

## Subject Description Form

Subject Code	<b>BSE449</b>
Subject Title	<b>Environmental Economics and Policy</b>
Credit Value	3
Level	4
Pre-requisite Co-requisite Exclusion	Nil Nil Nil
Objectives	This is a broadening elective subject in the programme intended to equip students with fundamental economic principles that will enable them to appreciate the effectiveness and limitations of market forces and government interventions in mitigating environmental problems given rise by economic activities. After the fundamental economic principles, concepts of analytical methods for quantification of environmental benefits and costs are covered to introduce students to the tools that are needed for providing data to inform policy decisions. Policy instruments for internalizing external costs and for motivating individuals and firms are covered, with emphasis on the economic and environmental concerns on the use of energy resources.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: <ul style="list-style-type: none"> <li>a) apply the micro-economic principles to explain choices made by individuals and firms under constraints;</li> <li>b) assess the economic and financial viability of projects and make evidence-based decisions;</li> <li>c) define the environmental impacts of economic activities and generate innovative solutions;</li> <li>d) explain the effectiveness and limitations of market forces and government interventions in dealing with environmental problems; and</li> <li>e) be aware of international protocols for protection of the global environment and sustainable development.</li> </ul>
Subject Synopsis/ Indicative Syllabus	<p><b>Basics of environmental economics:</b> Basic axioms of economics, opportunity cost, marginal benefit and marginal cost, price and demand, supply and demand, working of market; comparative advantage, economic efficiency, consumer surplus and producer surplus, deadweight loss; private and public goods; economic activities and the environment, environment as scarce resources; property right, externality, social costs, Coase Theorem, transaction costs. (Lectures: 9 hours; Tutorials: 3 hours)</p> <p><b>Measuring environmental benefits and costs:</b> Benefit-cost analysis, discounting environmental benefits and costs over time, economic and financial appraisals of projects; willingness to pay or to accept compensation, hedonic pricing, contingent valuation, value of life and health; marginal damage, marginal abatement cost and target setting for environmental mitigation measures. (Lectures: 6 hours; Tutorials: 3 hours)</p> <p><b>Energy economics:</b> Properties of energy resources and commodities, energy conversion processes; demand for energy, substitution among energy commodities; world energy supply, conversion technologies and price; economics of depletable and renewable energy resources, transition from depletable to renewable resources. (Lectures: 6 hours; Tutorials: 1 hour; Seminars 3 hours)</p> <p><b>Environmental policies:</b> Market inefficiency; legislative requirements, taxes, levies and fines; incentive based regulations, rebates, voluntary assessment and labelling schemes; energy policy and the environment; global environmental agreements. (Lectures: 6 hours; Seminars: 3 hours)</p>
Teaching/Learning Methodology	<p>A study guide will be distributed to students at the beginning of the course to provide them with a concise reference on the materials that will be covered in the subject. Supplementary notes will also be issued, as when and where required.</p> <p>Lectures will be used for imparting to students the principles and methods that would enable them to achieve the intended learning outcomes. Tutorial problems that require students to demonstrate their ability to achieve the intended learning outcomes will be given to students. Some tutorial problems</p>

will be tackled during the tutorial sessions and the rest are for students to tackle on their own.

Students will work in groups of 3 to 4 on an assigned topic related to regulatory controls and international protocols on environmental protection or sustainable development and present their findings to the class as part of the teaching in the seminar sessions.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
In-class test	20	✓	✓				
Seminar	20			✓	✓	✓	
End-of-semester examination	60	✓	✓	✓	✓		
Total	100						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Learning outcomes (a) & (b) reflect students' understanding of the basic tools that they would need to enable them to attain the other learning outcomes. Therefore, an assessment mid-way in the course is needed to obtain feedback on how well students have attained these learning outcomes.

Learning outcomes (c) to (e) are more open-ended and thus are best assessed through seminars, which will allow flexibility for providing feedbacks to students during the Q&A session on the variable topics that students may choose.

The final examination is meant to be an overall assessment of students' attainment of all the learning outcomes, except (e) which is primarily at awareness level only.

Student Study Effort Expected

Class contact:	
▪ Lectures	27 Hrs.
▪ Tutorials	7 Hrs.
▪ Seminars	3 Hrs.
▪ In-class test	2 Hrs.
Other student study effort:	
▪ Preparation for seminars	5 Hrs.
▪ Self-studies	68 Hrs.
Total student study effort	112 Hrs.

Reading List and References	<p>Yik FWH, Environmental Economics and Policy: A Study Guide, Department of Building Services Engineering, The Hong Kong Polytechnic University, (latest version).</p> <p>Conrad JM, Resource Economics, Cambridge University Press, 1999.</p> <p>Field BC, Environmental Economics: An Introduction, 2nd Ed. McGraw-Hill Companies Inc., 1997.</p> <p>Goodstein E.S. Economics and the Environment. Prentice Hall, Inc., 1995.</p> <p>IEA, World Energy Outlook (periodic publication), International Energy Agency.</p> <p>Lesser JA, Dodds DE, Zerbe RO, Environmental Economics and Policy, Addison Wesley Longman, Inc., 1997.</p> <p>Samuelson PA, Economics, Boston: McGraw-Hill, 1998.</p> <p>Tietenberg T, Environmental Economics and Policy, 3rd ed., Addison Wesley Longman, Inc., 2001.</p>
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