Course Specifications

Programme(s) on which the course is given: B.Sc. chemistry
Major or Minor element of programmes; Major
Department offering the programme: Chemistry
Department offering the course: Chemistry
Academic year / Level: First
Date of specification approval: 2013

A- Basic Information

Title: Analytical chemistry (1) Code: CH 134

Credit Hours: 2 h Lecture: 1.5
Tutorial: 1 Practical: 2 Total:3
Teaching staff: Dr. Ayman Diab.

B- Professional Information

1 – Overall Aims of Course

- introduce the basic principle of analytical chemistry specially the methods using volume in determining the concentrations of unknown solutions (titrimetric methods).

- Study the laws of PH and its uses in various solutions and the methods which used to balance the redox equation

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a. **The graduates should be after completing the course able to acquire the basic principles of volumetric methods of analysis and their reactions**
- **Know the structure and theory of indicators.**
- **Differentiate between different types of titration and indicator used.**

b- Intellectual Skills

1- Outline a suitable analysis of acid – base precipitation.

c- Professional and Practical Skills

a. **Estimate different acids and bases**
b. **Perform redox titrations**
c. **Analyze precipitations.**

d- General and Transferable Skills

Increasing the writing and oral communication ability and problem solving.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Acids and Bases , neutralization reaction	2	1	1
Concentration and its units	2	2	1
Acid-base indication , and titration curves	2	3	1
PH concept and the laws of PH for strong acid , base and weak acid , weak base before addition of strong base , acid respectively.	2	4	1
Partially neutralization , half neutralization , completely neutralization of weak monobasic	2	5	1

acid with strong base.			
Partially neutralization , half neutralization , completely neutralization of weak monoacidic base with strong acid.	**2**	**6**	**1**
PH of dipsatic acid , before alkali addition , at half neutralization , at completely neutralization.	**2**	**7**	**1**
PH of dipsatic acid , before alkali addition , neutralized as monobasic acid ,neutralized as dibasic acid , completely neutralization.	**2**	**8**	**1**
Oxidation reduction reaction.	**2**	**9**	**1**
Balancing redox equations by two methods , oxidation number method.	**2**	**10**	**1**

Naming chemical compound, Binary, acid, salts.	**2**	**11**	**1**
Relation between electrode potential and concentrations , redox indication,	**2**	**12**	**1**
Titration in precipitation reaction.	**2**	**13**	**1**

4– Teaching and Learning Methods

1- lectures using data show and board.

2 -problem classes and group tutorial

3- laboratory work and assignment.

5- Graduate Assessment Methods

Written and oral examination.

Assessment Schedule

Assessment 1 short exam (class activities) Week every two weeks

Assessment 2 mid-term (written and practical) Week 8

Assessment 3 final-term (written and practical) Week 13 and 14

Weighting of Assessments

Mid-Term Examination 20%

Final-term Examination 60%

Semester Work 20%

Total 100%

6- List of References

1- Vogel's Qualitative Inorganic Analysis (1998)

2- Douglas A. Skoog, Donald M. West, F. James Holler, Stanley R. Crouch, Fundamental analytical chemistry, (2006)

7- Facilities Required for Teaching and Learning

Provding the lectures rooms with some tools which are essential for teaching like wirless mics and overhead projectors.

Course Coordinator: Dr. Hanaa El-Boraay and Dr. Ayman Diab

Head of Department: Prof. Dr. Adel A. Nassar

Date: / /