



## Program Specification of Pharmacognosy Ph.D.

### 1. Program Introduction/Description

A DOCTOR OF PHILOSOPHY (Ph.D.) in pharmaceutical sciences with emphasis in pharmacognosy prepares a graduate to do research in the study of bioactive natural substances found in terrestrial and marine organisms. In such research, a pharmacognosist works in the identification of chemical leads from natural products for specific therapeutic efficacy leading to the development of new drug candidates against complex and challenging drug targets prior to clinical trials and evaluation of herbs and their products for quality, safety and efficacy as therapeutic agents. The program prepares students for academic or research positions in universities, and industrial or government institutions.

### 2. Program Identification and General Information

Program Title	Ph.D. thesis in Pharmacognosy
Awarding Institution	Faculty of Pharmacy, Sana'a University
Department	Pharmacognosy
Other Departments with major Teaching Contributions	
Language of study	English
Date of Specification Preparation/Revision	
Mode of Study	Research
Study System	full time
Main Location of Study	Faculty of Pharmacy
Mode of Delivery	Full time
Study Duration	Full-time (minimum 6 semesters)
Award(s) or Final Award	Ph.D. in pharmacognosy
Qualification required to join the program:	- a bachelor's degree in Pharmacy - a Master's degree in pharmacognosy from the Faculty of Pharmacy, Sana'a University or from any of the faculties of Pharmacy in Yemeni universities recognised by Ministry of Higher Education.
Minimum grade requirements to enroll in the program	very good in master degree

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Other admission requirements	- health and under the age of 45 - The student must pass English as a Foreign Language (TOEFL) with a condition of no less than 450 or its equivalent as a requirement for admission to the program.
Name of the program coordinator	<b>Dr. Salwa Raweh</b>
Approval date:	

<b>3. Program Curriculum Committee:</b>	
<b>Associated Prof. Dr . Bushra Abdulkarim Moharram</b>	<b>Dr. Salwa Raweh</b>

<b>4. Vision, Mission &amp; Aims of the University</b>
<b>Vision of the University</b>
Sana'a University aspires to achieve a national leading role in teaching, learning, scientific research and community service; and to be among the best regional universities and the foremost house of expertise and think tank in Yemen.
<b>Mission of the University</b>
To contribute to the sustainable development efforts by providing an accredited higher education environment and excellent research services within a fruitful national partnership based on transparency, professionalism and creativity.
<b>Aims of the University</b>
The University seeks to achieve the following objectives:
<ul style="list-style-type: none"> <li>To provide specialized and in-depth academic opportunities for students in different fields of knowledge to meet the country's needs of specialties, technicians and experts, with special focus on the following:</li> <li>- To boost the level and quality of preparation and qualification tasks.</li> <li>- To create a general culture aiming at developing the elements of sound Islamic personality and the proper cognitive and scientific training.</li> <li>- To stabilize the true Islamic vision emanating from the broad horizons of Islamic knowledge</li> </ul>

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and its perception of the universe, man and life.
- To develop innovative and critical scientific thinking skills.
- To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.

5. Vision, Mission & Aims of the Faculty
<b>Vision of the Faculty</b>
Excellence and leadership locally, regionally and globally, in providing knowledge and continuous education in the academic and research field in pharmaceutical sciences According to the markets needs and community services
<b>Mission of the Faculty</b>
The College of Pharmacy seeks to prepare scientifically and practically qualified pharmaceutical graduates with high professional ethics and able to compete locally, regionally and globally in providing healthcare services through educational programs in accordance with quality standards that can support national pharmaceutical industries, market needs and serve community.
<b>Aims of the Faculty</b>
1. Providing students with comprehensive knowledge about physiochemical properties and biological activities of medicinal substances required for formulating and preparing pharmaceutical products from their different sources, natural or synthetic.
2. Providing students with opportunities, practical skills, and training in different pharmaceutical sciences to ensure effective contribution in enhancing the requirements of pharmaceutical industries and labor market needs to serve the community.
3. Performing students the pharmaceuticals qualitative and quantitative analytical techniques according to GLP and GMP guidelines to assess the quality and quantity of raw materials from natural or synthetic sources and different pharmaceutical products.
4. Possessing students the core knowledge concerning the principles of pathophysiology of diseases, pharmacotherapy, pharmacovigilance and pharmacoconomics to be able to participate with other health care professionals in improving health care services using evidence-based
5. Planning, designing and conducting undergraduate and postgraduate research using appropriate methodologies.
6. Developing student's presentation, promotion, pharmaceutical marketing, administration, numeric and computation skills.
7. Demonstrating student's capability of communication skills, time management, critical thinking,

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problem-solving, decision-making and team-working.
8. Manage the safe and efficient distribution of medications and participate in quality assurance and improvement programs to maintain the sustainability of good practice.
9. Demonstrate a professional attitude through practicing in an ethical, legal manner and according to the GMP and GPP guidelines and continuously maintaining his/her competence through lifelong learning.

