

MODULE SPECIFICATION

Module code	
Module title in Polish	Renewable Energy
Module title in English	Renewable Energy
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Civil Engineering
Level of qualification	First cycle <i>(first cycle, second cycle)</i>
Studies profile	Academic <i>(academic/practical)</i>
Mode of study	Full-time <i>(full-time / part-time)</i>
Specialism	
Organisational unit responsible for module delivery	The Department of Piped Utility Systems
Module co-ordinator	Łukasz Orman, PhD, Eng.
Approved by	Marek Iwański, Professor

B. MODULE OVERVIEW

Module type	Core module <i>(core/programme-specific/elective HES*)</i>
Module status	Compulsory module <i>(compulsory / non-compulsory)</i>
Language of module delivery	English
Semester in the programme of study in which the module is taught	Semester 4
Semester in the academic year in which the module is taught	Summer semester <i>(winter / summer)</i>
Pre-requisites	None <i>(module code/module title, where appropriate)</i>
Examination required	No <i>(yes / no)</i>
ECTS credits	3

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per semester	15				

* elective HES – elective modules in the Humanities and Economic and Social Sciences

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to learn English technical vocabulary concerning renewable energy, the issues of generating energy from renewable sources, the applied technical solutions as well as ac economic and ecological conditions of various solutions.
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Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student knows the role and methods of managing energy (including waste energy).	l	B_W01 B_W20	T1A_W01 T1A_W02
W_02	A student knows ecological and economic benefits of applying renewable energy resources.	l	B_W01 B_W20	T1A_W01 T1A_W02
W_03	A student knows energy production technologies from renewable resources, i.e. biomass, water, wind, the Sun, Earth's interior (together with the possibilities of utilising them).	l	B_W01 B_W20	T1A_W01 T1A_W02
U_01	A student can obtain information (in English) on renewable energy from the literature on the subject and other sources.	l	B_U28 B_U29	T1A_U01 T1A_U03 T1A_U04 T1A_U05 T1A_U06
K_01	A student can formulate conclusions and describe the results of the obtained work.	l	B_K04	T1A_K01 T1A_K07
K_02	A student is sensitised to preserving natural resources of the environment.	l	B_K09	T1A_K01 T1A_K02

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1	Initial issues: appropriate energy management at a local and global scale.	W_01 U_01 K_01 K_02
2	A review of the available renewable energy resources (ecological and financial benefits of applying them).	W_02 U_01
3	The possibilities of utilising water and wind energy.	W_03 U_01
4	The possibilities of generating thermal and electric energy from solar radiation.	W_03 U_01
5	Utilising biomass and geothermal energy.	W_03 U_01
6	Reclaiming waste energy from industrial processes.	W_01 U_01
7	The perspectives of developing renewable energy.	W_02 U_01

2. Topics to be covered in the classes
3. Topics to be covered in the laboratories
4. Topics to be covered in the projects

Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	A test
W_02	A test
W_03	A test
U_01	A test
K_01	A test

C. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	15
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	4
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	1
8		
9	Number of contact hours	20 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.8
11	Private study hours: background reading for lectures	20
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	
16	Private study hours: preparation for a final test in laboratories	
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	35
19		
20	Number of private study hours	55 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.2
22	Total study time	75
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	3
24	Number of practice-based hours <i>Total practice-based hours</i>	4
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.2