

TURIN POLYTECHNIC UNIVERSITY IN TASHKENT

 Approved by
Chief of the Academic Department
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EDUCATIONAL PROGRAM

Academic year 2018-2019

On subject

CHEMISTRY

for the students of the preparatory year

Tashkent 2018

Preparation module on General Chemistry

Section 1. General information

Module Title	General Chemistry	
Module code		
Credits		
Year	Year 1	
Study Formats and Hours	Study Formats	Hours
	Lectures	44
	Practice	60
	Laboratory works	8
	Self Study	260
	Total Hours	382

Section 2: Academic Content

The main task of the course in general and inorganic chemistry for students of the Turin Polytechnic University is to provide future specialists for automobile industry with skills for prognosis of the main chemical reactions, using chemical substances, minerals and materials in modern technology. Besides, students require specific knowledge in chemistry for further study of general theoretic and profile subjects.

According to the curriculum, first year students of the faculty of Mechanical Engineering, Automotive Engineering, Energy, Information technologies, Civil Construction and Engineering, Architecture and Industrial Design learn general and inorganic chemistry in the first and the second semester. The course consists of 382 hours, out of which 44 hrs are lectures, 60 hrs practice, 8 hrs -labs and 260 hrs – independent student's work. The course is completed by final exams.

Section 3: Course contents

Time - table for presenting lectures, performing practical lessons and laboratory works.

	Content of the subject	Hours			
		Total	Lectures	Laboratory works	Practical
1.	General instructions and safety rules in chemical laboratory. Equipment used in the laboratory.			2	
2.	The scope of chemical science. The components of matter. Substances and mixtures. Elements and compounds. Macroscopic and microscopic concept.		2		2
3.	Definition for the unified atomic mass unit, relative atomic mass, relative		8		12

	<p>molecular mass, Mole, Avogadro's number.</p> <p>Chemistry laws: Conservation of Mass. Conservation of Energy R.Boyle's Law , 'Charles' Law Combined Gas Law. Definite Composition. Ideal Gas Law Avogadro's Law The equivalent</p>				
4.	<p>Periodic chart of the elements. Element, ion, and compound symbols. Categories of elements. Groups and families of the Periodic chart. Periodic properties.</p>		6		6
5.	<p>Trends in the Periodic Table Atomic radii. Ionization energy. Electron affinity. Oxidation state. Electronegativity.</p>		2		
6.	<p>Compounds formula, name, mass. Stoichiometry of formulas and equations. Equivalent and valence The main classes of inorganic compounds. Oxides, acids, bases, salts.</p>		6	2	12
7.	<p>Chemical bonding and the structure of molecules. Ionic, covalent, metallic, hydrogen and other types of bonding.</p>		4		2
8.	<p>Chemical reactions. Thermochemistry. Forms of energy. Enthalpy. Standart heat of reaction. Hess's Law. Le Chatelier's principle</p>		4		8
9.	<p>Solutions and their properties. Representation of solution's concentration.</p>		4	2	6
10.	<p>Electrolytic dissociation.</p>		4	2	6

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11.	Introduction into organic chemistry. Characterization of organic compounds. Hydrocarbons, alcohols, aldehydes, ketones, acids.		4		6
	Total	112	44	8	60

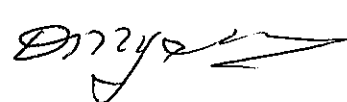
Section 4: Subject Resources

Textbooks required	<ol style="list-style-type: none"> 1. Martin S. Silberber. Principles of general chemistry . 1st ed. ISBN 978-0-07-310720-2 - 0-07-310720-4 (acid-free paper), 2007 2. N.L.Glinka. General Chemistry. Mir publisher, English translation. 1981 3. N.L.Glinka. Problems and Exercises in General Chemistry, English translation. 1981
Supplementary reading	<ol style="list-style-type: none"> 1. Linda D. Williams. Chemistry demystified. Copyright 2003 by The McGraw-Hill Companies, Inc. Click Here for Terms of Use.

Section 5: Assessment/course work

All assessment will comply with the TPU in Tashkent and Turin Polito University Assessment Rules and Regulations.

Head of the
Department

D. Tulyaganov

 26.08.20

