and apply the valid rule in the frame of the specifications of use and quality of the material employees in the manufacture of arid, ornamental rocks and mineral industrial rocks	B2 B8		D1 D5 D6 D8 D9
Conceive the engineering in general and the exploitatin of mineral deposits in particular in one mark developmental sustainable with expensive sensibility environmental subjects	B2 B4 B5 B7 B8		D1 D3 D5 D6 D8 D9

Contents

Topic	
MINERWENT AGGREGATES	Current situation of the sector. Investigation of deposits and design of exploitations of aggregates.
PROPERTIES And APPLICATIONS AGGREGATES	Basic properties of the arid. Methods of essay normalized. Applications of the aggregates.
DEPOSITS OF AGGREGATES	Exploration And investigation.
SPECIAL AGGREGATES	Properties and applications.
DESIGN OF EXPLOITATIONS	Calculation of reservations. Methods of exploitation. Design of exploitations to the discovered and underground.
PRODUCTION OF ARID, CEMENTS, CONCRETES And ASPHALT PAVEMENTS	Design, operation and maintenance of plants of arid, cements, concretes and asphalt pavements
MINERWENT OF The ORNAMENTAL ROCKS	Current situation of the sector. Investigation and exploitation of deposits of ornamental rocks. Techniques of start.
MANUFACTURE OF ORNAMENTAL ROCKS	Design, operation and maintenance of ships of manufacture of ornamental rocks.
ESSAYS OF CHARACTERIZATION	Essays of characterization of the natural stone.

INDUSTRIAL MINERALS. PROPERTIES And APPLICATIONS	Properties and applications of the mineral industrial. Design, operation and maintenance of plants of production of industrial minerals.

Planning			
	Class hours	Hours outside the classroom	Total hours
Master Session	24	40	64
Outdoor study / field practices	9.5	10	19.5
Laboratory practises	10	15	25
Presentations / exhibitions	2	5	7
Seminars	3	17	20
Group tutoring	2	0	2
Long answer tests and development	2.5	10	12.5
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Master Session	Exhibition by part of the professor of the contained envelope to subject object of study.
Outdoor study / field practices	Visits to diverse mining companies to know *in *situ the methods of exploitation and manufacture employees. They Will constitute the base of the projects that will evaluate stop the final note. The assistance the these exits is indispensable for power realize *devandito project.
Laboratory practises	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentais related with the subject object of study. His contents will owe to be reflected in the project that will evaluate stop the final note. The assistance the these practices of laboratory is indispensable for power realize *devandito project.
Presentations / exhibitions	Oral exhibitions in the classroom envelope the works of practices of laboratory realized and the exits of field
Seminars	Activities focused to the work envelope a specific subject, that allow to deepen or supplement the contents of the subject.
Group tutoring	

Personalized attention	
Methodologies	**Description**
Laboratory practises	Time devoted pole teaching staff to attend the needs and queries of the students. This activity will develop of form *presencial in the dispatch *M119, us time assigned pole professor to the beginning of the course, or of form no *presencial through the email (#egiraldez@uvigo.es) or of the virtual campus (*Faitic).
Seminars	Time devoted pole teaching staff to attend the needs and queries of the students. This activity will develop of form *presencial in the dispatch *M119, us time assigned pole professor to the beginning of the course, or of form no *presencial through the email (#egiraldez@uvigo.es) or of the virtual campus (*Faitic).
Group tutoring	Time devoted pole teaching staff to attend the needs and queries of the students. This activity will develop of form *presencial in the dispatch *M119, us time assigned pole professor to the beginning of the course, or of form no *presencial through the email (#egiraldez@uvigo.es) or of the virtual campus (*Faitic).

Assessment			
	Description	Qualification	Training and Learning Results
Laboratory practises	The student will owe to present a document written result of the joint analysis of the information obtained during them visit the companies, realization of practices of laboratory and lectures. It Will evaluate so much the document writing presented how his oral exhibition in the classroom. The results of learning assessed will be: know the technological base envelope the one who support the investigations but recent in the sector of the arid, cements, concretes, asphalt mixtures, oramental rocks and other industrial rocks; comprise the basic aspects of the exploitation of the arid and oranmental rocks; know the process of extraction and *machaqueo of the arid; know aspects of the design, operation and maintenance of the cement plants, concretes and asphalt mixtures	20	B1 C35 D1 B2 D3 B3 D5 B4 D6 B5 D8 B6 D9 B7 B8

Long answer tests and development	Examination writing. The possibility of realization of partial will value during it study. The results of learning evaluated will be: know the technological base envelope the one who support the investigations but recent in the sector of the arid, cements, concretes, *aglomerados *asfálticos, rocks *ornamentais and other industrial rocks; comprise the basic aspects of the exploitation of the arid and rocks *ornamentais; know the process of extraction and *machaqueo of the arid; know aspects of the design, operation and maintenance of the *prantas of manufacture of cements, concretes and *aglomerados *asfálticos; know and apply the valid rule in the frame of the specifications of use and quality of the material employees in the manufacture of arid, rocks *ornamentais and mineral industrial; conceive the engineering in general and the *aproveitamento of deposits *minereis in particular in one mark developmental sustainable with expensive sensibility environmental subjects	80	B1 C35 D1 B2 D3 B3 D5 B4 D6 B5 D8 B6 D9 B7 B8

Other comments on the Evaluation

Sources of information

Recommendations

Subjects that are recommended to be taken simultaneously

Logistics and mining services/V09G310V01614
Drilling, oil and gas/V09G310V01613
Mining exploitation technology/V09G310V01612