Polish course name	**EKOLOGISTYKA**
English course name	**ECOLOGISTICS**
Course code	**WIP-MDL-D1-EL-03**
Field of study	**Materials design and logistics**
Level of qualification	**First degree**
Form of study	**Full-time**
Semester	**3**
Number of ECTS points	**3**
Ways of assessment	**Test**

Number of hours per semester

Lecture	Seminar	Classes	Laboratory	Project
15		15		

TEACHERS:

Dr Joanna Krzywda.

COURSE OBJECTIVES:

- **C1** Presentation and discussion of the concept of ecologistics, its processes, objects and subjects of interest, possibilities and effects of its application.
- **C2** Characteristics of the waste management system including logistical aspects.

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES:

1. The student knows the basics of logistics concepts.
2. the student knows the basics of MS Excel and is able to use its functions in order to work with data.
3. the student is able to analyse numerical data, present it in a graphic form and interpret it correctly.

COURSE CONTENT

LECTURE

- **L1** Introduction to the subject. Presentation of the course outline, credit forms, class participation. Placing the ecologistics concept in the theory and practice of applied logistics.
- **L2** Evolution, definitions and subject of the ecologistics concept, Comparison of ecologistics with related concepts and its relation to traditional logistics.
- **L3** Circulation of waste and secondary raw materials in the environmentalist cycle - loops and supply chains.
- **L4** Fundamentals of waste management in the concept of ecologistics.
- **L5** Implementation of ecologistic measures into business practice.
- **L6, L7** Tasks and processes of ecologistics in waste management and their economic consequences.
- **L8, L9** Legal and organisational determinants of waste management in Poland and EU countries.
- **L10, L11** Analysis of the volume of generated industrial waste and the level of its management in Poland.
- **L12, L13** Model concept of ecologistics processes implementation in waste streams management.
- **L14** Cost model of ecologistics processes in waste streams management.
- **L15** Advantages analysis of ecologistics in waste streams management.

CLASSES

- **C1** Presentation of the assumptions of a descriptive model of the logistic process flow and a mathematical model of the logistic costs of industrial waste management in an industrial waste management company X.
- **C2**, **C3, C4** Creation of an Excel database, according to a descriptive model, which takes into account the types of industrial waste according to the Waste Catalogue, characterises the customers of company X, determines the unit component costs associated with the transport and storage of waste and the management of waste by landfilling or giving to recovery organisations.

- **C5, C6** Calculation from a database of the logistic costs, according to a mathematical model, associated with waste transport, storage, and management by landfilling or recovering.
- **C7, C8** Analysing the results obtained by means of graphical and tabular presentation of the various types of statements, comparisons, calculations, etc., concerning the current status.
- **C9, C10** Creation of forecasts related to individual cost components, analysis of different variants of data changes, presentation of forecasts in graphical and tabular form.
- **C11, C12** Creation of forecasts related to individual cost components, analysis of different variants of data changes, presentation of forecasts in graphical and tabular form.
- **C13, C14, C15** Creation of simulations related to individual cost components, analysis of different variants of changes in elements of both models, presentation of simulations in graphical and tabular form.

BASIC REFERENCES

1. Horodyńska M., Ekologistyka i zagospodarowanie odpadów, Wyd. Politechniki Śląskiej, Katowice, 2017 r.
2. Szymonik A., Ekologistyka. Teoria i praktyka, Difin, Warszawa, 2014 r.
3. Szołtysek J., Logistyka zwrotna. Reverse logistics, Instytut Logistyki i Magazynowania, Poznań, 2009 r.

SUPPLEMENTARY REFERENCE MATERIALS

1. Korzeń Z., Ekologistyka, Biblioteka Logistyka, Poznań, 2001 r.
2. Rosik-Dulewska Cz., Podstawy gospodarki odpadami, Wydawnictwo Naukowe PWN, Warszawa, 2003 r.
3. Krzywda J., Krzywda D.: Concept of Sustainable Development in Metallurgical Waste Transport, referat, publikacja obcojęzyczna, Praga, International Institute of Social and Economic Sciences (IISES), 15th International Academic Conference, Rzym, Włochy (14 do 17 kwietnia 2015 r.).
4. Krzywda J. Negotiations in the Closed-Loop Aluminium Supply Chain, w: Polish Journal of Management Studies, Vol. 19, nr 2, 2020 r.

