

Industrial Microbiology

1. Lecturer: Vinnikova Olha Ivanivna, associate professor of the department of plant and microorganism physiology and biochemistry.
2. Status: optional for bachelors.
3. Course, semester: 4th academic year, 7th semester.
4. Number of credits – 2, general academic hours – 72, lectures – 24, seminars – 12; self-study – 36.
5. Preliminary requirements: basics of Biochemistry, Microbiology, Genetics, Biotechnology
6. Description of the course: the course deals with the main aspects of the biology of microorganisms used in biotechnological processes and production of biologically active substances. The course includes the use of microorganisms in the production of antibiotics, enzymes, amino acids and proteins, milk products, lipids, carbohydrates, polysaccharides, alcohols and others; the use of bacteria in the manufacture of fertilizers and insecticides. There the role of microorganisms in the transformation of various substances and leaching of metals from ores are considered in the course.

Sections: microorganisms-producers of various compounds; the use of microorganisms in various industries.

Knowledge and skills:

- Knowledge of the structure and growth of microorganisms used in industry;
- Knowledge of screening and methods used to obtain the most productive strains-producers;
- Understanding of the use of enzymes and enzyme preparations of microbial origin in various sectors of the economy and the possibilities of using microorganisms for the production of biological products;
- Ability to apply theoretical knowledge of industrial microbiology in the performance of duties based on biotechnological profile.

7. Course organization: lectures and seminars. Forms of control: tests, reports, exam.
8. Language: Ukrainian.
9. Educational and methodological support: program, schedule of classes, educational and multimedia presentations, methodical complex, guidelines for practice; excursions.

Studentbooks:

1. Глик Б., Пастернак Дж. Молекулярная биотехнология. Принципы и применение. – М.: Мир, 2002. – 589 с.
2. Егорова Т.А. Основы биотехнологии / Т.А. Егорова, С.М. Клунова, Е.А. Жинухина. – М.: Академия, 2006. – 208 с.
3. Козлова І.П., Радченко О.С., Степура Л.Г., Кондратюк Т.О., Піляшенко-Новохатний А.І. Геохімічна діяльність мікроорганізмів та її прикладні аспекти: Навч. посібник. – К.: Наук. думка, 2008. – 528 с.
4. Подгорский В.С. Систематика, экология и физиолого-биохимические особенности промышленно важных микроорганизмов // Микробиол. журн., 2003, Т. 65, №1. – С. 149.
5. Промышленная микробиология /под ред. Егорова Н.С. – М.: Высшая школа, 1989. – 688 с.