



### Course Specification of Research project

#### I. Course Identification and General Information:

1	Course Title	Research project				
2	Course Number & Code:	Ph9102				
3	Credit hours:	<b>C.H</b>				<b>Total</b>
		<b>Th.</b>	<b>Pr.</b>	<b>Tr.</b>	<b>Seminar.</b>	
		-	4			
4	Study level/ semester at which this course is offered:	5 <sup>th</sup> level /2 <sup>nd</sup> semester				
5	Pre –requisite (if any):	Applied and Evaluation of Pharmaceutical Research, Pharmaceutical Biostatistics and all specialized courses				
6	Co –requisite (if any):	-				
7	Program (s) in which the course is offered:	Bachelor of pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	All faculty departments				
10	Location of teaching the course:	Faculty of pharmacy- Sana`a University				
11	Prepared by:	Associate Prof. Dr. Tawfeek A. Al-Obaidy				
12	Date of approval:					

#### II. Course description:

The course is concerned with the providing the students with fundamental knowledge about various pharmaceutical fields to participate in solving health problems through practical research project. It demonstrates the skills of data collecting, research proposals, writing, implementation and presentation of the pharmaceutical research project.

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## II. Intended learning outcomes (ILOs) of the course:

**At the end of this course the students should be able to:**

1. Demonstrate the research ideas, aims and its importance in solving the health problems.
2. Illustrate all stages of the research process from the preparation, planning, management, execution of their work, analysis and dissemination of results
3. Determine different and updated sources of data.
4. Recognize the principles and guidelines of research ethics
5. Use language properly to write different types of reports and pharmaceutical research project.
6. Develop and enhance rational thinking to design a research plan and protocol.
7. Identify the encountered problems and suggest reasonable scientific solutions.
8. Explore and select the validated experimental techniques and methods for the pharmaceutical research field.
9. Interpret experimental data and results based on relevant pharmaceutical and statistical principles.
10. Apply knowledge of basic and applied pharmaceutical sciences to solve health problems
11. Operate different pharmaceutical equipments and instruments safely to implement properly the experimental procedures in the field of the pharmaceutical research project.
12. Outline of all parts of the research project and write them properly.
13. Record, analyze and interpret the obtained results
14. Efficiently use computer and internet to gather up-to-date information and gain knowledge about pharmaceutical, clinical and other drug information from different sources.
15. Work independently or collaboratively to prepare seminars/ presentations or write reports and research project.
16. Generate effective and reasonable solutions for rising problems based on the available information.

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#### IV. Intended learning outcomes (ILOs) of the course:

##### (A) Knowledge and Understanding:

Alignment Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **Knowledge and Understanding.**

Program Intended Learning Outcomes (Sub- PILOs) in: <b>Knowledge and Understanding</b>		Course Intended Learning Outcomes (CILOs) in: <b>Knowledge and Understanding</b>	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
<b>A1.</b>	Recognize the principles of physical, chemical, clinical, social, behavioral, health and pharmaceutical sciences.	<b>a1-</b>	Demonstrate the research ideas, aims and its importance in solving the health problems.
<b>A2.</b>	Recognize the physicochemical properties, preparation, structure activity relationship (SAR), toxicity and the modern methods of analysis of various substances of chemical and natural products of therapeutic potential as well as the basic principle of drug discovery, design and development.	<b>a2-</b>	Illustrate all stages of the research process from the preparation, planning, management, execution of their work, analysis and dissemination of results
<b>A3.</b>	Describe the general cellular, biochemical and physiological aspects of human body and recognize the pharmacokinetics, pharmacodynamics, disease pathophysiology, and pharmacogenetic of therapeutic agents to provide pharmaceutical care and facilitate management of patient's medication, rationalize drug use and overall health needs.	<b>a3-</b>	Determine different and updated sources of data.
<b>A4.</b>	Recognize the pharmaceutical dosage form design and the quality control of pharmaceutical formulations according to GMP and pharmacopeial requirements to support the pharmaceutical industries and research.	<b>a4-</b>	Recognize the principles and guidelines of research ethics
		<b>a5-</b>	Use language properly to write different types of reports and pharmaceutical research project.

