

المركزالوطني للتقويم والاعتماد الأكاديمي

**National Center for Academic Accreditation and Evaluation**

### ATTACHMENT 5.

**T6. COURSE SPECIFICATIONS**

**(CS)**

**Organic chemistry– Chem. 113**

**1440/1441, 1st Term**

**Course Specifications**

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| Institution: Jouf University | Date: 02/01/1441 |
| College/Department : College of science, Chemistry department | |

**A. Course Identification and General Information**

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| 1. Course title and code: Organic chemistry - CHEM 113 |
| 2. Credit hours: **3** [2+1] |
| 3. Program(s) in which the course is offered.  (If general elective available in many programs indicate this rather than list programs)  Chemistry programs |
| 4. Name of faculty member responsible for the course: Dr. Modather Farouk |
| 5. Level/year at which this course is offered: Level 3 |
| 6. Pre-requisites for this course (if any): Chem 101 |
| 7. Co-requisites for this course (if any): No |
| 8. Location if not on main campus: |
| 9. Mode of Instruction (mark all that apply):  100%  √  a. traditional classroom What percentage?  b. blended (traditional and online) What percentage?  c. e-learning What percentage?  d. correspondence What percentage?  f. other What percentage?  Comments: |

**B Objectives**

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| 1. What is the main purpose for this course?  The aim of this work is to give the fundamental concepts about organic compounds: electronic structure of elements, nomenclature of hydrocarbons, preparation and reactivity of alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, ketones, aldehydes, carboxylic acid, esters and amines. |

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| 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)   * Computer based programs have been utilized to support the lecture course material. * The course material was posted on the WebCT that could be accessed by the students enrolled in the course only. * The lab experiments were reviewed. As a result of introducing new equipment and the intention to minimize the chemicals used and remove the experiments of too much chemical waste some of the experiments were dropped or amended and new experiments have been introduced |

**C. Course Description** (Note: General description in the form used in Bulletin or handbook)

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| Course Description:   * Theoretical part: Introduction to organic compounds by studying their physical properties, preparation, naming and reactivity of (alkanes, alkenes, alkynes, alkylhalides, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters and amines) * Practical part: Study of methods of identification, purification and extraction of organic compounds. Also, chemical properties of ( alcohols, phenols, aldehydes, ketones, carboxylic acids, esters and amines) |

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| 1. Topics to be Covered | | |
| **List of Topics** | No. of  Weeks | Contact hours |
| 1. Introduction: physical properties of organic compounds | 2 | 4 |
| 1. Aliphatic hydrocarbons: nomenclature | 2 | 4 |
| 1. Preparations, physical and chemical properties of alkanes, alkenes and alkynes | 2 | 4 |
| 1. First term exam | 1 | 2 |
| 1. Nomenclature, preparations , physical and chemical properties of alkylhalides | 1 | 2 |
| 1. Nomenclature, preparations , physical and chemical properties of alcohols and ethers | 1 | 2 |
| 1. Nomenclature, preparations , physical and chemical properties of aldehydes and ketones | 2 | 4 |
| 1. Second term exam | 1 | 2 |
| 1. Nomenclature, preparations , physical and chemical properties of carboxylic acids and derivatives | 1 | 2 |
| 1. Preparations, physical and chemical properties of amines | 2 | 4 |
| 1. Final exam | | |
| **Practical** |  |  |
| 1-Melting point determination | 1 | 2 |
| 2-Boiling point and distillation.  (Simple distillation- fractional distillation) | 1 | 2 |
| 3-Recrystallization | 1 | 2 |
| 4-Extraction | 1 | 2 |
| 5-Steam distillation | 1 | 2 |
| 6-Chromatography | 1 | 2 |
| 7-Alcohols and phenols | 2 | 4 |
| 8-Aldehydes and ketones | 2 | 4 |
| 9-Carboxylic acids and esters | 2 | 4 |
| 10-The chemistry of amines | 2 | 4 |

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| 2. Course components (total contact hours and credits per semester): | | | | | | | |
|  | | Lecture | Tutorial | Laboratory/  Studio | Practical | Other: | Total |
| Contact  Hours | Planed | 30 | NA | NA | 28 | NA | 58 |
| Actual | 30 | NA | NA | 28 | NA | 58 |
| Credit | Planed | 2 | NA | NA | 1 | NA | 3 |
| Actual | 2 | NA | NA | 1 | NA | 3 |

