RĪGAS TEHNISKĀ UNIVERSITĀTE

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Study programme "Chemical Engineering"

Main attributes

Title	Chemical Engineering
Identification code	KDL0
Education classification code	51524
Level and type	Doctoral (Third Cycle) Studies
Higher education study field	Chemistry, Chemical Technologies and Bio-Technology
Head of the study field	Māris Turks
Department responsible	Faculty of Material Science and Applied Chemistry
Head of the study programme	Māris Turks
Professional classification code	
The type of study programme	Full time
Language	Latvian
Accreditation	06.07.2016 - 30.06.2023; Accreditation certificate No 2020/42
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0
Degree or/and qualification to be obtained	Doctor of Engineering Sciences
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Master of Engineering in chemistry or chemical technology, chemical Master of Science, Master of Science in Chemistry, Chemical Engineering Master , Master of Engineering Materials Science

Description

Abstract	Study program „Chemical Engineering” is the only program in this field in Latvia. Program envisages training of chemical engineering specialists for enterprises dealing with processing and manufacturing chemistry, biotechnology and pharmaceutical products, food, cosmetics, fuel, wood, ceramics, textile and building materials etc., as well as specialists for corresponding research laboratories and research institutions. Studies include typical for this branch education in processes and apparatus of chemical technology, specialization in chemistry and technology of polymer and silicate materials, fuels, biologically active compounds and wood, as well as environmental chemistry and technology. Simultaneously with theoretical studies student gains practical skills in pedagogy, acquires research methods and technique, participates in scientific seminars. Education in chemical engineering let to work in enterprises of different branches, where leading specialists in engineering sciences - who can manage chemical processes, can ensure quality, are capable to develop new methods and equipment, are able to create, to design and to introduce new innovative technologies - are needed. Such knowledge is necessary to work in testing, quality control and research laboratories of different products and materials.
Aim	The goal of study program is to provide the highest qualification corresponding to doctor’s level in chemical engineering, as well as to prepare for pedagogical work.
Tasks	General tasks of study program: - to ensure competitive doctorate level education in chemical engineering corresponding to Bologna recommendations; - to guarantee the higher education in fundamental sciences linked with direction, to provide skills to formulate and to solve independently scientific and practical tasks, and knack to organize and to lead research work, to provide skills and experience necessary for pedagogical employment.
Learning outcomes	Graduates of program receive doctor’s degree of engineering sciences in chemical engineering. Graduate has systematic comprehension about chemical engineering branch, he/she superintends research skills and methods in this field, is able to create (to design, to implement and to adapt) essential engineering processes, is capable to receive national and international recognition (with publications and patents) using original scientific ideas and to broaden technological possibilities and knowledge. Taking into account technological, social, short-term and economical restrictions, graduate is able to carry out critical analysis, evaluation and synthesis of new and complicated ideas. Graduate is able to make responsible decisions, to plan projects and to calculate necessary resources within international context, to communicate with colleagues, international scientific community and society about his/her ideas and experience. Graduate can promote (within academic and professional context) technological, social or cultural progress of knowledge based society.

Final/state examination procedure, assessment	The final examination is presentation of thesis (dissertation). The doctoral degree is awarded for independent promotional work (thesis), which contains original approved research results and provides new findings in chosen scientific field. The conformity of work is evaluated by the State scientific qualification committee, the experts of Latvian Science Council and the Promotional Council of corresponding scientific branch taking into account following criteria: completeness and novelty of investigations, conformity of content and volume of thesis, usage of advanced methods for analysis and data treatment, the presence of publications in peer reviewed international scientific issues, participation in international scientific conferences (seminars) and dissemination of results of investigation. Promotional Council arrives at a decision by closed voting.
Description of the future employment	Doctor of engineering sciences in chemical engineering elaborates corresponding methods, equipment and technologies to approbate, to implement, to organize and to ensure realization and management of chemical processes. Such specialist designs projects of production units, technological lines and automation of processes, elaborates management and monitoring methods of processes, as well as methods of quality control and conformity evaluation of products and materials, sets up measures for occupational safety and environmental protection. Appraising production risks and making responsible decisions such specialist analyzes, evaluates, creates, spreads and implements in practice processes and technologies, as well as methods of quality management and improvement in order to promote technological development of enterprise, to increase effectiveness and quality of operation and to guarantee occupational safety. Graduate can work as manager or leading specialist at any enterprise dealing with realization of chemical or biotechnological processes, at research, testing and quality control laboratories, which are engaged in elaboration or quality control of new technologies, materials and products. Graduate can work as self-employed person or individual businessman, as well as leading researcher at research institutions.
Special enrollment requirements	Previous education: Master of engineering sciences in chemistry or chemical engineering, Master of chemistry sciences, Master of natural sciences in chemistry, Master of chemical engineering, Master of engineering sciences in materials science.
Opportunity to continue studies	Lifelong learning.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**20.0**
1	KTM109	Scientific Seminars	10.0
2	KTM108	Academic Writing	2.0
3	KTM110	Original Research Article	8.0
C		**Free Elective Study Courses**	**18.0**
E		**Final Examination**	**154.0**
1	KTM111	Scientific Work	154.0