



# Course Specifications

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| Institution:                         | <b>Majmaah University.</b>          |
| Academic Department :                | <b>Department of chemistry</b>      |
| Programme :                          | <b>Bachelor degree of chemistry</b> |
| Course :                             | <b>Kinetic Chemistry</b>            |
| Course Coordinator :                 | <b>Ibtehag ELhassan</b>             |
| Programme Coordinator :              | <b>Dr.Gehan Alaemary</b>            |
| Course Specification Approved Date : | <b>28/12 / 1436 H</b>               |



## A. Course Identification and General Information

|  |  |
|--|--|
| 1 - Course title : <b>Kinetic Chemistry</b>  | Course Code: <b>Chem 412</b>   |
| 2. Credit hours : <b>3(Two Hours Theoretical + Three Hours Workable)</b>           |  |
| 3 - Program(s) in which the course is offered: <b>Chemistry</b>                    |  |
| 4 – Course Language : <b>Arabic</b>  |  |
| 5 - Name of faculty member responsible for the course: <b>Ibtehag ELhassan</b>     |  |
| 6 - Level/year at which this course is offered : <b>seven Level</b>                |  |
| 7 - Pre-requisites for this course (if any) :<br>• <b>Chemistry thermodynamics</b> |  |
| 8 - Co-requisites for this course (if any) : <b>Practical course</b>               |  |
| 9 - Location if not on main campus :( <b>faculty of education Zulfi</b> )          |  |
| 10 - Mode of Instruction (mark all that apply)                                     |  |
| A - Traditional classroom <input type="checkbox"/>                                 | <input checked="" type="checkbox"/> What percentage? <input type="checkbox"/> <b>30 %</b> <input type="checkbox"/> |
| B - Blended (traditional and online) <input type="checkbox"/>                      | <input type="checkbox"/> What percentage? <input type="checkbox"/> <b>0 %</b> <input type="checkbox"/>             |
| D - e-learning <input type="checkbox"/>  | <input checked="" type="checkbox"/> What percentage? <input type="checkbox"/> <b>70 %</b> <input type="checkbox"/> |
| E – Correspondence <input type="checkbox"/>  | <input type="checkbox"/> What percentage? <input type="checkbox"/> <b>0 %</b> <input type="checkbox"/>             |
| F - Other <input type="checkbox"/>   | <input type="checkbox"/> What percentage? <input type="checkbox"/> <b>0 %</b> <input type="checkbox"/>             |
| Comments :<br>..... <input type="checkbox"/>                                       |  |

## B Objectives

|   |
|---|
| What is the main purpose for this course?<br><b>Study the Rate and Classification Of Chemical Reaction</b><br><b>Determination Of Rate Of Chemical Reaction</b> <input type="checkbox"/>  |
| Briefly describe any plans for developing and improving the course that are being implemented :<br><b>The use of interactive whiteboard teaching instead of the chalkboard.</b><br><b>use of the Web in modern additions to the course .</b> <input type="checkbox"/> |





## C. Course Description

### 1. Topics to be Covered

| List of Topics  | No. of Weeks | Contact Hours |
|---|--------------|---------------|
| Definitions for kinetic Chemistry   | 1            | 4             |
| The rate of reaction  | 1            | 2             |
| Kinetics of particles   | 1            | 2             |
| The order of a chemical reaction  | 1            | 2             |
| Law of speed of reaction  | 2            | 4             |
| Measuring the order of reaction   | 1            | 2             |
| The applications of types of order of reaction                                      | 3            | 8             |
| Complex interactions  | 2            | 4             |
| Effect of temperature   | 1            | 2             |
| Activation energy   | 1            | 2             |
| Theories that explain the occurrence of chemical reactions                          | 2            | 4             |
| <u>Practical</u>  |              |               |
| Measure the speed of chemical reaction (first order, second order)                  | 3            | 6             |
| effect of concentration on the speed of reaction , determined the order of reaction | 2            | 4             |
| Effect of temperature on the speed of reaction, Measuring activation energy         | 2            | 4             |

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

| <input type="checkbox"/> | Lecture | Tutorial | Laboratory | Practical | Other: | Total |
|--------------------------|---------|----------|------------|-----------|--------|-------|
| Contact Hours            | 30      | ---      | 30         | ---       | ---    | 60    |
| Credit                   | 30      | ---      | 15         | ---       | ---    | 45    |



3. Additional private study/learning hours expected for students per week.

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

|            | NQF Learning Domains<br>And Course Learning Outcomes   | Course Teaching<br>Strategies   | Course<br>Assessment<br>Methods  |
|------------|--|---|--|
| <b>1.0</b> | <b>Knowledge</b>   |   |  |
| 1.1        | <b>Know the Rate and Classification Of Chemical Reaction</b>                                       | <b>lecture<br/>discussion,<br/>mutual<br/>dialogue</b>                      | <b>Oral tests at<br/>the<br/>beginning of<br/>each lecture,<br/>Written<br/>tests, final<br/>examination</b> |
| 1.2        | <b>Determination Of Rate Of Chemical Reaction</b>  |   |  |
| 1.3        | <b>Study Rate Of Chemical Reaction and The Factor which affected On It</b>                         |   |  |
| 1.4        | <b>Study Of Mechanism of Reversible and Irreversible Kinetic Reaction</b>                          |   |  |
| 1.5        | <b>Theories that explain the occurrence of chemical reactions</b>                                  |   |  |
| 1.6        |  |   |  |
| <b>2.0</b> | <b>Cognitive Skills</b>  |   |  |
| 2.1        | <b>Application of The Chemical Operation To Link between The Theoretical and Workable Material</b> | <b>problems,<br/>Laboratory<br/>study<br/>Open<br/>discussions</b>          | <b>Continuous<br/>questions-<br/>duties -<br/>practical test</b>   |
| <b>3.0</b> | <b>Interpersonal Skills &amp; Responsibility</b>   |   |  |
| 3.1        | <b>Dealing with team spirit in experiments</b>   | <b>Working in<br/>groups within<br/>the lab<br/>Collective<br/>seminars</b> | <b>Oral<br/>questions,<br/>Correct<br/>experimental<br/>results</b>  |
| 3.2        | <b>Creating constructive competitive spirit</b>  |   |  |
| 3.3        | <b>Encourage communication between students</b>  |   |  |





