**Course Description Form**

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| 1. Course Name:
 |
| Kinetic chemistry |
| 1. Course Code:
 |
| **301CHKC** |
| 1. Semester / Year:
 |
|  **First semester /Third year** |
| 1. Description Preparation Date:
 |
|  **1/10/2024** |
| 1. Available Attendance Forms:
 |
| Mandatory |
| 1. Number of Credit Hours (Total) / Number of Units (Total)
 |
| **45h – 4 units** |
| 1. Course administrator's name (mention all, if more than one name)
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| **Name: Amir .F. Dawood** **Email:** **dr.amer960@uodiyala.edu.iq****Name: Ahmed Ismail Kareim****Email:** **ahmed\_kandory@uodiyala.edu.iq** |
| 1. Course Objectives
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| **Course Objectives** |  **The objective of this course is for students to gain a firm understanding of the mathematical and physical aspects of the behavior of chemical systems, chemical kinetics, and the properties of matter, electrochemistry and photochemistry.** |
| 1. Teaching and Learning Strategies
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| **Strategy** | **Engage, Explore, Explain, Elaborate, and Evaluate** |
| 1. Course Structure
 |
| **Week**  | **Hours**  | **Required Learning Outcomes**  | **Unit or subject name**  | **Learning method**  | **Evaluation method**  |
| **1** | **3** | **To develop the** **basic knowledge of** **students about gases.** | Kinetic molecular theory of gases | **Lecture, Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve** a homework |
| **2** | **3** | **Students are taught the****Distribution velocity** | Molecular velocity distribution | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **3** | **3** |  | Maxwell-Boltzmann distribution | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **4** | **3** |  | The principle of equal distribution of energies | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **5** | **3** | **Complete knowledge about spectroscopy**. | Photochemistry regions of the spectrum | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **6** | **3** | **Students come to** **know about** **photochemistry**  | The rules of photochemistry | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **7** | **3** |  | Exam | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **8** | **3** |  | Selectivity of the two photochemical reactions | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **9** | **3** |  | Molecular orbitals and types of electron transitions | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **10** | **3** |  | spin, single and triple cases | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **11** | **3** |  | Picking rules | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **12** | **3** |  | Types of transfers prohibited and allowed | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **13** | **3** |  | Potential energy curves of molecules | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **14** | **3** |  | electronic spectra | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| **15** | **3** |  | Exam | **Lecture, , Tutorials** | **The evaluation is done through class activities answer a set of questions, and then the students are asked to solve a homework assignment related to the lesson** |
| 1. Course Evaluation
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| **Assignments and Report 10%, Quizzes 10%, Midterm Exam 30%, and Final Exam 50% Then the total is 100%** |
| 1. Learning and Teaching Resources
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| Required textbooks (curricular books, if any) | **Thermodynamic and photochemistry By** **Dr. Jalal Mohamed Saleh** |
| Main references (sources) | **Physical chemistry by Atkins** |
| Recommended books and references (scientific journals, reports...) |  |
| Electronic References, Websites | **Physical chemistry:Books-Amazon.com** |