

Experiment of Inorganic & Analytical Chemistry

Course code: 215204

Course status: Basic course

Applied: Food Science and Engineering(class hours: 51 in total), Chemical Engineering and Technology(class hours: 51 in total), Biology Engineering(class hours: 51 in total), Pharmacy Engineering(class hours: 51 in total), Materials Science and Engineering(class hours: 51 in total), Chemical Engineering and Technology(bachelor from certificate) (class hours: 48 in total)

Class Hours: 51 in total

Credit Value: 1.5 in total

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1. Function

Experiment of Inorganic & Analytical Chemistry covers principles and applications of chemical laboratory techniques, including preparation and analysis of chemical materials, measurement of pH, gas and liquid chromatography, visible-ultraviolet spectrophotometry, infrared spectroscopy, kinetics, data analysis, and elementary synthesis. It adjusts for the basic education of such specialty: Food Science and Engineering、Chemical Engineering and Technology、Materials Science and Engineering、Biology Engineering、Pharmacy Engineering.

2. Objectives:

The program is to prepare students to master theory and technology of Inorganic & Analytical Chemistry, especial in the skills of Experiment of Inorganic & Analytical Chemistry, and equip them with basic knowledge and applications skills of Inorganic & Analytical Chemistry. The program prepares students for future careers in the fields of engineering design, science research, technical development, education, and management, as well as in other related fields, especially in Experiment of Inorganic & Analytical Chemistry of the 21st century.

3. Contents in total:

number	item	Class Hours	regimentation	requirement	students per team
1	Safety Practices in the Chemistry Laboratory	2	demo	compulsory	1
2	The Purification of Rough Table salt	3	verification	compulsory	1
3	The Preparation of Mohr salt From Waster Iron Particles	5	integration	compulsory	1
4	Preparation of Buffer Solution and Its Properties	3	verification	compulsory	2
5	The Operation Exercise of Volume Analysis	3	verification	compulsory	1

6	The Measurement of Concentrations of HCl(aq) and NaOH(aq) by Neutral Titration	3	verification	compulsory	1
7	The Measurement of the Concentrations of the NaOH and Na ₂ CO ₃ in the mixed alkaline liquid	3	verification	compulsory	1
8	The preparation and standardization of the standard solution of EDTA	3	verification	compulsory	1
9	The Measurement of the Degree of hardness of water	3	verification	compulsory	1
10	The preparation and standardization of the standard solution of Na ₂ S ₂ O ₃	3	verification	compulsory	1
11	The Measurement of the Copper concentration of CuSO ₄	3	verification	compulsory	1
12	The Measurement of Iron in Iron(II) Phenanthroline ion by Spectrophotometric Method	5	verification	compulsory	3
13	The preparation and standardization of the standard solution of Silver nitrate	3	verification	compulsory	1
14	The preparation and Component Analysis of [Co(NH ₃) ₆]Cl ₃	9	integration	compulsory	2

4. Assessment:

Assessments(70%): including preparation、 practical and papers of experiments;
Final test(30%).

5. Essential Reading:

Li,juqing、 Yu,yuanzhi、 zhang,liqing、 zhang,peizhi. Experiment of Inorganic & Analytical Chemistry、 zhejiang University Of Science and Technology Press,Jul.2003;

6. References:

- 1) Chen,huapu、 Experiment of Inorganic & Analytical Chemistry、 Chemistry Technology Press,1998;
- 2) Ni,jing'an、 Inorganic & Analytical Chemistry、 Chemistry Technology Press,1999;
- 3) Cui,xuegui、 zhang,xiaoli. Experiments of Basic chemistry- Experiment of Inorganic & Analytical Chemistry、 Chemistry Technology Press,Jul.2003;