Course Specifications

Programme(s) on which the course is given: Ch., Ch.&P., Ch.&G., Ch.&Z., Ch& B, Ch.&Mbio, Ch. & Insect.

Major or Minor element of programmes: major - major- major - major –major-- major –major
Department offering the programme: Multidisciplinary
Department offering the course: Chemistry
Academic year / Level: Third
Prerequisite: CH-244
Date of specification approval: 2013

A- Basic Information

Title: Mechanisms in organic chemistry-1 Code: CH346
Credit Hours: 2 h Lecture:1.5/week
Tutorial: 1 Practicals: 2 Total: 2

B- Professional Information

1 – Overall Aims of Course: For graduates undertaking this course, the aims are to:

1. Understanding basic concepts of reaction mechanisms in organic chemistry .
2. Relate between the chemical structure and reactivity in different classes of organic compounds.
3. Integrate the knowledge acquired in this course with that acquired in the previous courses especially stereochemistry and physical organic chemistry

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding: By the end of the course, graduates should be able to:

a1- know on the effects of structure on reactivity of the compound.
a2- understand the different types of reactions and their mechanism.
a3- study the stereochemical effect on the mechanism of some important reactions.

a4. critically evaluate organic reaction mechanisms;

a5. develop knowledge of nucleophilic substitution reaction.

a6. Be able to integrate the knowledge acquired in this course with other related courses

a7. Practice team work.

a6. Learning how to become a self-directing learner.

b- Intellectual Skills

b1- build the graduate capability of understanding the principle of the reaction mechanisms.

b2. Correlate different structural features with their specific functions.

b3. Apply scientific approach in solving problems.

b4. Apply basic rules to predict reaction mechanisms.

b5. Write equations for the formation of products for nucleophilic substitution reactions.

b6. Apply problem-solving skills which would provide the proper framework to the study of organic chemistry.

b7. Understand reaction mechanism.

b8. Correlate different structural features with their specific functions.

b9. Apply scientific approach in solving problems.

c- Professional and Practical Skills:

No practical hours for this course.

d- General and Transferable Skills

By the end of the course, graduates should be able to:

d1- Write reports and essay on the different scientific items in the organic reaction mechanism.

d2- Report the biochemical results in printable sheets

d3- Work effectively as a member in a multi-disciplinary team.

d4- Use computer and internet to extract information and knowledge

d5-Enhance the writing and oral communication capability

d6-problem solving

d7-Apply various techniques in studying organic reaction mechanisms

d8-Explain various factors affecting nucleophilic substitution reactions.

3- Contents

Topics	No. of hours	Lecture	Tutorial/Practical
Effects of structure on reactivity	**4**	**4**	**-**
Quantitative treatments of the effect of structure on reactivity	**4**	**4**	**-**
Polar effect in aliphatic compounds	**2**	**2**	**-**
Metods for determination reaction mechanism	**4**	**4**	**-**
Substitution reaction	**4**	**4**	**-**
Sterochemical study	**4**	**4**	**-**
Electrophlic aromatic substitution	**4**	**4**	**-**

4– Teaching and Learning Methods

The first two are acquired largely via lectures, classes and tutorials and work set for these

4.1- Lectures

4.2- Discussion sessions

4.3- MCQs (formative assessment)

4.4- Assignment and reports

learning will be primarily based on lectures and tutorials explaining basic concepts and principles of modern techniques used in studying organic reaction mechanisms.

5- Graduate Assessment Methods

5.1 Written exam(s) to assess knowledge and understanding and intellectual skills

Assessment Schedule

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

Assessment 2 mid-term (written) Week 8

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

Weighting of Assessments

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

6- List of References

6.1- Course Notes

Prepared in the form of book authorized by department.

6.3- Recommended Textbooks:

Organic Chemistry, by John McMurry. 7ThEd, 2008. Thomson

6.4 Article

Characteristics and mechanisms of sorption of organic contaminants onto sodium dodecyl sulfate modified Ca-Al layered double hydroxides..

XiuXiu Ruan, Peng Sun, XingXing Ouyang, GuangRen Qian in *Chinese Science Bulletin* *(2011)*

***A PRACTICAL HANDBOOK* Websites on the internet that are relevant to the topics of the course:**

http://en.wikipedia.org/wiki/Organic_chemistry

www.chemweb.com

http://www.organic-chemistry.org/

7- Facilities Required for Teaching and Learning

7.1- Suitable lecturing hall

7.2. Data show, screen, and laptop computer.

7.3. White board and colored pens

Course Coordinator: Prof. Dr. / Ebrahim El-Tantawy

Head of Department: Prof. Dr. / Adel Nassar

Date: / / 2013