

Course Specifications

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

Major or Minor element of programmes: major

Department offering the programme: Chemistry

Department offering the course: Chemistry

Academic year / Level: Postgraduate

Prerequisite: B.Sc. Chemistry

Date of specification approval: 2012

A- Basic Information

Title: Advanced organic synthesis

Code: CH6414

Credit Hours: 2 h **Lecture:** 1 -

Tutorial: 0 **Practicals:**0 **Total:** 2 h

B-Professional Information

1- Overall Aims of Course

- a) Deeper understanding of different aspects of organic chemistry including reactivity, reaction mechanisms, functional group transformations, optimization of reaction conditions and recent advances in these fields.
- b) Broad overview of carbon-carbon bond forming reactions, total synthesis and recent techniques in separation and purification of organic compounds.
- c) Make students able to design appropriate synthetic plans for total synthesis of natural products.

2- Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- a1- Students will obtain a clear understanding of methods which are used in advanced organic synthesis, think systematically in solving problems and make decisions in subjects involving chemical reactions.
- a2- Select appropriate chemical reactions that could be used for total synthesis of organic pharmaceutical molecules.
- a3- Understand the chemistry of chiral molecules, reagents and protecting groups manipulation. Gain the ability to deal with total synthesis of new chiral molecules and natural products.

b-Intellectual Skills

- b1- Analyze and evaluate the chemical information from different resources then integrate and apply it for drug synthesis .
- b2- Deal with research problems depending on the recent information.

c- Professional and practical Skills

- c1- Design an appropriate synthetic pathways for total synthesis of pharmaceutical organic compounds and natural products.
- c2- Analysis, separation and confirmation of optical purity organic compounds.
- c3- Correlation of the chemical structure and optical purity of organic compounds and their biological activities

d- General and Transferable Skills

- d1 –Manipulate chemical in formation
- d2- Use chemical information for solving given problems in design of new

drugs.

d3- Present of the research results to the scientific community, in form of reports,, website,etc

3- Contents

| Topic | No. of hours | Lecture | Tutorial/Practical |
|---|--------------|---------|--------------------|
| Asymmetric synthesis of organic molecules -Total synthesis of organic compounds -Protecting group manipulations. -Organic reagents in organic synthesis. | 24 | 12 | |

4- Teaching and Learning Methods

4.1 Lectures

5- Student Assessment Methods

5.1 Written examination to assess theoretical know ledges.

Assessment Schedule

Assessment 1 Written final exam.

Weighting of Assessments

Final-Term Examination 100%

6- List of References

6.1- Essential Books (Text Books): Asymmetric synthesis, Comprehensive Organic Synthesis, Protecting groups.

6.2- Online chemical resources and internet chemical and pharmaceutical web sites.

6.3-Recommended Books: Jerry March, Advanced Organic Chemistry.

6.4- Periodicals, Journal of organic chemistry and Tetrahedron letter

7- Facilities Required for Teaching and Learning; all the necessary

Course Coordinator:

Head of Department: Prof. Ahmed Abdel-Mageed

Date: 1 /12 /2012