REM master basic syllabus

Title:
EC928 Energy Economics

Credit value:
5 ECTS

Mandatory/Optional:
Compulsory

Semester:
1

Lecturer/s:
Grant Jordan Allan

University:
University of Strathclyde

Department:
Department of Economics

Rationale:
This is a core class on the MSc in Global Energy Management, and an optional class on the MSc in Applied Economics. It is intended to provide students with an appreciation of the economic principles underlying the supply and demand for energy in a modern economy, through considerations of such topics as: energy demand at the individual and economy-wide level, the supply of non-renewable energy resources, the rationale for energy policy and energy policy instruments. The class also acknowledges the uses of modelling in energy analysis, and provides awareness of, hands-on experience in, approaches to understanding energy-economy-environmental interactions and the economic appraisal of energy projects.

Objectives:
The class aims to provide students with:

1. *An understanding of economic principles underpinning the demand for, and supply of energy resources.*
2. *An understanding of the role of energy policy and efficient and sustainable energy use.*
3. *Economic techniques used by private and public organisations in analysing energy projects and policies.*
4. *The interrelationships between economy-energy-environmental impacts of energy policies, including the use of economic modelling techniques.*

Skills: *(according to the list of skills provided)*

Subject skills	**REM Master Skills**						
	L2.1	**L2.2**	**L2.3**	**L2.4**	**L2.5**	**L2.6**	**L2.7**
L3.1. Describe and explain economic theories underpinning the demand for, and supply of, energy in the modern economy.	X	X				X	X
L3.2. Compare approaches for analyzing the connections between energy technologies and resources and the economy.	X	X				X	X
L3.3. Identify various forms of energy policies and the economic rationale for these	X	X				X	X

Teaching and learning methods:

Lectures will provide the basis for the material covered in the class, which will use a variety of methods (including group discussions during lecture time and hands-on data analysis in the lab) to analyse topics in-depth. Class material will be made available to students via the MyPlace website. Additional material on economic concepts underpinning each class, as well as case studies for discussion in class, will be circulated in advance of each lecture.

Allocation of student time:

	Attendance (classroom, lab,…)	**Non attendance (lecture preparation, self study…)**
Lectures	16 hours	16 hours
Lab	4 hours	6 hours
Presentations	2 hours	2 hours
Self-study		79 hours

Assessment:

Students are assessed through two pieces of assessment, each counting for 50% of the final class mark. The first is an individual assignment, while the second is a small-group (maximum 4 students) project.

The small-group project will be assessed through a group presentation (worth 10% of the final grade) and a submitted report (worth 40% of the final grade). All assignments are to be submitted online through MyPlace.

Students will form groups and the questions for this assessment will be circulated after the lab in week 6. It is critical therefore that all students taking the class attend this lab.

Assessment Matrix:

Subject skills	**Assessment method**					
	Exam	**Presentation**	**Report**	**Individual Assignment**		**…**
L3.1.		10%	40%	50%		
L3.2.		10%	40%	50%		
L3.3.		10%	40%	50%		

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Programme:

Lesson 1	***Introduction to energy economics*** ***The economics of energy policy*** ***Analysing energy demand at the micro and macro levels*** *Distribution (4 h theory + self-study)*
Lesson 2	***Analysing energy demand at the micro and macro levels*** ***Analysing the supply of energy: technology costs and investment appraisal*** ***Assessing energy markets: market power and the policy response*** *Distribution (6 h theory + 4 h labs + self-study)*
Lesson 3	***Energy efficiency and the rebound effect*** ***Modelling energy and the economy: energy systems models and CGE.*** *Distribution (4 h theory + self-study)*
Lesson 4	***Case study: North Sea Oil and Gas*** ***Group presentations*** ***Course recap*** *Distribution (4 h theory + presentations + self study)*

Resources:

Classrooms, Blackboard, laptop, projector, audio, computer room, laboratory, security issues,…

Resources for the class will come from a variety of sources, including books, academic journals and on-line data sets. There is no set textbook for this class, and for each topic students will also be directed to initial additional reading given in class. This will include, for example, policy documents, industry reports, as well as relevant references from the academic literature. The class will not require any resources over and above standard audio/visual equipment and internet accessible lecture and classrooms. The labs through the course will require standard spreadsheet software to be installed on the PCs.

Bibliography:

Basic textbooks, deepening bibliography, Internet addresses of interest, specific journals, etc…

Specific references for each topic will be given before and in lectures. These will include industry and policy documents, journal articles and textbooks. The following are indicative of the textbook material that will be used for the class:

1. Perman, R., Ma, Y., Common, M, Maddison, D. and McGilvray, J. (2011), Natural Resources and Environmental Economics, Addison Wesley
2. Bhattacharyya, S (2011) Energy Economics: Concepts, Issues, Markets and Governance, Springer
3. Biggar, D.R and Hesamzadeh, M.R. (2014), The Economics of Electricity Markets, Wiley

Further comments: