



Course specification

University/Academy: Damanhour University

Faculty/Institute: Faculty of Science

Department: Chemistry

1. Course Data:

Course code: Chem. 101	Course title: General Chemistry 1 (Inorganic Chemistry)	Academic year/level: 2007-2008 First year – first term
Specialization: Chemistry and Physics, Biology groups	No. of instructional units: lecture <input type="text" value="3"/> tutorial <input type="text" value="1"/> practical <input type="text" value="3"/>	

course Aim

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

- State the general purpose for the study of chemistry.
- Use scientific units of measurement.
- Understand the basic principles of general chemistry, chemical calculations, atomic spectra and electronic configuration.
- Use the periodic table to get important chemical information and trends.
- Recognize the chemistry of S-and P-block elements with special reference to their industrial applications and chemistry of environment.
- Describe several types of chemical bonds and the molecular and geometrical shapes of the molecule.

2. Intended learning outcome

Knowledge and understanding

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

- A1 mention the type of a compound and its nature.
- A2 define the atomic structure and type of bonding.



	Know the shape of the molecule.				
Intellectual skills	<p>On completing this course, students will be able to:</p> <p>B1 evaluate different types of chemical calculations.</p> <p>B2 judge the bonding types, atomic structure, and geometrical shape of molecules.</p> <p>B3 innovate the polarity of a molecule and its physical and chemical properties.</p>				
Professional skills	<p>By the end of the course, students will be able to:</p> <p>C1 perform the geometrical and molecular shape of many different compounds.</p> <p>C2 prepare the acidic and basic radicals of a simple inorganic salt.</p> <p>C3 Separate a mixture to its components.</p>				
a) General skills	<p>By the end of the course, students will be able to:</p> <p>D1 Use IT and web search engines for collecting information.</p> <p>D2 Work effectively in a team, and independently on solving general and inorganic chemistry problems.</p> <p>D3 explain ideas, principles and information by oral, written and visual means.</p> <p>D4 Communicate effectively with his lecturer and colleagues.</p>				
course content	<table border="1"> <tr> <td>Units of measurements, accuracy, precision, conversion factors.</td> </tr> <tr> <td>chemical calculations, limiting reagent</td> </tr> <tr> <td>Atomic structure: <ul style="list-style-type: none"> Plank's quantum theory </td> </tr> <tr> <td> <ul style="list-style-type: none"> Bohr theory </td> </tr> </table>	Units of measurements, accuracy, precision, conversion factors.	chemical calculations, limiting reagent	Atomic structure: <ul style="list-style-type: none"> Plank's quantum theory 	<ul style="list-style-type: none"> Bohr theory
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	<ul style="list-style-type: none">• Sommerfeld modification• Wave mechanics, dual nature of light• Photoelectric effect, Compton effect,• Dual nature of the electron and the De Broglie relation• Heisenberg Uncertainty principle, Schroedinger equation• Shape of atomic orbitals, Electronic configuration of elements.• Properties of atoms and trends in the periodic table. <p>Molecular structure</p> <ul style="list-style-type: none">• Ionic bond Covalent bond, Lewis theory, VSEPR• Valence bond theory, molecular orbital theory• Chemistry of S-and P-block elements with special reference to their industrial applications and chemistry of environment.
Teaching and learning methods	<p>4.1. Lectures and seminars using data show and board.</p> <p>4.2. Laboratory work and assignment.</p> <p>4.3. Problem classes and group tutorial.</p> <p>4.4. Reports and discussion groups.</p>
Taching and learning methods for students with special needs	<ul style="list-style-type: none">• Computer hall to be used in visual labs and simulation experiments.• Data show, overhead projector, Molecular models and chemistry computer programs.• Changing to credit hours system, it is more effective.



Student Assessment	5.1. Quizzes. 5.2. Mid term exam. 5.3. Practical exam. 5.4. Final term exam.																
Procedures used:																	
Schedule:	<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">Assessment 1: Quizzes</td> <td style="text-align: right;">Week: 4, 8, 12</td> </tr> <tr> <td>Assessment 2: Mid term exam</td> <td style="text-align: right;">Week: 9</td> </tr> <tr> <td>Assessment 3: Practical exam</td> <td style="text-align: right;">Week: 12</td> </tr> <tr> <td>Assessment 4: Final term exam</td> <td style="text-align: right;">Week: 14</td> </tr> </table>	Assessment 1: Quizzes	Week: 4, 8, 12	Assessment 2: Mid term exam	Week: 9	Assessment 3: Practical exam	Week: 12	Assessment 4: Final term exam	Week: 14								
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List of Textbooks and References:	<p>Essential Books (Text Books):</p> <p>Chemistry “The Central Science”, Theodore L. Brown, H. Eugene LeMay, Jr and Bruce E. Bursten (Editors), Pearson Education International, Prentice Hall, 10th Edition, 2006.</p>																
Course Notes	Course Notes General chemistry																
Required Books (Textbooks)	<ul style="list-style-type: none"> • Comprehensive Inorganic Chemistry. Sulekh Chandra, New Age International Limited Publishers, New Delhi, 2004 General chemistry and modern applications ,R.H. Petrucci,1985 																



Recommended Books	<p>Chemistry Rob Lewis and Wynne Evans, Palgrave Macmillan Houndmills, Basingstoke, Hampshire RG21 6XS and 175 Fifth Avenue, New York, N.Y. 10010, 3rd edition, 2006</p> <ul style="list-style-type: none">• Comprehensive Inorganic Chemistry. Sulekh Chandra, New Age International Limited Publishers, New Delhi, 2004 <p>General chemistry and modern applications ,R.H. Petrucci,1985</p>
Periodicals, web sites,....,etc	<p>Periodicals, Web Sites, . . . etc</p> <p>Periodicals, Web Sites . . . etc</p> <p>www.Elsevier.com</p>

Course Instructor

Dr. Alaa e. Ali

Date: 20 / 9 / 2008

Head of Department

Dr. Medhat A. Shaker