### 6. Mission & Aims of the Department

#### Mission of the Department

To provide excellence in education, discovery and research in natural product field that integrates recent knowledge of natural products with especial focus on indigenous Yamani to maximize the benefit of unused wealth of Yemen flora. To contribute actively in health service development, awareness of evidence-based medicine.

#### Aims of the Department

1. To enrich the students by providing knowledge of modern techniques for isolation, screening & utilization of phytochemicals
2. To update the skills of students in identifying & characterizing the constituents of natural resources.
3. To encourage students for discovering different active moieties from natural sources.
4. To highlight the importance of drugs from natural origin in the treatment of diseases.
5. Meeting the current and future needs of alternative medicine and homeopathy
6. Searching for local natural resources as remedies for the management of endemic diseases
7. Defining the direction and scope of herbal drug therapy through continuous and innovative research

### 7. Mission & Aims of the Program

#### Mission of the Program

The research mission is the discovery, design, analysis, and further development of potential drugs and the discovery of potential drug targets of natural origin to enhance the health community service.

#### Aims of the Program

1. Design with his Supervisors a scientific protocol designed to solve problem using suitable knowledge in pharmacognosy
2. Demonstrate recent techniques and methods used in the experimental work according to the designed protocol

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3.	presenting the results of the study from the data collected
4.	Analyze the results of the study according to other studies in the same point in respect to physiochemical properties and pharmacological activities of medicinal substances
5.	
6.	

### 8. Program Standards & Benchmarks [Annex (2)]

Program Standards
• Rules and Regulations of the Ministry of Higher Education and Scientific Research, Yemen.
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•
•
Program Benchmarks
Faculty of Pharmacy, Monash university, Malaysia
Faculty of Pharmacy, Kart university, India
Faculty of Pharmacy, Szeged university, Hungary
Faculty of Pharmacy, mississippi university, USA
Faculty of Pharmacy, Cairo university, Egypt
Faculty of Pharmacy, Qatar university, Qatar

### 9. Summary of Similar Programs (Benchmarks) for PhD Program

	The Similar Programs (Benchmarks)						Current Program
	1 <sup>st</sup> Program	2 <sup>nd</sup> Program	3 <sup>rd</sup> Program	4 <sup>th</sup> Program	5 <sup>th</sup> Program	6 <sup>th</sup> Program	
Program Title	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmaceutical science (pharmacognosy)	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmacognosy
Faculty	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy
University	Monash	Kart	Szeged	Mississippi	Cairo	Qatar	Sana'a

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9. Summary of Similar Programs (Benchmarks) for PhD Program							
Country	Malaysia	India	Hungary	USA	Egypt	Qatar	Yemen
Type of Program	PhD	PhD	PhD	PhD	PhD	PhD	PhD
Study methods in the program:	research	research	research	research	research	research	Research
Number of semesters	6-8	non	6	4 years	non	3-4 years	3-4
Total Credit Hours (without Thesis)	non	non	non	non	non	non	non
No. of Compulsory Courses	non	non	non	non	non	non	non
Credit Hours for Compulsory Courses	non	non	non	non	non	non	non
No. of Elective Courses	non	non	non	non	non	non	non
Credit Hours for Elective Courses	non	non	non	non	non	non	non
Complementary courses to join the program	non	non	non	non	non	non	non

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9. Summary of Similar Programs (Benchmarks) for PhD Program							
and their number							
Credit Hours for Thesis	non	non	non	non	60hr	60hr	<b>non</b>
Total Credit Hours for courses & Thesis	non	non	non	non	non	non	<b>non</b>
The period for thesis completion	3-4 years	3-5 years	3	4 years	2-5 year	3-5 years	<b>3-4 years</b>
The min. period to complete the program	full time; 3 years		3	non	2	3 years	<b>3 years</b>
The max. period to complete the program	full time; 4 years		non	non	5	5 years	<b>5 years</b>

