

FIȘA DISCIPLINEI

1. Date despre program

1.1 Instituția de învățământ superior	Universitatea Babeș-Bolyai Cluj-Napoca
1.2 Facultatea	Știința și Ingineria mediului
1.3 Departamentul	Știința Mediului
1.4 Domeniul de studii	Știința mediului
1.5 Ciclul de studii	Master
1.6 Programul de studiu / Calificarea	Gestiunea și protecția mediului Dezvoltarea sustenabilă și managementul mediului

2. Date despre disciplină

2.1 Denumirea disciplinei	Energy resources and the environment						
2.2 Titularul activităților de curs	Prof. Asoc. dr. Giuseppe Etiope						
2.3 Titularul activităților de seminar	Prof. Asoc. dr. Giuseppe Etiope						
2.4 Anul de studiu	2	2.5 Semestrul	2	2.6. Tipul de evaluare	E	2.7 Regimul disciplinei	Ob

3. Timpul total estimat (ore pe semestru al activităților didactice)

3.1 Număr de ore pe săptămână	3	Din care: 3.2 curs	2	3.3 seminar/laborator	1
3.4 Total ore din planul de învățământ	42	Din care: 3.5 curs	28	3.6 seminar/laborator	14
Distribuția fondului de timp:					ore
Studiul după manual, suport de curs, bibliografie și notițe					30
Documentare suplimentară în bibliotecă, pe platformele electronice de specialitate și pe teren					15
Pregătire seminarii/laboratoare, teme, referate, portofolii și eseuri					10
Tutoriat					4
Examinări					4
Alte activități:					
3.7 Total ore studiu individual		55			
3.8 Total ore pe semestru					
3.9 Numărul de credite		4			

4. Precondiții (acolo unde este cazul)

4.1 de curriculum	•
4.2 de competențe	•

5. Condiții (acolo unde este cazul)

5.1 De desfășurare a cursului	•
5.2 De desfășurare a seminarului/laboratorului	•

6. Competențele specifice acumulate

Competențe profesionale	<ul style="list-style-type: none"> • Understanding the main issues of the energy resources management at a global scale • Understanding the geological and geographical of the conventional energy resources at a global scale • The global competition for resources and the links to economy and politics • Understanding the correlation between energy resources exploitation and the environmental effects at a local and global scale • Understanding the future perspectives and actions for a better energy
Competențe transversale	<ul style="list-style-type: none"> • Teamwork for solving concrete issues • Synthesis of complex notions and their practical use

7. Obiectivele disciplinei (reieșind din grila competențelor acumulate)

7.1 Obiectivul general al disciplinei	<ul style="list-style-type: none"> • The topic Energy resources and the environment offers to the students a holistic view on the complex relation between identification, extraction and use of energy resources, and the environment on the other side. The conventional sources of energy are examined, in terms of geological occurrence, geographical distribution, extraction procedures, and use. As well, a short introduction to the unconventional energy resources is given, in terms of distribution, current and future potential, weight in the world energy balance, costs, environmental impact.
7.2 Obiectivele specifice	<ul style="list-style-type: none"> • Improvement of the students' capacity to operate with complex notions, applying their knowledge and abilities to systems that include natural and anthropogenic components, costs, use, and environmental issues. • Understanding the global scale issues that affect the energy resources.

8. Conținuturi

8.1 Curs	Metode de predare	Observații
Conventional resources of energy, types, and the history of their development	Interactive lecture	
Petroleum genesis, occurrence and distribution at worldwide scale	Interactive lecture	
Depletion of oil resources, the peak-oil theory, the current reserves	Interactive lecture	
The international oil and gas market	Interactive lecture	
Economic and political crises generated by the access to energy resources	Interactive lecture	
Coal as a major energy resource, use, new methods of extraction and use	Interactive lecture	
Global distribution of the coal resources, degree of depletion,	Interactive lecture	

future prospectives		
Hydroelectric power. Distribution of the potential, positive and negative effects. Is it hydroelectric power a <i>green energy</i> ?	Interactive lecture	
Nuclear energy, how the electricity is obtained from nuclear power?	Interactive lecture	
Environmenta effects of using nuclear energy	Interactive lecture	
Unconventional energy for heating and cooling	Interactive lecture	
Uconventional energy for electricity production	Interactive lecture	
Unconventional fuels	Interactive lecture	
Comparing conventional and unconventional energy soures	Interactive lecture	

Referneces:

Deffeyes K (2008). Hubbert's Peak: The Impending World Oil Shortage (New Edition) Princeton University Press (September 29, 2008).

