

Basic Sciences **Division**

Department of Chemistry

Inorganic Chemistry Lab I



CUCEI



UNIVERSIDAD DE GUADALAJARA
CENTRO UNIVERSITARIO DE CIENCIAS EXACTAS E INGENIERÍAS

1. GENERAL INFORMATION				
Learning unit: Inorganic Chemistry Lab I		Department: Chemistry		Course format Lab
Prerequisites(P) Molecular Structure	Corequisites (CO) Inorganic Chemistry I	Ascribed Academy Chemistry		Module Structure of Matter
Type Basic particular mandatory.	Lecture Hours 0	Practice hours 3 hrs. per week	Total hours 51 hrs.	Credits 3
Degree in which this class is taught: B.S in Chemistry.				
2. GENERIC COMPETENCIES				
Students... ... apply the knowledge from Inorganic Chemistry I to perform the lab practices. analyze the main chemical properties of the inorganic compounds, learning to identify the elements of the periodic table of elements through chemical reactions. learn to deduce the compounds and the chemical and physical properties of inorganic substances by organizing matter internally.				

3.- SPECIFIC CHARACTERISTICS OF THE COMPETENCIES	
Knowledge	☐ Properties of chemical elements ☐ Behavior of chemical elements in different aqueous solutions. ☐ Behavior of chemical elements at different temperatures.
Skills	☐ Adequate handling of lab reagents, materials and equipment. ☐ Use of simple separation techniques. ☐ Handling waste from the lab practices. ☐ Use of a lab logbook.
Aptitudes	☐ Team work ☐ Analysis, synthesis and evaluation skills. ☐ Creativity ☐ Critical thinking



Values	☐ Ethics ☐ Honesty ☐ Responsibility ☐ Discipline
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4.- TRANSVERSAL COMPETENCIES

☐	Foreign Language (English)
☒	Critical, analytical and synthetic thinking.
☒	Oral and written expression
☒	Professional ethics
☐	Administration of human and material resources
☐	Leadership and sustainability
☐	Creativity, innovation and entrepreneurship
☐	Other

5.- COURSE CONTENT OF THE LEARNING UNIT

Practices

Practice 1: Scientific observation and description

Practice 2: Properties of hydrogen and its extraction.

Practice 3: Reaction between a metal and chlorhydric acid.

Practice 4: Water in the crystal structure.

Practice 5: How to grow a copper crystal ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)

Practice 6: Decomposition of metal nitrates of groups 1 and 2.

Practice 7: Reactions and chemical behavior of group 13 elements.

Practice 8: Reactions and chemical behavior of group 15 elements.

Practice 9: Reactions and chemical behavior of halide ions, elements from the halogen group.



6.- ASSESSMENT



Numeric grade

7.- GRADING CRITERIA OF THE LEARNING UNIT

Indicator of evaluation	Percentage
Departmental exams	0
Partial exam	0
Homework	0
Research activities	0
Practice reports	70
Class participation	0
Lab logbook	30

8.- REQUIRED MATERIAL (for students)



Calculator



Periodic table



Lab coat



Text book



Workbook



Tables of standard potential, table of mobility, etc.



9.-SPECIFIC CONTENT BY LEARNING UNITS

Content unit	Generic competency of the content unit	Topics	Class hours	Professor activities	Student activities	Bibliography
Practice 1 Observation	Students... ...understand the importance of observation in the scientific method.	Scientific observation and description	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the lab rules. -read and understand each practice before the actual practice day in order for them to better understand the practice and to reach the stated objectives. -use their logbook, make calculations and turn in a report after each practice.	Tellefsen, Dietz, Parry, Steiner. <i>Chemistry, Experimental Foundations Laboratory Manual</i> . Prentice Hall, Inc. New Jersey. USA:



