

## Republic of Yemen

Ministry of Higher Education & Scientific Research  
Council for Accreditation & Quality Assurance  
University of Modern Sciences  
FACULTY of pharmacy



جامعة العلوم الحديثة  
University of Modern Sciences



الجمهورية اليمنية  
وزارة التعليم العالي والبحث العلمي  
مجلس الاعتماد الأكاديمي وضمان الجودة  
جامعة العلوم الحديثة  
كلية الصيدلة

# وثيقة مواصفات برنامج بكالوريوس الصيدلة Program Specifications Bachelor's degree of Pharmacy

2014

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Prepared in August - 2014

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## Program Specification Document

### 1. Program Identification and General Information:

1	Scientific name of the program:	Bachelor of Pharmacy
2	Total credit hours required to award the degree	170 credit hrs.
3	Number of years needed for completion of the program:	5 years
4	The body responsible for granting the degree:	University of Modern sciences
5	The body responsible for the program:	Faculty of Pharmacy
6	Award granted on completion of the program:	Bachelor of Pharmacy
7	Study system:	Semester system
8	Study Language of the Program:	English
9	Entry requirements:	High-School certificate (Scientific Faculty)
10	Facultys participating in the program:	-
11	Starting year of the program:	2014\2015
12	Study system in the program:	Semester-based study; Attendance is mandatory for at least 75 %
13	Location of Delivery:	Faculty of pharmacy- university of modern sciences- Asser area -Sana`a
14	The program resources:	University of Modern Sciences
15	Minimum grade requirements:	Based on Ministry of Higher Education standards
16	Other admission requirements:	The date of the high-school certificate should not be older than 5 years from the year of admission.
17	Date of specifying the program:	May, 2015
18	Date of current development of the program:	May, 2019
19	Prepared by:	Dr. Ahmed Al-Sobati Dr. Abdulkareem Al-Zumor Dr. Shawqi Al-Awadi Dr. Jalal Al-Qadasi Prof. Abdulrahman Humaid



## 2.Introduction:

The pharmacy program at the University of Modern Science is a five-year pharmacy program with a 170 total credit hours at the faculty of pharmacy. It offers a Bachelor's degree in pharmacy. The Program aims at producing competent pharmacists with knowledge, skills and abilities needed to practice the pharmacy profession efficiently in different settings including community pharmacies, hospitals, pharmaceutical industries and research centers, academic institutions, forensic, and cosmetic industry. Students receive basic practical training to make them eligible for licensure as pharmacists.

برنامج الصيدلة في جامعة العلوم الحديثة هو برنامج صيدلية مدته خمس سنوات مع 180 ساعة معتمدة في كلية الصيدلة. ويقدم درجة البكالوريوس في الصيدلة. يهدف البرنامج إلى إنتاج الصيادلة الأكفاء ذوي المعرفة والمهارات والقدرات اللازمة لممارسة مهنة الصيدلة بشكل احترافي في بيئات مختلفة بما في ذلك الصيدليات المجتمعية والمستشفيات والصناعات الصيدلانية ومراكز البحث والمؤسسات الأكاديمية والصيدلة الشرعية وصناعة مواد التجميل. يتلقى الطلاب تدريباً عملياً أساسياً يجعلهم صيادلة مؤهلين ومرخصين.

## 3.University Vision, Mission, and Objectives:

### University vision:

A world leading and distinguished university in building a knowledge society, concerned with various sciences, in its multiple fields, to serve and develop humanity.

### رؤية الجامعة

التميز والريادة محلياً وإقليمياً، في بناء المعرفة المجتمعية وربطها مع مخرجات التعليم الأخرى وخدمة المجتمع وتميته.

### Mission:

The University of Modern Sciences seeks to provide outstanding academic programs and research at the local and regional level, contributing to the quality of education, knowledge production and community development, by providing a stimulating environment for education and creativity, effective partnerships with relevant entities, and advanced study programs and plans, to prepare specialized graduates, equipped with knowledge and skills, in accordance with academic accreditation and quality assurance standards.

### رسالة الجامعة

تسعى جامعة العلوم الحديثة لتقديم برامج وبحوث أكاديمية متميزة على المستوى المحلي والإقليمي، تسهم في جودة التعليم وإنتاج المعرفة وتنمية المجتمع، من خلال؛ توفير بيئة محفزة للتعليم والإبداع، وشراكات فاعلة مع الجهات ذات العلاقة، وبرامج وخطط دراسية متطورة، لإعداد خريجين متخصصين، مزودين بالمعارف والمهارات؛ وفق معايير الاعتماد الأكاديمي وضمان الجودة.