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<b>A5.</b>	Demonstrate the basic knowledge of pharmacoeconomics, pharmacovigilence, policy, legislation, marketing, administration and distribution of pharmaceutical and cosmetic products as well as ethics of health care.
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### Teaching And Assessment Methods For Achieving Learning Outcomes:

#### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

	Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding After participating in the course, students would be able to:	Teaching strategies/methods to be used	Methods of assessment
a1-	Demonstrate the research ideas, aims and its importance in solving the health problems.	Practical sessions Brainstorming Discussion sessions Field visits Research assignment, Problem solving sessions.	Quizzes, Attendance, Participation, Short answers, reports, homework oral exam Discussion
a2-	Illustrate all stages of the research process from the preparation, planning, management, execution of their work, analysis and dissemination of results		
a3-	Determine different and updated sources of data.		presentation
a4-	Recognize the principles and guidelines of research ethics		
a5-	Use language properly to write different types of reports and pharmaceutical research project.		

### (B) Intellectual Skills:

#### Alignment Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Intellectual skills

Program Intended Learning Outcomes (Sub- PILOs) in Intellectual skills	Course Intended Learning Outcomes (CILOs) of Intellectual Skills
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After completing this program, students would be able to:		After participating in the course, students would be able to:	
<b>B1.</b>	Consolidate the chemical, biochemical and physiological principles to construct the n pharmacophores of the structure and their effect on the stability, pharmacokinetic and pharmacodynamic profiles of the drug.	<b>b1-</b>	Develop and enhance rational thinking to design a research plan and protocol.
<b>B2.</b>	Categorize the synthetic and natural drugs according to their mechanism of action, systemic effect, therapeutic uses, contraindication and toxicity.	<b>b2-</b>	Identify the encountered problems and suggest reasonable scientific solutions.
<b>B3.</b>	Design different types of safe and effective pharmaceutical dosage forms and develop novel methods of qualitative and quantitative analytical and biological analysis for pharmaceutical and biopharmaceutical products that support pharmaceutical research.	<b>b3-</b>	Explore and select the validated experimental techniques and methods for the pharmaceutical research field.
<b>B4.</b>	Plan a modern system for administration of medical foundations and merge the ethics to business during the drug marketing	<b>b4-</b>	Interpret experimental data and results based on relevant pharmaceutical and statistical principles.
<b>B5.</b>	Interpret the prescriptions, patient and clinical data, Analysis all the encountered pharmaceutical problems and plan the strategies for their solution, to develop the health care.		

### Teaching And Assessment Methods For Achieving Learning Outcomes:

#### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>		<i>Teaching strategies/methods to be used.</i>	<i>Methods of assessment</i>
After participating in the course, students would be able to:			
<b>b1-</b>	Develop and enhance rational thinking to design a research plan and protocol.	Practical sessions Brainstorming Discussion sessions Field visits	Attendance, reports, Participation, homework and oral exam.
<b>b2-</b>	Identify the encountered problems and suggest reasonable scientific solutions.		

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b3-	Explore and select the validated experimental techniques and methods for the pharmaceutical research field.	Research assignment, Problem solving sessions.
b4-	Interpret experimental data and results based on relevant pharmaceutical and statistical principles.	