ENI (2010), World Oil and Gas Review, Rome.

European Renewable Energy Council (2010) Renewable Energy in Europe: Markets, Trends and Technologies, Earthscan.

Gauß P. (2009) International Trade China: Coal, Oil and Gas, GRIN Verlag.

Hunt J (1996). Petroleum geochemistry and geology, W. H. Freeman; Second Edition (October 15, 1995)

International Energy Agency (2004) Renewable energy: market & policy trends in IEA countries, OECD-IEA.

International Energy Agency (2007) World Energy Outlook 2007: China and India Insights. OECD Publishing.

Kaltschmitt M., Streicher W., Wiese A. (2007) Renewable energy: technology, economics, and environment. Springer Verl.

Luft G., Korin A. (2009) Energy security challenges for the 21st century: a reference handbook, ABC-CLIO.

Moran D., Russell J.A. (2009) Energy security and global politics: the militarization of resource management, Routledge.

Müller-Kraenner S. (2008) Energy security: re-measuring the world, Earthscan.

Nersesian R.L. (2010) Energy for the 21st Century: A Comprehensive Guide to Conventional and Alternative Sources, M.E. Sharpe, Inc.

Shankleman J. (2006) Oil, profits, and peace: does business have a role in peacemaking? US Institute of Peace.

Wengenmayr R., Bürke T. (2008) Renewable energy: sustainable energy concepts for the future, Wiley-VCH.

8.2 Seminar / laborator	Metode de predare	Observații
Genesis of coal and petroleum	Dialogue	
Peak oil theory. Practical applicability	Dialogue	
Economic and environmental efficiency of energy resourcces exploitation.	Solving applications	
Types of nuclear reactors and working principles.	Dialogue	
Disasters due to nucelar energy use. Case study	Dialogue	
Energy efficiency of the unconventional resources	Solving applications	
Designing a local system for the improving the energy independency of a small city	Individual or group project	

References:

Deffeyes K (2008). Hubbert's Peak: The Impending World Oil Shortage (New Edition) Princeton University Press (September 29, 2008).

ENI (2010), World Oil and Gas Review, Rome.

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International Energy Agency (2004) Renewable energy: market & policy trends in IEA countries, OECD-IEA.

Kaltschmitt M., Streicher W., Wiese A. (2007) Renewable energy: technology, economics, and environment. Springer Verl.

Nersesian R.L. (2010) Energy for the 21st Century: A Comprehensive Guide to Conventional and Alternative

Sources, M.E. Sharpe, Inc.

Wengenmayr R., Bührke T. (2008) , Renewable energy: sustainable energy concepts for the future, Wiley-VCH.

9. Coroborarea conținuturilor disciplinei cu așteptările reprezentanților comunității epistemice, asociațiilor profesionale și angajatori reprezentativi din domeniul aferent programului

- Understanding the appropriate management of the conventional and unconventional resources
- The importance of improving the energy use efficiency

10. Evaluare

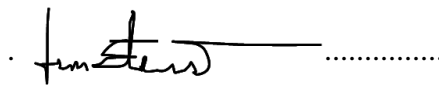
Tip activitate	10.1 Criterii de evaluare	10.2 metode de evaluare	10.3 Pondere din nota finală
10.4 Curs	Understanding the notions that have been discussed, capacity to use them in practical cases.	examen	30%
	Synthesis of the acquired knowledge	examen	30%
10.5 Seminar/laborator	Solving the practical themes that have been proposed, and the reliability of the results	Verificare pe parcurs	20%
	The capacity to solve concrete applicaions.	Verificare pe parcurs	20%
10.6 Standard minim de performanță			
<ul style="list-style-type: none">• Understanding the main notions that have been discussed• The ability to synthesize data in order to obtain a complete view on the study topics			

Data completării

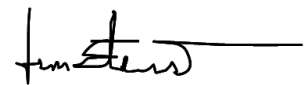
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Semnătura titularului de curs



Semnătura titularului de seminar



Data avizării în departament

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Semnătura directorului de departament

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