

T6. Course Specification (CS)

Institution: Najran university	Date: 03/09/1438 H
College/Department: Sciences & Arts / Chemistry	

A. Course Identification and General Information:

1. Course title: Chemistry of Organic Reactions Mechanism. Course Code: 448 –Chem-2		
2. Credit hours: 2 hours per week(2+0)(Theoretical + practical)		
3. Program(s) in which the course is offered: Educational Chemistry Program		
4. Name of faculty member responsible for the course: Mohamed H. Abd El-Razek		
5. Level/year at which this course is offered: 7 th level / 4 th Year		
6. Pre-requisites for this course (if any) : (344 Chem-2)		
7. Co-requisites for this course (if any) : -----		
8. Location if not on main campus: Najran university, new building of Najran University, Faculty of Science.		
9. Mode of Instruction (mark all that apply) (نمط التدريس (ضع علامة على كل ما ينطبق)		
a. Traditional classroom	<input type="checkbox"/>	What percentage? <input type="text"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage 100 %
c. e-learning	<input type="checkbox"/>	What percentage <input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage <input type="text"/>
f. Other	<input type="checkbox"/>	What percentage <input type="text"/>
Comments		

B. Objectives

1. What is the main purpose for this course :

- A brief description of the basic learning outcomes of students enrolled in this course:

At the end of the course we expect the students to be aware of the following:-

- 1- To introduce the basic concepts of types of organic chemical reactions and kinds of reagents.
- 2- To provide the students with the capability to outline a feasible reaction mechanism.
- 3- To predicate and determine of the true path of organic chemical reactions.
- 4- To familiarize students with basic knowledge of organic reaction mechanism needed to explain the pathway in which synthesis and reactions of organic compounds proceed in general, applied and green chemistry courses.
- 5- To develop the students' understanding of different types of mechanisms in chemical reactions such as elimination, substitution, addition, rearrangement reactions, also other basics such as electrophiles, nucleophiles and radicals.
- 6- To develop in the students' awareness of the relevance of chemistry to other areas of industrial and research importance in understanding reaction mechanisms.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Both Electronic materials and computer based programs have been utilized to support the lecture course material. Also white board must be always used.
- The course material was posted on the Web CT that could be accessed by the students enrolled in the course only.
- Continuous updating contents and scientific materials to follow up recent researches.

C. Course Description (Note: General description in the form used in the Bulletin or handbook should be attached.

Course Description :

This course provides students with an in-depth coverage of the theoretical principles of organic reactions mechanism. Students will also develop an understanding of the descriptive chemistry of the organic reactions and the properties and different reactions of organic compounds. This is also the course where students will learn about the chemical literature and literature searching techniques.

1. Topics to be Covered :

List of Topics	No. of Weeks	Contact Hours
Kinetics of organic reactions and the factors affecting them, physical and chemical methods used to know what the true path the mechanism of organic reactions is.	3	6
Nucleophilic substitution reactions on saturated carbon atom.	2	4
Nucleophilic and electrophonic substitution reactions on aromatic compounds.	1	2

Elimination reactions and the factors that affect on them	3	6
Addition reactions on the double bond (carbon-carbon).	2	4
Addition reactions on the conjugated double bond.	2	4
Addition reactions on carbonyl group.	1	2
Rearrangement reactions.	1	2
	15	30

1. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or studio	Practical	Other:	Total
Contact Hours	30 hours	--	--	--	--	30 hours
Credit	2	-	--	--	--	2

3-Additional private study/learning hours expected for students per week
2 hours weekly for additional explanation, homework and quizzes.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

Based on the decision of the Department of Chemistry on the measurement of learning outcomes have been identified performance indicator outputs learning courses program are as follows:

1- 60% of students achieve 60% of the grades (minimum for each output separately)

2 - percentage achieve the performance of indicator scheduled in full at least 60%

On the table below are the five NQF Learning Domains, numbered in the left column.

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop.
- A description of the teaching strategies to be used in the course to develop that knowledge or skill.
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned..

Code	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge At the end of the course the student be able to:		
1.1	Identify mechanism of organic reactions, addition reactions, Elimination reaction and substitution reactions.	Interactive Lecture Description Demonstration Discussion	Quarterly tests and final Activity and interaction Homework
1.2	Remember the physical and chemical methods different to see what reaction mechanism , the effect of steric and electronic factors on the organic mechanical reactions. Concludes the		

Code	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	course of the interaction and determine what step the specific reaction rate as well as the fast-moving steps of others and different kinds of organic solvents suitable for each interaction.		
1.3	Multiple types of chemical reactions and types of organic reagents as well as the types of organic solvents , types of nucleophilic substitution reactions , factors affecting the direction of elimination reactions and types of elimination reactions .		
2.0	Cognitive Skills : At the end of the course the student be able to:		
2.1	Compare the different types of organic reactions mechanical substitution reactions SN^1 , SN^2 , mechanical elimination reactions E^1 , E^2 and Hoffman reaction , Zaitsev's reaction	Interactive Lecture Description Demonstration Discussion Problem based learning	Quarterly tests and final Activity and interaction Homework
2.2	Explain the progress of the mechanical reaction without the other, composition of carbonium ion, and the resulting shifts. and concludes the intermediate compounds .		
2.3	Determine the specific step of the reaction rate as well as the quick steps which not affected ,Different types of organic solvents suitable for each reaction.		
3.0	Interpersonal Skills & Responsibility: At the end of the course the student be able to:		
3.1	a- Participate in collective work effectively and positively	- Cooperative learning	Research duties Homework, and quizzes.
3.2	b- Discuss and accept criticism and other opinions	-Cooperative learning - Problem Solving	Research duties Homework, and quizzes.
4.0	Communication, Information Technology, Numerical : At the end of the course the student be able to:		
4.1	a- Connect with students online to solve some assignments	Self –learning Learning in groups	Quarterly tests and final Activity and interaction Homework
4.2	b- Use the computer in the collection of research that helps in writing reports on topics related to the course	- E-learning - Self-learning	Quarterly tests and final Activity and interaction Homework
5.0	Psychomotor		
5.1	Not applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, Quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First semester exam	5-6	20%
2	Second semester exam	11-12	20%

3	Home work	1-12	10%
	Final exam	16-18	50%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
 - Staff members are available for advice and advice throughout the week.
 - Office hours: 2 hours per week during school hours
 - Academic guidance for students through the academic advisor.

