



RIGA TECHNICAL
UNIVERSITY

Faculty of Materials Science and Applied Chemistry

Study programme "Chemical Technology"

SPRING SEMESTER

Note! This is a preliminary list of courses. Changes may occur!

BACHELOR COURSES

Code	Course name	CP	ECTS
<u>KTM107</u>	Inorganic Chemistry	9.0	13.5
<p>The study course provides students with in-depth knowledge of the properties of inorganic compounds, acquisition methods and applications in various industries. The study course examines the relationships between the structure and properties of elements and connections. Students are given an insight into the most important compounds specific to each chemical element.</p>			
<u>KVT724</u>	Unit Operation of Chemical Engineering <i>(available only to students who study chemical technology)</i>	6.0	9.0
<p>In this course attention is paid to the following topics: main processes of chemical technology. Evaporating processes, Calculation of evaporating devices. Distillation: elementary distillation, rectification of liquid compositions, calculation of rectification column. Drying processes in chemical technology, convective and contact dryers, and specific kinds of drying. Sorption processes in chemical technology, construction and calculation of sorption devices. Extraction of liquids and solids, construction of extractors. Distribution of non-homogenous systems – sedimentation, filtrations, centrifuging.</p>			
<u>KOS733</u>	History of Chemistry	2.0	3.0
<p>The history of chemistry from alchemy to a modern science mainly in Europe but with special regard of the development of chemistry in the Baltic states. Main focus will be the 19th century. Historical landmarks in Europe. Important historical scholars in the field of chemistry.</p>			
<u>KVT310</u>	Chemical Reaction Engineering	3.0	4.5
<p>The study course gives insight on the division of chemical processes and the respective reactors. Homogeneous chemical processes, their reactors and calculations. Heterogeneous non-catalytic processes in chemical systems gas (liquid)– solid and principled schemes of their reactors. Heterogeneous non-catalytic chemical processes in system gas (liquid)– liquid and their reactors. Heterogeneous catalytic processes and reactors, their calculations.</p>			
<u>KNF301</u>	Physical Chemistry (advanced course)	6.0	9.0
<p>Electrochemistry. Theory of electrolytic dissociation. Theory of strong electrolytes. Debye-Huckel theory. Conductivity of electrolytes. Galvanic cells. Electromotive forces and electrode potentials. Types of galvanic cells. Thermodynamics of galvanic cells. Types of electrodes. Electromotive force measurement. Electrochemical kinetics.. Electrolysis. Metal corrosion. Kinetics of chemical reactions. Formal kinetics. Reaction rate. Reaction Rate Law. Reaction Order Determination. Fundamentals of Chemical kinetic theories . Hard-Sphere collision theory. Activation energy. Arrhenius equation. Transition-state theory. Chain reaction. Catalysis. Homogeneous catalysis. . Fundamentals of heterogeneous catalysis.</p>			
<u>KST717</u>	Chemistry and Technology of Silicate Materials	2.0	3.0
<p>The lecture first part is dedicated to chemistry of the silicon and silicon compounds. Order of the questions is set out in the background in connection "composition-structure-properties" both regarding crystalline, melt and vitreous conditions. The second course part is dedicated to the questions about technologies of silicate materials, as traditional, oxide, non-oxide ceramic, glass, glass crystalline material and inorganic binding material technology.</p>			
<u>KOS725</u>	Chemistry of Cosmetics	4.0	6.0
<p>The study course rises understanding about elaboration of cosmeceutical formulations and the difficulties which may rise. The student gets familiar with various ingredients used in cosmetics and their role in the products. The study work is targeted to gain knowledge for successful involving in manufacturing of cosmeceutical products as well as elaborating new cosmeceutical formulations and choosing appropriate ingredients for achieving defined goals.</p>			

Note! Full course description available by clicking on the course code!