



Course Specification

University/Academy: Damanhour University

Faculty/Institute: Faculty of Science

Department: Chemistry

1. Course Data:

Course code: Chem. 324	Course title: instrumental analysis	Academic year/level: third year /2 nd term 2009-2010
Specialization: Zoology and chemistry	No. of instructional units: lecture <input type="text" value="2"/> tutorial <input type="text" value="1"/> practical <input type="text" value="5"/>	

course Aim

- The Course belongs to the instrumental analysis: sampling, ore analysis, Separation techniques and the electro-analytical methods of analysis.
- The course also gives the student the skills of gravimetric analysis and water analysis in addition to the principles of Instrumental analysis.

2. Intended learning outcome

Knowledge and understanding

By the end of the course, students will be able to:

- Describe solvent extraction, chromatographic techniques and Ion exchange
- Describe the electroanalytical method and the significance of their variables.
- List some experiments belongs to gravimetric, water and general instrumental analysis.

Intellectual skills

On completing this course, students will be able to:

- Discuss how to make sample for analysis.
- Evaluate the suitable conditions to make analysis and spectra, stability.

Professional skills

By the end of the course, students will be able to:



	<ul style="list-style-type: none">• Examine the diagrams got from the electroanalytical methods: potentiometry, voltammetry and polarography, electrogravimetry, coulometry, conductimetry.• Elicit about equilibrium distribution of homogeneous solutions and solutions in contact with solid or gas phase.
a) General skills	By the end of the course, students will be able to: <ul style="list-style-type: none">• IT and web search engines for collecting information.• Work effectively in a team, and independently on solving organic chemistry problems.• Express ideas, principles and information by oral, written and visual means.• Communicate effectively with his lecturer and colleagues.
course content	<ul style="list-style-type: none">• Introduction , sampling• Ore analysis + separation techniques• Electroanalytical methods:• Potentiometry• Voltammetry and polarography• Electrogravimetry• Coulometry• Conductivity
Teaching and learning methods	<ul style="list-style-type: none">• Lectures and seminars using data show and board.• Laboratory work and assignment.• Problem classes and group tutorial.• Reports and discussion groups.
Taching and learning methods for students with special needs	<ol style="list-style-type: none">a. Computer hall to be used in visual labs and simulation experiments.b. Data show, overhead projector, Molecular models and chemistry computer programs.c. Changing to credit hours system, it is more effective.
Student Assessment	<ul style="list-style-type: none">• Mid term exam.• Reports.• Final term exam.
Procedures used:	



Schedule:	Assessment 1: Mid term exam	Week: 8
	Assessment 2: Practical exam	Week: 15
	Assessment 3: Final term exam	Week: 16
Weighing of Assessment:	Quizzes: Mid-Term Examination: 15 Final-Term Examination: 100 Oral Examination: Practical Examination: 25 Semester Work: 10 <u>Other types of assessment:</u> _____ Total 150	
List of Textbooks and References:	○ Modern Analytical Chemistry, David Harevey, mcGraw Hill 2000.	
Course Notes	Lecture notes of instrumental analysis for 3 rd year students - faculty of science – Damanhour University.	
Required Books (Textbooks)	Cotton, Frank Albert; Geoffrey Wilkinson, Carlos A. Murillo (1999). <i>Advanced Inorganic Chemistry</i> . ISBN 0471199575 .	
Recommended Books	• Handbook_of_Spectroscopy, Edited by G. Gauglitz and T. Vo-Dinh__Wiley-2003	
Periodicals, web sites,....,etc	www.Elsevier.com , www.springer.com	

Course Instructor

Dr. Alaa E. Ali

Date: 20 / 9 / 2008

Head of Department

Dr. Medhat A. Shaker