### (C) Professional and Practical Skills.

Alignment Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **Professional and Practical Skills**

Program Intended Learning Outcomes (Sub- PILOs) in Professional and Practical Skills		Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
C1-	Operate different pharmaceutical equipments and instruments and use emerging technologies in design, synthesis, pre-formulation, formulation, packaging, storage and analysis of pharmaceutical products according to GLP, GSP and cGMP guidelines.	c1-	Apply knowledge of basic and applied pharmaceutical sciences to solve health problems
C2-	Handle and dispose chemicals and pharmaceutical preparations including radiopharmaceuticals safely and effectively.	c2-	Operate different pharmaceutical equipments and instruments safely to implement properly the experimental procedures in the field of the pharmaceutical research project.
C3-	Extract, isolate, purify, identify and formulate the natural products and assure their rational use.	c3-	Outline of all parts of the research project and write them properly.
C4-	Provide patient-oriented pharmaceutical care by collaboration with other health care professionals to optimize therapeutic outcomes.	c4-	Record, analyze and interpret the obtained results.

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C5-	Conduct research studies and utilize the results in different pharmaceutical fields.		
<b>Teaching And Assessment Methods For Achieving Learning Outcomes:</b>			
<b>Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:</b>			
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills After participating in the course, students would be able to:		Teaching strategies/methods to be used	Methods of assessment
c1-	Apply knowledge of basic and applied pharmaceutical sciences to solve health problems	Practical sessions Brainstorming Discussion sessions Field visits Research assignment	Observation, Practical Works, Homework, Practical Exam Practical Reports Discussion presentation
c2-	Operate different pharmaceutical equipments and instruments safely to implement properly the experimental procedures in the field of the pharmaceutical research project.		
c3-	Outline of all parts of the research project and write them properly.		
c4-	Record, analyze and interpret the obtained results.		

<b>(D) General / Transferable Skills:</b>			
<b>Alignment Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: General and Transferable skills</b>			
Program Intended Learning Outcomes (PILOs) in General / Transferable skills		Course Intended Learning Outcomes (CILOs) in General / Transferable skills	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
D1.	Practice independent learning needed for continuous professional development	d1-	Efficiently use computer and internet to gather up-to-date information and gain knowledge

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<b>D2.</b>	Employ proper documentation and filing systems in different pharmaceutical fields		about pharmaceutical, clinical and other drug information from different sources.
<b>D3.</b>	Develop financial, market management, writing, presentation and time management skills as well as creativity, critical thinking, problem solving and decision making abilities.	<b>d2-</b>	Work independently or collaboratively to prepare seminars/ presentations or write reports and research project.
<b>D4.</b>	Take responsibility for adaptation to change needs in pharmacy practice.	<b>d3-</b>	Generate effective and reasonable solutions for rising problems based on the available information.
<b>D5.</b>	Apply information and communication technology and working effectively in a team.		

### Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After participating in the course, students would be able to:		Teaching strategies/methods to be used.	Methods of assessment
<b>d1-</b>	Efficiently use computer and internet to gather up-to-date information and gain knowledge about pharmaceutical, clinical and other drug information from different sources.	Practical sessions Discussion sessions Field visits Research assignment Problem solving sessions.	Homework Discussion presentation and reports.
<b>d2-</b>	Work independently or collaboratively to prepare seminars/ presentations or write reports and research project.		
<b>d3-</b>	Generate effective and reasonable solutions for rising problems based on the available information.		

## V. Course Content:

### 1 - Practical Aspect

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Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1)	Planning, protocol and setting up the pharmaceutical research project; Aims and objectives and the rationale of the research project Literature review and preliminary fieldwork Ethical issues	a1, a2, a4, b1,b2, c1, d1	2	4
2)	Data Collection and sources of information and how to read papers, journals.....	a3, b1, b2, d1	2	4
3)	Discussion and seminar for the research proposal before the execution of the pharmaceutical research project.	a1-2, b2, d2	1	2
4)	The experimental work	a2-4, b3,c2-3,	3	6
5)	Interpretation and analysis and discussion of the obtained results	b2, b4, c4, d3	3	6
6)	<b>Writing the pharmaceutical research project:</b> Writing the title and the cover page. Writing the Abstract: Writing the Introduction Writing the Aim and Objectives. Writing the Research Methods and experimental part Writing the Results Writing the discussion of the results Writing the Conclusion Writing the Recommendation Writing the Bibliography Writing Arabic Summary	a3-5, b2,c3, d2-3	3	6
7)	Final Project Presentation Practical and Oral Discussion	b4, d2,	2	4
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>

#### VI. a-Teaching strategies of the course:

Practical sessions, Brainstorming, Discussion sessions, Field visits, Research assignment and Problem solving sessions.

