



UNIVERSIDAD DE GUADALAJARA

Centro Universitario de Ciencias Exactas e Ingenierías
Secretaría Académica / Coordinación de la Licenciatura en Química
Comité de Innovación Curricular de la Licenciatura en Química

1.- GENERAL INFORMATION

Learning Unit Organic Chemistry Lab III		Department Chemistry		Format Lab
Prerequisites(P) General Chemistry II	Corequisites (CO) Organic chemistry III Organic Chemistry Theory III	Ascribed Academy Academy of Organic Chemistry	Module M2: Synthesis, purification and chemical transformation	
Type Basic Particular Mandatory	Lecture hours 0 hours	Practice hours 51 hrs.	Total hours 51 hrs.	Credits 9

2.- GENERIC COMPETENCIES

Students...

- ...apply security regulations when handling lab material and reagents, as well as treating residues in the organic chemistry lab.
- ... search and interpret bibliographic information.
- ... make ecological diagrams of their experiments
- ... know how to choose and use the appropriate material for the different set ups to carry out their experiments. .
- ...develop skills such as the ability to write concisely and in an organized way.
- ... obtain different products from the functional groups such as: ketones, aldehydes, carboxylic acids, derivatives of carboxylic acids and amines.

3.- SPECIFIC CHARACTERISTICS OF THE COMPETENCY

Knowledge	Students become acquainted with organic chemistry methods carried out with basic lab material to handle different experimental techniques.
Skills	Students develop abilities... to analyze to organize and plan. to search for information in different sources and analyze it. to solve problems. to make decisions to communicate in writing and orally. to work autonomously.
Aptitudes	Critical and self-critical abilities Team work Interpersonal skills Ethical commitment



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	Ability to apply knowledge in a practical way. Search skills Learning abilities Ability to adapt themselves to new situations Creativity Leadership Ability to work independently Initiative and entrepreneurship
Values	Leadership Ethics Responsibility Tolerance.

4.- TRANSVERSAL COMPETENCIES

<input checked="" type="checkbox"/>	Foreign Language (English)
<input checked="" type="checkbox"/>	Critical, analytical and synthetic thinking.
<input checked="" type="checkbox"/>	Oral and written expression
<input checked="" type="checkbox"/>	Professional ethics
<input checked="" type="checkbox"/>	Administration of human and material resources
<input type="checkbox"/>	Leadership and sustainability
<input checked="" type="checkbox"/>	Creativity, innovation and entrepreneurship
<input type="checkbox"/>	Other

5.- COURSE CONTENT OF THE LEARNING UNIT

1. Introduction
2. Chemistry of amines.
3. Chemistry of aldehydes and ketones.
4. Chemistry of carboxylic acids.
5. Chemistry of the derivatives of carboxylic acids.
6. Chemistry of heterocycles.

6.- ASSESMENT

<input checked="" type="checkbox"/>	Numeric grade
<input type="checkbox"/>	
<input type="checkbox"/>	



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7.- GRADING CRITERIA OF THE LEARNING UNIT

Indicator of evaluation	Percentage
Departmental exams	0
Partial exam	0
Homework	10
Research activities	10
Practice reports	40
Class participation	10
Other: Logbook	30

8.- REQUIRED MATERIAL (for students)

<input checked="" type="checkbox"/>	Calculator
<input checked="" type="checkbox"/>	Periodic table
<input checked="" type="checkbox"/>	Lab coat
<input type="checkbox"/>	Text book
<input checked="" type="checkbox"/>	Workbook
<input type="checkbox"/>	Other: safety glasses.



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9.-SPECIFIC CONTENT BY LEARNING UNITS

Content unit	Generic competency of the content unit	Topics	Class hours	Student activities	Bibliography
1. Introduction	Students -recognize the lab safety measures and the toxicity of organic substances. -Use a notebook or an experimental work logbook and lab material.	1.1 Lab safety rules and toxicity of organic substances. 1.2 Notebook, experimental work logbook. 1.3 Lab material	3h	Students take notes of the experimental procedures in the logbook, carry out the experimental part instructed by the teacher and write a report in teams about their findings.	Drust Dipond, Gokel George, (1985) <i>Química Orgánica Experimental.</i> , Reverté, S.A. Brewster Ray Q., Vanderwerf Calvin A., McEwen William E., (1978) <i>Curso Práctico de Química Orgánica</i> , Alhambra.
2. Chemistry of diazo compounds.	Students understand and handle the chemical properties of diazo compounds.	2.1 Coupling reactions of diazo salts. 2.2 Obtaining orange II 2.3 Obtaining paracetamol. 2.4 Obtaining dulcin.	12h		



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3. Chemistry of aldehydes and ketones.	Students understand and handle the chemical properties of aldehydes and ketones.	3.1 Chemical properties and identification of aldehydes and ketones.	6h		
4. Chemistry of carboxylic acids	Students understand and handle the chemical properties of carboxylic acids.	4.1 Synthesis of soap 4.2 Synthesis of benzoic acid	9h		
5. Chemistry of the derivatives of carboxylic acids.	Students understand and handle the chemical properties of the derivatives of carboxylic acids.	5.1 Synthesis of aspirin. 5.2 Synthesis of benzocaine. 5.3 Aldol dibenzylideneacetone condensation 5.4 Obtaining the heterocycle.	21h	Students make a final project in the lab about extraction and purification.	
<div>COURSE EVIDENCE (Deliverables)</div> <div>Practice reports binder in teams. Procedure logbook Any other evidence proposed by the professor.</div>					

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