10. Program Intended Learning Outcomes (PILOs)	
<b>A. Knowledge and Understanding</b>	
Upon successful completion of the Ph.D. in pharmacognosy Program, graduates should be able to:	
A1.	Demonstrate advanced and in depth pharmacognosy knowledge within the specified point of research.
A2.	Illustrate the suitable methods, tools and relevant techniques needed to perform the research and apply quality assurance standard during practical work
A3.	identify clearly legal and ethical guidelines that govern the professional work of pharmacognosy researches

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A4.	Describe the impact of the research point on community and human health
<b>B. Intellectual Skills</b>	
Upon successful completion of the Ph.D. in pharmacognosy Program, graduates should be able to:	
B1.	Interpret and evaluate the suitability, accuracy, and reliability of information obtained from the thesis
B2.	Suggest creative and innovative ideas in researches of Pharmacognosy and natural product.
B3.	Carry out the researches that improve the knowledge of natural product
B4.	Write scientific thesis and formulate scientific papers.
<b>C. Practical and Professional Skills</b>	
Upon successful completion of the Ph.D. in pharmacognosy Program, graduates should be able to:	
C1.	Perform practical experiments related to natural product discovery, separation and biotechnology.
C2.	Report the work in a written thesis and formulate scientific papers.
C3.	Consider developments in technology and how to use to enhance learning.
C4.	Plan for the development of professional practice through applied study or research.
<b>D. Key Transferrable Skills</b>	
Upon successful completion of the Ph.D. in pharmacognosy Program, graduates should be able to:	
D1.	Demonstrate leadership skills in research area
D2.	Pursue advanced graduate studies and lifelong learning.
D3.	Realize the relevance of economics, ethics and teamwork to the profession.
D4.	Communicate effectively by verbal and written means.

### 1. Teaching Strategy to Achieve Program Learning Outcomes

ILOs	Teaching Strategy	Assessment Methods
A1	Demonstrate advanced and in depth pharmacognosy knowledge within the specified point of research.	Laboratory Reports, Survey, Seminar. Independent study
A2	Illustrate the suitable methods, tools and relevant	Survey, Laboratory Reports,

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ILOs	Teaching Strategy	Assessment Methods
	techniques needed to perform the research and apply quality assurance standard during practical work	
A3	identify clearly legal and ethical guidelines that govern the professional work of pharmacognosy researches	Oral Discussion, Seminar, Presentations/ Presenting researches
A4	Describe the impact of the research point on community and human health	Written research proposal, Seminar, Written report, Presentations/ Presenting researches
B1	Interpret and evaluate the suitability, accuracy, and reliability of information obtained from the thesis	Experimental and field work, Seminar, Written report, Thesis and publications, Analysis and Problem Solving
B2	Suggest creative and innovative ideas in researches of Pharmacognosy and natural product.	Experimental and field work, Laboratory Reports
B3	Carry out the researches that improve the knowledge of natural product	Experimental and field work
B4	Write scientific thesis and formulate scientific papers.	Written report, Thesis and publications,.
C1	Perform practical experiments related to natural product discovery, separation and biotechnology.	Laboratory Reports,
C2	Report the work in a written thesis and formulate scientific papers.	Laboratory Reports, Thesis and publications, Seminar,
C3	Consider developments in technology and how to use to enhance learning.	Seminar, Presentations
C4	Plan for the development of professional practice through applied study or research.	Seminar, Presentations
D1	Demonstrate leadership skills in research area	Seminar, Presentations, Oral Discussion
D2	Pursue advanced graduate studies and lifelong learning.	Self-Learning.
D3	Realize the relevance of economics, ethics and	Oral Discussion

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ILOs	Teaching Strategy	Assessment Methods
	teamwork to the profession.	
D4	Communicate effectively by verbal and written means.	Written report, Thesis and publications

