



Course specification

University/Academy: Damanhour University

Faculty/Institute: Faculty of Science

Department: Chemistry

1. Course Data:		
Course code: Chem. 410	Course title: Inorganic chemistry 3	Academic year/level: 2010-2011 4 th year- 2 nd term
Specialization: Special Chemistry	No. of instructional units: lecture <input type="text" value="4"/> tutorial <input type="text" value="4"/> practical <input type="text" value="-----"/>	

2. course Aim	The course topics can be summarized as follows: <ul style="list-style-type: none">• Nuclear and Actinides chemistry.• Solid state chemistry.• Inorganic reaction mechanism.• Organo-metallic chemistry
3. Intended learning outcome	
Knowledge and understanding	By the end of the course, students will be able to: <ul style="list-style-type: none">A1 Define the principles of nuclear chemistry.A2 Mention the behavior of Actinides in different mediums.B2 Describe s the inorganic reaction mechanism in different geometries and suggest the products.A1 List methods of preparation of the organo-metallic compounds and their properties.
Intellectual skills	On completing this course, students will be able to: <ul style="list-style-type: none">B1 Contrast between different nuclear models and write the sub-nuclear particles distributions.B3 interpret what happens in the different mechanisms of inorganic reactions step by step.



	B2 Compare between different types of solids. Put planes to synthesize different organo-metallic compounds and study their properties.
Professional skills	By the end of the course, students will be able to: C1 interpret the behaviour of actinides in different mediums. C2 Interpret the behaviour of nucleus due to the radioactivity. C4 Calculate the binding energy of the nucleus. C3 Interpret the inorganic reaction mechanism of Oh and square planar geometries.
a) General skills	By the end of the course, students will be able to: D1 IT and web search. D2 Communication with the Lecturer and colleagues. D3 Solving problems.
4. course content	<ul style="list-style-type: none">• Nuclear chemistry• Actinides chemistry• Solid state chemistry• Inorganic reaction mechanism• Organo-mettalic chemistry
Teaching and learning methods	4.1. Lectures and seminars using data show and board. 4.2. Assignment. 4.3. Group tutorial. 4.4. Reports.
Taching 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, c. Changing to credit hours system, it is more effective.



Student Assessment	5.1. Mid term exam. 5.2. Reports. 5.3. Final term exam.														
Procedures used:	Assessment 1 Final-Term Examination Week16														
Schedule:	<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">Assessment 1: Mid term exam</td> <td style="text-align: right;">Week: 8</td> </tr> <tr> <td>Assessment 2: Reports</td> <td style="text-align: right;">Week: 11</td> </tr> <tr> <td>Assessment 3: Final term exam</td> <td style="text-align: right;">Week: 15</td> </tr> </table>	Assessment 1: Mid term exam	Week: 8	Assessment 2: Reports	Week: 11	Assessment 3: Final term exam	Week: 15								
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List of Textbooks and References:	<p><i>Radioactivity Radionuclides Radiation</i> Textbook by Magill, Galy. ISBN -3-540-21116-0, Springer, 2005.</p> <p><i>Radiochemistry and Nuclear Chemistry</i> Comprehensive textbook by Choppin, Liljenzin and Rydberg. ISBN -0750674636, Butterworth-Heinemann, 2001</p> <p><i>Radioactivity, Ionizing radiation and Nuclear Energy</i> Basic textbook for undergraduates by Jiri Hala and James D Navratil. ISBN -807302053-X, Konvoj, Brno 2003</p> <p>Collman, James P., et al. <i>Principles and Applications of Organotransition Metal Chemistry</i>. Mill Valley, CA: University Science Books, 1987. ISBN: 9780935702514.</p>														
Course Notes	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.														
Required Books (Textbooks)	<i>Radiochemistry and Nuclear Chemistry</i> Comprehensive textbook by Choppin, Liljenzin and Rydberg. ISBN -0750674636, Butterworth-Heinemann, 2001														
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Books	
b) Periodicals, web sites,...,etc	<p>www.Elsevier.com</p> <ol style="list-style-type: none">1. ^ Robert H. Crabtree (2005). <i>The Organometallic Chemistry of the Transition Metals</i>. Wiley. pp. 560. ISBN 978-0-471-66256-3. http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471662569.html.2. ^ Toreki, R. (2003-11-20). "Organometallics Defined". Interactive Learning Paradigms Incorporated. http://www.ilpi.com/organomet/organometallics.html.3. ^ For a historical perspective, cf. Pierre Teissier, <i>L'émergence de la chimie du solide en France (1950-2000). De la formation d'une communauté à sa dispersion</i> (Paris X: Ph.D. dissertation, 2007, 651 p.). Electronic version available: http://bdr.u-paris10.fr/sid/4. ^ Chapter 2 of <i>Solid state chemistry and its applications</i>. Anthony R. West. John Wiley & Sons 2003 ISBN 9812-53-003-75. ^ cf. Chapter 12 of <i>Elements of X-ray diffraction</i>, B.D. Cullity, Addison-Wesley, 2nd ed. 1977 ISBN 0-201-01174-36. ^ cf. Chapter 2 of <i>New directions in Solid State Chemistry</i>. C.N.R. Rao and J. Gopalakrishnan. Cambridge U. Press 1997 ISBN 0-521-49559-8

Course Instructor

Dr. Alaa E. Ali

Head of Department

Dr. Medhat A. Shaker

Date: 20 / 9 / 2008