



IDENTIFYING DATA

Mining exploitation technology

Subject	Mining exploitation technology			
Code	V09G310V01612			
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 matter pretends that the student purchase the knowledge and the necessary technological base to realise the mining planning of mining exploitations. This mining planning include all the steps to realise from the exploration of the mineral resource until the final product to becomercializable whereby will obtain an economic profit.			

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.
C23	
C28	
D1	

D2
D3
D7
D10

Learning outcomes

Expected results from this subject	Training and Learning Results		
Know and comprise the main indicators of profitability used in the assessment of mining projects of investment	B1 B2 B5 B7 B8	C23 C28	D1 D2 D3 D7 D10
Value a mining project, comprising, besides, the meaning of the results of each one of the analyses involved.	B1 B2 B3 B5 B6 B7 B8	C23 C28	D1 D2 D7 D10
Design and schedule mining exploitations, and value the results in accordance with the previous aim, posing and analysing possible alternative of design assuming the parameters and criteria employed in the design of mining exploitations	B1 B2 B3 B4 B5 B6 B7 B8	C23 C28	D1 D2 D3 D7 D10
Propose and develop practical solutions, using the theoretical knowledges, to phenomena and situations-problem of the own daily reality of the exploitations, developing the suitable strategies.	B1 B2 B3 B4 B5 B6 B7 B8	C23 C28	D1 D2 D3 D7 D10
Know the own idiosyncrasy of the investments and the mining costs, as well as his structure	B1 B2 B8		D1 D3 D7
Know the handle, transport and distribution of explosives	B8	C23	D7

Contents

Topic	
MINING TECHNIQUES	Technicians of exploitation
MINING TECHNOLOGY.	Technologies of mining exploitation
ANALYSIS OF FEASIBILITY OF MINING PROJECTS	Indicators of profitability. Economic model applied to mining projects.
VALUE OF The MINING PRODUCTION And EQUIVALENT LAW.	Study and analysis of laws
DESIGN And PLANNING OF MINING EXPLOITATIONS.	Parameters and criteria of design. Ratios And laws of court.
DESIGN AND PLANNING OF THE OPEN PIT	Exploitation fronts
GEOMETRICAL CONSIDERATIONS IN THE DESIGN.	Mining slagheaps
GEOMETRY OF THE BANK, The COALFACES, And DESIGN And *DIMENSIONING OF TRACKS.	Criteria of design.
INVESTMENTS And MINING COSTS.	Analysis of costs.
SYSTEMS OF DIRECT START IN OPEN PIT	Typologies of the open pit

Planning

	Class hours	Hours outside the classroom	Total hours
Troubleshooting and / or exercises	17.5	20	37.5
Group tutoring	5	5	10
Practice in computer rooms	10	15	25
Case studies / analysis of situations	10	10	20
Tutored works	0	10	10

Master Session	7.5	12.5	20
Long answer tests and development	2.5	25	27.5

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

Methodologies

	Description
Troubleshooting and / or exercises	They will resolve simple cases that will serve like base of the back studies
Group tutoring	They will resolve the doubts that could arise so much of the masterclasses as of the exercises and practical cases
Practice in computer rooms	It will implement resolution of cases with the computer and will teach the use of a program
Case studies / analysis of situations	They will expose and they will analyse of integral form general cases participating the *alumnado in the development of the same
Tutored works	The student will develop and will present a descriptive work on contents applied of the matter
Master Session	They will give the fundamental knowledges on the contents of the matter

Personalized attention

Methodologies Description	
1	Methodology 1
2	Methodology 2
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100	Methodology 100

Group tutoring	Time devoted by the professor to attend the needs and queries of the students. This activity will develop of face-to-face form in the dispatch M119, us time assigned by the professor to the start of the course, or of form no face-to-face through the email (egiraldez@uvigo.es) or of the virtual campus (Faitic)
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Assessment

Assessment	Description		Qualification Training and Learning Results
Troubleshooting and / or exercises	It will value the resolution of the exercises that the professor will pose in class. The results of learning evaluated are: knowledge and understanding of the main indicators of profitability used in the assessment of mining projects of investment; assessment of a mining project, comprising, besides, the meaning of the results of each one of the analyses involved	10	B1 C23 D1 B2 C28 D2 B3 D3 B5 D7 B7 D10 B8
Practice in computer rooms	It will value the resolution of a project that the professor will pose in class. It will evaluate the result of learning: Design and schedule mining exploitations, and value the results in accordance with the previous aim, posing and analysing possible alternative of design assuming the parameters and criteria employed in the design of mining exploitations	10	B1 C23 D1 B2 C28 D2 B3 D3 B4 D7 B5 D10 B6 B7 B8
Tutored works	It will value the preparation and presentation of a work on the contents of the matter. It will evaluate the result of learning: Propose and develop practical solutions, using the theoretical knowledges, to phenomena and situations-problem of the own daily reality of exploitations, developing the suitable strategies.	10	B1 C23 D1 B2 C28 D2 B3 D3 B4 D7 B5 D10 B6 B7 B8
Long answer tests and development	It will expose a case to develop as well as several questions on the matter. It will evaluate the results of learning: Propose and develop practical solutions, using the theoretical knowledges, to phenomena and situations-problem of the own daily reality of exploitations, developing the suitable strategies; Know and comprise the main indicators of profitability used in the assessment of mining projects of investment; Value a mining project, comprising, besides, the meaning of the results of each one of the analyses involved; Know the own idiosyncrasy of the investments and the mining costs, as well as his structure; Know the handle, transport and distribution of explosives	70	B1 C23 D1 B2 C28 D2 B3 D3 B4 D7 B5 D10 B6 B7 B8

Other comments on the Evaluation

In the first announcement (Announcement of 2º period) the final note will be the sum of the notes of the resolution of problems and exercises (until 10%), of the practices in classroom of computing (ties 10%), of the led works (until 10%) and of the examination (until 70%).
&*>
&*>The examinations will realise in the date, schedule and place approved by the Xunta of School being the most updated information in the direction following web:

<http://webs.uvigo.es/etseminas/cms/index.php?id=57,0,0,1,0,0>

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Sources of information

Arteaga Rodríguez, R. et al., **Manual de evaluación técnico-económica de proyectos mineros de inversión**, ITGE,

Bustillo Revuelta, M. et al., **Manual de evaluación y diseño de explotaciones mineras**, Entorno Gráfico. Madrid,

Gómez de las Heras J. et al., **Manual de arranque carga y transporte en MCA**, ITGE,

Hustrulid, W., **Open Pit Mine planning and design**, Balkema, Rotterdam,

Varios, **Mining Engineering Handbook**, Vol 1 y 2. SME. Colorado,

Recommendations

Subjects that are recommended to be taken simultaneously

Logistics and mining services/V09G310V01614

Ornamental and industrial rocks/V09G310V01611

Drilling, oil and gas/V09G310V01613

Subjects that it is recommended to have taken before

Sustainable exploitation of mining resources I/V09G310V01501
