PRIFYSGOL glyndŵr UNIVERSITY

MODULE SPECIFICATION FORM

Module Title: Sustainability and Resource Management	Level: 5	Credit Value: 20

Module code: SCI508	Cost Centre: GAFS	JACS2 code: F810

Semester(s) in which to be offered: 1	With effect from: September 2013
Office use only: To be completed by AQSU:	Date approved: August 2013 Date revised: March 2014 Version no: 2

Existing/New: New	Title of module being replaced (if any):

Originating Academic area: Chemistry	Module Leader: Amiya Chaudhry

Module duration (total hours) 200 Scheduled learning & teaching hours 60 Independent study hours 140	Status: Core for BSc Geography, Ecology and Environment Option for BEng (Hons) Renewable Energy and Sustainable Technology

Percentage taught by Subjects other than originating Subject (please name other Subjects):

Programme(s) in which to be offered: BSc Geography, Ecology and Environment MEng/BEng (Hons) Renewable Energy and Sustainable Technology	Pre-requisites per programme (between levels):

Module Aims:

The module is intended to

- Investigate current management practices of renewable and non renewable resources and explore use of resources in a sustainable manner.
- Examine the challenges in making a transition to renewable resource use in a way that is truly sustainable
- Assess the contrasting views of environmentalists and economists regarding future resource management.

Expected Learning Outcomes

At the end of this module, students should be able to:

Knowledge and Understanding:

1. Demonstrate an understanding of the issues concerning the use and management of some key natural resources.
2. Demonstrate how the negative effect of a particular resource use on the environment might be contained.
3. Evaluate the differing opinions on the future management of resources in light of challenges such as globalization, population growth, climate change and technology.

Transferable/Key Skills and other attributes:

Critical reading
Problem solving
Working in a group

Assessment:

Assessment example:
Students will be asked to work in groups on a given case study and suggest the most practical solutions for sustainable resource management which will allow the area in question to thrive economically, culturally and yet at the same time preserve its environmental resources. Students will be required to keep a task log to ensure equal input to each task and formative feedback will be provided weekly to each group

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting	Duration (if exam)	Word count (or equivalent if appropriate)
1	1-3	Case Study	100%		3000

Learning and Teaching Strategies:

Students are taught with weekly lectures. The lecture material is supported by online resources in the form of case studies.

Syllabus Outline

- Introduction: the need for environmental resource policy
- The ownership and control of resources

Types of resources

Energy resources:

- Resource availability and consumption
- Current management practices
- Impact of resource use
- Sustainable energy: choices, problems and opportunities.
- Case studies

Land resource in terms of food production:

- Natural resources, food supply and population.
- Energy use in food production,
- Economics of food production
- Changes in world food crop production.
- Food supply and water cycle
- Case studies

Water and water resources:

- Overview of global water related problems and problems related to water management
- Water supply security
- Integrated water management
- Water sustainability: potential impact of climate change
- Water resources: fish
- Case studies

Bibliography:

Essential reading:

- Anderson, D.A. (2013) *Environmental Economics and Natural Resource Management* 4th Edition. Routledge

- Dinar, S. (2011) *Beyond Resource Wars: Scarcity, Environmental Degradation, and International Cooperation (Global Environmental Accord: Strategies for Sustainability and Institutional Innovation).* MIT Press

- Perman, R., Ma, Y., Common, M., Maddison, D. and Mcgilvray, J. (2011) *Natural Resource and Environmental Economics* 4th Edition. Addison Wesley

- Sterner, T. and Coria, J. (2011) *Policy Instruments for Environmental and Natural Resource Management* 2nd Edition. RFF Press

Other indicative reading:

- Vogt, K.A., Patel-Weynand, T., Shelton, M., Vogt, D.J., Gordon, J.C., Mukumoto, C.T., Suntana, A.S. & Roads, P.A. (2010) *Sustainability Unpacked: Food, Energy and Water for Resilient Environments and Societies*. Earthscan

- Belyaev, L.S., Marchenko, O.V., Filippov, S.P., Solomin, S.V., Stepanova, T.B. and Kokorin, A.L. (2013) *World Energy and Transition to Sustainable Development*. Springer

- Harrison, R.M. and Hester, R.C. (Eds) (2003) *Sustainability and Environmental Impact of Renewable Energy Sources: 19 (Issues in Environmental Science & Technology)*. RSC

- Zehner, O. (2012) *Green Illusions: The Dirty Secrets of Clean Energy and the Future of Environmentalism (Our Sustainable Future).* University of Nebraska Press

- Borchardt, D. and Ibisch, R. (2013) *Integrated Water Resources Management in a Changing World: Lessons Learnt and Innovative Perspectives.* IWA Publishing

- Mays, L.W. (2006) Water Resources Sustainability. McGraw Hill Professional

- Selected articles in the Journal of Current Opinion in Environmental Sustainability.