



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Cleaning-up of Ecological Disasters Effects

Course

Field of study

Year/Semester

Environmental Protection Technologies

I/2

Area of study (specialization)

Profile of study

Ecotechnology

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

30

0

0

Tutorials

Projects/seminars

15

0

Number of credit points

6

Lecturers

Responsible for the course/lecturer:

dr inż. Monika Zielińska

Responsible for the course/lecturer:

dr inż. Wojciech Smułek

Prerequisites

Student:

1. Has general knowledge in the field of ecology and exact sciences (core curriculum for high schools)
2. Is able to use information acquired from books, the Internet and databases
3. Has understanding of the problems of environmental protection at work and the natural environment

Course objective

Getting to know the causes, course and effects of ecological disasters, elimination of their effects as well as issues of chemical safety and current trends posing a threat to the natural environment.

Course-related learning outcomes

Knowledge

Student:

1. Has expanded knowledge allowing to recognize and diversify environmentally hazardous factors, especially in the field of natural and technological ecological disasters - [K_W04]



2. Has extensive knowledge to assess the state of threat to the environment and has detailed knowledge of development trends in the field of environmental protection and threats in the European area - [K_W05]
3. Knows the basic rules of conduct in neutralizing the impact of harmful substances on the natural environment - [K_W07]
4. Has in-depth knowledge in the field of natural and technological ecological disasters, especially in the field of liquidation of the effects of ecological disasters - [K_W10]
5. Has knowledge necessary to understand the issues of environmental threat and ways to improve its safety - [K_W11]
6. Has knowledge necessary to understand the consequences of health, social, economic and legal nature resulting from negligence in environmental protection, especially in the aspect of major accidents and ecological disasters - [K_W14]

Skills

Student:

1. Has easy verbal communication with specialists in the field of environmental protection technology, environmental engineering and related fields - [K_U02]
2. Is able to outline the directions of further education and implement the process of self-education, awakening interests and the habit of self-assessment of trends determining the state of the environment - [K_U03]
3. Has the ability to plan and implement a technological task with an analysis of the impact on the environment and perform calculations of parameters ensuring chemical safety - [K_U07]
4. Has the skills necessary to work in the natural environment; knows and follows the safety rules related to the work performed - [K_U10]
5. Has the skills to indicate directions for the neutralization and utilization of atypical industrial waste and has the ability to describe threats and analyze the basic elements determining safety - [K_U17]

Social competences

Student:

1. Understands the need for continuous training and improving personal professional competence - [K_K01]
2. Is aware of the occurrence of moral and ethical problems in the context of professional activities, and therefore attaches constant attention to the problems of pollution risks in the workplace and the environment - [K_K04]



3. Can clearly form opinions regarding professional issues, appreciates the importance of legal aspects, procedures and regulations aimed at improving the chemical safety system - [K_K06]

4. Is aware of the social role of a technical university graduate, especially in the field of environmental education - [K_K08]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Forming evaluation:

a) in terms of exercises: based on an assessment of the current progress of task implementation; b) in the scope of lectures: based on the discussion undertaken by the lecturer during the current lecture.

Summary evaluation:

a) in the scope of exercises based on: (1) public presentation on a topic indicated by the teacher; (2) discussion after the presentation; (3) summary test

b) in the scope of lectures based on: credit in the form of a selection test, with answers, at least one of which is correct; each question is scored on a scale of 0/1.

Programme content

Natural ecological disasters (earthquakes, landslides, storms, floods, drought, fires). Industrial ecological disasters involving chemicals (examples). Destruction of aggressive chemicals (examples). Incineracja. Global chemical contamination according to UNEP. The state and trends of the natural environment in Europe in the EEA assessment (energy, transport, GHG, ODS, raw materials, waste, hazardous chemicals, air, precipitation, water, soil, climate, agriculture, air, tourism, health).

Teaching methods

Lectures and tutorials

Bibliography

Basic

1. Chemical safety: international reference manual (edited by Mervyn Richardson); Weinheim; New York VCH 1994.

2. Safety assessment for chemical processes Jorg Steinbach, Weinheim; New York VCH 1999.

3. Program zapobiegania awariom i system zarządzania bezpieczeństwem Jerzy S. Michalik, Wojciech Domański

Additional

1. Tworzenie się niebezpiecznych substancji chemicznych podczas poważnych awarii przemysłowych Jerzy S. Michalik, Agnieszka Gajekch



Breakdown of average student's workload

	Hours	ECTS
Total workload	125	6,0
Classes requiring direct contact with the teacher	75	3,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	50	3,0

¹ delete or add other activities as appropriate