



Course Specifications

| | |
|----------------------|----------------------------------|
| Course Title: | Organic Chemistry - 2 |
| Course Code: | 213CHEM-4 |
| Program: | Bachelor of Science in Chemistry |
| Department: | Chemistry |
| College: | Science |
| Institution: | King Khalid University |

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A. Course Identification

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|--|
| 1. Credit hours: 4 (3 +1) |
| 2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/> |
| 3. Level/year at which this course is offered: Level 4 / Year 2 |
| 4. Pre-requisites for this course (if any): 212CHEM-4-S |
| 5. Co-requisites for this course (if any): No Co-requisite |

6. Mode of Instruction (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|-----------------------|---------------|------------|
| 1 | Traditional classroom | 2 | 66% |
| 2 | Blended | 0 | 0% |
| 3 | E-learning | 1 | 34% |
| 4 | Correspondence | 0 | 0% |
| 5 | Other | 0 | 0% |

7. Actual Learning Hours (based on academic semester)

| No | Activity | Learning Hours |
|------------------------------|---------------------------------|----------------|
| Contact Hours | | |
| 1 | Lecture | 45 |
| 2 | Laboratory/Studio | 30 |
| 3 | Tutorial | 0 |
| 4 | Others (specify) | 0 |
| | Total | 75 |
| Other Learning Hours* | | |
| 1 | Study | 30 |
| 2 | Assignments | 15 |
| 3 | Library | 5 |
| 4 | Projects/Research Essays/Theses | 10 |
| 5 | Others (specify) | --- |
| | Total | 60 |

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

The course study the different types of functional organic compounds such as, alcohols, phenols, ethers, thiols, thioethers, aldehydes, ketones, carboxylic acids, and amines as well as their preparations and reactivities.

2. Course Main Objective

- The students are able to Know the basic principles and importance of organic compounds and to Study the deferent types of the functional groups, alcohols, phenols, ethers, aldehydes, Ketones, carboxylic acids, derivatives of carboxylic acids and amines

(properties, preparation, and Chemical reactions).

3. Course Learning Outcomes

| CLOs | | Aligned PLOs |
|----------|---|-------------------|
| 1 | Knowledge: | |
| 1.1 | To demonstrate knowledge of the fundamental concepts and principle of monofunctional organic compounds. | K1, K2 |
| 1.2 | To identify the physical and chemical properties of monofunctional organic compounds within the laboratory. | K1, K2 |
| 1.3 | To identify the practical applications of some aliphatic and aromatic compounds and their different uses. | K2, K3 |
| 1.4 | To achieve a greater knowledge about the extent of the use of such compounds in the preparation of other new organic compounds. | K3 |
| 1.5 | To know the general rules and precautions of security and safety in the laboratory. | K2 |
| 2 | Skills: | |
| 2.1 | To Predict and analyses the physical and chemical properties of organic compounds of mono functional group. | S1 |
| 2.2 | To apply the basic principle for conversion of functional group to another group. | S2 |
| 2.3 | To acquire a personal skill in the lab with the tools and glassware with a commitment to safety precautions | S3, S4 |
| 2.4 | To develop the relationship between theoretical subjects and practical applications | S1, S2, S3 |
| 2.5 | To analyze, explain, and apply the mechanism of some organic reaction. | S2, S4 |
| 2.6 | To differentiate between 1 st , 2 nd , 3 rd alcohols and / or amines | S4 |
| 2.7 | To perform some chemical transformations. | S2 |
| 2.8 | To able to do some chemical tests for monofunctional organic compounds | S3, S4 |
| 3 | Competence: | |
| 3.1 | To present an oral explanation for a subject in the area. | C1, C4 |
| 3.2 | To interact positively with colleagues in a group work | C2 |
| 3.3 | To contribute with colleagues to prepare and deliver a presentation and report of group work | C3, C5 |
| 3.4 | To conclude the literature and sources for an area in the course | C5 |

C. Course Content

| No | List of Topics | Contact Hours |
|-----------------|---|---------------|
| Lectures | | |
| 1 | Study the chemistry of Alcohol (Nomenclature, Preparation, and Reactions) | 9 |
| 2 | Study the chemistry of phenols (Nomenclature, Preparation, and Reactions) | 3 |
| 3 | Study the chemistry of ethers (Nomenclature, Preparation, and Reactions) | |

