**Course Syllabus**

Academic year: 2018-2019

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| Institution | University of Petroşani |
| Faculty | Mechanical and Electrical Engineering |
| Field of study | Industrial Engineering |
| Level | Bachelor |
| Program of study | Transports and traffic engineering |

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| Course | **Chemistry** |
| Code | 2TT1OF02 |
| Year of study (semester) | I (I) |
| Number of hours | 56 |
| Number of credits | 4 |
| Professor | Lecturer, Ph.D. Chem. MOLDOVAN Clementina Sabina |

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| **No.** | **Topic** |
|  | Fundamental Laws of Chemistry. Mass Conservation Law. The law of the defined proportions. The law of multiple proportions. The law of constant volumes. Avogadro's law. The molar volume. |
|  | Structure of the atom. The nucleus of the atom |
|  | Periodic system of elements. Periodicity of the physico-chemical properties of the elements. The valency of the elements towards oxygen, fluorine and hydrogen. |
|  | Chemical bonds (ionic bond, covalent bond, covalent-coordinating bond). Mechanical - quantum theory of covalent bonding. Metal, hydrogen and Van der Walls bonds |
|  | Electrochemistry. Electrolytic dissociation. Ionic dissociation of water. pH and pOH of solutions. Electric current action on electrolytes. Conductivity of electrolytes. |
|  | Electrical cells. Main types of electrodes. Potential of the electrode. Electromotive voltage of electric cells. Properties. Uses. |
|  | Industrial and residual waters. Methods of softening of industrial waters. |
|  | Chemical and electrochemical corrosion of metals. Methods of protection against corrosion |