INFORMATION ON STUDY PROGRAMME

Biotechnology & Bioprocess Engineering, Food Technology and Nutrition Science

1. 1. Name of study programme	
Postgraduate (doctoral) university study programme *Biotechnology & Bioprocess Engineering, Food Technology and Nutrition Science*	
1. 2. Field(s) of study (Croatian)	**Field(s) of study - ISCED-F**
4.04., 4.05, 4.06, 4.07 (Biotechnical Sciences; fields: Biotechnology, Food Technology, Nutrition Science and Interdisciplinary Biotechnical Sciences)	0512, 0721, 0915
1. 3. Length of programme	
3 years (6 semesters)	
1. 4. Mode of study (full-time/part time/e-learning etc.)	
Full-time	
1. 5. Number of credits	
180	
1. 6. Qualification awarded	
doktor/doktorica znanosti, područje biotehničkih znanosti, odgovarajuće polje (određeno matičnom strukom) - dr. sc.: • doktor/doktorica znanosti, područje biotehničkih znanosti, polje biotehnologija (dr. sc.) OR • doktor/doktorica znanosti, područje biotehničkih znanosti, polje prehrambena tehnologija (dr. sc.) OR • doktor/doktorica znanosti, područje biotehničkih znanosti, polje nutricionizam (dr. sc.) OR • doktor/doktorica znanosti, područje biotehničkih znanosti, polje interdisciplinarne biotehničke znanosti (dr. sc.)	
1. 7. Level of qualification according to the National Qualification Framework	**Level of qualification according to the European Qualifications Framework**
8.2	8
1. 8. Occupational profiles of graduates	
The curriculum of these PhD studies offers high-quality coverage of the need for bioprocessing within the production of medicinal products and functional food supplements, and the need for biotechnological procedures employed in industrial production and processing of chemicals, materials and energy sources, this production thereby making use of renewable raw materials and a huge potential of various taxonomic groups of microorganisms and herbal & animal cell cultures.	

The curriculum of these studies also offers knowledge, skills and competencies that shall allow for the training of experts capable of accomplishing tasks requiring the highest level of expertise in the field of food research, designing, production and control and the field of bioprocess designing, management and leadership in service of production of biotechnological and food products.

For a substantial number of years, there also exists an increased demand for nutrition science experts not only in the food industry (where these experts design and promote functional food, health statement food and special diets), but also in the pharmaceutical industry (where these experts engage in the production of nutraceuticals, food supplements and special dietary products), as well as research and science research institutions, various healthcare facilities, and competent ministries. Recent years have seen an apparent rise in need for experts of this profile in hospitals, public health institutions, educational & communication and sport centres and centres devoted to the promotion of healthy diet and healthy lifestyle.

1. 9. Programme learning outcomes

Upon the study completion, a PhD candidate shall be able to:

1. Demonstrate systematic knowledge in the field of science covered by the study curriculum and master research skills and methodology of relevance for this field of science:
   a) As for the field of Biotechnology: systematic understanding and mastering of science research skills and Biochemical Engineering techniques, managerial skills needed for biotechnological processes management (Bioprocess Engineering), as well as skills falling within the Genetic Engineering, Industrial Microrganisms' Physiology and Microbial Ecology domains.
   b) As for the field of Food Technology: systematic understanding and mastering of science research skills and Food Process Engineering techniques, technological processes employed with food production, food quality control and food safety.
   c) As for the field of Nutrition Science: systematic understanding and mastering of science research skills and Nutrition Science techniques, food biochemistry, biochemical changes taking place within the food and human nutrition status.
2. Contribute to the dissemination of the existent knowledge by virtue of implementation of the research process through the preparation of an experimental part of his/her PhD thesis falling into the field of: 4.04 Biotechnology, 4.05 Food Technology, 4.06 Nutrition Science, or 4.07 Interdisciplinary Biotechnical Sciences.
3. Publish original results of the implemented research in internationally recognised journals in form of original contribution.
4. Exercise criticism in analysis, validate and implement a synthesised corpus of novel and complex ideas emerging in the field of interest for the science research carried out to the effect of preparing a PhD thesis.
5. Communicate with peers, broader scientific community and broader social community about the field of his/her expertise embraced by the domain tackled by the PhD research.
6. Promote the development of novel techniques, ideas and approaches based on experience gained during own science research carried out to the effect of preparing a PhD thesis.
7. Develop high-quality generic and transfer skills necessary for delivering opinion statements on and reaching conclusions about issues that imply scientific and ethical integrity.