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### b- Assessment Methods:

Quizzes, Attendance, Participation, homework, oral exam Practical works, practical exam, discussion, presentation and practical reports.

### VII. Assignments:

No.	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Homework Assignments	a1,a2, a4, b1, c1-2, d1-3	Sporadic through the semester	20
2	Reports	a1-a3, a5, b2-3, c3-4, d1-3		

### II. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes (CILOs symbols)
1.	Attendance, Quizzes, Participation, homework, oral exam Practical works, practical exam, discussion, presentation and practical reports.	All Weeks	70	70%	a1-5, b1-4, c1-4, d1-3
2.	Final discussion and presentation	Sporadic through the semester	30	30%	a1-5, b1-4, c1-4, d2
<b>Total</b>			<b>100</b>	<b>100%</b>	

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III. Students' Support:	
Office Hours/week	Other Procedures (if any)
Two contact hours per week	None

IX. Learning Resource (MLA style or APA style)S:	
<b>1- Required Textbook(s) ( maximum two )</b>	
	<ul style="list-style-type: none"> <li>- Mark C Stuart, ( 2007), The Complete Guide to Medical Writing, Pharmaceutical Press, London, UK. Felicity Smith, Sally-Anne Francis, Ellen Schafheutle, (2008), International Research in Healthcare, Pharmaceutical Press, London, UK.</li> <li>-Aparasu R, (2010), Research Methods for Pharmaceutical Practice and Policy, 1st edition, Pharmaceutical Press, London, UK.</li> <li>- Babar Z, (2015), Pharmacy Practice Research Methods, 1st edition , ADIS, Switzerland.</li> <li>- Stuart MC, (2007), The complete guide to medical writing, 1st edition, Pharmaceutical Press, London. - Trisha Greenhalgh, (2014), How to Read a Paper; The Basics of Evidence-Based Medicine, 5<sup>th</sup> edition, John Wiley &amp; Sons, Oxford, UK.</li> </ul>
<b>2- Recommended Readings and Reference Materials</b>	
	Notes and instructions prepared by research supervisors.
<b>3- Essential References</b>	
<b>4- Electronic Materials and Web Sites etc.</b>	
	All web sites, papers, journals of pharmaceutical sciences
<b>5- Other Learning Material:</b>	
	<b>Study tour :</b>

X. Facilities Required:
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<b>1 - Accommodation:</b>	<ul style="list-style-type: none"> <li>- Well-equipped lecture halls with data show facilities, whiteboards, net connection, etc.</li> <li>- Well-equipped laboratories with all required equipment and reagents.</li> </ul>
<b>2 - Computing resources:</b>	<ul style="list-style-type: none"> <li>- Computer laboratory with internet facilities.</li> </ul>
<b>XI. Course Improvement Processes:</b>	
<b>1- Strategies for obtaining student feedback on effectiveness of teaching</b>	
	<ul style="list-style-type: none"> <li>▪ Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester.</li> <li>▪ Meeting with students and faculty (once per semester).</li> </ul>
<b>2 Other strategies for evaluation of teaching by the instructor or by the department.</b>	
	<ul style="list-style-type: none"> <li>▪ Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester.</li> <li>▪ Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).</li> </ul>
<b>3- Processes for improvement of teaching.</b>	
	<ul style="list-style-type: none"> <li>▪ Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions.</li> <li>▪ Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.</li> </ul>
<b>4- Processes for verifying standards of students' achievement</b>	