Teaching Strategy	Description of the Main Strategy Used
Lectures.	These are interactive lectures weekly conducted according to course plan in a classroom and supported with variety of teaching formats including, lectures and multimedia presentations, use of whiteboard and solved examples, and class discussions, in which concepts, approaches, and case studies are presented, explored, and shown students what they need to know.
Independent study	Independent study is an individualized learning experience that allows students to select a topic focus, define problems or questions, gather and analyze information, apply skills, and create a product to show what has been learned.
Self-Learning.	Students are encouraged to undertake independent study to both supplement and consolidate what are being learned.
Active learning	
Computer hands-on sessions.	Practical applications using a variety of software before the real design and implementation. A variety of web-based searches students will be assigned to learn how they can search for solutions using the Web.
Analysis and Problem Solving.	The study of ----- Engineering involves applying knowledge and problem-based learning. This allows students to become more active in their learning as they work out wat information, they need to find out how to solve a particular problem. They can work out a problem collaboratively, practice research as well as testing different components to come up with a valid solution.
Laboratory works.	During laboratory sessions, students will be given experiments to work in

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	groups where they can apply the theories and principles gained. This gives them the opportunity to have hands-on experience to design and conduct experiments in addition to analyzing, interpreting data obtained from experiments, and maximize their learning through actual simulation
Presentations/ Presenting researches	students present their work to the whole group, for discussion, criticism, and suggestions for improvement. Presentation sessions provide an opportunity to address questions, queries, and problems.
Project supervision	The teacher needs to set advance work for students, and then have the students present their work to the whole group, for discussion, criticism, and suggestions for improvement. Project sessions provide an opportunity to address questions, and problems.
Brain storming	Brainstorming is an effective technique for generating lists of ideas and creating interest and enthusiasm for new concepts or topics. Brainstorming provides teachers and students with an overview of what students know and/or think about a specific topic. Students can use brainstorming to organize their knowledge and ideas.
Publish research	
Seminar	The teacher needs to set advance work for a selected number of students, and then have the selected students present their work to the whole group, for discussion, criticism, and suggestions for improvement. Seminar sessions provide an opportunity to address questions, queries, and problems.
Research activities	Research-led activities envisage activities in which students learn about current research in the discipline and are frequently an audience. The emphasis is put on the research content.

Assessment Strategy	Description of the main strategy used.
Written Exam	Mid-term test is conducted in the 8 <sup>th</sup> week and final exam is conducted at the end of each course. Both tests are closed or open book, notes and resources. At least

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	two quizzes must be done through the course.
Oral Discussion	To know the knowledge of the students.
Presentations	For Final Results displaying, to enhance the level of students in different subjects.
Quizzes	The entire assessment of Quizzes activities during the teaching period of each course.
Laboratory Reports	To demonstrate the personal skills, practical expertise, communication skills, report writing skills, and team work expertise they are expected to be learned and gained through their education.
Experimental and field work	For evaluation, to demonstrate the personal skills, practical expertise, communication skills, report writing skills, and team work expertise they are expected to be learned and gained through their education.
Survey	
Assignments	The entire assessment of coursework activities during the teaching period of each course (which includes group and individual work, tests and presentations, etc.)
Seminar	
Written report	
Written research proposal	
Thesis and publications	

### 12. 10. Intended Learning Outcomes Mapping:

See Annex ....

### 13. Program Structure

Program Requirement	No. of Courses	Credit Hours	%
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Complementary Courses	See List below.		
Faculty Requirement			%
Compulsory Courses			%
Elective Courses			%
Thesis			%
Total			100%

Complementary Courses (.... hrs)						
No	Course Code	Course Title	L	T	P	Cr. Hrs.
1						
2						
3						
4						
5						
6						
7						
8						
9						
<b>Total</b>						

Compulsory Courses ( ... Courses, ... CH)						
No	Course Code	Course Title	L	T	P	Cr. Hrs.
1						
2						
3						
4						

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5						
6						
7						
<b>Total</b>						

Elective Courses (... Courses, ... CH)						
No	Course Code	Course Title	L	T	P	Cr. Hrs.
1						
2						
3						
4						
5						
6						
<b>Total</b>						

<b>Thesis</b>
The student must prepare and discuss a Thesis by (60 ) credit hours.
<b>Thesis and Its Requirements (if any)</b>
<b>1. Registration of the thesis:</b> (Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

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- Completion of all required Compulsory & Elective Courses with average grade more than or equal to ... % .
- Completion of all university requirements.
- Field of Research and precise research topic with short Description and suggested time plan.
- First Department Seminar.
- Decision letter (Supervisors) of acceptance of the research topic.
- Thesis work should be done in at least 2-semester.
- Thesis work should be done in at most 4-semester.
- Any further requirements and controls based on post-graduate deanship regulations.

