**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | **Pharmaceutical chemistry**  | **Level** |  |
| **Course**  | **Analytical Chemistry** | **Code** | **1703101** | **Prerequisite** | 0303101 |
| **Credit hours** | **3** | **Theoretical**  |  | **Practical** |  |
| **Coordinator** |  | **Email** |  |
| **Teachers** | **Dr. Mousa Magharbeh** | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** |  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
| Discusses various analytical methods used in drug analysis in order to identify structure, purity and mode of action. |
| **Course Goals** |
| 1-analysis in pharmaceutical industry2- the proper use of pharmacopoeia, 3-the principles of chemical equilibrium and its relation to pharmaceutical analysis 4-the concept of titrimetric analytical methods and how to employ them practically in real life problems pertaining the following types of reactions: * Acid -base
* Precipitation
* Complexation
* Oxidation –reduction
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| **CILOs** |
| **Knowledge** |
| A1. Building on the foundation of general chemistry prerequisites, the course requires students to explore calculations for drug analysis.A2.Emphasizing practical skills, students will use pharmacopeia, prepare solutions, and master techniques for pH measurement.A3.The course also covers statistical analysis of data and instructs students on treating different types of reactions in the context of pharmaceutical processes.  |
| **Skills** |
| B1. The course aims to instill fundamental analytical chemistry skills in students, focusing on sampling techniques.B2.Students are expected to acquire proficiency in preparation, extraction, and titration methods as essential components of analytical chemistry.B3.Additionally, the course emphasizes the importance of statistical analysis in interpreting analytical data.. . |
| **Competencies** |
| C1. To be able to correlate the analytical chemistry with drug analysis.C2.To be able to apply the knowledge from their study in preparation of solutions.C3.To be able to prepare the buffers and measure its pH |
| **Learning Methods** |
| * Lectures, Discussion, Seminars
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| **Evaluation Tools** |
| Exams,Presentation, project, assignments. |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Introduction about pharmaceutical analysis and some analytical methods | Lecture material and notes | Exams | **A1,a2,b1,b2,c1** | **3** |
| **2.** | Titremetric analysis | Homework and Projects, Presentation, … | Assignments, | **A1,a2,b1,b2,c1** | **3** |
| **3.** | Acid-base titration | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **4.** | Aqueous acid-base titration | Homework and Assignments, Projects, Presentation, … | Exams | **A1,a2,b1,b2,c1** | **3** |
| **5.** | Non aqueous acid-base titration | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **6** |
| **6.** |
| **7.** | Complexometric titration | Homework and Assignments, Projects, Presentation, … | Exams | **A2,a3,b1,b3,c2,c3** | **6** |
| **8.** |
| **9.** | Precipitation titration | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **6** |
| **10.** |
| **11.** | Oxidation – Reduction reactions | Lecture material and notes | Exams | **A1,a2,b1,b2,c1** | **6** |
| **12.** |
| **13.** | Determination of metalsDetermination of drugs based on their functional groups | Lecture material and notes | Presentation, project, assignments | **A1,a2,b1,b2,c1** | **6** |
| **14.** |
| **15.** |  **F I N A L E X A M I N A T I O N W EE K** |

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| **Plan of Course Evaluation** |
| **Evaluation Tools** | **Mark** | **ILOs** |
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| **First Exam (Mid-term)**  | **30%** | A1,A2,A3 | B1,B2 |  |  |  |  |
| **Second Exam (If available)** |  |  |  |  |  |  |  |
| **Final Exam** | **50%** |  |  |  |  |  |  |
| **Activities** |  |  |
| **Activities Evaluation** | Homework/Tasks | 10% | B1,B2,B3 | **A1,a2, c1** |  |  |  |  |
| Case Study  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |
| Quizzes | 10% | C1,C2,C3 |  |  |  |  |  |
| Others |  |  |  |  |  |  |  |
| **Total** | 100% |  |  |  |  |  |  |

 **Components**  |
| **Book** | **1-Fundamental of Analytical chemistry:**  **Author: Donald west, F. James Holler, Douglas A. Skoog , sixth edition.** **2-Textbook of pharmaceutical analysis. Kenneth A. conors, third Edn.**  |
| **References** |  |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date:**