### Objectives of the University:

1. Providing students with specialized and distinguished study opportunities in various fields of knowledge to meet the needs of; labor market needs.
2. Providing the necessary infrastructure to support the educational process, and raising the efficiency of student awareness to give students opportunities to realize their abilities and capabilities.
3. Supporting quality enhancement processes in the university's educational system, and upgrading its programs; To obtain academic accreditation.
4. Enhancing the role of the university in applying knowledge and skills; To serve the community by developing local, regional and international partnerships.
5. Preparing graduates who are leaders and pioneers in their specializations by developing and supporting innovation in teaching and learning, and offering qualitative and advanced academic programs.
6. Enhancing education and e-learning, developing educational methods and means, and paying attention to educational technology resources.
7. Developing the capabilities of scientific research and innovation in all modern fields.
8. Strengthening the university's role in serving the community and achieving comprehensive development programs..

### اهداف الجامعة:

- 1 - إتاحة فرص الدراسة التخصصية والتميز للطلاب، في ميادين المعرفة المختلفة بما يلبي؛ احتياجات سوق العمل.
- 2 - توفير البنية التحتية اللازمة لدعم العملية التعليمية، ورفع كفاءة الوعي الطلابي لمنح الطلاب فرصا لإدراك قدراتهم وإمكانياتهم.
- 3 - دعم عمليات تعزيز الجودة في النظام التعليمي بالجامعة، والارتقاء ببرامجها؛ للحصول على الاعتماد الأكاديمي.
- 4 - تعزيز دور الجامعة في تطبيق المعرفة، والمعارف؛ لخدمة المجتمع من خلال تطوير الشراكات المحلية والإقليمية والدولية.
- 5 - إعداد خريجين قياديين ورواد في تخصصاتهم من خلال تطوير ودعم الابتكار في التعليم والتعلم، وطرح برامج أكاديمية نوعية ومتطورة.
- 6 - تعزيز التعليم والتعلم الإلكتروني وتطوير الأساليب والوسائل التعليمية، والاهتمام بمصادر تكنولوجيا التعليم.
- 7 - تطوير قدرات البحث العلمي والابتكار في كافة المجالات الحديثة.
- 8 - تعزيز دور الجامعة في خدمة المجتمع وتحقيق برامج التنمية الشاملة.

#### 4. Faculty Vision, Mission, and Objectives:

##### Faculty Vision:

A distinguished and pioneering Faculty locally and regionally in health and medical sciences and applied research.

##### رؤية الكلية

كلية متميزة ورائدة محلياً وإقليمياً في العلوم الصيدلانية والبحوث التطبيقية.

##### Faculty Mission :

Faculty of pharmacy at the University of Modern Sciences seeks to prepare distinguished doctors who are capable of innovation and creativity in preparing distinguished high-quality research and applied studies, through efficient academic staff and modern educational programs to contribute to the quality of the medical and health sector, community development and meeting its needs.

##### رسالة الكلية

تسعى كلية الصيدلة بجامعة العلوم الحديثة إلى تأهيل كادر متخصص وقادر على مواصلة الصيدلة بكفاءة مما يسهم في جودة القطاع الطبي والصحي وتنمية المجتمع وتلبية احتياجاته.

##### Objectives of the Faculty:

1. Preparing competent pharmacists who are capable to provide various pharmacy services and are supplied with the standardized relevant knowledge, professional skills and ethical values to meet the needs of the labor market.
2. Enhancing and creating the necessary educational environment by Updating the academic pharmacy curricula and learning sources to support the educational process and raise the efficiency of the college's competitive position.
3. Supporting quality enhancement processes in the college's educational system and upgrading its programs in accordance with academic accreditation standards.
4. Conducting and developing Pharmacy research to solve health-related problems in the community.
5. Strengthening the college's role in transferring medical and health knowledge and skills to serve the community.
6. Participating in advancing pharmaceutical industry in Yemen.
7. Developing the capabilities of scientific research and innovation in all pharmacy fields.

##### أهداف الكلية

1. إعداد صيادلة مؤهلين وقادر على تقديم الخدمات الصيدلانية المختلفة ويمتلكون المعارف المتخصصة والمهارات المعنوية والقيم الأخلاقية. بما يلي احتياجات سوق العمل.
2. تعزيز وتهيئة البيئة التعليمية اللازمة لدعم العملية التعليمية من خلال تطوير المناهج الدراسية الصيدلانية ورفع كفاءة الوضع التنافسي للكلية
3. دعم عمليات تعزيز الجودة في النظام التعليمي بالكلية والارتقاء ببرامجها وفق معايير الاعتماد الأكاديمي.
4. إجراء البحوث الصيدلانية وتطويرها بما يسهم في حل المشاكل الصحية في المجتمع.
5. تعزيز دور الكلية في نقل المعرفة والمهارات الصيدلانية لخدمة المجتمع.
6. المساهمة في تطوير الصناعة الدوائية في اليمن.
7. تطوير قدرات البحث العلمي والابتكار في كافة المجالات الصيدلانية

