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**Department of Chemistry**

**College of Education**

**University of Salahaddin**

**Subject: Theoretical Analytical Chemistry**

**Course Book: *1st Stage Students***

**Lecturer's name:**

**Assist. Prof. Dr. Chnar Mohammed Rasheed**

**Academic Year: *2020-2021***

**Course Book**

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| **1. Course name** | Qualitative analysis & chemical equilibrium and volumetric analysis |
| **2. Lecturer in charge** | Dr. Chnar Mohammed Rasheed |
| **3. Department/ College** | Department of Chemistry / College of Education |
| **4. Contact** | **E-mail:** chnar.rasheed@su.edu.krd **or** chinar\_jaf@yahoo.com**Tel:** 07501871773 |
| **5. Time (in hours) per week**  | **Theory:** 2 h |
| **6. Office hours** | Thursday: 8:30 - 10:30 , 12:30-2:30 |
| **7. Course code** | Nothing |
| **8. Teacher's academic profile**  | Chnar Mohammed Rasheed is assistant Prof. in Analytical Chemistry at the Chemistry Department/ Education College at the Salahaddin University. She studied her first degree at the University of Salahaddin with the Bsc (hons) in chemistry. In 2001, she started MSc course in the department of chemistry-Education college/ University of Salahaddin. She got the degree of Master of Science with distinction in Analytical Chemistry in 2004. She studied PhD degree through split site program between university of Salahaddin,Erbil and Sulaiman Demirl University-Isparta-Turkey. She is a member of Kurdistan Chemists' Syndicate and Teachers Union. Additionally, she is taking and attending various course and conferences with awarding degree such as, computer training, 2 term pre-sessional program for English Language-UK, General English for University Students "THE ROAD TO SUCCESS", Teaching Methods Course, and Chemical Safety and Security Officer Training.  |
| **9. Keywords** | Analytical Chemistry, qualitative analysis, quantitative analysis |
| **10. Course overview:** Lectures during the first academic course are focused on the analytical chemistry During the second course, volumetric methods will be discussed.  |
| **11. Course objective:**The objectives of this lecture are to learn basic theory of chemical analysis such as qualitative and quantitative analysis in detail. Students will learn more information about classical qualitative method such as volumetric analysis. |
| **12. Student's obligation**This module includes two writing exams and one report. Students get many questions during this course as tutorials, quizzes and home works. Thus, it will help students to understand these courses in detail and get information for the final examination. Students should be ready in class. |
| **13. Forms of teaching:**Using more effective and interesting motivated learning method with examples, quizzes, reports and tutorials. Materials during lecture include effective power point slide, white board, different chalk and marker pen and data show. Additionally, students will be attended during lectures. |
| **14. Assessment scheme****Grading for examinations, quizzes, reports, home works, activities in the lab and etc…****16** grades for exams (TWO/THREE TERM EXAMINATION)**4** grades for quizzes**4** grades for reports**2** grades for home works or activities in class and etc…**Note:** One extra mark for no absent class, Half extra mark for one absent class (in final out) There is no extra marks for more than one absent |
| **15. Student learning outcome:****Students will learn to:*** Know different analysis method, such as qualitative and quanitative methods
* Analyze analyte in various sample qualitatively
* Work to find active/desired components percent in accurate & precision range
* Solve their problems during the analysis
* Assess and find ingredients sample
* Get pure precipitation
* Detect the end point of the titration
* Separate and determine analyst in a mixture
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| **16. Course Reading List and References‌:****There are some recommended references that can be used for furthermore information:*** D. A. Skooge and D.M. West, Fundamental of Analytical Chemistry, 9th edition
* D. A. Skooge and N. Holrer, Principles of Instrumental Analysis, 5th edition
* Gary D. Christian, Analytical Chemistry, 5th edition
* Harvey, D., (2000), Modern Analytical Chemistry.
* Kermer, R., Mermet, M., Otto, M., Valcarce, M. and Widmer, H. M. (2004), *Analytical Chemistry: A Modern Approach to Analytical Science.* 2nd edition.
* Jeffery, G., Bassett, J., Mendham, J., and Denney, R., (1989), *VOGEL’S: Text book of Quantitative Chemical Analysis*, 5th edition, New York.
* Pandey, O. P., Bajpai, D. N., and Giri, S., (2009), *Practical Chemistry (For B.Sc. I, II & III Year Student)*, New Delhi.
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| **17. Topics: Theory** | **Lecturer's name** |
|  **Expecting number of weeks with lecture syllabus:** **Syllabus of Second Course Program:****Expecting number of weeks with lecture syllabus:** **1,2-** **Introduction to volumetric analysis**Definition of principal terms, kinds of reactions, acid-base titration, indicators, indicator range**3,4-Acid –base titration curve**Titration curve of strong acid with strong base.**5,6-Precipitation titration**Precipitation process, solubility, titration curve of precipitationMohr titration, Volhard titration, Fajan titration**7-Precipitation** **titration curve****8-Redox titration****9-Redox titration curve****10,11-Complexometric titration****12-Complexometric titration curve** | **Chnar Mohammed Rasheed** |
| **18. Practical Topics (If there is any)** |  |
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| **19. Examinations:** |
| **20. Extra notes:** There is no any suggestion.**21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ**  |