

INFORMATION ON STUDY PROGRAMME: FOOD ENGINEERING

1. 1. Name of study programme	
Graduate university study programme <i>Food Engineering</i>	
1. 2. Field(s) of study (Croatian)	Field(s) of study - ISCED-F
04.05.	0721
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 prehrambenog inženjerstva (mag. ing. techn. aliment.)	
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	
<p>Upon completing this study, students will be able to:</p> <ul style="list-style-type: none"> • manage, supervise, control and run activities related to production, distribution and launching of food on the market, and storage of raw materials, semi-manufactured products, and food products in food industry plants • develop, implement and monitor new food products and technological processes, as well as the processes and equipment in food industry • make technological design and elaborates for the food production facilities and technology lines • prepare process water and drinking water, as well as manage waste water • exploit food industry by-products, manage waste and environment protection • do quality assurance of food products and establish, conduct and maintain quality control systems in food industry • prepare legal regulations that regulate food production, and control and manage national authority activities • educate, formally and informally, and provide consulting in the field of food technology, e.g. related to project applications and intellectual property rights • work for scientific research institutions, food industry microbiology, physical-chemistry, sensory and instrumentation and control labs, and inspection services 	

1. 9. Programme learning outcomes

Ishodi učenja

1. know key aspects of food production and food industry
2. recognize the importance of all segments of food production (raw material features, technology applied, production and packaging conditions, effect of processing and preservation on chemical composition of food products, potential effects of packaging, quality assurance)
3. know new food processing techniques and processes and methods used for quality control of food
4. know principles and procedures of technological designing
5. understand basic principles of research work
6. understand basic principles and methods of organization management and work in a team successfully
7. understand the importance of environment protection and know the systems and methods of environment protection
8. organize work in food production companies
9. select and purchase raw materials and packaging materials, and conduct quality control of raw materials and products
10. supervise and manage the quality management system for production processes in food production
11. manage production plants of the entire food industry and associating departments
12. conceptualize and carry out improvement of new technological procedures
13. select and purchase new equipment and production lines, and work on their implementation in order to improve company's business
14. conceptualize and carry out production of new products
15. draw up technological projects for new warehousing, processing and production capacities in the field of food industry
16. do highly-complex jobs in microbiological, physical and chemical control and development laboratories of food industry
17. apply waste water treatment procedures in food production processes and conduct activities related to environment protection, in general
18. analyse and assist in creating legal regulations from the standpoint of the subject involved in food production
19. conduct scientific research in the field of food
20. make everyday decisions related to production processes in food production companies
21. make conclusions about selection and purchasing of raw materials, packaging and equipment
22. give a final opinion about the results of conducted physical, chemical and microbiological analyses of raw materials and final products
23. make decisions about development and expansion of production
24. identify the need to improve certain segments in such companies
25. manage a team or work in a team, which is in charge of a particular business activity in food industry or a related institution
26. manage or work in an interdisciplinary team, which conceptualizes and conducts experiments in the field of food technology
27. present modern food technology trends
28. apply contemporary optimal communication methodology with their colleagues in verbal and written way, using appropriate terminology
29. apply ethical principles in relationships to coworkers and employer

30. apply ethical principles, legal regulations and standards related to specific requirements of the profession
31. use and value scientific and occupational literature with the aim of lifelong learning and profession enhancement

Competences:

Upon completing this study, students are awarded the following competencies:

- Extended theoretical and practical knowledge of specific contents in chemistry, biochemistry, physical chemistry and food microbiology, unit operations, thermodynamics, mathematical modeling, numerical methods, programming and process engineering, and good knowledge of analytical methods used in these disciplines
- Detailed knowledge of raw materials used in food industry, industrial microbiology, technological processes of food production, food preservation, storing, control and management of production processes, food quality control, food sensory properties, legislation and environment protection
- Extended engineering knowledge of: substance and energy transfer, process kinetics, technological processes of cooling, freezing, dehydrating, purification, concentrating and packaging of food products; designing technological processes and equipment; GMP; quality management concentrated on hygiene of processing and production, creating and developing of new products, biotechnological waste water treatment.
- Detailed insight into novel techniques and technologies in the fields of food engineering (nanotechnology; application of high pressure, ultrasound, microwaves; genetically modified food; production of functional, ecological food and local products).
- Knowledge required for planning, designing and managing new technological processes and knowledge of food industry business management

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](#)