

Course title: Fungi in Biology and Biotechnology Biologia i biotechnologia grzybów		
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
Biology of fungi	2
Characteristics of typical representatives of the fungal world.	2
Biotechnology of fungi	2
Fungi in bioremediation - introduction	2
Fungi in biodegradation - lignolytic and non-lignolytic fungi in pollutant decomposition and environmental technologies (decomposition of pesticides, PAHs , agricultural pollutants, etc.).	3
Bioaugmentation, bioadsorption of metals by fungi	1
Potential of mycorrhizal fungi in bioremediation of soils	2
Test on lecture content	1
Form of classes - laboratory	Hours
Introduction to laboratory classes - safety and hygiene of working with biological material in the laboratory, preparation of growth medium and sterilization of essential equipment	3
Quantitative analysis of filamentous fungi on agar media	6
Qualitative analysis of filamentous fungi by microscopic and macroscopic techniques	6
Isolation of selected fungal species to create pure cultures	3
Propagation of pure cultures of filamentous fungi on various selected organic and inorganic media	6
Formation of biopreparations from pure cultures of fungi and/or their mixtures	3
Biotechnological application of isolated fungi - student's own project: - development of biopreparation - application of the biopreparation - monitoring of the experiment - final conclusions from the obtained result	15
Defense of reports made during laboratories	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	4 h
Entrance test for laboratory classes	2 h
Project's defence	-
Exam	-
Consultation hours	30 h
DIRECT TEACHING, hours/ ECTS	96 h / 3,84 ECTS
Preparation for tutorials	-
Preparation for laboratories	64 h
Preparation for projects	-
Preparation for seminars	-
Preparation for e-learning classes	-
Participation in e-learning classes	-
Working on project	-
Preparation for tests	15 h
Preparation for exam	-
SELF-STUDY, hours/ ECTS	79 h / 3,16 ECTS
TOTAL (hours)	175 Σ
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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