



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Ecology and environmental management

### Course

Field of study

Management and Production Engineerin

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

PhD. Dorota Nagolska

Responsible for the course/lecturer:

e-mail: dorota.nagolska@put.poznzn.pl

ph. +48 61 665 27 71

Faculty of Mechanical Engineering

Piotrowo 3, 60-965 Poznań, hall A15

### Prerequisites

Basic knowledge of chemistry, materials science and production management.

### Course objective

The aim of the course is to acquire knowledge of the basics of ecology and contemporary problems of environmental protection, landscape protection and environmental management.

### Course-related learning outcomes

Knowledge

1. Has basic knowledge of ecology and environmental management.
2. Indicates the reasons for the need to conduct environmental management.



3. Can determine the impact of the company's activities on the environment.

#### Skills

1. Can recognize and define the way of industrial waste management.

2. Can design an environmental management system for a selected production company.

#### Social competences

1. Can work independently and as a team on a given task.

2. Is aware of the role of environmental management in a production company, can express opinions on ecology and waste management.

3. Understands the need for lifelong learning.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

##### Lecture

Written credit. Positive evaluation in the case of obtaining min. 50.1% correct answers. Up to 50.0% - ndst, from 50.1% to 60.0% - dst, from 60.1% to 70.0% - dst +, from 70.1 to 80 - db, from 80.1% to 90 , 0% - db +, from 90.1% - very good.

##### Tutorials

Presence at field classes. Active participation in classes. Written credit. Positive evaluation in the case of obtaining min. 50.1% correct answers. Up to 50.0% - ndst, from 50.1% to 60.0% - dst, from 60.1% to 70.0% - dst +, from 70.1 to 80 - db, from 80.1% to 90 , 0% - db +, from 90.1% - very good.

#### Programme content

History of environmental protection. Fundamentals of ecology. Ecology and environmental protection in business management, models and definitions of environmental management. Environmental management systems. Legal and economic foundations of environmental protection in Poland and the EU. Environmental threats. Industrial and communal pollutants and their impact on living organisms and the environment. Degradation and reclamation of elements of the natural environment. Protection of the lithosphere, hydrosphere and atmosphere, landscape protection. Municipal and industrial sewage treatment plants. Sources of noise and its impact on human health. Projects and technical measures in environmental protection. Alternative energy sources.

#### Teaching methods

Lecture: multimedia presentation, film, discussion.

Tutorials: multimedia presentation illustrated with examples given on the board, exercises, group work, discussion, visiting selected plants (incineration plant, sewage treatment plant or municipal water supply).



## Bibliography

### Basic

1. Zarzycki R., Imbierowicz M., Stelmachowski M.: Wprowadzenie do inżynierii i ochrony środowiska. Cz. I i II. WNT. Warszawa 2007.
2. Gajdzik B., Wyciślik A.: Wybrane aspekty ochrony środowiska i zarządzania środowiskowego. Wyd. Politechniki Śląskiej. Gliwice 2007
3. Poskorbko B.: Zarządzanie środowiskiem. PWE. Warszawa 2007.
4. Stefanowicz T.: Wstęp do ekologii i podstawy ochrony środowiska Wyd. Politechniki Poznańskiej. Poznań 1996
5. Kłós Z. Feder S. Ochrona środowiska w budowie maszyn i transporcie. Wyd. Politechniki Poznańskiej. Poznań 2002.

### Additional

1. Praca zbiorowa Zarządzanie środowiskowe ISO 14 000, tom 1-5 Wyd. CSziOSJ Politechniki Krakowskiej Kraków 2008
2. Bilitewski B., Härdtle G., Marek K. Podręcznik gospodarki odpadami: teoria i praktyka Wyd. Seidel-Przywecki Warszawa 2003

## Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for tutorials, preparation for tests) <sup>1</sup>	30	1,0

<sup>1</sup> delete or add other activities as appropriate