## 5. Program Mission and Objectives:

### رسالة البرنامج:

### Program Mission:

The mission and objectives of the program: The mission of the program: preparing scientifically qualified pharmacists and qualified research committed to professional ethics and the ability to continuously self-learn through an innovative learning environment and effective partnership, in a way that meets the needs of the labor market. Practically, practically, professionally and morally compete in the labor market, and contribute to providing pharmacy services provided to the community.

إعداد الصيادلة المؤهلين علمياً وتمكنين في مجال البحث العلمي وملتزمون بالأخلاقيات المهنية ولديهم القدرة على التعلم الذاتي المستمر من خلال بيئة تعليمية مبتكرة وشراكة فعالة ، بطريقة تلبي احتياجات سوق العمل. تتمكن مخرجات البرنامج من التنافس علمي ، عملياً ، مهنيًا وأخلاقيًا في سوق العمل ، وتساهم في تقديم الخدمات الدوائية إلى المجتمع.

### أهداف البرنامج:

### Program Objectives:

1. Preparing qualified pharmacists who commit to the ethics of the profession, to meet the needs of the various pharmaceutical fields.
2. Providing students with knowledge, scientific, practical and research skills in the fields of pharmaceutical sciences.
3. Developing students' personal skills and their ability to communicate and feel self continuously.
4. Encouraging educational and community instructions to enhance students' practical and voluntary research skills.
5. Providing specialized pharmacists with knowledge, skills and ethical values to compete in the labor market.
6. Providing, developing and updating pharmacy, training and research to serve the community, meet their needs, progress in the profession in pharmacy, and meet cosmetic and international standards.
7. Augment cooperations with academic research institutes, local, regional and international academic entities related to the higher pharmacy education

1. إعداد الصيادلة المؤهلين الذين يلتزمون بأخلاقيات المهنة، لتلبية احتياجات المجالات الصيدلانية المختلفة.
2. تزويد الطلاب بالمعرفة والمهارات العلمية والعملية والبحثية في مجالات العلوم الصيدلانية.
3. تطوير مهارات الطلاب الشخصية وقدرتهم على التواصل والشعور الذاتي بشكل مستمر.
4. تشجيع الشراكات التعليمية والمجتمعية لتعزيز مهارات الطلاب العملية والبحثية التطوعية.
5. تقديم الصيادلة الأكفاء المتسلحين بالمعرفة والمهارات والقيم الأخلاقية ويمكنها التنافس في سوق العمل.
6. تطوير وتحديث الصيدلة والتدريب والبحث لخدمة المجتمع وتلبية احتياجاتها والتقدم في المهنة الصيدلانية وتلبية المعايير المحلية والدولية.
7. توسيع افاق التعاون مع معاهد البحوث الأكاديمية والأدوية المحلية والإقليمية والدولية والكيانات الأخرى ذات الصلة بالعملية التعليمية وبمهنة الصيدلة





## 6. Program Standards & Benchmarks:

### Program Standards:-

#### A. Academic Standards:

- 1-Regulations (level 1) of the council for accreditation and quality assurance – Ministry of Higher education & scientific research, Yemen.
- 2-NARS, National academic reference standards for pharmacy, the council for accreditation and quality assurance – Ministry of Higher education & scientific research, Yemen, 2018.
- 3-AFPC Educational Outcomes for First Professional Degree Programs in Pharmacy in Canada, The Association of Faculties of Pharmacy of Canada's Board of Directors 2017
- 4- National Academic Reference Standards Pharmacy Education, National Authority for Quality Assurance and Accreditation of Education, Egypt, 2017

#### B. Strategies :-

- 1-University Strategy .
- 2-Faculty Strategy .

#### C. Rules and Regulation :-

- 1-Higher Education rules
- 2-Private education laws
- 3-Student affairs regulation

### Program Benchmarks:

- a) University of science & technology, Yemen
- b) University of science & technology, Jordan
- c) Cairo university, Egypt
- d) Zarqa University, Jordan
- e) Jof university, Saudi Arabia
- f) Al-Ain university, Emirates
- g) Nitte university, India



## 7. Graduate Attributes:

Upon successful completion of an undergraduate Pharmacy program, graduates will be able to:

