



MODULE DESCRIPTION

Module code	full-time studies:	Z-ZIP1-E-406
	part-time studies:	Z-ZIPN1-E-406
Module name	Ecology and environmental management	
Module name in Polish	Ekologia i zarządzanie środowiskiem	
Valid from academic year	2019/2020	

MODULE PLACEMENT IN THE SYLLABUS

Field of study	MANAGEMENT AND PRODUCTION ENGINEERING
Level of education	1st degree
Studies profile	General
Form and method of conducting classes	Full-time and Part-time
Specialisation	All
Unit conducting the module	Department of Production Engineering
Module co-ordinator	Magdalena Rybaczewska-Błażejowska, PhD, DSc
Approved by:	Dariusz Bojczuk, PhD, DSc

MODULE OVERVIEW

Type of subject / group of subjects	Basic
Module status	Compulsory
Language of conducting classes	English
Module placement in the syllabus - semester	Semester IV
Initial requirements	No requirements
Examination (YES/NO)	NO
Number of ECTS credit points	2

Method of conducting classes		Lecture	Classes	Laboratory	Project	Other
Per semester	full-time studies:	20			15	
	part-time studies:	12			9	

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Category	Symbol	Learning outcomes	Assignations to the directional learning outcomes
Knowledge	W01	A student has advanced knowledge as regards ecological conditioning of product manufacturing, taking subsequent life cycles into consideration.	ZIP1_W15
	W02	A student has knowledge concerning the elements of management, including innovative activities.	ZIP1_W18
Skills	U01	A student can obtain knowledge connected with the subject of ecology and environmental management.	ZIP1_U01
	U02	A student is able to combine engineering activities with environmental protection and circular economy activities.	ZIP1_U15
Social competences	K01	A student understands the relations between engineering activities and their impact on the environment, and is able to act with respect for social needs and laws governing the natural environment.	ZIP1_K02 ZIP1_K05

TEACHING CONTENTS

Method of conducting classes	Teaching contents
Lecture	<ol style="list-style-type: none"> 1. The concept of the natural environment and the relationship with ecology, principles of environmental protection, including the principle of sustainable development. 2. The concept of environmental impact, basic forms of management, the environmental impacts of human economic activity - air pollution, water pollution, soil pollution. 3. Environmental impact assessment. Project impact assessment. Strategic environmental impact assessment. Issuing decisions on environmental conditions for the implementation of the project. 4. Life cycle assessment - characteristics, structure, examples. 5. Environmental management systems - ISO 14001, eco-management and audit system EMAS. 6. Eco-marketing - environmental labels and declarations. 7. Eco-efficiency and eco-innovation issues - definition, classification, measurement. 8. Eco-designing.
Project	<ol style="list-style-type: none"> 1. Discussion of the subject of projects concerning the issue of environmental management in a selected enterprise. Presentation of the scope of projects. Division into teams. 2. Presentation of enterprises. Scope discussion and agreement. 3. Initial environmental review. Identification of environmental aspects and environmental impacts. Materiality assessment. 4. Environmental policy. Formal and substantive requirements. Case study analysis. 5. Environmental management program. Environmental goals and tasks. 6. Procedure. Purpose, responsibilities, terminology and algorithm of conduct. 7. Presentation of projects, discussion and evaluation. Summary of the work of the entire group - an indication of the strengths and weaknesses of the projects, taking into account the basic assumptions of environmental management systems.

METHODS OF ASSESSING TEACHING RESULTS

Symbol	Methods of checking the learning outcomes (select X)					
	Oral exam	Written exam	Test	Project	Statement	Other
W01			X	X		
W02			X	X		
U01				X		
U02				X		
K01			X	X		

FORM AND CONDITIONS OF PASSING

Form of classes	Form of credit	Passing conditions
Lecture	Credit with grade	Obtaining at least 51% of the test marks at the end of the class or presenting a final report on a given topic.
Project	Credit with grade	Execution and defense of the project.

STUDENT WORKLOAD

Balance of ECTS points												
No.	Type of student's activity	Student's workload										Unit
		full-time					part-time					
		Lc	C	Lb	P	O	Lc	C	Lb	P	O	
1.	Participation in the activities	20			15		12			9		h
2.	Other (consultation, exam)	2			2		2			2		h
3.	Number of hours of a student's assisted work	39					25					h
4.	Number of ECTS credit points which are allocated for assisted work	1,6					1,0					ECTS
5.	Number of hours of a student's unassisted work	11					25					h
6.	Number of ECTS credit points which a student receives for unassisted work	0,4					1,0					ECTS
7.	Work input connected with practical classes	21					21					h
8.	Number of ECTS credit points which a student receives for practical classes	0,8					0,8					ECTS
9.	Total number of hours of a student's work	50					50					h
10.	Punkty ECTS za modul <i>1 ECTS=25 hours</i>	2										ECTS

LITERATURE

1. Hojnik J. (2017), *In Pursuit of Eco-innovation. Drivers and Consequences of Eco-innovation at Firm Level*. University of Primorska Press.
2. Lane M., Marcantonio R. (2022), *Environmental Management: Concepts and Practical Skills*, Cambridge University Press.
3. Rybaczewska-Błażejowska M. (2019), *Eco-innovation and eco-efficiency in the frame of life cycle assessment*, Publishing house of the Kielce University of Technology, Kielce.
4. Sharma R. (2021), *Handbook of Sustainable Development: Strategies for Organizational Sustainability*, Business Expert Press.
5. Stahel W. (2019), *The Circular Economy: A User's Guide*, Taylor & Francis Ltd.