INFORMATION ON STUDY PROGRAMME:
BIOPROCESS ENGINEERING

1. 1. Name of study programme	
Graduate university study programme *Bioprocess Engineering*	
1. 2. Field(s) of study (Croatian)	**Field(s) of study - ISCED-F**
04.04.	0512
1. 3. Length of programme	
Two years (four semesters)	
1. 4. Mode of study (full-time/part time/e-learning etc.)	
Full-time	
1. 5. Number of credits	
120	
1. 6. Qualification awarded	
Magistar/magistra inženjer/inženjerka bioprocesnog inženjerstva (mag. ing. bioproc.)	
1. 7. Level of qualification according to the National Qualification Framework	**Level of qualification according to the European Qualifications Framework**
7	7
1. 8. Occupational profiles of graduates	
Graduate study Bioprocess Engineering puts emphasis on the engineering part of the education, which prepares students to plan, design and manage biotechnological processes. A Master of Bioprocess Engineering is an expert who transfers the knowledge of biology and engineering, they have acquired, into industrial production, processing, storing of biological materials and waste water and material management. The knowledge acquired by such an expert shall allow him/her to compete on domestic, European and global labour market, and to apply for jobs offered by various firms that seek experts in possession of fundamental and specific knowledge in Bioprocess Engineering, required for the production of traditional (bakery, food and feed yeast, bio-fuels, vinegar, beer, malt, vine, starter cultures, biogas, organic acids and solvents, enzymes, vitamins, amino-acids, fermented food & beverages, etc.) and modern biotechnological products (monoclonal antibodies, vaccines, diagnostic agents, antibiotics, probiotics, therapeutic hormones, enzyme inhibitors, signal molecules, biotechnological conversions of renewable raw materials, and alike). On top of that, the experts of the above profile shall be qualified to involve into the production of bioprocess equipment, technological designing and surveillance of biotechnological facilities, as well as to affiliate with Development Agencies or specific inspection services. The graduate studies elaborated herein also pose as a solid background that enables further acquisition of novel notions so as to keep abreast with dynamic technological changes and innovations witnessed in this field of expertise.	

This graduate study will develop new competences necessary for activities of high level of complexity, such as work in research and development, control laboratories, management and control of biotechnological processes. Graduate Masters in bioprocess engineering will also have competences for putting in action and managing biotechnological companies.

1. 9. Programme learning outcomes

Learning outcomes

- technologically manage industrial biotechnological production systems
- recognize problems in production, make corrective decisions
- improve the existing biotechnological production
- develop new industrial biotechnological processes and equipment
- convey biotechnological process into larger (industrial) scale (scale up) and test them in smaller scale (scale down)
- make technological design of biotechnology production plants
- conduct technological supervision of designing, construction and testing of biotechnological production plants
- identify contamination source in production lines and detect contamination in environment, conceptualize waste treatment , and manage the plant for biotechnological waste water and other waste treatment
- plan and conduct experiments (scale up and scale down) in different fields of biotechnology, present and critically interpret results, make meritory conclusions
- do complex jobs in microbiological and biochemical laboratories
- interpret laboratory analysis results
- present plant, research, laboratory and business results in verbal and written form, using professional terminology
- apply ethical principles, legal regulations and standards related to specific requirements of the profession
- apply ethical principles in relationships to co-workers and employer
- use and value scientific and occupational literature with the aim of lifelong learning and profession enhancement

1. 10. Specific admission requirements (if applicable) and selection process

Defined by the Entrance Call for Enrolment ("Natječaj za upis", available at FFTB web pages)

1. 11. Qualification requirements and regulations

Defined by the Regulation on Undergraduate and Graduate programmes (Pravilnik o studiranju na preddiplomskom i diplomskom studiju).

1. 12. Progression regulations

A prerequisite to enrol into the next year of study is 50 ECTS credits that students need to have accumulated throughout the previous academic year.
Prerequisites, which are required in order to enrol particular subjects, and also to enrol the following semester and academic year, are defined by Course catalogues / Syllabi, or by the prescribed preconditions that need to be completed beforehand signing up for particular subjects.

1. 13. Examination regulations and grading scale

Throughout the term, a university lecturer or his/her assistant involved into a tuition of a certain course, tests and grades students' knowledge on each and every tuition segment) practicals, seminars, partial exams), based on which the final grade is earned. Students take one exam per course, which, however, may be subdivided into several partial exams, so as to provide for the

continuous students' knowledge testing. Partial exams are scheduled throughout the course of the term, with the exception of the final partial exam, which may as well take place in the first week of the examination period. Examination regulations are defined in individual course descriptions. The grades scale is as follows: "excellent" (5), "very good" (4), "good" (3), "satisfactory" (2), or "unsatisfactory" (1). The lowest grade needed to pass the exam is "satisfactory" (2).

1. 14. Specific arrangements for recognition of prior learning (formal, non-formal and informal) (if applicable)

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1. 15. List of other study programmes from which credits may be obtained

Other FFTB study programmes, other University of Zagreb study programmes, and study programmes of foreign universities covered by international cooperation agreements.

1. 16. Graduation requirements

Defined by the Regulation on Undergraduate and Graduate programmes (Pravilnik o studiranju na preddiplomskom i diplomskom studiju)

1. 17. Access to further studies

Following the successful completion of these graduate academic studies, students are entitled to enter the postgraduate studies offered by the Faculty of Food Technology and Biotechnology University of Zagreb.
Other academic institutions hosting postgraduate studies set their own entrance requirements.

1. 18. Readmission procedure (if applicable)

The full-time undergraduate or graduate student status at the Faculty of Food Technology and Biotechnology is acquired when students sign up for the “Become a student” (Postani student) system, or sign up for a graduate study after completing an undergraduate study, in compliance with the application requirements.

1. 19. ECTS coordinator

Branka Levaj, PhD, Full Professor