E. Learning Resources

1. List Required Textbooks :
 - 1- Entrance to the mechanics of organic reactions, "D.alsidik Abdullah Obaid and Dr. Ali Mohammed cobra, University Publications, October 6, Libya, 2010.
 - 2- Mechanics of organic reactions," Salim bin Schoeman and others, Deanship of Library Affairs, King Saud University, Riyadh 2000.
 - 3- Mechanisms of organic chemistry" ; H. Maskil published by Oxford University Pp,?Walton Street OX 26 DP. 1996
 - 4-Organic Reaction Mechanisms, 2nd Ed.(1999), Michael Edenborough, Taylor & Francis Inc., ISBN 0748406417.
 - 5-March, Jerry (1985), Advanced Organic Chemistry: Reactions, Mechanisms, and Structure (3rd ed.), New York: Wiley, ISBN 0-471-85472-7.
2. List Essential References Materials (Journals, Reports, etc.)
 - 1- "Mechanics of organic reactions," Salim bin Schoeman and others, Deanship of Library Affairs, King Saud University, Riyadh 2000.
 - 2- Entrance to the mechanics of organic reactions, "D.alsidik Abdullah Obaid and Dr. Ali Mohammed cobra, University Publications, October6,Libya,2010.
 - 3- Mechanisms in Organic Reactions By Richard A. Jackson Publisher: Royal Society of Chemistry Number of Pages: 199 Publication Date: 2000-08.
 - 4- Journal of Saudi Chemical society.
 - 5- A Guidebook to Mechanism in Organic Chemistry, Peter Sykes Third Edition, longman U.K., (1996).
 - 6- Understanding Organic Reaction Mechanisms, Adam Jacobs, Cambridge University Press, 1997.
3. List Electronic Materials Web Sites, Facebook, Twitter, etc.
 - www.google.com.
 - http://en.wikipedia.org/wiki/Organic_chemistry
 - www.Spriger.com
 - <http://www.organic-chemistry.org>.
 - <http://www.chemhelper.com/mechanisms.html>
 - www.sciencedirect.com
 - www.cem.msu.edu/~reusch/VirtTxtJml/mechism/e2elim.htm
 - www.cem.msu.edu/~reusch/VirtTxtJml/e2mov.htm
 - www.cem.msu.edu/~reusch/VirtTxtJml/e2steric.htm

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- PowerPoint
- Java
- Photoshop

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

. Lecture room with at least 30 seats -•

. Auditorium of a capacity of not less than 100 seats for large lecture format classes •

2. Computing resources (AV, data show, Smart Board, software, etc.)

. Computer room containing at least 15 systems •

. Scientific calculator for every student •

. Personal desktop for every student if possible.. •

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) None

G. Course Evaluation and Improvement Processes:

1- Strategies for Obtaining Student Feedback on Effectiveness of Teaching.

2- Form the calendar course can be evaluate by students

3- Students- faculty meetings , discussing with the students to learn about their views, teaching methods used.

1. Other Strategies for Evaluation of Teaching by the Instructor or by the department.

1- Benefit from the expertise of the members of the section and discussion in order to improve job performance

2- Assessment questionnaire of staff member of the decision workshops to develop evaluation methods.

3- Peer consultation on teaching.

4- Departmental council discussions.

5- Discussions within the group of faculty teaching the course.

2. Processes for Improvement of Teaching:

1- Training courses for the development of teaching and learning methods.

2- Providing and updating learning resources.

3- Refer to the Web sites to learn new teaching methods and application of e-learning methods.

4- Conducting workshops given by experts on the teaching and learning Methodologies.

5- Periodical departmental revisions of its methods of teaching.

6- Monitoring of teaching activates by senior faculty members.

7- Continuous updating information and following recent data

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

1- Checking sample tests and review a random sample of test papers.

2- Corrected by the committee of faculty members in the department.

<p>3- Providing samples of all kind of assessment in the departmental course portfolio of each course.</p> <p>4- Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions invited to review the accuracy of the grading policy.</p> <p>5- Conducting standard exams such as the American Chemical Society exams or others.</p>
<p>5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :</p> <ul style="list-style-type: none"> - Completion of the report of the course by the end of each semester based on the feedback provided by: - Students (questionnaires). - Results of students. <p>A plan to develop and improve the decision.</p> <ul style="list-style-type: none"> - Using an independent opinion to evaluate the course. - Periodic follow-up of the contents of the course and the adjustment of negatives. - The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils. - The head of department and faculty take the responsibility of implementing the proposed change.

Name of instructor :

Dr. Mohamed H. Abd El-Razek

Signature *Mahamed H. Abd El-Razek* **Date Report Completed: 05/ 09 /1438.**

Name of field experience teaching staff : _____

Program coordinator : Dr. Sayed R. Hassan

Signature *التوقيع* : sayed rashad **Date received:** _____