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| 3. Additional private study/learning hours expected for students per week.  No |

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| 4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy  By the end of CHEM 113, students will be able to:   * 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. | | | |
| **On the table below are the five NQF Learning Domains, numbered in the left column.**  **First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.) | | | |
| **Code**  **#** | **NQF Learning Domains**  **And Course Learning Outcomes** | **Course Teaching**  **Strategies** | **Course Assessment**  **Methods** |
| **1.0** | **Knowledge** | | |
| 1.1 | **Define** and retrieve scientific information about hydrocarbons (aliphatic and aromatic) | * Interactive lectures | Midterm and final exam.  Written Quizzes |
| 1.2 | **Recognize** the fundamental theoretical concepts and applications of the reactions of hydrocarbons (aliphatic and aromatic) |
| 1.3 | **Outline** the principles of experimental work in Organic Chemistry, record results and present data. | * Practical experiments | Practical exams  Experimental reports. |
| **2.0** | **Cognitive Skills** | | |
| 2.1 | **Justify** scientific attitude, thinking, planning and decision making skills to overcome encountered issues in Organic Chemistry | * Brain storming | Midterm and final exam.  Written quizzes |
| **3.0** | **Interpersonal Skills & Responsibility** | | |
| 3.1 | Demonstrate the follow-up on new developments in Organic Chemistry. | * Self- learning * Guided learning | Oral presentation |
| **4.0** | **Communication, Information Technology, Numerical** | | |
| 4.1 | Operate with scientific findings/concepts written and orally. | * Internet search | Oral presentation |
| **5.0** | **Psychomotor** | | |
|  | Not applicable |  |  |

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| 5. Schedule of Assessment Tasks for Students During the Semester | | | |
|  | Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.) | Week Due | Proportion of Total Assessment |
| 1 | Written quizzes | During the term | 5% |
| 2 | Oral presentation | During the term | 5% |
| 3 | First midterm exam | Week 7 | 10% |
| 4 | Second midterm exam | Week 12 | 10% |
| 5 | Practical exam and reports | Week 14 | 20% |
| 6 | Final exam | At the end of the term | 50% |

**D. Student Academic Counseling and Support**

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| 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) **office hours 4hrs/week.** |

**E Learning Resources**

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| 1. List Required Textbooks   1. الكيمياء العضوية : المؤلف ك د. الحازمى، د. الحسن 2. تسمية المركبات العضوية: المؤلف: د. الخثلان ، د. الحازمى. 3. أسس الكيمياء العضوية: المؤلف ك د. الحازمى، د. الحسن   General, Organic, and Biochemistry, Sixth Edition\_, Katherine J. Dennisto Joseph J. Topping, Robert L. Caret, published by McGraw-Hill. |
| 2. List Essential References Materials (Journals, Reports, etc.) |
| 3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. |
| 4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.  Multi media associated with the text book and the relevant websites. |

**F. Facilities Required**

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| 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 25 seats. * Auditorium of a capacity of not less than 100 seats for large lecture format classes. |
| 1. Technology resources (AV, data show, Smart Board, software, etc.)  * Computer room containing at least 15 systems. * Scientific calculator for each student. |
| 1. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) |

**G Course Evaluation and Improvement Processes**

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| 1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching  * Course evaluation by student. * Students- faculty meetings. |
| 1. Other Strategies for Evaluation of Teaching by the Instructor or by the Department  * Conducting workshops given by experts on the teaching and learning methodologies |
| 1. Processes for Improvement of Teaching  * Periodical departmental revisions of its methods of teaching. * Monitoring of teaching activates by senior faculty members**.** |
| 1. 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)  * Providing samples of all kind of assessment in the departmental course portfolio of each course * Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions are invited to review the accuracy of the grading policy * Conducting standard exams such as the American Chemical Society exams or others. |
| 1. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.   -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 changes. |

Name of Course Instructor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Specification Completed: \_\_\_\_\_\_\_\_\_\_\_\_

Program Coordinator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Received: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_