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	<ul style="list-style-type: none"> <li>▪ Checking of a sample of students' work by an independent faculty member.</li> <li>▪ Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution.</li> <li>▪ Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments).</li> <li>▪ Regular follow-up of laboratory logbooks to assess the practical achievement of students.</li> </ul>
<b>5- Procedures for periodically reviewing of course effectiveness and planning for improvement</b>	
	<ul style="list-style-type: none"> <li>▪ Student rating and feedback</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Peer rating and feedback</li> <li>▪ Regular meeting of the Curriculum Committee of the faculty.</li> </ul>
<b>6- Course development plans</b>	
	<ul style="list-style-type: none"> <li>▪ Conducting regular workshops for the staff for improving their course specification skills.</li> <li>▪ Regular revision of course specification and syllabus items.</li> </ul>

<b>XIII. Course Policies: (including plagiarism, academic honesty, attendance etc)</b>	
<b>The University Regulations on academic misconduct will be strictly enforced. Please refer to -----</b>	
<b>1</b>	<b>Class Attendance:</b> <ul style="list-style-type: none"> <li>▪ Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.</li> </ul>
<b>2</b>	<b>Tardy:</b> - Roll will be called in the very beginning of each lecture and practical class. Retardation for more than three weeks without a reasonable excursion, the student involved shall not be allowed to attend the class any longer and consequently shall be considered to be absent.
<b>3</b>	<b>Exam Attendance/Punctuality:</b> <ul style="list-style-type: none"> <li>▪ Exam attendance is obligatory unless being excused by the department and faculty.</li> <li>▪ Absence from assignments or exams will be dealt with according to the general policy of the university.</li> </ul>

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4	<b>Assignments &amp; Projects:</b> <ul style="list-style-type: none"> <li>Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator.</li> <li>Projects: Not applicable.</li> </ul>
5	<b>Cheating:</b> <ul style="list-style-type: none"> <li>Punishment of cheating will be according to the general policy of the university in this respect.</li> </ul>
6	<b>Plagiarism:</b> <ul style="list-style-type: none"> <li>Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.</li> </ul>
7	<b>Other policies:</b> <ul style="list-style-type: none"> <li>General policies of the Students' Affairs of the University and the Quality Assurance Unit.</li> </ul>

### Course Plan of Research project

I- Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Tawfeek A. Al-Obaidy	Office Hours					
Location & Telephone No.	770507931	SAT	SUN	MON	TUE	WED	THU
E-mail	Tawfik_93@yahoo.com						

II- Course Identification and General Information:		
1-	Course Title:	Research project
2-	Course Number & Code:	Ph9102
3-	Credit hours:	C.H <span style="float: right;">Total</span>

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		Th.	Seminar	Pr.	F. Tr.	
			-	4		2
4-	<b>Study level/year at which this course is offered:</b>	5 <sup>th</sup> level /2 <sup>nd</sup> semester				
5-	<b>Pre –requisite (if any):</b>	Applied and Evaluation of Pharmaceutical Research, Pharmaceutical Biostatistics and all specialized courses				
6-	<b>Co –requisite (if any):</b>					
7-	<b>Program (s) in which the course is offered</b>	Bachelor of pharmacy				
8-	<b>Language of teaching the course:</b>	English				
9-	<b>System of Study:</b>	Semesters				
10-	<b>Mode of delivery:</b>	Regular				
11-	<b>Location of teaching the course:</b>	Faculty of Pharmacy- Sana`a university				

### III- Course description:

The course is concerned with the providing the students with fundamental knowledge about various pharmaceutical fields to participate in solving health problems through practical research project. It demonstrates the skills of data collecting, research proposals, writing, implementation and presentation of the pharmaceutical research project.

