

MODULE INFORMATION SHEET

Name of Module Unit	HES (Economics and Law in Environmental Engineering)
Name in polish language	Ekonomika i Prawo w Inżynierii Środowiska
Module type	compulsory /elective
Form of studying	full-time day courses
Level of study	undergraduate course (B.Sc. level)
Type of study (for extra-mural courses)	
Programme	Environmental Engineering
Speciality	Environmental Engineering
Responsible department	Department of District Heating and Gas Systems
Responsible person	Dr inż. Jerzy Kwiatkowski

Semester	Lectures(E)	Tutorials	Laboratory	Computer Exercises	Projects	ECTS
4	30	15				3

Objectives (summary)

Future societies will be confronted by both resource scarcity and accumulating pollutants. This situation pose challenges for all engineering specialisations and especially for environmental engineering as by its virtue it deals directly with resources and pollutants. The engineering works have to comply with legal and societal restrictions. Therefore, it is necessary to present obligations coming from international and European agreements and their impact on implementation in Poland. The lecture will encompass two parts:

- **Legal** – where the adequate international agreements, directives and their implementation to Polish situation will be presented, along with original national regulations;
- **Economic** – where the basis of environmental economy will be discussed and their application in the environmental and sustainability assessment procedures applied for industry and buildings with the application of Life Cycle Assessment.

Detailed lecture curricula includes directives related to energy performance and energy efficiency, energy using products and description of standardisation works related to the field of construction.

Prerequisites

Basis of European Law and Economics
National Statistics
Biology and ecology
Chemistry, Physics

Rules of integrated grade setting

Integrated grade = Lectures grade 65% plus tutorials grade 35%

Recommended readings

International Journal of Sustainable Development and World Ecology
Cortese A.D. (1999) Role of engineers in creating an environmentally sustainable future. *Civil Engineering Practice* 14(1): 29-38

Weizsäcker, E., Lovins, A., and Lovins, L. (1997) *Factor Four: Doubling Wealth, Halving Resource Use: the New Report to the Club of Rome*. Earthscan Publications, London.

World Federation of Engineering Organizations, United Nations of Environment Programme, World Business Council for Sustainable Development, and Ecole Nationale des Ponts et Chaussees (1997) *Joint Conference on Engineering Education and Training for Sustainable Development: Final Report*. Available at: <http://www.unesco.org/ngo/fmoi>

GRI. (2000) *Sustainability Reporting Guidelines on Economic, Environmental, and Social Performance*. Global Reporting Initiative, Boston, Mass. [online]. Available at: <http://www.globalreporting.org/GRIGuidelines/June2000/June2000GuidelinesDownload.htm>

ISO: International Organization for Standardization.) *ISO 14040 Environmental Management – Life Cycle Assessment: Principles and Framework*, and subsequent standards 14041-2-3-4 etc.

CEN works of BT (Technical Board) 173 and Technical Committee 350, available through www.pkn.gov.pl

Environ Design Collaborative (1999) *Green, Ecological or Sustainable Architecture*. Available: <http://www.environdc.com/edc/greendes.htm>

Tom Tietenberg, *Environmental and Natural Resource Economics*, 2006, Pearson Education, Inc.

BREEAM - BRE Environmental Assessment Method www.breeam.org/

Ecohomes is a version of *BREEAM* for *homes*. It provides an authoritative rating for new, converted or renovated *homes*

CASBEE www.ibec.or.jp/CASBEE/english/ was developed in the suite of architectural design process, starting from the pre-design stage and continuing through design and post design stages.

SBTool www.iisbe.org scientific framework for building sustainability assessment for support preparation of national or regional assessment systems.

Directive 2005/32/EC on the eco-design of Energy-using Products (EuP) http://ec.europa.eu/enterprise/eco_design/index_en.htm

Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings <http://europa.eu/scadplus/leg/en/lvb/l27042.htm>

Directive 2006/32/EC energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC www.energy.eu/directives/l_11420060427en00640085.pdf

Contents of lectures (syllabus)

	Topics	Time (hrs.)	Scope (S / Ex)
1	Environmental sustainability issues of construction works	2	S
2	Buildings' sustainability assessment methods	2	S
3	Role and works of International Standards Organisation and CEN European Normalisation Committee	2	
4	Construction Products Directive 89/106/EEC; new approach directives	2	
5	CE Mark	2	
6	ISO and CEN works related to sustainability of construction works	2	S
7	LCA Assessment of building products and buildings		
8	Directive 2002/91/EC on energy performance of buildings and its recast	2	S
9	Implementation and impact of 2002/91/EC Directive implementation in Poland	2	S
10	Explanation of the general relationship between various CEN standards and the Energy Performance of Buildings Directive (EPBD), the umbrella standard	2	S
11	Directive 2006/32/EC energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC	2	S
12	Implementation and impact of 2006/32/EC Directive implementation in Poland	2	S
13	Directive 2005/32/EC Energy using Products, Green Procurements and Environmental Labelling	2	S
14	Methodology of study Eco-design of Energy Using Products	2	S
15	Final Test	2	S
Total		30	hours

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

Lecturers

Dr inż. Jerzy Kwiatkowski

Dr inż. Jerzy Sowa

Assessment method

Very good over 85%, **good** more than 75%, **satisfactory** more the 60%, **failed** less than 60%

Contents of tutorials

	Topics	Time (hrs.)	Scope (S / Ex)
1	Measures of cost effectiveness	4	S
2	Sustainability assessment of chosen building using existing available methods e.g. EcoHome, CASBEE, BREEAM, E-Audyt or other	2	S
3	Determination of environmental profile for chosen building product e.g. insulation material	2	S
4	Elaboration of energy performance certificate - the simplified method	2	S
5	Simplified model of global warming and positive feedback of increasing greenhouse gases emission	2	S
6	Example of environmental impact assessment of industrial modernisation	2	S
7	Test Practical	1	S
Total		15	hours

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

Persons responsible for tutorials

Dr inż. Jerzy Kwiatkowski

Dr inż. Jerzy Sowa

Assessment method for tutorials

Very good over 85%, **good** more than 75%, **satisfactory** more the 60%, **failed** less than 60%