

CURRICULUM



Department of General and Applied Hydrobiology
Department of Biotechnology
Department of General and Industrial Microbiology

MULTIDEPARTMENTAL MASTERS DEGREE PROGRAM

ENVIRONMENTAL BIOTECHNOLOGY

COMPULSORY COURSE	A / S* workload	Total credits
1. Environmental Biotechnology	90 / 180	9
2. Biological Control	90 / 150	8
3. Ecotone Processes in the Hydroecosystems	90 / 150	8
4. Microbial Biochemistry	90 / 150	8
5. Biotechnological Detoxification	90 / 150	8
6. Environmental Management	105 / 165	9
7. Summer Research Practice on Water Treatment and Biological Control	0 / 60	2
8. Pre-diploma Practicum	90 / 360	15
9. Diploma thesis	0 / 450	15

* A / S — Auditorial workload / Self-preparation

ELECTIVE COURSE	A / S* workload	Total credits
1. Bioremediation	45 / 75	4
2. Drinking Waters	45 / 75	4
3. Ecological Chemistry of Waters	45 / 75	4
4. Biogeotechnology	45 / 75	4
5. Utilization of Secondary Products	45 / 75	4
6. Water Treatment Technologies	45 / 75	4
7. Applied Limnology	45 / 75	4
8. Computer Modeling in the Environmental Biotechnology	45 / 75	4
9. Genetic and Molecular Biological Methods in the Environmental Biotechnology	45 / 75	4
10. Selected Topics in the Biochemical Ecology	45 / 75	4

Contacts:

Head of the Masters Degree Program:

Prof. DSc Yana Topalova, PhD

Tel.: (+359 2) 8167289

e-mail: ytopalova@uni-sofia.bg

Secretary of the Masters Degree Program:

Assistant Mihaela Belouhova, PhD

Tel.: (+359 2) 8167214

e-mail: mihaela.kirilova@uni-sofia.bg



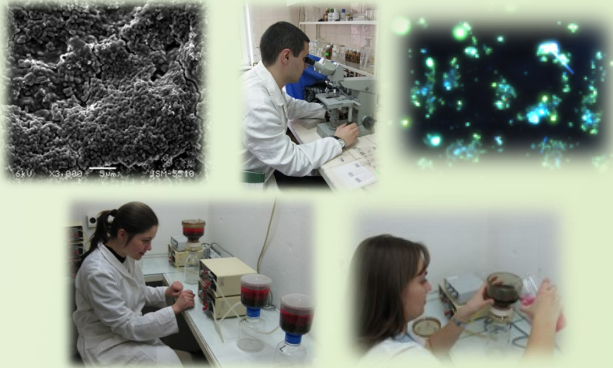
FACULTY OF BIOLOGY

Masters Degree Program "Environmental Biotechnology"

aims at giving a specialized, profiled and interdisciplinary training in the field of the ecological and the biotechnological approaches for environmental protection. As a level of education the program corresponds to the up-to-day concepts and most recent achievements in this field.

The candidates for education in the Masters Degree Program "Environmental Biotechnology" must hold the educational qualification bachelor's degree in the subjects of the professional sphere of BIOLOGICAL SCIENCES or other relative fields.

The duration of the educational course is three semesters, I and II of which are completely devoted to auditorial and laboratory work, and the III one – to diploma thesis preparation.



The curriculum includes 9 compulsory and 2 elective disciplines, chosen between 10 courses.

The educational scheme represents an improved and adapted variant of a successfully finalized **educational project TEMPUS**, which was completed with the participation of two Bulgarian and five Western European Universities.

The knowledge evaluation is based on the European Credit Transfer System (ECTS), as the complete program grants **90 credits**.

The students, who obtain the Masters Degree in "Environmental Biotechnology", acquire the following competences:

- ✓ Knowledge and practical skills in **application of the classical and most up-to-date technologies of control and management of the natural resources** and environmental technologies with special attention on **the role of the biological factor**;
- ✓ Introduction and realization of the firm policy in **the environmental protection systems**, minimizing waste products and energy losses in accordance to the **ISO-14000 standards**;
- ✓ Creation, management and realization of **firm, scientific and applied bioremediation and restoration projects**;
- ✓ Creation of new-ideas **biological projects on water treatment bioreactors and complexes for solid wastes**, introduction on **the water treatment and biodegradation** of a wide range of pollutants, **management of detoxification processes** of water, sludge and sediments through the application of highly effective biotechnological approaches;
- ✓ **Team work abilities**, tailoring and realization of **scientific and business projects, key decisions making in the risk management**.



The graduated Masters will find their professional realization as experts, researchers and consultants in:

- ✓ **Educational and scientific institutions**, involved in fundamental and applied research;
- ✓ **State, cooperative and private firms and laboratories**, whose working objects are **the ecological technologies** and biotechnological methods of environmental improvement and the quality of nature resources;
- ✓ **State subunits, cooperative and private firms and laboratories for natural resources control**;
- ✓ **Water and Wastewater Treatment Plants**, technological complexes for **solid waste processing** and **elimination of harmful gas emissions**;
- ✓ They get the right to proceed their education into the third educational qualification **PhD degree** in the same professional field.