

Course Specifications

Programme(s) on which the course is given **M. Sc.**

Major or Minor element of programmes **Major**

Department offering the programme: **Chemistry**

Department offering the course: **Chemistry**

Academic year / Level: 2012/2013

Date of specification approval: 2012

A- Basic Information

Title: Nuclear Chemistry

Code: CH6213

Credit Hours: 2 h

Lecture:2

Tutorial: 2

Practical: 0 h

Total: 2 h

B- Professional Information

1 – Overall Aims of Course

Provide the student with the essential concepts about nuclear chemistry and radiation and their application in all fields (industry – chemistry – agriculture)

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

After completing the course the student should be able to

a1- show the type of nuclear particles.

a2- explain nuclear chemistry and its application.

a3- Take an account on the types of nuclear reactors and their contents.

b- Intellectual Skills

b1- develop the students' knowledge of radiation reactions.

b2- Improve the mean of radiation chemistry and its benefits and harmites.

b3- discuss what has been developed in this field

c- Professional and Practical Skills

c1- apply studied subjects in chemistry

c2- relate applications of tracers with industry

c3- use applications of nuclear chemistry in biology and medicine

c4- use applications of the studied subjects in manufacturing of weapons

c- General and Transferable Skills

d1) Enhancing the writing and oral communication capability of the students.

d2) Capability of solving the problems.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Introduction	4	3	2
Nuclear stability	4	3	2
Types of reactions	4	3	2
Nuclear reactors	4	3	2
Application of tracers	4	3	2
Detection of radiation	4	3	2
Effect of radiation on matter	4	3	2

4– Teaching and Learning Methods

- 4.1- lectures.
- 4.2- illustrated lecture
- 4.3- discussion
- 4.4- assignment

5- Student Assessment Methods

- 5.1- written examination to assess the understanding and comprehension
- 5.2- Oral discussion.

Assessment Schedule

Assessment 1 short exam (class activities)	Every week
Assessment 2 mid-term (written and practical)	Week 7
Assessment 3 final-term (written and practical)	Week 14

Weighting of Assessments

Mid-Term Examination	20%
Final-term Examination	60%
Semester Work	20%
Total	100%

6- List of References

6.1- Text books

- i) MODERN NUCLEAR CHEMISTRY, WALTER D. LOVELAND Oregon State University.DAVID J. MORRISSEY Michigan State University. GLENN T. SEABORG University of California, Berkeley (2006).
- ii) Inorganic chemistry, ELBS (1994).

7- Facilities Required for Teaching and Learning:

Overhead projector, field visits and video films

Course Coordinator: Dr. Yasser Kamal

Head of Department: Prof. Ahmed Abd-Elmged

Date: 2012