|            | NQF Learning Domains<br>And Course Learning Outcomes              | Course Teaching<br>Strategies                      | Course<br>Assessment<br>Methods  |
|------------|---|--|--|
| <b>4.0</b> | <b>Communication, Information Technology, Numerical</b>           |  |  |
| <b>4.1</b> | <b>Development of communication skills</b>                        | <b>Problems<br/>research, study<br/>discussion</b> | <b>Oral and<br/>written<br/>exercises<br/>Follow-up<br/>practical<br/>books,</b> |
| <b>4.2</b> | <b>Development of numerical skills</b>                            |  |  |
| <b>4.3</b> | <b>Use chemical Internet sites and doing<br/>some calculation</b> |  |  |
| <b>5.0</b> | <b>Psychomotor</b>  |  |  |
| <b>5.1</b> | —   | —  | —  |

### 5. Schedule of Assessment Tasks for Students During the Semester:

|   | Assessment task          | Week Due            | Proportion<br>of Total<br>Assessment |
|---|--------------------------|---------------------|--------------------------------------|
| 1 | Questions and exercises  | fourth and<br>fifth | 10%                                  |
| 2 | Theoretical midterm exam | sixth               | 20%                                  |
| 3 | practical midterm exam   | eighth              | 20%                                  |
| 4 | Final practical exam.    | fourteenth          | 20%                                  |
| 5 | Final Theoretical exam   | Last week           | 40%                                  |





## **D. Student Academic Counseling and Support**

**Two hours of weekly academic guidance**

## **E. Learning Resources**

### **1. List Required Textbooks :**

**Chemistry electrical electrolytic conductivity Ahmed Abdulaziz Al Owais**

### **2. List Essential References Materials :**

- **Foundations of physical chemistry, Adel Ahmed Jrare**
- .....

### **3. List Recommended Textbooks and Reference Material :**

- **Chemistry electrical electrolytic conductivity Ahmed Abdulaziz Al Owais**

### **4. List Electronic Materials :**

- **.Wikipedia**
- .....

### **5. Other learning material :**

- **Power point - CD show**



## **F. Facilities Required**

### **1. Accommodation**

- **Prepared Classroom with Interactive whiteboard**
- **40 chair.**

### **2. Computing resources**

- **Laptop special for Professor only**
- .....

### **3. Other resources**

- **There is a need to equip lab special for this course**

## **G Course Evaluation and Improvement Processes**

**1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:**





|  |
|--|
| <ul style="list-style-type: none"> <li>• Meeting with the students academic excellence and the stumble</li> <li>• Identification of evaluation for the course form students</li> </ul>   |
| <b>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :</b> <ul style="list-style-type: none"> <li>• Benefit from the expertise of the members of the section</li> <li>• Identify assessment for teachers</li> <li>• Report of the expert from College matchups</li> </ul> |
| <b>3 Processes for Improvement of Teaching :</b> <ul style="list-style-type: none"> <li>• Courses for Faculty members</li> <li>• Workshop to improve methods of evaluation .....</li> <li>• .....</li> </ul>   |
| <b>4. Processes for Verifying Standards of Student Achievement</b> <ul style="list-style-type: none"> <li>• The patch is checked by faculty member</li> </ul>  |
| <b>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :</b> <ul style="list-style-type: none"> <li>• discussion the members section regularly to improve the course</li> <li>• feedback processes for course quality</li> </ul>             |

**Course Specification Approved**  
**Department Official Meeting No ( 3 ) Date 28 / 12 / 1436 H**

|  |                          |  |
|--|--------------------------|--|
| <b>Course's Coordinator</b> <input type="checkbox"/>                             | <input type="checkbox"/> | <b>Department Head</b> <input type="checkbox"/>                            |
| <b>Name :</b> <input type="checkbox"/> Ibtehag Elhassan <input type="checkbox"/> | <input type="checkbox"/> | <b>Name :</b> <input type="checkbox"/> ..... <input type="checkbox"/>      |
| <b>Signature :</b> <input type="checkbox"/> ..... <input type="checkbox"/>       | <input type="checkbox"/> | <b>Signature :</b> <input type="checkbox"/> ..... <input type="checkbox"/> |
| <b>Date :</b> <input type="checkbox"/> 28/ 12 / 1436 H <input type="checkbox"/>  | <input type="checkbox"/> | <b>Date :</b> <input type="checkbox"/> .... / ... / ..... H                |
| <input type="checkbox"/>   |                          |  |

