

**Subject: CHEMISTRY - 30 hours**

Prerequisites	-
Course aim and skills acquired	The main purpose of the subject is to introduce students to chemistry, covering both theoretical and computational problems. After the course, the students will be able to analyse and solve basic chemical problems in their further study.
Course contents	Elementary particles. Structure of the atom. Periodic table. Basic laws of chemistry. Chemical bonds. Micro- and macroscopic structure of matter. Principal types of chemical compounds and their properties. Structure and nomenclature of inorganic compounds. Basic types of chemical reactions. Acid-base reactions and redox reactions. Basic concepts and relationships of thermodynamics. Chemical equilibria. Percentage and molar concentration. The concept of chemical equivalent. Mixing solutions. Dilution and solubility. The concept of pH. Definitions acids and bases. Strong and weak acids and bases. Organic compounds. Hydrocarbons, alcohols, aldehydes, ketones, ethers, phenols, carboxylic acids, esters, fats, carbohydrates. Organic compounds containing nitrogen and sulphur. Introduction to chemical analysis.
Literature	Chemical Principles, 5 <sup>th</sup> ed., P. Atkins, L. Jones, Chemistry: Molecules, Matter and Change, 4 <sup>th</sup> ed., P. Atkins, L. Jones, Organic Chemistry, 8 <sup>th</sup> ed., J.E. McMurry,
Students input	Class attendance is obligatory. Two absences are allowed. A Participant's absence may be justified on the basis of a medical certificate. Timely submission of assigned homework.
Assessment criteria	The final grade for a course shall be based on three parts: <ul style="list-style-type: none"> <li>• 30% of the final grade are results of the tests during the semester;</li> <li>• 40% of the final grade are grades for active participation (homework, being active in class, projects);</li> <li>• 30% of the final grade is the result of the examination at the end of the semester.</li> </ul> The Participant may pass the course provided that they receive at least 60% in total for all the parts. <p>The following grades and their verbal descriptors shall be used in the Programme:</p> 5.0 – five or very good, 91%- 100% 4.5 – four and a half or above good, 82%- 90% 4.0 – four or good, 75%- 81% 3.5 – three and a half or fairly good, 69%- 74% 3.0 – three or satisfactory, 60%- 68% 2.0 – two or unsatisfactory, < 60% <p>The award of the grade 2.0 is equivalent to failing the course.</p>