

Title <b>Analytical Chemistry</b>	Code <b>1010701221010710397</b>
Field <b>Chemical Technology</b>	Year / Semester <b>1 / 2</b>
Specialty -	Course <b>core</b>
Hours Lectures: <b>2</b> Classes: -    Laboratory: <b>3</b> Projects / seminars: -	Number of credits <b>5</b>
	Language <b>polish</b>

**Lecturer:**

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**Status of the course in the study program:**

-fundamental subject ( analytical chemistry )

**Assumptions and objectives of the course:**

- providing basic theoretical knowledge on the most important methods of quantitative analysis in chemical analysis and its practical use

**Contents of the course (course description):**

- lecture: theoretical basics of solution chemistry > the equilibrium of acid-base reactions, activity and the strength of ions in weak and strong electrolytes, the types of concentrations of solutions; the equilibrium in redox reactions, influence of conditions on the potential of redox system; process of complexation reactions, particularly focusing on complexometry; the equilibrium in precipitation reactions;  
principles and practice in the volumetric methods (acid-base, redox, compleximetric and precipitation titration) and gravimetric methods of analysis  
- laboratory/sem.2 > practical use of acid-base and redox reactions in volumetric analysis specified in the program of course after previous preparation of necessary titrant solutions

**Introductory courses and the required pre-knowledge:**

- basics of general and inorganic chemistry in the scope of secondary school (advanced level), material from calculation exercises of inorganic chemistry (sem.1) and current analytical chemistry lectures

**Courses form and teaching methods:**

- lecture with audiovisual presentations  
- laboratory: working with a group of students

**Form and terms of complete the course - requirements and assessment methods:**

- laboratory/sem.2: current oral tests on particular parts of the chemical analysis (2 x sem.) and written tests on calculation skills ( f.e.:the concentration of solutions, calculation of pH acids, bases, buffers, calculation of in pH during titration, use of analytical data) and the skills of balancing equations of redox reactions (several times a semester after making an appointment);  
credit lab.: passing oral and written tests, execution of analysis specified in the program;

achieving a passing laboratory grade (2 and 3 sem.) is required for taking the final written exam which consists of several theoretical and calculation questions from the material covered during lectures and laboratories

**Basic Bibliography:**

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**Additional Bibliography:**

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