



**Jerash University
Faculty of pharmacy**

Course Syllabus

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| Course Title: Pharmaceutical instrumental analysis practice | Course code: (1101213) |
| Course Level: Second year | Course prerequisite (s) and/or co requisite(s): (1101112) |
| Lecture Time: Wen, 08:00 – 10:00 | Credit hours: 1 credit |

Academic Staff

Specifics

| Name | Rank | Office Number and Location | Office Hours | E-mail Address |
|---------------------------------|----------------------------|-----------------------------------|--|--------------------------------------|
| Dr. Abdel Hadi Al Jafari | Assistant professor | 412, Pharmacy building | Sun, Tue 08-11 Mon, Wed 12-16 | abdelhadi.aljafari@jpu.edu.jo |

Course module description:

This course is complementary part to the theoretical lectures provided by the co-requisite course (1101112). This course familiarizes the students with basic principles for the performance of qualitative and quantitative analysis. Students will gain knowledge of practical techniques needed for the separation, identification, and detection of various pharmaceutical products. Students will also learn important principles for utilizing and handling chromatographic and spectrophotometric instruments

Course module objectives:

At the end of this module, students will be able to:

- 1. Understand basic principles of chromatography.**
- 2. Learn the different types of chromatographic techniques and their uses.**
- 3. Describe the block diagram of various instruments.**
- 4. Learn basic principles for handling the lab's instruments.**
- 5. Appreciate the importance of instrumental analysis in the development of pharmaceutical sciences**

Course/ module components:

- **Books (title , author (s), publisher, year of publication)**

Principles of Instrumental Analysis. by [Douglas A. Skoog](#), [F. James Holler](#), [Timothy A. Nieman](#). Publisher: Brooks/Cole Pub Co; 5th edition (September 3, 1997) ISBN: 0030020786.

References:

Students will be expected to give the same attention to these references as given to the Module textbook(s)

- **Support material.**
- **Study guide.**
- **Homework and laboratory guide.**

Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Home works
- Final examination: 40 marks

| <u>Allocation of Marks</u> | |
|---|-------------|
| Assessment Instruments | Mark |
| Med term examination | 30% |
| Final examination: 40 marks | 40% |
| Reports, research projects, Quizzes, Home works, Projects | 30% |
| Total | 100% |

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

| Week | Basic and support material to be covered | Homework/reports and their due dates |
|----------------------------------|---|---|
| (1) | General introduction | |
| (2) | Identification of a Weak Acid by Potentiometric Titration | |
| (3) | Spectrophotometric Determination of Ferrous Ion Concentration | |
| (4) | Determination of a mixture of Cobalt and Nickel | |
| (5) | High performance liquid chromatography | |
| (6) mid examination | Mid exam | |
| (7) | Thin layer chromatography | |
| (8) | Gas chromatography | |
| (9) | Flame photometric Analysis | |
| (10) | Mass spectroscopy | |
| (11) Final Examination | Final Exam | |

Teaching methods:

Tutorial and lab sessions

Learning outcomes:

At the end of this module, student will be able to

1. Identify the different types of glassware available in the analytical lab and their uses.
2. Identify types of chemicals found in the lab and where they can be discarded.
3. Learn laboratory safety and self-protection rules.
4. Distinguish between titrations in aqueous media and titrations in a non-aqueous media.
5. Identify the different types of indicators available and the pH range at which they can be used.
6. Appreciate the importance of the often difficult tasks of judging the precision and accuracy of experimental data.