

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Microbiology | | Code |
| Field of study Environmental Protection Technology | Profile of study (general academic, practical) general academic | Year /Semester 3/5 |
| Elective path/specialty - | Subject offered in: Polish | Course (compulsory, elective) obligatory |
| Cycle of study: First-cycle studies | Form of study (full-time, part-time) full-time | |
| No. of hours Lecture: 2 Classes: - Laboratory: - Project/seminars: - | | No. of credits 3 |
| Status of the course in the study program (Basic, major, other) major | | (university-wide, from another field) university-wide |
| Education areas and fields of science and art | | ECTS distribution (number and %) |
| Responsible for subject / lecturer: dr hab. inż. Ewa Kaczorek e-mail: Ewa.Kaczorek@put.poznan.pl tel. 61-665-3688 Wydział Technologii Chemicznej ul. Piotrowo 3, 60-965 Poznań | | |
| Prerequisites in terms of knowledge, skills and social competencies: | | |
| 1 | Knowledge | Student should have a basic knowledge of biology. |
| 2 | Skills | Student is able to seek information from the indicated sources. Student knows how to use the information assimilated from the textbook. |
| 3 | Social competencies | Student should understand the need for further self-learning. |
| Assumptions and objectives of the course: basic information about selected groups of microorganisms, their morphology and physiology, the possibility of their use in bioprocesses. Microorganisms in the aquatic and soil environment and their role and importance. | | |
| Study outcomes and reference to the educational results for a field of study | | |
| Knowledge: | | |
| 1. Student has knowledge in the field of general and environmental microbiology - [K_W07] 2. Student is able to describe the basic development trends related to the use of microorganisms in environmental technologies - [K_W11] | | |
| Skills: | | |
| 1. Student has skills to obtain the necessary information from the literature and other sources related to the biological sciences, the ability to link them with other sciences - [K_U01] 2. Student can independently determine the direction of further education - [K_U05] 3. Student uses correctly the terminology of microbiology - [K_U08] | | |
| Social competencies: | | |
| 1. Student understands the need for self-study and improve their professional competence - [K_K01] 2. Student is aware of the importance of microorganisms in the environment and biotechnological processes - [K_K02] | | |

| Assessment methods of study outcomes | | |
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| The lectures end with a written test, for a knowledge and understanding of the material | | |
| Course description | | |
| The course covers the following topics: the subject of microbiology; morphology of bacteria, fungi, and viruses; vegetative forms and spores; cellular metabolism; biochemical pathways and enzymatic catalysis; primary and secondary metabolites; microorganisms for biotechnological processes; safe lab work with the microorganisms; methods of microorganisms storage; environmental microbiology; systems of direct and indirect dependencies between microorganisms; the role and importance of microorganisms in the environment, water and soil; indicator microorganisms; self-purification of waters and zones saprobic. | | |
| Basic bibliography: | | |
| 1. Władysław J. H. Kunicki-Goldfinger „Życie bakterii”, Wydawnictwo Naukowe PWN 2. Hans G. Schlegel „Mikrobiologia ogólna”, Wydawnictwo Naukowe PWN 3. Nicklin J., Graeme-Cook K., Killington R., „Mikrobiologia”, Wydawnictwo Naukowe PWN | | |
| Additional bibliography: | | |
| 1. Abigail A. Salyers, Dixie D. Whitt, „Mikrobiologia” Wydawnictwo Naukowe PWN 2. Jadwiga Baj , Z. Markiewicz, „Biologia molekularna bakterii”, Wydawnictwo Naukowe PWN | | |
| Result of average student's workload | | |
| Activity | Time (working hours) | |
| 1. lecture | 30 | |
| 2. own work, preparation for the test | 12 | |
| 2. consultation to the lecture | 2 | |
| Student's workload | | |
| Source of workload | hours | ECTS |
| Total workload | 44 | 3 |
| Contact hours | 32 | 0 |
| Practical activities | 0 | |

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