



## RĪGAS TEHNISKĀ UNIVERSITĀTE

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### Study programme "Chemistry, Materials Science and Engineering"

#### Main attributes

Title	Chemistry, Materials Science and Engineering
Identification code	KDI0
Education classification code	51528
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 Natural Sciences and Technology
Head of the study programme	Māris Turks
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	19.04.2023 - 20.04.2029; Accreditation certificate No 2023/17-A
Volume (credit points)	288.0
Duration of studies (years)	Full time studies - 4,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D.) in Natural Sciences or Doctor of Science (Ph.D.) in Engineering and Technology
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	<ul style="list-style-type: none"><li>• Second-cycle higher education in the field of engineering or natural sciences, or equivalent education; or</li><li>• Second-cycle higher education in the field of medicine and health sciences or an equivalent education and an entrance exam.</li></ul>

#### Description

Abstract	<p>The study programme is the only study programme in this field in Latvia. The study programme envisages training of specialists in chemistry, chemical engineering and materials science for enterprises dealing with processing and manufacturing chemistry, biotechnology and pharmaceutical products, food, cosmetics, fuel, wood, ceramics, textile and building materials scientific institutions and research laboratories. The acquisition of knowledge specific to the specialization and study field of design, synthesis, processing and analysis of substances (organic, inorganic and elementorganic), materials (biomaterials, polymers, inorganic and composite materials) and processes (chemical, materials and environmental technologies) is planned during the study courses and scientific research. In the free elective part, in parallel with the acquisition of theoretical knowledge, an opportunity is given to the students to acquire practical skills in pedagogy, to acquire scientific research methodology and techniques, to participate in scientific seminars and conferences. The progress of doctoral studies will be supervised by an advisory council set up individually for each student.</p> <p>The acquired knowledge in chemistry, chemical technology, materials science and physics will allow the graduate to work in companies of various fields, where leading natural and engineering specialists are required with knowledge of chemical and physical processes, ability to ensure process quality, develop new methods and equipment, create, design and implement new, innovative technologies. Such knowledge is also required when working in testing, quality control and research laboratories for various materials and products.</p>
Aim	To provide the highest qualification corresponding to the doctoral level in the field of chemistry, chemical engineering, materials science and physics, as well as to prepare for pedagogical work.
Tasks	<p>General tasks of the study programme:</p> <ul style="list-style-type: none"><li>- to ensure competitive doctoral level education in chemistry, chemical engineering, materials science and physics corresponding to Bologna recommendations;</li><li>- to guarantee the highest education level in the selected fields of fundamental sciences, to provide skills to formulate and to solve independently scientific and practical tasks, to organize and to lead research work; to provide skills and experience necessary for pedagogical work.</li></ul>
Learning outcomes	<p>Graduate of the study programme:</p> <ul style="list-style-type: none"><li>- is at the highest level familiar with the theories, methods and equipment of the selected scientific field and its related branches, as well as development trends;</li><li>- is able to perform independently complex process planning, implementation, data processing, analysis and interpretation using the theories of the chosen scientific field and its related fields and the available hardware;</li><li>- is able to scientifically describe new research or production results for scientific publications, technological process instructions, reports and to present these results to scientific peers, industry professionals and the general public;</li><li>- by combining the acquired knowledge and skills with actual scientific information, is able to prepare, apply for and manage scientific, innovative and collaborative projects and research (including international) following the project call, market requirements and available resources;</li><li>- is able to promote the technological, social or cultural progress of a knowledge-based society in an academic and professional context.</li></ul>

Final/state examination procedure, assessment	By completing the study programme, the doctoral thesis is defended. The doctoral degree is awarded for an independently developed research project, which is summarised in a form of a doctoral thesis – dissertation or a research summary complemented with publications. The latter contains scientifically original results of significant importance in the relevant sub-branch of science. The compliance of the doctoral thesis is assessed in accordance with the criteria and procedures for awarding a doctoral degree specified in national legislation. The decision regarding the awarding of a doctoral degree is made by the promotion council of the relevant branch of science following the procedures specified in national legislation.
Description of the future employment	A doctor of chemistry, chemical engineering, materials science or physics and astronomy is able to perform scientific work or lead a working group, which deals with developing appropriate methods and products, equipment and technologies, as well as to perform pedagogical work at the university level. The graduate of the study programme may work as a company manager or chief engineer in any company engaged in the production and/or processing of chemicals and/or materials, in R&D, testing and quality control laboratories engaged in the development of new products or their quality control, and also as a self-employed person or sole proprietor. The graduate can work as a leading researcher in scientific institutions.
Special enrollment requirements	
Opportunity to continue studies	Lifelong learning.

**Courses**

No	Code	Name	Credit points
A		<b>Compulsory Study Courses</b>	<b>30.0</b>
1	<a href="#">DA3302</a>	Scientific Seminars	15.0
2	<a href="#">DA3303</a>	Academic Writing	3.0
3	<a href="#">DA3304</a>	Original Research Article	12.0
C		<b>Free Elective Study Courses</b>	<b>27.0</b>
E		<b>Final Examination</b>	<b>231.0</b>
1	<a href="#">DA3301</a>	Scientific Work	231.0