COURSE DESCRIPTION CARD - SYLLABUS

Course name
Environmental engineering [S1ETI2>IŚ]

Course

Field of study
Education in Technology and Informatics

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

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

Course-related learning outcomes

Knowledge:
Has basic knowledge of ecology and environmental management.
Indicates the reasons for the need to conduct environmental management.
Can determine the impact of the company's activities on the environment.

Skills:
Can recognize and define the way of industrial waste management.
Can design an environmental management system for a selected production company.

Social competences:
Can work independently and as a team on a given task.

Is aware of the role of environmental management in a production company, can express opinions on ecology and waste management.
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: 50% of points based on 5-10 test tasks + 50% based on max. 5 open questions. A positive assessment if you obtain at least 50.1% of correct answers. Up to 50.0% - 2,0, from 50.1% to 60.0% - 3,0, from 60.1% to 70.0% - 3,5, from 70.1 to 80 - 4,0, from 80.1% to 90.0% - 4,5, from 90.1% - 5,0.
Laboratory
Attendance at fieldwork. Active participation in classes. Submitted reports. Written assessment: 5-10 issues. Positive assessment if at least 50.1% of correct answers are obtained. 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% - bdb. Final assessment weighted average of all activities.

Programme content

History of environmental protection. Fundamentals of ecology. Ecology and environmental protection in enterprise management, models and definitions of environmental management. Environmental management systems. Legal and economic foundations of environmental protection in Poland and the EU. Threats to the natural environment. 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. Sources of noise and its impact on human health. Projects and technical measures in environmental protection. Alternative energy sources.

Course topics

Lecture
Introduction: nature, environment, environmental protection law, processes in nature. Degradation phenomena in the environment, prevention of degradation. Air purification methods. Water, water and sewage purification methods. Waste: threats, collection, segregation, incineration, disposal. Alternative energy sources. Ecology in the enterprise, work environment, management systems. Global environmental situation.
Laboratory:
1. Water: treatment, wastewater treatment (discussion and/or tour).
2. Water: water quality control, parameter measurements.
3. Alternative energy sources (discussion and/or tour).
4. Environmental policy, preparation of an environmental review.
5. Work environment, measurements of working conditions.
6. Waste, BDO, waste catalogue (discussion and/or tour).

Teaching methods

Lecture: multimedia presentation, film, discussion.
Laboratories: multimedia presentation illustrated with examples given on the board, measurements of environmental parameters, group work, discussion (Oxford debate), visit to selected plants (incineration plant, sewage treatment plant and/or municipal waterworks, depending on availability).

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. 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	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00