

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Analytical Chemistry 1
Course number	PHCH1201
Faculty	
Department	
Course type	Major Needs
Course level	1
Credit hours (theoretical)	2
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Different methods used in qualitative analysis : Precipitation, gas formation, crystal charaters, colored solution
2 - Qualitative analysis in pharmacopiea
3 - The concept of malfunction: learning how to expect and to overcome interference liabilities
4 - Emphasizing the importance of inorganic materials in pharmaceutical sciences
5 - Awarness about safety precuations in practice
6 - Learning different tests per ion and its background

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * Toxicity of inorganic substances * Samples for analysis can be pure substance or mixtures * Develop a strategy to deal with unknown sample * The application of studied ions in pharmaceutical sciences
Intellectual Skills	<ul style="list-style-type: none"> * Application of physical parameters e.g. k_{sp}, K_a, and K_b * Application of general chemistry concepts e.g type of reaction balance redox reaction lewis structure
Professional Skills	<ul style="list-style-type: none"> * Searching in analytical chemistry text book to solve an analytical problem * The ability to choose a test which could specify a target ion in a mixture * Usage different techniques for separation of mixture
General Skill	<ul style="list-style-type: none"> * learning toxicity of some inorganic substanes * Searching in some topics e.g. drugs of inorganic source

Course Contents

- 1 - Introduction to qualitative analysis: Methods, specification tests of precipitate or a gas, physical characters
- 2 - Identification tests of anions: Direct (acetate, fluoride, borate, silicate, carbonate--) and indirect analysis (chloride, iodide, sulfate, thiosulfate, sulfite, sulfide, nitrate, nitrite, cyanide, phosphate, chromate, ---)
- 3 - Classification of cations into five groups: HCl-, H₂S-, (NH₄)₂S-, (NH₄)₂CO₃-, and soluble group. Identification tests per cation in each group and separation of precipitate mixtures
- 4 - Detailed explanation of selected identification tests per anion or cation: Balancing-, and type of reaction explanation, nomenclature of salts, ions and complexes
- 5 - Application of ions in pharmacy
- 6 - Concept of soda extraction
- 7 - Qualitative analysis of some ions in pharmacopoeia: test of heavy metals, concept of limit test

Teaching and Learning Methods

- 1 - Lectures
- 2 - Discussion of some analytical problems
- 3 - Special readings in asked topics

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
First mid term exam	seventh week	40
Reports	During semester	10
Second mid term exam	not present-	-
Final exam	End of semester	50

Books and References

Course note	Some course note prepared from lecturer are available
Essential books	Vogels Qualitative Inorganic Analysis, G. Svehla, 7th Edition, Pearson Education, 2002
Recommended books	Practical pharmaceutical chemistry II, SG Wadodkar, AV Kasture, Pragati PVT LTD. 2008 Jander/Blasius Lehrbuch der analytischen und praeparativen anorganischen Chemie. J Straehle, and E Schweda, 17 Auflage, Hirzel Verlag, 2002 Textbook of Practical Analytical Chemistry. M. Alam, E-Book, 1st Ed, Elsevier India, 2010