### IV- Intended learning outcomes (ILOs) of the course:

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**At the end of this course the students should be able to:**

17. Demonstrate the research ideas, aims and its importance in solving the health problems.
18. Illustrate all stages of the research process from the preparation, planning, management, execution of their work, analysis and dissemination of results
19. Determine different and updated sources of data.
20. Recognize the principles and guidelines of research ethics
21. Use language properly to write different types of reports and pharmaceutical research project.
22. Develop and enhance rational thinking to design a research plan and protocol.
23. Identify the encountered problems and suggest reasonable scientific solutions.
24. Explore and select the validated experimental techniques and methods for the pharmaceutical research field.
25. Interpret experimental data and results based on relevant pharmaceutical and statistical principles.
26. Apply knowledge of basic and applied pharmaceutical sciences to solve health problems
27. Operate different pharmaceutical equipments and instruments safely to implement properly the experimental procedures in the field of the pharmaceutical research project.
28. Outline of all parts of the research project and write them properly.
29. Record, analyze and interpret the obtained results
30. Efficiently use computer and internet to gather up-to-date information and gain knowledge about pharmaceutical, clinical and other drug information from different sources.
31. Work independently or collaboratively to prepare seminars/ presentations or write reports and research project.
32. Generate effective and reasonable solutions for rising problems based on the available information.

## V- Course Content:

### 1 - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
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8)	Planning, protocol and setting up the pharmaceutical research project; Aims and objectives and the rationale of the research project Literature review and preliminary fieldwork Ethical issues	a1, a2, a4, b1,b2, c1, d1	1,2	4
9)	Data Collection and sources of information and how to read papers, journals.....	a3, b1, b2, d1	3,4	4
10)	Discussion and seminar for the research proposal before the execution of the pharmaceutical research project.	a1-2, b2, d2	5	2
11)	The experimental work	a2-4, b3,c2-3,	6-8	6
12)	Interpretation and analysis and discussion of the obtained results	b2, b4, c4, d3	9-11	6
13)	<b>Writing the pharmaceutical research project:</b> Writing the title and the cover page. Writing the Abstract: Writing the Introduction Writing the Aim and Objectives. Writing the Research Methods and experimental part Writing the Results Writing the discussion of the results Writing the Conclusion Writing the Recommendation Writing the Bibliography Writing Arabic Summary	a3-5, b2,c3, d2-3	12-14	6
14)	Final Project Presentation Practical and Oral Discussion	b4, d2,	15,16	4
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>

#### VI- a-Teaching strategies of the course:

Practical sessions, Brainstorming, Discussion sessions, Field visits, Research assignment and Problem solving sessions.

#### b- Assessment Methods:

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Quizzes, Attendance, Participation, homework, oral exam Practical works, practical exam, discussion, presentation and practical reports.

### VII. Assignments:

No.	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Homework Assignments	a1,a2, a4, b1, c1-2, d1-3	Sporadic through the semester	20
2	Reports	a1-a3, a5, b2-3, c3-4, d1-3		

### VII- Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes (CILOs symbols)
3.	Attendance, Quizzes, Participation, homework, oral exam Practical works, practical exam, discussion, presentation and practical reports.	All Weeks	70	70%	a1-5, b1-4, c1-4, d1-3
4.	Final discussion and presentation	Sporadic through the semester	30	30%	a1-5, b1-4, c1-4, d2
<b>Total</b>			<b>100</b>	<b>100%</b>	

### VIII- Students' Support:

Office Hours/week	Other Procedures (if any)
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Two contact hours per week	None
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## IX- Learning Resource (MLA style or APA style)S:

### 6- Required Textbook(s) ( maximum two )

- Mark C Stuart, ( 2007), The Complete Guide to Medical Writing, Pharmaceutical Press, London, UK. Felicity Smith, Sally-Anne Francis, Ellen Schafheutle, (2008), International Research in Healthcare, Pharmaceutical Press, London, UK.
- Aparasu R, (2010), Research Methods for Pharmaceutical Practice and Policy, 1st edition, Pharmaceutical Press, London, UK.
- Babar Z, (2015), Pharmacy Practice Research Methods, 1st edition , ADIS, Switzerland.
- Stuart MC, (2007), The complete guide to medical writing, 1st edition, Pharmaceutical Press, London. - Trisha Greenhalgh, (2014), How to Read a Paper; The Basics of Evidence-Based Medicine, 5<sup>th</sup> edition, John Wiley & Sons, Oxford, UK.

