Course title: **Environmental toxicology** Toksykologia środowiska		
Field of study:		
Type of study: **full-time studies**	The level of education: **first-cycle studies**	Education profile: **general academic**
Type of subject: Wybierz element.	Semester: **IV**	Course language: **English**
Course type: **lecture, laboratory**	Number of hours: **15L, 45Lab**	ECTS Credit points: **7**

SYLLABUS

COURSE CONTENT

Form of classes - lectures	**Hours**
Environmental toxicology - introduction	1
Methods used in biological quality control of the environment	4
Toxicological assessment of water and air quality	2
Toxicological assessment of soil quality	2
Heavy metals ecotoxicology - occurrence, mechanism of toxic action, defense of plants against heavy metals	2
Heavy metals ecotoxicology - aspects of heavy metal tolerance, bioindicative assessment in the environment	2
Soil microorganisms, mycorrhizal symbioses in metalliferous areas	1
Test	1
Form of classes - laboratory	**Hours**
Introduction to laboratory exercises, safety rules etc., preparation of growth media and sterilization of essential equipment	3
Isolation of fungi from different environments, mainly from soils, by the method of Koh's plate cultures using dilutions on agar media.	3
Qualitative and quantitative assessment of the grown microbial colonies	3
Qualitative evaluation under the microscope of selected fungi	9
Isolation of selected fungi on differentiating media	3
Preparation of biotic series of selected pairs of fungi	6
Results and processing of the obtained results	3
Determination of toxicity of selected soil and environmental samples on the basis of vascular plant tests	12
Defense of reports prepared - evaluation of the laboratory reports	3

COURSE STUDY METHODS

1. E-learning platform of the Czestochowa University of Technology
2. multimedia presentation

3. laboratory setup
4. the literature and instructions for laboratory classes

METHODS OF ASSESMENT (F - formative; S - summative)

F1. - activity in classes
F2. - evaluation of work during laboratory exercises
S1. – test
S2. - evaluation of the laboratory reports

STUDENT WORKLOAD

Form of activity	Workload (hours)
Participation in lectures	15 h
Participation in classes	- h
Laboratory	45 h
Participation in project classes	- h
Participation in seminar	-
Preparation course on e-learning	-
Test	1 h
Entrance test for laboratory classes	2 h
Project's defence	-
Exam	-
Consultation hours	30 h
DIRECT TEACHING, hours/ ECTS	**93 h / 3,72 ECTS**
Preparation for tutorials	-
Preparation for laboratories	62 h
Preparation for projects	-
Preparation for seminars	-
Preparation for e-learning classes	-
Participation in e-learning classes	-
Working on project	-
Preparation for tests	20 h
Preparation for exam	-
SELF-STUDY, hours/ ECTS	**82 h / 3,28 ECTS**
TOTAL (hours)	**175 ∑**
TOTAL ECTS	**7 ECTS**

PRIMARY AND SUPPLEMENTARY TEXTBOOKS

Pepper, Ian L., et al., eds. Environmental microbiology. Academic press, 2011.
Gadd, Geoffrey M., ed. Fungi in bioremediation. No. 23. Cambridge University Press, 2001.
Kaushik, Anubha, and C. P. Kaushik. Basics of environment and ecology. New Age International, 2010.
Paul, Eldor, ed. Soil microbiology, ecology and biochemistry. Academic press, 2014.

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