Course Specification

University/Academy: Damanhour University
Faculty/Institute: Faculty of Science
Department: Chemistry

1. Course Data:

<table>
<thead>
<tr>
<th>Course code:</th>
<th>Course title:</th>
<th>Academic year/level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. 306</td>
<td>Analytical Chemistry2</td>
<td>third year /2\textsuperscript{nd} term 2009-2010</td>
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</tbody>
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Specialization: Special Chemistry

No. of instructional units:
- lecture 4
- tutorial 1
- practical 4

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Course Aim

- The Course belongs to the instrumental analysis starts: sampling, ore analysis, separation techniques and electrochemical techniques
- The course also gives the student the idea about equilibrium distribution and speciation calculations and the nature of aqueous solutions.

2. Intended learning outcome

Knowledge and understanding

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

Intellectual skills

On completing this course, students will be able to:
- Evaluate how to make sample for analysis.
- Choose the suitable conditions to do analysis.

Professional skills

By the end of the course, students will be able to:
- Explain the diagrams got from the electronically methods: potentially, voltametry and palaeography,
| electrogravimetry, coulometer, conductimetry.  
| • Counsel problems 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:

- Use IT and web search engines for collecting information.
- Work effectively in a team, and independently on solving organic chemistry problems.
- Examine ideas, principles and information by oral, written and visual means.
- Perform effectively with his lecturer and colleagues.

### Course content

- Introduction, sampling
- Ore analysis + separation techniques
- Electroanalytical methods:
  - Potentiometry
  - Voltametry and palaeography
  - Electrogravimetry
  - Coulometer
  - Conductivity
  - Equilibrium distribution and separation calculations
  - Homogeneous aqueous solutions
  - Solution in contact to solid phase
  - Gas phase

### Teaching and learning methods

- Lectures using data show and board.
- Laboratory work and assignment.
- Problem classes and group tutorial.
- Reports and discussion groups.

### Teaching and learning methods for students with special needs

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

- Mid term exam.
<table>
<thead>
<tr>
<th>Assessment</th>
<th>Practical exam.</th>
<th>Final term exam.</th>
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</thead>
<tbody>
<tr>
<td>Procedures used:</td>
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<td></td>
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<tr>
<td>Schedule:</td>
<td></td>
<td></td>
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<tr>
<td>Assessment 1: Mid term exam</td>
<td>Week: 8</td>
<td></td>
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<tr>
<td>Assessment 2: Practical exam</td>
<td>Week: 15</td>
<td></td>
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<tr>
<td>Assessment 3: Final term exam</td>
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<tr>
<td>Weighing of Assessment:</td>
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<tr>
<td>Quizzes:</td>
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<tr>
<td>Mid-Term Examination:</td>
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<tr>
<td>Final-Term Examination:</td>
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<tr>
<td>Oral Examination:</td>
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<tr>
<td>Practical Examination:</td>
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<tr>
<td>Semester Work:</td>
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<tr>
<td>Other types of assessment:</td>
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<tr>
<td>Total</td>
<td>250</td>
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List of Textbooks and References:

Course Notes
Lecture notes of Analytical Chemistry for 2nd year students - faculty of science – Damanhour University.

Required Books (Textbooks)

Recommended Books

<table>
<thead>
<tr>
<th>Course Instructor</th>
<th>Head of Department</th>
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<tbody>
<tr>
<td>Dr. Alaa E. Ali</td>
<td>Dr. Medhat A. Shaker</td>
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</table>

*Date: 20 / 9 / 2008*