LEARNING OUTCOMES

EU 1 The student knows the concept of ecologistics, its legal and organisational conditions and is able to indicate differences and similarities between ecologistics and logistics and related concepts.

EU 2 The student is familiar with logistics costs and is able to discuss logistical processes in waste management companies.

TEACHING TOOLS

› Lecture using audiovisual means.
› Textbooks and scripts.
› MS Excel software.

WAYS OF ASSESSMENT (F – FORMATIVE, P – SUMMATIVE)

› **F1.** Evaluation of the completion of the task.
› **F2.** Assessment of mastery of the learning material subject to laboratory tasks - credit colloquium.

STUDENT WORKLOAD

Form of activity	Number of hours	ECTS
Contact hours with the teacher		
Lectures	15	0,6
Seminar		
Classes	15	0,6
Laboratory		
Project		
Test	2	0,08

Exam		
Total contact hours	32	1,28
Student's own work		
Getting acquainted with the indicated literature	12	0,48
Preparation for seminar		
Preparation for classes	12	0,48
Preparation for lab		
Project preparation	6	0,24
Consultation	3	0,12
Preparation for the test	10	0,4
Total student's own work	43	1,72
Total number of hours/ ECTS points for the course	**75**	**3,0**

ADDITIONAL INFORMATION

Timetable of classes	https://wip.pcz.pl/dla-studentow/plan-zajec/studia-stacjonarne
Information about the consultation (time + place)	https://wip.pcz.pl/dla-studentow/konsultacje-dla-studentow

MATRIX OF LEARNING OUTCOMES REALISATION

Learning outcome	**Reference of given outcome to outcomes defined for whole**	**Course objectives**	**Course content**	**Ways of assessment**

	program			
EU 1	K_W01, K_W02, K_W04, K_W06, K_W07, K_U04, K_U06, K_U07, K_K01, K_K02	C1, C2	L1 - L15	F1, F2
EU 2	K_W01, K_W02, K_W04, K_W06, K_W07 K_U04, K_U06, K_U07, K_K01, K_K02	C1, C2	C1 - C15	F1, F2

FORM OF ASSESSMENT - DETAILS

EU1 The student knows the concept of ecologistics, its legal and organisational conditions and is able to indicate differences and similarities between ecologistics and logistics and related concepts.

- 2,0 The student does not know the basic rules of the ecologistics concept, its legal and organisational prerequisites and is not able to indicate the differences and similarities between ecologistics and logistics and related concepts.
- 3,0 The student is partially familiar with the basic rules of the ecologistics concept, its legal and organisational conditions and is partially able to point out the differences and similarities between ecologistics and logistics and related concepts.
- 3,5 The student almost knows the basic rules of the ecologistics concept, its legal and organisational conditions and can almost identify the differences and similarities between ecologistics and logistics and related concepts.
- 4,0 The student well knows the basic rules of the ecologistics concept, its legal and organisational conditions and is able to indicate the differences and similarities between ecologistics and logistics and related concepts.

› 4,5 The student is almost familiar with the basic rules of the ecologistics concept, its legal and organisational conditions and is able to indicate the differences and similarities between ecologistics and logistics and related concepts almost very well.
› 5,0 The student knows the basic rules of the ecologistics concept, its legal and organisational conditions very well and is able to indicate the differences and similarities between ecologistics and logistics and related concepts.

EU2 The student is familiar with logistics costs and is able to discuss logistical processes in waste management companies.

› 2,0 The student cannot identify logistic costs and cannot discuss the course of logistic processes in waste management enterprises.
› 3,0 The student is partly able to identify logistic costs and partly able to discuss the course of logistic processes in waste management enterprises.
› 3,5 The student is almost able to identify logistic costs and is almost able to discuss the course of logistic processes in waste management enterprises.
› 4,0 The student is able to identify well logistic costs well and is able to discuss well the course of logistic processes in waste management enterprises.
› 4,5 The student is able to identify logistic costs almost very well and is able to discuss almost very well the course of logistic processes in waste management enterprises almost well.
› 5,0 The student is able to identify logistic costs very well and is able to discuss very well the course of logistic processes in waste management enterprises very well.