1.10. Programme structure

PhD studies take three years, with the total workload of a PhD candidate of 180 ECTS points, out of which 30 ECTS points being earned through the attendance of tuition (in form of lectures, seminars and practicals) delivered within the frame of core (mandatory) and elective courses. The core courses attendance provides for 5 ECTS points per course, while the elective courses

attendance provides for 3 ECTS points per course. The implementation plan and the curriculum of the PhD studies cover for a broad range of science-related activities, which enable the entrants to adjust the attendance to their particular interests. A variety of elective activities related to the original research that shall result in the preparation of a PhD thesis enables each PhD candidate to earn a total of 150 ECTS points. The main elective activity expected of a PhD candidate is publishing of an original contribution covering the scientific domain foreseen to be covered by the PhD thesis. Such a contribution is expected to appear in a journal having an impact factor of, or higher than, 0.5. Prior to the release of such a publication, a PhD thesis cannot be submitted for evaluation. Should the above requirement be fulfilled, a PhD candidate shall be entitled to 75 ECTS points, which can be viewed upon as points grading the preparation of the PhD thesis. Each and every research-related, transfer and generic activity of a PhD candidate is thoroughly evaluated and granted points as specified under the Ordinance on PhD Studies adopted by the Faculty of Food Technology and Biotechnology University of Zagreb on September 28th, 2016, the Ordinance in question thereby being harmonised with the Ordinance on PhD Studies adopted by the University of Zagreb on September 7th, 2016.

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

Admission requirements:

(1) Any person with finished university undergraduate study programme (old programme) or graduate study programme in the relevant field can enrol into studies.

(2) Any person with completed undergraduate study programme (old programme) must have realised the lowest grade point average during the course of studies of 3.51 or must have a reference from two teachers from the faculty where they completed the undergraduate study programme and a reference from the employer explaining the need for enrolment into PhD studies.

(3) Any person with completed graduate study programme must fulfil the following requirements: in total 300 earned ECTS credits, grade point average at the undergraduate study programme of at least 3.51 and grade point average at graduate study programme of at least 3.71.

(4) Masters of Science in the relevant scientific field can enrol into the study programme for acquiring the PhD title under the conditions specified by the Board in line with legal regulations.

(5) Exceptionally, persons with completed university undergraduate studies (old programme) or graduate studies, i.e. persons who acquired the Master of Science title in other scientific fields and have additional expert and/or scientific reference in the field of biotechnical sciences that according to the judgment of the Board qualify them for enrolment may enrol into the study programme. For each such PhD candidate the Board adopts a decision determining additional conditions for enrolment.

(6) An interview with the candidate is a compulsory integral part of the enrolment procedure, whereat all necessary conditions for the completion of studies within the foreseen period are clearly defined.

Selection of Applied Candidates

(1) Candidates are informed in written form of the result of their application to the studies.
(2) A candidate whose application was not accepted can submit an objection to the Faculty Council via the Board in charge of postgraduate studies within the period of 15 days from receiving the notification.
(3) The decision of the Faculty Council is final.
(4) Names of selected candidates and their qualifications are publicly announced on the websites of the study programme.

1. 12. Qualification requirements and regulations
Defined by Ordinance on PhD Studies at the Faculty of Food Technology and Biotechnology of the University of Zagreb.
1. 13. Progression regulations
(1) Requirements for enrolment into the next study year are the following: - PhD candidate's annual progress report for the first study year - Study counsellor's/mentor's annual report on the PhD candidate's progress in the first study year - PhD candidate's individual agenda for the second study year (2) Requirements for enrolment into the third study year are the following: - Selection and PhD thesis draft application (synopsis, topic) - Selection of mentor - Earned in total 35 ECTS credits in the first and second study year - PhD candidate's annual progress report for the second study year - Mentor's annual report of the PhD candidate's progress in the second study year - PhD candidate's individual agenda for the third year
1. 14. Examination regulations and grading scale
Examination regulations are defined in the Course Catalogue. Course marks are: excellent (5), very good (4), good (3), sufficient (2) and fail (1). The lowest passing grade is 2. The result of PhD Thesis Defence may be *rite*, *cum laude*, *magna cum laude* or *summa cum laude*
1. 15. Specific arrangements for recognition of prior learning (formal, non-formal and informal) (if applicable)
Defined by Ordinance on PhD Studies at the Faculty of Food Technology and Biotechnology of the University of Zagreb (art. 15).
1. 16. List of other study programmes from which credits may be obtained
The PhD candidate and mentor select elective courses in the manner and scope prescribed by the study programme tuition plan. Pending explanation and approval of the mentor and the Board, the maximum of 6 ECTS credits can be earned by attending courses offered by other PhD study tracks. For courses that the PhD candidate can elect from other study programmes, the number of ECTS credits earned shall be equal to credits awarded in the enrolled study programme at the Faculty.
1. 17. Graduation requirements
Defined by Ordinance on PhD Studies at the Faculty of Food Technology and Biotechnology of the University of Zagreb (art. 26 – 40).
1. 18. Access to further studies
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1. 19. Readmission procedure (if applicable)
Defined by Ordinance on PhD Studies at the Faculty of Food Technology and Biotechnology of the University of Zagreb (art. 4).
1. 20. ECTS coordinator
Branka Levaj, PhD, Full Professor