| | | |
|---|---|-----------|
| | | 3 |
| 6 | Study the chemistry of thiols (Nomenclature, Preparation, and Reactions) | 3 |
| 7 | Study the chemistry of thioethers (Nomenclature, Preparation, and Reactions) | 3 |
| 8 | Study the chemistry of Aldehyde and ketone (Nomenclature, Preparation, and Reactions) | 9 |
| 9 | Study the chemistry of Carboxylic acid and their derivatives (Nomenclature, Preparation, and Reactions) | 12 |
| 10 | Study the chemistry of Amine (Nomenclature, Preparation, and Reactions) | 3 |
| | Total for Lectures | 45 |
| Practical section | | |
| Identification of liquid organic compounds | | |
| | Alcohols | 2 |
| | Aldehydes and ketones | 2 |
| | Liquid carboxylic acid | 2 |
| | Liquid aromatic amines | 2 |
| | General scheme for liquid organic compounds: | 2 |
| Identification of solid organic compounds | | |
| | Phenols | 2 |
| | Solid carboxylic acids | 2 |
| | Salts of carboxylic acids | 2 |
| | Salts of aniline | 2 |
| | Urea | 2 |
| | Carbohydrates | 2 |
| | General scheme for liquid organic compounds: | 2 |
| | Revision 1 | 2 |
| | Revision 2 | 2 |
| | Revision 3 | 2 |
| | Total for Practical | 30 |
| | Total | 75 |

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------|---|---|--|
| 1.0 | Knowledge | | |
| 1.1 | To demonstrate knowledge of the fundamental concepts and principle of monofunctional organic compounds. | 1. Classical lectures and data show based lectures. 2. Demonstration using models and movies. 3. Historical reviews. 4. Problem solving. | 1. Essay Questions. 2. Completion exercise. 3. Classical examination. 4. In class tests. 5. Quizzes. |
| 1.2 | To identify the physical and chemical properties of monofunctional organic compounds within the laboratory. | | |
| 1.3 | To identify the practical applications of some aliphatic and aromatic compounds and their different uses. | | |

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------------|---|---|---|
| 1.4 | To achieve a greater knowledge about the extent of the use of such compounds in the preparation of other new organic compounds. | | 6. Homework's |
| 1.5 | To know the general rules and precautions of security and safety in the laboratory. | | |
| 2.0 | Skills | | |
| 2.1 | To Predict and analyses the physical and chemical properties of organic compounds of mono functional group. | 1.Demonstration using models and movies. 2. Historical reviews. 3. Problem solving. 4.Laboratory experiments | 1. Direct observation 2. Multiple choice questions. 3. Fast questions. 4. Laboratory reports. 5. Concept maps. 6. Classical examination. |
| 2.2 | To apply the basic principle for conversion of functional group to another group. | | |
| 2.3 | To acquire a personal skill in the lab with the tools and glassware with a commitment to safety precautions | | |
| 2.4 | To develop the relationship between theoretical subjects and practical applications | | |
| 2.5 | To analyze, explain, and apply the mechanism of some organic reaction. | | |
| 2.6 | To differentiate between 1 st , 2 nd , 3 rd alcohols and / or amines | | |
| 2.7 | To perform some chemical transformations. | | |
| 2.8 | To able to do some chemical tests for monofunctional organic compounds | | |
| 3.0 | Competence | | |
| 3.1 | To present an oral explanation for a subject in the area. | 1. Discussions 2. Problem solving. 3. Surveying literature 4. Review and Report 5. Presentation | 1. Problem and case study analysis 2. Short answer questions. 3. Field work report 4. Data interpretation exercise 5. Electronic quizzes 6.Electronic activities |
| 3.2 | To interact positively with colleagues in a group work | | |
| 3.3 | To contribute with colleagues to prepare and deliver a presentation and report of group work | | |
| 3.4 | To conclude the literature and sources for an area in the course | | |

2. Assessment Tasks for Students

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|--------------------------------|-------------|--------------------------------------|
| 1 | 1 st Mid-term | 6 | 10% |
| 2 | 2 nd Mid-term | 12 | 10% |
| 3 | Tutorial & Reports & HomeWorks | 3, 6, 9, 11 | 5% |

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|--------------------|----------|--------------------------------------|
| 4 | Practical Section | -- | 25% |
| | Final written exam | 16 | 50% |

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Office hours (10 hours per week).

Electronic Learning.

F. Learning Resources and Facilities

1. Learning Resources

| | |
|---------------------------------------|---|
| Required Textbooks | Organic chemistry, Vol. 1, Finer, sixth edition, 1999. |
| Essential References Materials | Organic chemistry, Morrison & Boyd, 2008. |
| Electronic Materials | http://www.chemguide.co.uk/ |
| Other Learning Materials | Overhead projector with data show. CD & DVD. |

2. Facilities Required

| Item | Resources |
|--|---|
| Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) | Lecturer room, Blackboard, laboratories |
| Technology Resources (AV, data show, Smart Board, software, etc.) | Hall contains at least 10 computers. Internet access, Data Show. |
| Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | ----- |

G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|---|--|-----------------------|
| Course delivery (teaching methods and assessment methods) | Students | Questionnaire |
| | Departmental Plan and curriculum committee; external reviewers | Reports and workshops |
| | Program Leader | Meetings |
| Course contents (update) | Departmental Plan and curriculum | Reports and workshops |

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|-------------------------------|-------------------------------|--------------------|
| | committee; external reviewers | |
| Quality of learning resources | External reviewers | Reports |

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

| | |
|---------------------|--------------------|
| Council / Committee | Department counsel |
| Reference No. | 1/22/142 |
| Date | 15-9-1442 |