COURSE DESCRIPTION CARD - SYLLABUS

Course name

Monitoring of Environment

Course

Field of study

Environmental Protection Technologies

Year/Semester

III/6

Area of study (specialization)

-

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr. hab. inż. Agnieszka Zgoła-Grześkowiak,

prof. PP

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Wydział Technologii Chemicznej

ul. Berdychowo 4 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

The student has ordered knowledge in the field of analytical chemistry, basic knowledge about the properties of chemical compounds. He/she has basic knowledge in the field of ecology and nature protection.

Course objective

Transfer of knowledge about the theoretical foundations of environmental monitoring, diagnosing and forecasting the course of environmental phenomena and processes and knowledge in the field of the

systems' bases: monitoring, collecting, transmitting and processing data on the state of the environment.

Course-related learning outcomes

Knowledge

1. K_W05 The graduate knows the principles of environmental protection related to chemical production and waste management. The student knows the basic concepts related to environmental monitoring and its development, can explain the principles of SEM.

2. K_W07 The graduate has a theoretical background and general knowledge of inorganic, organic, physical and analytical chemistry and knowledge of methods, technical and technological capabilities of monitoring the components of the environment.

3. K_W14 The graduate has a general knowledge necessary to understand the social, economic, legal and other non-technical conditions of the engineering activity. The graduate knows the scope, structure and organization of environmental monitoring in Poland.

Skills

1. K_U06The graduate has the ability to self-study. The graduate searches and analyzes relevant legal acts regarding monitoring matters.

2. K_U08 The graduate uses correct terminology and nomenclature in the field of environmental protection technologies , also in English.

3. K_U10 The graduate takes into account legal regulations in the area of product standards and testing standards.

4. K_U18 The graduate can estimate the suitability and select the tools and methods to solve the problem in the field of environmental protection technologies.

Social competences

1. K_K02 The graduate is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its environmental impact and the resulting responsibility for his/her decisions. The graduate understands the need to monitor the environment, inform the public and decision-makers about environmental pollution in order to react to restore its good condition.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:
Knowledge acquired as part of the lecture is verified on the basis of one final test lasting 1.5 hours carried out during the last lecture. The final grade of the subject also includes activity on lectures.

Programme content

Basic concepts in the field of environmental monitoring. Outline of the State Environmental Monitoring in Poland: objectives, organizational structure and legal bases of the SEM. Environmental management system. Information on sources and loads of substances discharged into the environment.

Atmospheric air monitoring, scope and scale of tests, acceptable air quality standards.

Surface and underground water monitoring, scope and scale of research, acceptable water quality standards, information for the needs of water management.

Soil monitoring. Sources of pollution, pollution indicators, soil pollution assessment criteria.

Noise monitoring. Permissible levels. Noise emissions from industrial facilities and municipal utilities. Ways of noise protection. Monitoring of electromagnetic fields.

Biomonitoring, biological methods used in environmental monitoring. Monitoring of forests, plants and animal organisms.

Environmental monitoring - principles and methods of sampling and their analysis. Monitoring methods, measurement and alarm systems. Remote monitoring of the quality of the environment.

Teaching methods

Multimedia lecture combined with discussion. Trip to the Voivodship Inspectorate for Environmental Protection.

Bibliography

Basic

1. Program Państwowego Monitoringu Środowiska na lata 2016-2020, Biblioteka Monitoringu Środowiska, Warszawa 2015

2. Publikacje z serii Biblioteka Monitoringu Środowiska. Wyd. GIOŚ

3. Raporty o stanie środowiska woj. wielkopolskiego, WIOŚ Poznań

4. Raport Stan Środowiska w Polsce. Sygnały 2016, Biblioteka Monitoringu Środowiska, Warszawa 2017.

5. W. Chełmicki; Woda, Zasoby, degradacja, ochrona. PWN Warszawa 2000

Additional

1. Strona Europejskiej Agencji Środowiska https://www.eea.europa.eu/pl

2. Strona Głównego Inspektoratu Ochrony Środowiska http://www.gios.gov.pl/pl/

3. Strona Wojewódzkiego Inspektoratu Ochrony Środowiska w Poznaniu http://poznan.wios.gov.pl/

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	35	1,5
Student's own work (literature studies, preparation for tests) [1]	15	0,5

[1] delete or add other activities as appropriate