Practice2 Hydrogen	Students understand the importance of hydrogen	Properties of hydrogen and its extraction.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Tellefsen, Dietz, Parry, Steiner. <i>Chemistry, Experimental Foundations Laboratory Manual</i>. Prentice Hall, Inc. New Jersey. USA:
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Practice 3 Metals 1	Students... Relate a redox reaction to the properties of metals in a substitution reaction.	Reaction between a metal and hydrochloric acid.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Tellefsen, Dietz, Parry, Steiner. <i>Chemistry, Experimental Foundations Laboratory Manual</i>. Prentice Hall, Inc. New Jersey. USA:
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Practice 4 Structure 1	Students know the relationship structure-properties with a simple crystal example.	Water in the crystal structure.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Tellefsen, Dietz, Parry, Steiner. <i>Chemistry, Experimental Foundations Laboratory Manual</i>. Prentice Hall, Inc. New Jersey. USA:
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Practice 5 Structure 2	Students understand the conditions and cautions that affect the growth of a crystal.	Growing a copper crystal.($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Tellefsen, Dietz, Parry, Steiner. <i>Chemistry, Experimental Foundations Laboratory Manual</i>. Prentice Hall, Inc. New Jersey. USA:
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Practice 7 Nitrates of groups 1 and 2	Students will relate the stability of a nitrate with the atomic number of the nitrated metal.	Decomposition of nitrates of groups 1 and 2 metals.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Nordmann, Joseph <i>Análisis Cualitativo y Química Inorgánica</i> CECSA Aráneo, Antonio <i>Química Analítica Cualitativa</i> McGraw-Hill Pauling, Linus <i>Química General</i> Editorial Aguilar Pierce, James B <i>Química de la Materia</i>. Publicaciones Cultural, S.A.
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Practice 8 Group 13	Students understand the similarities in the chemical behavior of group 13 experimentally.	Reactions and chemical behavior of group 13 elements.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Nordmann, Joseph <i>Análisis Cualitativo y Química Inorgánica</i> CECSA Aráneo, Antonio <i>Química Analítica Cualitativa</i> McGraw-Hill Pauling, Linus <i>Química General</i> Editorial Aguilar Pierce, James B <i>Química de la Materia</i>. Publicaciones Cultural, S.A.
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Practice 9 Group 15	Students understand the similarities in the chemical behavior of group 15 experimentally.	Reactions and chemical behavior of group 15 elements.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Nordmann, Joseph <i>Análisis Cualitativo y Química Inorgánica</i> CECSA Aráneo, Antonio <i>Química Analítica Cualitativa</i> McGraw-Hill Pauling, Linus <i>Química General</i> Editorial Aguilar Pierce, James B <i>Química de la Materia</i>. Publicaciones Cultural, S.A.
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Practice 10 Halogens	Students understand the similarities in the chemical behavior of halogens experimentally.	7) Reactions and chemical behavior of group halide ions from the halogen group.	3	Professor... - guides students during the practices, monitoring their correct performance in order for them to reach the objective of each practice in due time and manner. - Makes sure students follow the rules of the lab.	Students... -carry out each one of the practices in due time and manner, following all the rules to work at the lab. -read and understand each practice before the actual day in order to better understand the practice and to reach the objectives stated -use their logbook, make calculations and turn in a report after each practice.	Nordmann, Joseph <i>Análisis Cualitativo y Química Inorgánica</i> CECSA Aráneo, Antonio <i>Química Analítica Cualitativa</i> McGraw-Hill Pauling, Linus <i>Química General</i> Editorial Aguilar Pierce, James B <i>Química de la Materia</i>. Publicaciones Cultural, S.A.
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COURSE EVIDENCES
(Deliverables)

- Reports
- Logbook



10.-PROFESSOR'S PROFILE

Bachelor, Master or Doctorate degree in Chemistry, Chemical Engineering or related degrees.

11.-AUTHORS OF THE LEARNING UNIT

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12.-MODIFICATION AND UPDATE

March 22, 2017