### 2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/mechanisms of the scientific supervision and follow-up)

- At most 2-supervisors are selected for the supervision of a thesis.
  - At least 1-Associate (or Full) Professor is appointed as supervisor either from the department or from another department outside the faculty.
  - Any Assistant Professor appointed as supervisor should have at least 4-year experience in the field of research and have published at least one paper.
- Candidates may apply for one-year extension (full-time) for completion of the thesis to the Postgraduate Program Administration at the Faculty of Engineering, which will be granted if the candidate provides a valid reason for extension.

The supervisor responsibilities are - :

- Help and assist the candidate/researcher in preparing the research plan.
- Guide the candidate to adhere to certain standards of academic integrity and research ethics, including combating plagiarism.
- Monthly, follow up and meeting with the researcher (at least one meeting per month) ,
- Guide the researcher at every step to be done during thesis work,
- Write follow-up (progress report) after each meeting
- Write a follow-up (evaluation report) every semester.
- The supervisor shall submit copies of these reports to the Postgraduate-Program coordinator, the Head of the Department and the Head of the Faculty Post-graduate.
- Write the final thesis acceptance report in order to prepare the final department seminar and then initiating the preparation for thesis presentation, defense and approve.

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The candidate/student responsibilities are - :

- Student present his/her accomplishment at the end of every semesters
- plan and actively pursue the research;
- identify and deal with any research-related problems;
- comply with administrative requirement;
- meet ethical guidelines;
- take responsibility for the final form of the thesis
- A thesis or research portfolio is the outcome of independent research, or creative activity conducted under supervision.
- The length of a ( ) credit hours thesis or research portfolio will be appropriate to the discipline and must not exceed ... words, including bibliography, footnotes or endnotes and essential appendices, unless specific permission has been granted by the Department .

### 3. Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

- A thesis proceeds for defense following completion of:
- At least one research paper is accepted in a journal in the field of research.
- Final acceptance letters provided by the supervisor(s) and the department final seminar committee (at least 3-department members),
- The examination committee should consist of - :
- One -Associate (or Full) Professor specialized in the field of research from an external university ,
- One -Associate (or Full) Professor from the department of electrical engineering in addition to the supervisor of the thesis.
- A session for presentation, defense and approval of the thesis should be done based on the following- :
- At least two members of the examination committee accept their assignment and reply by acceptance letter and approve the thesis for defense within one month.
- The session of defense should be declared within two weeks after receiving of examination committee members' approval letters.

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14. System of Study	
Type of program	Research
Study methods in the program:	Regular
The period to complete the program	Min. 2 Years (4 Terms) Max. 4 Years (8 Terms)
Total Credit Hours for courses & Research	

15. Study Plan	
FR stands for Faculty Requirements.	

First Semester								
No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1								
2								
3								
4								
5								
Total Credit Hours								

Second Semester								
No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1								
2								
3								
4								
5								

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	<b>Total Credit Hours</b>					
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Elective Courses								
No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1								
2								
3								

Course Code	Course Name	Cr. Hrs.
	<b>Research</b>	

### 16. Admission Requirements:

1. Bachelor of Pharmacy, Master degree in Pharmacognosy, faculty of pharmacy, Sana'a university
2. Interview
3. TOEFL / IBT: 80
4. ICDL (Computer Skills):
5. Arabic Language:
6. Student number capacity of 4 students per year
7. Transfer Requirements, and Courses Equivalency
8. Annex -13: shows the Admission Requirements for the Program.

### 17. Graduation Requirements:

Student attendance should not be less than ... %.
Student will graduate after successfully passing the ... credit hours courses and ... credit hours Research.
Student must achieve a minimum average score for all courses is ... % degree
Minimum score for any student to pass any credit hours course is .... % degree.
Grading System:
From 90% to 100% of total marks      Excellent

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From 80% to less than 90%	Very Good
From 75% to less than 80%	Good
From 65% to less than 75%	Pass
Less than 65%	Poor/Fail

### 18. Learning Resources, Facilities, and Equipment for Running the Program

#### Learning Resources.

Policies and Procedure for providing and quality assurance of learning resources textbooks, references and other resource materials, including electronic and web-based resources, Journal Database, etc.

- textbooks, reference
- university database which allows access to most of the international publishing houses

#### Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories (Structure, material Labs), medical facilities, classrooms, etc.).

