Course Specifications

General Information

Course name	Analytical Chemistry II
Course number	PHCH2304
Faculty	
Department	
Course type	Major Needs
Course level	2
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Learning quantitative analysis by classical methods: Garaviemetry and volumetry
2 - Application of different types of titration in drug analysis
3 - Quantitative analysis in pharmacopiea
4 - Emphasizing the role of physical parameters per titrimetric type
5 - Training and calculations of complexed analytical procedures
6 - Learning to interchange concentration units

Intended Learning Outcomes

Knowledge and Understanding	* Drugs are analyzed by simple classical methods
	* Classical methods for quantitative analysis in pharmacopiea
	* Types of end point detection : Indicator or instrumental
Intellectual Skills	* Application of physical parameters e.g. ka, kb, ksp, kf
	* Explanation of background and balanced equations for a given assay
Professional Skills	* Searching in textbook and pharmacopiea
	* Solubility of substance or drug and titrimetric conditions
	* Units of concentrations and how to change
	* Consideration of dilution process and dilution factor
General Skill	* Ability to unterstand and verify a quantitative assay

Course Contents

1 - Analysis by gravimetry: Precipitating method and volitalization method
2 - Volumetry: Standard solution, concentration units, dilution
3 - Acid -base titration: Ka,kb, buffer, pH, salt, titration curve, indicators, application of drugs
4 - Acid-base titration in non-aqueous media: Concepts, indicator, applications
5 - Redox titration: iodimetry, iodometry, permanganatometry, cerimetry, bromatometry, chromatometry, indicators, Karl-Fischer method, application of drugs,
6 - Precipitation titration: Ksp, argenometry, indicators, Mohers-, Volhards-, and Fajans method
7 - Complexometry: EDTA,chelate, Kf, indicator, titration techniques, applications of drugs
8 - Potentiometric titration: Reference electrode, indicator electrode, automatic titrator, potentiometric end point detection in pharmacopiea

Teaching and Learning Methods

1 - lectures
2 - Discussion and calculations
3 - Special readings and searching in textbooks

Students Assessment

Assessment Method	TIME	MARKS
First midterm exam	seventh week	40
Special activities	During semester	10
Second midterm exam	Not present	-
Final exam	End of semester	50

Books and References

Course note	Special notes and calculations
Essential books	Analytical Chemistry & Quantitative Analysis, Hage DS, Carr JR, 1st Edition, Prentice Hall, 2010
	Pharmaceutical Drug Analysis, Kar A, 3rd Edition, New Age International Pvt. Ltd., 2012,
Recommended books	Fundamentals of Analytical Chemistry, Skoog DA, West DM, Holler FJ, 7th Edition Saunders College Publishing, Philadelphia, 1996,