

86S1-OCH1

CHEMICAL CALCULATIONS I

ECTS: 2.0

HOURS PER SEMESTER/WEEK: LECTURES: -/-; CLASSES: 30/2

FIELD OF THE STUDY: Chemistry

Level of study: First-cycle (Bachelor's degree) program

Course status: obligatory *

Year of the study: I

COURSE CONTENTS

LECTURES: -

CLASSES: Mathematical bases of chemical calculations, significant figures, rounding, logarithms. Stoichiometry of chemical formulas and chemical equations. Solution concentrations. Calculations related to the preparation of solutions of different concentrations. Strong electrolytes, ionic strength and activity. Ionic product of water and pH. Calculation of pH for strong and weak acids and bases. Buffer solutions.

EDUCATIONAL PURPOSE: Learning the principles of chemical calculations necessary in the work of a chemist.

LEARNING OUTCOMES

Knowledge. The student knows the principles of basic chemical calculations necessary to understand chemical phenomena and processes related to general and analytical chemistry.

Skills. The student is able to perform basic chemical calculations.

Social competences. The student is ready to continue the process of training in the field of chemical calculations necessary in the work of a chemist.

TEACHING FORMS AND METHODS

Lectures. -

Classes. Solving tasks on the blackboard. Discussion.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. -

Classes. written test - the material will be divided into at least three parts.

BASIC LITERATURE

1) Sackheim H.I. 2006. Chemical Calculations. Stipes Pub Llc; 18th edition

ADDITIONAL LITERATURE

1) Dahm D.J., Nelson E.A. 2017. Calculation in Chemistry. An Introduction (E-book). W.W. Norton & Company. New York-London

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

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