List of laboratories: laboratories of Faculty of pharmacy, Sana'a University

19. Teaching staff:				
	Professor	Associate Professor	Assistant Professor	Technicians Assistants
Required Number	-	1	1	2
Available Number		1	1	
Note:				

### 20. Program Management and Regulations

#### 1. Program Management

##### 1.1 Program Structure

(including boards, councils, units, committees, etc.)

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## Program Specification of Pharmacognosy Ph.D.

<p><b>1.2 Stakeholders' Involvement</b>  Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)</p> <hr style="border-top: 1px dashed black;"/>
<p><b>2. Program Regulations</b>  Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)</p> <hr style="border-top: 1px dashed black;"/> <p>Decision of the Presidency of the Council of Ministers No. 40 of 2008  Decision of the Presidency of the Council of Ministers No. 141 of 2008  Graduate Studies Guide to Sana'a University</p>

21. Evaluation of Program Quality Matrix:			
Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
<p><b>Note:</b>  <b>Evaluation Areas/Aspects</b> (e.g., leadership, effectiveness of teaching &amp; assessment, learning resources, partnerships, etc.)  <b>Evaluation Sources</b> (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)  <b>Evaluation Methods</b> (e.g., Surveys, interviews, visits, etc.)  <b>Evaluation Time</b> (e.g., beginning of semesters, end of academic year, etc.)</p>			

## 22. List of Annexes

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## Program Specification of Pharmacognosy Ph.D.

Annex (1)	Academic Standards Curriculum Criteria of Accreditation Board for ..... program.
Annex (2)	Survey of names of Similar Accredited Programs at International Universities (Benchmarks) for ..... Programs.
Annex (3)	Survey of Intended Learning Outcomes for similar Accredited electrical..... Programs at International Universities.
Annex (4)	Summary of similar Programs (Benchmarks) for ..... Program.
Annex (5)	Survey of course names of Similar Programs.
Annex (6)	Survey/Mapping of Vision, Mission and Objectives of similar Accredited Programs at International Universities (Benchmarks) for Pharmacognosy PhD programs.
Annex (7)	Mapping of the mission and objectives of the program with the vision, mission and objectives of faculty, and the university.
Annex (8)	Main Themes/Sub-Themes with Relative weight for Program (if need)
Annex (9)	PILOs Distribution to General Themes for Program (if need)
Annex (10)	Matrix of mapping program P- ILO's with courses
Annex (11)	Mapping the benchmarks with PILO's (if need)
Annex (12)	Mapping Program's Goals with Intended Learning Outcomes
Annex -13	The Admission Requirements for the Program.

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## Program Specification of Pharmacognosy Ph.D.

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### 23. Attachment of Courses specification and Syllabi of the Program

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## Program Specification of Pharmacognosy Ph.D.

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# Appendix

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## Program Specification of Pharmacognosy Ph.D.

**Prepared by:**

Associated Prof. Dr. Bushra Moharm	
Dr. Salwa Raweh	

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## Program Specification of Pharmacognosy Ph.D.

### Annex (4) Summary of similar Programs (Benchmarks) for Ph.D. in Pharmacognosy Program.

24. Summary of Similar Programs (Benchmarks) for PhD Program							
	The Similar Programs (Benchmarks)						Current Program
	1 <sup>st</sup> Program	2 <sup>nd</sup> Program	3 <sup>rd</sup> Program	4 <sup>th</sup> Program	5 <sup>th</sup> Program	6 <sup>th</sup> Program	
Program Title	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmaceutical science (pharmacognosy)	PhD in pharmacognosy	PhD in pharmacognosy	PhD in pharmacognosy
Faculty	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy
University	Monash	Kart	Szeged	Mississippi	Cairo	Qatar	Sana'a
Country	Malaysia	India	Hungary	USA	Egypt	Qatar	Yemen
Type of Program	PhD	PhD	PhD	PhD	PhD	PhD	PhD
Study methods in the program:	research	research	research	research	research	research	Research
Number of semesters	6-8	non	6	4 years	non	3-4 years	3-4
Total Credit Hours (without Thesis)	non	non	non	non	non	non	non
No. of Compulsory Courses	non	non	non	non	non	non	non
Credit Hours for	non	non	non	non	non	non	non

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## Program Specification of Pharmacognosy Ph.D.

