MODULE DESCRIPTION

Module code	**Z-ZIP-0376**
Module name	**Ekologia i zarządzanie środowiskiem**
Module name in English	**Ecology and Environmental Management**
Valid from academic year	**2016/2017**

A. MODULE PLACEMENT IN THE SYLLABUS

Field of study	**Management and Production Engineering**
Level of education	**1st degree** *(1st degree / 2nd degree)*
Studies profile	**General** *(general / practical)*
Form and method of conducting classes	**Full-time** *(full-time / part-time)*
Specialisation	**All**
Unit conducting the module	**The Department of Production Engineering**
Module co-ordinator	**Magdalena Rzbaczewska-Błażejowsk, PhD**
Approved by:	

B. MODULE OVERVIEW

Type of subject/group of subjects	**Basic** *(basic / major / specialist subject / conjoint / other HES)*
Module status	**Compulsory** *(compulsory / non-compulsory)*
Language of conducting classes	**English**
Module placement in the syllabus - semester	**4th semester**
Subject realisation in the academic year	**Summer semester** *(winter / summer)*
Initial requirements	**No requirements** *(module codes / module names)*
Examination	**No** *(yes / no)*
Number of ECTS credit points	**2**

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	**20**			**10**	

C. TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aim of the module is to present ecological problems in modern world, acquiring sensitivity to the issues of environmental protection as well as presenting activities as regards management connected with ecology issues.

Effect symbol	Teaching results	Teaching methods *(l/c/lab/p/other)*	Reference to subject effects	Reference to effects of a field of study
W_01	A student has basic knowledge concerning the elements of management, taking the law and norms of environmental protection into consideration (including innovative activities).	l/p	K_W13 K_W15	T1A_W06 T1A_W09 T1A_W11
W_02	A student has basic knowledge as regards ecological conditioning of product manufacturing, taking subsequent life cycles into consideration.	l/p	K_W16	T1A_W05 T1A_W11 S1A_W11
U_01	A student can obtain knowledge connected with the subject of ecology and management.	l/p	K_U01	TA1_U01
U_02	A student can associate engineering activity with environmental protection activities.	l/p	K_U15	TA1_U02 TA1_U10
K_01	A student understands the associations of engineering and non-engineering activities; a student also knows an engineer's social role in the process of contact with local communities.	l/p	K_K01 K_K06	T1A_K01 T1A_K07

Teaching contents:

1. Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	The concept of natural environment and its connection to ecology; indicating basic threats.	W_01 W_02
2	ISO 14001 norms – the system of managing the environment. Natura 2000 programme.	W_01
3	Eco-Management and Audit Scheme (EMAS) – the methodology of implementation.	W_01
4	Ecological Lifecycle Assessment (LCA) – the technique of environmental management.	W_02
5	Ecological disasters of global and regional significance.	W_01
6	Air pollution.	W_01
7	Water contamination.	W_01
8	Waste management, technologies and legal regulations.	W_02
9	Regional aspects of enterprise activity as regards environmental protection – case studies.	W_02
10	A test.	

2. Teaching contents as regards classes

Class number	Teaching contents	Reference to teaching results for a module

3. Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module

4. The characteristics of project assignments

A project in teams of 2 or 3, obtaining a credit for the project in the form of presentation and discussion.

Project class number	Teaching contents	Reference to teaching results for a module
1	Discussing project structures, division into teams, and arranging subjects.	U_01 U_02
2	Tutorials and discussion concerning project contents.	U_02 K_01
3	Presentation, discussion, and project assessment.	U_02 K_01
4	Presentation, discussion, and project assessment.	
5	A summary and final discussion.	

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results *(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)*
W_01	A final test; discussing the project.
W_02	A final test; discussing the project.
U_01	Project presentation and a discussion.
U_02	Project presentation and a discussion.
K_01	Discussing the project.

D. STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	**Student's workload**
1	Participation in lectures	**20**
2	Participation in classes	
3	Participation in laboratories	
4	Participation in tutorials (2-3 times per semester)	
5	Participation in project classes	**10**
6	Project tutorials	**5**
7	Participation in an examination	
8		
9	**Number of hours requiring a lecturer's assistance**	**35** *(sum)*
10	**Number of ECTS credit points which are allocated for assisted work** *(1 ECTS point=25-30 hours)*	**1.2**
11	Unassisted study of lecture subjects	**5**
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	
15	Preparing reports	
15	Preparing for a final laboratory test	
17	Preparing a project or documentation	**20**
18	Preparing for an examination	
19		
20	**Number of hours of a student's unassisted work**	**25** *(sum)*
21	**Number of ECTS credit points which a student receives for unassisted work** *(1 ECTS point=25-30 hours)*	**0.8**
22	**Total number of hours of a student's work**	**60**
23	**ECTS points per module** *1 ECTS point=25-30 hours*	**2**
24	**Work input connected with practical classes** *Total number of hours connected with practical classes*	**35**
25	**Number of ECTS credit points which a student receives for practical classes** (1 ECTS point=25-30 hours)	**1.2**

E. LITERATURE

Literature list	1. Cichy M. J., *Czystsza produkcja i jej model fenomenologiczny,* Gliwice 2007. 2. Holzer M., Grabowska B., *Podstawy ochrony środowiska z elementami zarządzania środowiskiem*, Wydawnictwa AGH, 2010. 3. Johnson A., *Czysta technologia – środowisko, technika, przyszłość*; WNT, Warszawa 1997. 4. Kowal A.L., Świderska-Bróż M., *Oczyszczanie wody,* PWN 1998. 5. Krebs Ch. J., *Ekologia*, PWN, Warszawa 1997. 6. Kulczycka J., *Ekologiczna ocena cyklu życia LCA*, Instytut Gospodarki Surowcami Mineralnymi i Energią PAN 2001. 7. Mering L., *Prawo ochrony środowiska,* Wydanie II, LEX, 1998. 8. Wiąckowski S., *Ekologia ogólna*, 1998.

	9. Rozporządzenie Ministra Środowiska z dnia 27 września 2001 r. w sprawie katalogu odpadów, Dz.U. Nr 112, poz. 1206. 10. Ustawa z dnia 27 kwietnia 2001 r. o odpadach, Dz.U. 2001 nr 62 poz. 628. 11. Poskrobko B., *Zarządzanie środowiskiem,* PWE, 2007.
Module website	