BACHELOR 'S PROGRAMME
2nd YEAR OF STUDY, 1st SEMESTER

| | |
|---|---|
| COURSE TITLE | GENERAL CHEMISTRY |
| COURSE CODE | |
| COURSE TYPE | full attendance |
| COURSE LEVEL | 1st cycle (bachelor's degree) |
| YEAR OF STUDY, SEMESTER | 2nd year of study, 1st semester |
| NUMBER OF ECTS CREDITS | 4 |
| NUMBER OF HOURS PER WEEK | 4 (2 lecture hours + 2 seminar hours) |
| NAME OF LECTURE HOLDER | Assoc.prof.PhD. Danut Cozma |
| NAME OF SEMINAR HOLDER | Assoc.prof.PhD . Danut Cozma |
| PREREQUISITES | Advanced level of English |

**A — GENERAL AND COURSE-SPECIFIC COMPETENCES**

General competences:

→ Possession of cognitive / cognitive transfer skills by analogy specific to the domain and field of specialization and their proper use in a given professional context.Possession of cognitive skills / techniques and methods of learning / assessment applicable to the field and field of specialization and their use to identify their own training needs / training needs in a team-building type process.

Course-specific competences:

→ Appropriate use of the theoretical foundations of applied engineering sciences. Providing research support activities. Use of standard laboratory or industrial laboratory equipment for conducting research experiments

**B — LEARNING OUTCOMES**

Upon successful completion of this discipline, students will be able to:
-Explates the correlation between positioning in the periodic system - the chemical properties of the elements.
-Explates the correlation between the type of chemical bonds and the properties of the substances

**C — LECTURE CONTENT**

- Fundamental laws of chemistry.
- Classification of elements. Study of periodic and non-periodic properties. Non-metallic function and metallic function of the elements.
- Types of chemical bonds. Correlation chemical bonds-properties of substances.
- Chemical reaction.
- Metals and non-metals - methods of obtaining and purifying. Compound substances: oxides, bases, acids, salts
- Metals and non-metals - methods of obtaining and purifying. Compound substances: oxides, bases, acids, salts.

**D — RECOMMENDED READING FOR LECTURES**

1.Mirela Goanță, Ioana Aurelia Gorodea. Fundamentele chimiei. Ed. Ștef, 2012.
2.S.Ifrim, I.Rosca. Chimie generala. Ed.Tehnica, Bucuresti, 1989.
3. Gh. Marcu, M. Rusu, V. Coman – Chimie anorganica. Semimetale si nemetale, Editura Eikon, 2007.
4.D.Gânju,"Substanţe tehnice anorganice", Ed.Univ."Al.I.Cuza" Iaşi1997
5. I.I.Nicolaescu,V.G.Canţer,"Fizica corpului solid", Chişinău,1991.
6. Industrial inorganic pigments I ed. by Gunter Buxbaum. Wiley-VCH, 1998.
7. Gerald F. Dionne. Magnetic Oxides. Springer Science+Business Media, LLC 2009.
8. Frank J. Owens, Charles P. Poole, Jr..The New Superconductors. Kluwer Academic Publishers.2002.

**E — SEMINAR CONTENT**

- Processing of work safety rules. Presentation of the laboratory theme
- Chemical calculations.
- Solutions. Modes of expression of solution concentrations. Determination of solubility of substances. Determination of crystallization water from crystalline hydrides - CuSO4 * 5H2O.
- Methods for purification and separation of substances (filtration, recrystallization, sublimation).
- Physical and chemical transformations
- Classification of chemical reactions. Chemical reactions in aqueous medium (proton transfer reactions, electron transfer reactions).
- Obtaining classes of compounds of metals and non-metals.

**F — RECOMMENDED READING FOR SEMINARS**

1. J. A. Beran. Laboratory Manual for Principles of General Chemistry. John Wiley & Sons.2011.
2.Handbook of preparative Inorganic Chemistry, Edited by G.Bauer,A.Press, London 1963.

| | | |
|---|---|---|
| | 3.Spencer L. Seager, Michael R. Slabaugh. Safety-Scale Laboratory Experiments for Chemistry for Today: General, Organic, and Biochemistry, 7e. Brooks/Cole, Cengage Learning. 2011. | |
| G | EDUCATION STYLE | |
| LEARNING AND TEACHING METHODS | | Lecture, debate, conversation, laboratory experiment, exercise and problem solving |
| ASSESSMENT METHODS | | • Written exam<br>• Assessment along the way |
| LANGUAGE OF INSTRUCTION | | English |