**Course Description Form**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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) | | | | | | | | |
| **Name: Amir .F. Dawood**  **Email:** [**dr.amer960@uodiyala.edu.iq**](mailto:dr.amer960@uodiyala.edu.iq)  **Name: Ahmed Ismail Kareim**  **Email:** [**ahmed\_kandory@uodiyala.edu.iq**](mailto:ahmed_kandory@uodiyala.edu.iq) | | | | | | | | |
| 1. Course Objectives | | | | | | | | |
| **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 | | | | | | | | |
| **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 | | | | | | | | |
| **Assignments and Report 10%, Quizzes 10%, Midterm Exam 30%, and Final Exam 50% Then the total is 100%** | | | | | | | | |
| 1. Learning and Teaching Resources | | | | | | | | |
| 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** | | |