

Wzór przewodnika po przedmiocie - wersja angielska
Syllabus template

Course title: Environmental Microbiology		
Programme: Biotechnology		Code: 4.1
Type of course:	Course level: II degree	Semester: I
Form of classes: Lecture, laboratory	Number of hours per week/meeting: 2 L^E, 2L	Credit points: 5 ECTS
Education profile: academic		Course language: English
Enrolment: yes		

GUIDE TO THE SUBJECT

I. COURSE CHART

COURSE OBJECTIVES

- C.1.** To introduction students with the basic taxonomic groups of microorganisms used in environmental biotechnology and the microbiological composition of selected environments.
- C.2.** To introduction students with biological methods of control and evaluation of biotechnological processes.

PRELIMINARY COURSE REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

- 1.** Knowledge of biology and microbiology at the academic level
- 2.** Knowledge of biochemistry at the academic level

LEARNING OUTCOMES

EK 1 - knows the microbiological composition of different environments and the role of individual microbial groups in biotechnology processes of wastewater treatment and waste disposal.

EK 2 - It can evaluate the effectiveness of selected biotechnological methods used in wastewater treatment and waste disposal.

COURSE CONTENT

Form of classes - lectures	Hours
Microbiological characteristics of water and wastewater.	4
Microbiological characteristics of soil and waste.	4
Review of basic taxonomic groups of microorganisms active in the process of waste water treatment and waste disposal.	8
Biological methods of wastewater treatment.	4
Conditions of the process of wastewater treatment with activated sludge and their impact on the functioning of micro-organisms	2
Biological methods of organic waste disposal.	6
Summary of lectures - discussing exam questions	2
Form of classes - laboratory	Hours
Biological analysis of activated sludge – a evaluation of sludge condition	4
Evaluation of the influence of heavy metals on activated sludge	4
Microbiological characteristics of urban and industrial wastewater	4
Microbiological evaluation of sewage treatment efficiency with activated sludge	4
Evaluation of soil condition in microbiological aspect	4
Microbiological analysis determining the degree of sewage sludge disposal by fermentation	4
Microbiological evaluation of the process of composting	
Final test laboratory exercises	2

COURSE STUDY METHODS

1. multimedia presentation
2. devices and equipment used in the laboratory
3. information panels and educational guides

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

F1. – activity in classes
F2. – evaluation of laboratory exercises
S1. – exam
S2. – test

STUDENT WORKLOAD

Form of activity	Workload (hours)
Participation in lectures	30 h
Participation in classes	- h
Laboratory	30 h
Participation in project classes	- h
Participation in seminar	- h
Preparation course on e-learning	- h
Test	2 h
Entrance test for laboratory classes	2 h
Project's defence	- h
Exam	10 h

Consultation hours	10 h
DIRECT TEACHING, hours/ ECTS	84 h / 2,625 ECTS
Preparation for tutorials	- h
Preparation for laboratories	46 h
Preparation for projects	- h
Preparation for seminars	- h
Preparation for e-learning classes	- h
Participation in e-learning classes	- h
Working on project	- h
Preparation for tests	10 h
Preparation for exam	20 h
SELF-STUDY, hours/ ECTS	76 h / 2,375 ECTS
TOTAL (hours)	∑ 160 h
TOTAL ECTS	5 ECTS

PRIMARY AND SUPPLEMENTARY TEXTBOOKS

Ian L. Pepper, Charles P. Gerba, Terry Gentry and Raina M. Maier
ISBN: 978-0-12-370519-8, Environmental Microbiology (Second Edition)

Ian L. Pepper, Charles P. Gerba and Terry J. Gentry ISBN: 978-0-12-394626-3,
Environmental Microbiology (Third Edition)

SUBJECT COORDINATOR (NAME, SURNAME, E-MAIL ADDRESS)

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NAME OF LECTURER (s) (NAME, SURNAME, E-MAIL ADDRESS)

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Learning outcome	In relation to the learning outcomes specified for the field of study	Course objectives	Course content	Course study methods	Methods of assesment
EK1	K_W06, K_W07, K_W12, K_U02, K_U04, K_U06, K_U09, K_K01, K_K06, K_K08	C1	Lecture/laboratory	1,2,3	F1, F2, S1, S2
EK2	K_W06, K_W07, K_W12, K_K01, K_K06, K_K08	C1,C2	Lecture	1,3	F2, S1, S2

EK3	K_W06, K_W07, K_W12, K_K01, K_K06, K_K08	C1	Lecture	1,3	F2, S1, S2
EK4	K_U02, K_U04, K_U06, K_U09	C2	laboratory	2,3	S2
EK5	K_W01, K_W05, K_W06, K_W07, K_W12, K_U02, K_U04, , K_U06, K_U09, K_K01, K_K06, K_K08	C2	Lecture/la boratory	1,2,3	F1, F2, S1, S2

II. OTHER USEFUL INFORMATION

1. All the information on the class schedule is posted on the student information board and online at: www.is.pcz.pl
2. The information about the consultation hours is provided to students on the first class meeting and posted online at ...
3. The information on course completion and grade is provided to students on the first class meeting.