



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Environmental management and ecology [N1MiBM2>ZSiE]

### Course

Field of study

Mechanical Engineering

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

### Number of hours

Lecture

8

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

8

### Number of credit points

2,00

### Coordinators

### Lecturers

### 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. Getting to know the basic technical means used in environmental protection.

### Course-related learning outcomes

Knowledge:

1. Has basic knowledge of ecology and environmental management
2. Indicates the reasons for carrying out environmental management
3. Is able to determine the impact of the company's activities on the environment

Skills:

1. Is able to recognize and determine how to manage industrial waste
2. Is able to design an environmental management system for a selected manufacturing company

Social competences:

1. Is able to work independently and in a team on a given task.
2. Is aware of the role of environmental management in a production company, is able to 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 assessment. Positive assessment in case of obtaining at least 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.

#### Projects

Attendance. Preparation of a project regarding the preparation of an environmental review and a proposal for a method aimed at reducing the impact of the selected production technology on the environment. Presentation to the group forum combined with discussion. Prepared materials and presentation assessed by the teacher.

### Programme content

History of environmental protection. Basics of ecology. Ecology and environmental protection in enterprise management, models and definitions of environmental management. Environmental management systems. Legal and economic bases of environmental protection in Poland and the EU. Environmental threats. Industrial and municipal pollution 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. Noise sources and its impact on human health. Projects and technical measures in environmental protection. Alternative energy sources.

### Course topics

none

### Teaching methods

Lecture: multimedia presentation, film, discussion.

Project: multimedia presentation illustrated with examples given on the board, assistance in preparing a project regarding the environmental management system in a selected enterprise (at a selected position), assistance in selecting a method to counteract the effects of environmental pollution, group work, discussion, additionally visiting a selected plant (waste incineration plant, sewage treatment plant or municipal waterworks).

### 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. Kłos Z. Feder S. Ochrona środowiska w budowie maszyn i transporcie. Wyd. Politechniki Poznańskiej. Poznań 2002.

Additional:

1. Collective work Environmental management ISO 14 000, volume 1-5 Ed. CSzIOSJ of the Krakow University of Technology, Krakow 2008
2. Bilitewski B., Härdtle G., Marek K. Textbook of waste management: theory and practice Ed. Seidel-Przywecki Warszawa 2003

## Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	16	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	34	1,50