### 7- Recommended Readings and Reference Materials

Notes and instructions prepared by research supervisors.

### 8- Essential References

### 9- Electronic Materials and Web Sites etc.

All web sites, papers, journals of pharmaceutical sciences

### 10- Other Learning Material:

Study tour :

## X- Facilities Required:

### 1 - Accommodation:

- Well-equipped lecture halls with data show facilities, whiteboards, net connection, etc.
- Well-equipped laboratories with all required equipment and reagents.

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<b>3 - Computing resources:</b>	- Computer laboratory with internet facilities.
<b>XI- Course Improvement Processes:</b>	
<b>6- Strategies for obtaining student feedback on effectiveness of teaching</b>	
	<ul style="list-style-type: none"> <li>▪ Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester.</li> <li>▪ Meeting with students and faculty (once per semester).</li> </ul>
<b>7 Other strategies for evaluation of teaching by the instructor or by the department.</b>	
	<ul style="list-style-type: none"> <li>▪ Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester.</li> <li>▪ Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).</li> </ul>
<b>8- Processes for improvement of teaching.</b>	
	<ul style="list-style-type: none"> <li>▪ Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions.</li> <li>▪ Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.</li> </ul>
<b>9- Processes for verifying standards of students' achievement</b>	
	<ul style="list-style-type: none"> <li>▪ Checking of a sample of students' work by an independent faculty member.</li> <li>▪ Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution.</li> <li>▪ Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments).</li> <li>▪ Regular follow-up of laboratory logbooks to assess the practical achievement of students.</li> </ul>

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1 <sup>0</sup> - Procedures for periodically reviewing of course effectiveness and planning for improvement	
	<ul style="list-style-type: none"> <li>▪ Student rating and feedback</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Peer rating and feedback</li> <li>▪ Regular meeting of the Curriculum Committee of the faculty.</li> </ul>
6- Course development plans	
	<ul style="list-style-type: none"> <li>▪ Conducting regular workshops for the staff for improving their course specification skills.</li> <li>▪ Regular revision of course specification and syllabus items.</li> </ul>

XIII. Course Policies: (including plagiarism, academic honesty, attendance etc)	
<b>The University Regulations on academic misconduct will be strictly enforced. Please refer to -----</b>	
<b>1</b>	<b>Class Attendance:</b> <ul style="list-style-type: none"> <li>▪ Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.</li> </ul>
<b>2</b>	<b>Tardy:</b> - Roll will be called in the very beginning of each lecture and practical class. Retardation for more than three weeks without a reasonable excursion, the student involved shall not be allowed to attend the class any longer and consequently shall be considered to be absent.
<b>3</b>	<b>Exam Attendance/Punctuality:</b> <ul style="list-style-type: none"> <li>▪ Exam attendance is obligatory unless being excused by the department and faculty.</li> <li>▪ Absence from assignments or exams will be dealt with according to the general policy of the university.</li> </ul>
<b>4</b>	<b>Assignments &amp; Projects:</b> <ul style="list-style-type: none"> <li>▪ Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator.</li> <li>▪ Projects: Not applicable.</li> </ul>
<b>5</b>	<b>Cheating:</b> <ul style="list-style-type: none"> <li>▪ Punishment of cheating will be according to the general policy of the university in this respect.</li> </ul>

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6	<b>Plagiarism:</b> <ul style="list-style-type: none"><li>Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.</li></ul>
7	<b>Other policies:</b> <ul style="list-style-type: none"><li>General policies of the Students' Affairs of the University and the Quality Assurance Unit.</li></ul>

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