24. Summary of Similar Programs (Benchmarks) for PhD Program							
Compulsory Courses							
No. of Elective Courses	non	non	non	non	non	non	<b>non</b>
Credit Hours for Elective Courses	non	non	non	non	non	non	<b>non</b>
Complementary courses to join the program and their number	non	non	non	non	non	non	non
Credit Hours for Thesis	non	non	non	non	60hr	60hr	<b>non</b>
Total Credit Hours for courses & Thesis	non	non	non	non	non	non	<b>non</b>
The period for thesis completion	3-4 years	3-5 years	3	4 years	2-5 year	3-5 years	<b>3-4 years</b>
The min. period to complete the program	full time; 3 years		3	non	2	3 years	<b>3 years</b>
The max. period to	full time; 4 years		non	non	5	5 years	<b>5 years</b>

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## Program Specification of Pharmacognosy Ph.D.

### 24. Summary of Similar Programs (Benchmarks) for PhD Program

complete the program							
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**Annex (7) Mapping of the mission and objectives of the program with the vision, mission and objectives of faculty, and the university.**

**Relationship between Program Mission and the Mission of the Faculty.**

**There is a relationship between Program Mission and the Mission of the Faculty as both of them encourage development in discovery of potential drug by research**

Mission of the Faculty	Program Mission
Excellence and leadership locally, regionally and globally, in providing knowledge and continuous education in the academic and research field in pharmaceutical sciences According to the markets needs and community services	The research mission is the discovery, design, analysis, and further development of potential drugs and the discovery of potential drug targets of natural origin to enhance the health community service

**Relationship between Program Goals and the Goals of the Faculty.**

no	Goals of the Faculty	no.	Program Goals
7	Demonstrating student's capability of communication skills, time management, critical thinking, problem-solving, decision-making and team-working.	1	Design with his Supervisors a scientific protocol designed to solve problem using suitable knowledge in pharmacognosy
5	Planning, designing and conducting undergraduate and postgraduate research using appropriate methodologies.	2	Demonstrate recent techniques and methods used in the experimental work according to the designed protocol
6	Developing student's presentation, promotion, pharmaceutical marketing, administration, numeric and computation skills.	3	presenting the results of the study from the data collected
1	Providing students with comprehensive knowledge about physiochemical properties and biological activities of medicinal substances required for formulating and preparing pharmaceutical	4	Analyze the results of the study according to other studies in the same point in respect to physiochemical properties and pharmacological activities of medicinal substances

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## Program Specification of Pharmacognosy Ph.D.

	products from their different sources, natural or synthetic.		

**The mission program with mission of the university.**

Mission of the University	Mission of the Program
Sana'a University aspires to achieve a national leading role in teaching, learning, scientific research and community service; and to be among the best regional universities and the foremost house of expertise and think tank in Yemen.	The research mission is the discovery, design, analysis, and further development of potential drugs and the discovery of potential drug targets of natural origin to enhance the health community service.

### Relationship between Program Goals and the Goals of the University

Aims of the University	Aims of the Program
<ul style="list-style-type: none"> <li>- To boost the level and quality of preparation and qualification tasks.</li> <li>- To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.</li> </ul>	Design with his Supervisors a scientific protocol designed to solve problem using suitable knowledge in pharmacognosy
To develop innovative and critical scientific thinking skills.	Demonstrate recent techniques and methods used in the experimental work according to the designed protocol
To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.	presenting the results of the study from the data collected
To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.	Analyze the results of the study according to other studies in the same point in respect to physiochemical properties and pharmacological activities of medicinal substances

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## Program Specification of Pharmacognosy Ph.D.

### (Annex 12) Mapping Program's Goals with Intended Learning Outcomes

Design with his Supervisors a scientific protocol designed to solve problem using suitable knowledge in pharmacognosy	A1, A2, B1, B3,
Demonstrate recent techniques and methods used in the experimental work according to the designed protocol	A2, A3, B2
presenting the results of the study from the data collected	B1, B4, , C2
Analyze the results of the study according to other studies in the same point in respect to physiochemical properties and pharmacological activities of medicinal substances	B1, B4, C2,

### (Annex -13) The Admission Requirements for the Program.

- a bachelor's degree in Pharmacy - a Master's degree in pharmacognosy from the Faculty of Pharmacy, Sana'a University or from any of the faculties of Pharmacy in Yemeni universities recognized by Ministry of Higher Education.
very good in master degree
- health and under the age of 40 - The student must pass English as a Foreign Language (TOEFL) with a condition of no less than 450 or its equivalent as a requirement for admission to the program.

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