Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-4.0E

Study Plan No.	**2021/2022**		**University Specialization**		**Bachelor of Pharmacy**	
Course No.	**0201212**		**Course Name**		**Pharmaceutical Organic Chemistry Lab**	
Credit Hours	**1**		**Prerequisite *Co-requisite**		**General Chemistry Lab + Pharmaceutical Organic Chemistry (1) + *Pharmaceutical Organic Chemistry (2)**	
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirement	☐ Faculty Mandatory Requirement	☐ Support course family requirements	☑ **Mandatory Requirement**	☐ Elective Requirement
Teaching Style	☐ Full Online Learning		☐ Blended Learning		☑ **Traditional Learning**	
Teaching Model	☐ 1 Synchronous: 1 Asynchronous		☐ 1 Face to Face: 1 Asynchronous		☑ **1 Traditional**	

Faculty Member and Study Divisions Information *(to be filled in each semester by the subject instructor)*

Name	Academic rank	Office No.	Phone No.	E-mail	
Office Hours (Days/Time)	**Sunday, Tuesday, Thursday ()**		**Monday, Wednesday ()**		
Division number	**Time**	**Place**	**Number of Students**	**Teaching Style**	**Approved Model**
				Traditional Learning	**1 Traditional**

Brief Description

This course introduces the students to safety rules, and provides the students important knowledge to acquire good practical skills and methodologies in handling chemicals and conducting experimental glass wares.
This course will cover practical applications of various methods and techniques used for the identification, purification, and separation of organic compounds through understanding of the physical-chemical properties of functional groups.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	- Pharmaceutical Organic Chemistry Lab manual			
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	1. Vogel's Text book of Practical organic chemistry by A.Vogel, et al, prentice Hall, 1989, 5th edition 2. Unitized Experiments in Organic Chemistry by Ray Brewster, Wadsworth publishing company 1977, 4th edition			
Supporting Websites	.			
The Physical Environment for Teaching	☐ Classroom	☑ **Labs**	☑ **Virtual Educational Platform**	☐ Others

Necessary Equipment and Software	- Moodle.
Supporting People with Special Needs	
For Technical Support	E-Learning & Open Educational Resources Center. Email: elearning@zuj.edu.jo; Phone: +962 6 429 1511 ext. 425/362.

Course learning outcomes *(K= Knowledge, S= Skills, C= Competencies)*

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge **The student should be able to:**		
K1	Distinguish between various functional groups	**MK1**
K2	Recognize the physical properties of different organic compounds, how to measure these values, and to use these properties in conventional separation methods (distillation, recrystallization, and extraction)	**MK2**
K3	Predict the outcome of organic reactions using a basic understanding of the general reactivity of functional groups and mechanisms.	**MK2**
Skills **The student should be able to:**		
S1	Apply practical experience in identification of any unknown functional group incorporating these groups; such as Alcohols, Phenols, Aldehydes and Ketones.	**MS4**
S2	Synthesis of some simple organic compounds.	**MS4**
S3	Apply special techniques related to organic synthesis such as crystallization, melting point determination, distillation and refluxing.	**MS4**
Competencies **The student should be able to:**		
C1	Develop his/her professional and personal performance by continuously attending labs, submitting lab reports on time, and work effectively in a group.	**MC3**

Mechanisms for Direct Evaluation of Learning Outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm Exam	30%	30%	30%	**0%**
Participation / Practical Applications	0%	0%	20%	**50%**
Asynchronous Interactive Activities	20%	20%	0%	**0%**
Final Exam	50%	50%	50%	**50%**

Note 1: *Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.*

Note 2: *According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).*

Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference **
1	Check-in: Introduction: Laboratory rules and safety precautions	Lecture	Lab Manual
2	Melting point (Identification and purity examination of organic solids).	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
3	Boiling point: Identification	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
4	Distillation: separation and purification of organic liquids.	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
5	Recrystallization (Purification of organic compounds)	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
6	Extraction: Separation and isolation technique.	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
7	Chromatography: Identification, separation and purity examination of compounds.	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
8	Alcohols and phenols: Properties and reactions	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
9	Reactions of aldehydes and ketones	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
10	Unknown experiment	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
11	Fischer esterification	Lecture, lab-based learning	Lab Manual, video on E-Learning platform
12	Electrophilic aromatic substitution: Nitration of methyl benzoate	Lecture, lab-based learning	-
13	Preparation of Dibenzalacetone	Lecture, lab-based learning	-
14	Check-out		
15	-		
16	**Final Exam**		

** Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.*

*** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.*

Schedule of Asynchronous Interactive Activities *(in the case of e-learning and blended learning)*

Week	Task / Activity	Reference	Expected Results
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