1. Demonstrate knowledge of basic and biomedical sciences and their applications in pharmacy.
2. Demonstrate a sound understanding of a substantial body of knowledge in pharmaceutical sciences.
3. Apply current good manufacturing practices (cGMP) criteria in formulating and preparing pharmaceutical/cosmetic products from different sources (including raw materials) and contribute to the distribution and storage system.
4. Utilize analysis methods (qualitative and quantitative) in testing raw materials and pharmaceutical products
5. Deal safely and effectively with chemicals, natural materials and pharmaceutical products and participate in optimizing medicines uses.
6. Practice and perform responsibilities and authorities ethically, legally, professionally and respect patient`s rights.
7. Educate patients and members of health care team in rational use of medicines based on updated drug information.
8. Apply evidence-based decision making skills and search in solving problems related to pharmacy profession.
9. Demonstrate effective communication, leadership, marketing and business management skills.
10. Plan, design, conduct and participate in research to improve healthcare system performance.
11. Apply self-dependence , life-long and collaborative learning skills in updating their knowledge.

## 8. Promising career opportunities for graduates:

The field is available for graduates to work as follows:

- Researcher assistant and practical instructor in pharmacy Faculties
- Medical sales representative.
- Regulatory affairs officer at pharmaceutical Quality control authorities
- Hospital pharmacists at health centers.
- Industrial pharmacists at Pharmaceutical manufacturing companies



## 9. Program Intended Learning Outcomes (PILOs):

### ❖PILOs of Knowledge and Understanding Skills:

بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على ان:

- A1. Show understanding of fundamentals of biomedical sciences, physics, mathematics and chemistry and organization of human body.
- A2. Explain the fundamental of social and behavioral sciences.
- A3. Explain physicochemical properties of materials and products
- A4. Describe analytical methods, principles, design and development techniques
- A5. Identify actions of medicines on human body.
- A6. Explain the basis of complementary and alternative medicines
- A7. Identify types of poisons and mechanisms and actions of poisoning
- A8. Describe Biopharmaceutics and pharmacokinetics of medicines
- A9. Define the basis of health policy, Pharmacoeconomics, pharmacoepidemiology , pharmaceutical marketing and administration.
- A10. Describe the pharmacists role in different pharmacy practices.
- A11. Identify the properties of dosage forms and novel drug delivery systems.
- A12. Describe the methods of biostatistics and pharmaceutical calculations

### ❖PILOs of Intellectual Skills:

بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على ان:

- B1. Collect interpret and assess information and data relevant to pharmacy practice
- B2. Classify drugs, approaches and other information relevant to pharmacy based on scientific classification system.
- B3. Design an evaluate different types of safe and effective drugs , pharmaceutical dosage forms and cosmetic preparations
- B4. Select appropriate standard operation procedures to conduct qualitative and quantitative analysis.
- B5. Plan a modern system for administration of foundations and merge ethics to business in drug marketing.
- B6. Develop and design suitable methods for extraction of active medicinal agents from various sources.
- B7. Formulate and evaluate patient care plan about rational drug use of medications.
- B8. Use appropriate research methods including experimental, observational and electronic to collect data and solve problems.
- B9. Apply mathematical equations to calculate data relevant to pharmacy practices.

### ❖PILOs of Professional Skills and Practices:

بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على ان:

- C1. Handle safely the chemicals, biological samples and pharmaceutical ingredients and products.
- C2. Operate different instruments and use emerge technologies for preformulation, formulation and analysis of materials according to standard guidelines.
- C3. Screen for drugs from different sources and carry out pharmacy relevant experiments successfully.
- C4. Advice patients and healthcare professionals to optimize medicines use.
- C5. Employ the relevant ways to produce extemporaneous preparations including TPN and IV admixtures.
- C6. Apply administrative and Pharmacoeconomics rules in pharmacy and ethically use marketing skills for drug promotion.
- C7. Conduct research and utilize the results in different pharmaceutical fields.

### ❖PILOs of General and Transferable Skills:

بعد الانتهاء من البرنامج بنجاح سوف يكون المتخرج قادرا على ان:

- D1. Interact and communicate effectively and behave in disciplines with colleagues, patients and healthcare professionals effectively in team-activities.
- D2. Develop and demonstrate skills of time managements, self-learning and decision making.
- D3. Participate collaboratively in team work with colleagues and healthcare professionals.
- D4. Take the responsibility for adaption to change needs in pharmacy practice.
- D5. Retrieve essential references of evidence-based to achieve maximal clinical effectiveness



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ANNEX- 1, SURVEY ON THE STRATEGIC ORIENTATION OF THE DEPARTMENT AND SIMILAR FACULTYS, AND THEIR ALIGNMENT TO THE STRATEGIC ORIENTATION OF THE :UNIVERSITY AND FACULTY

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ANNEX- 2, ACADEMIC STANDARDS CURRICULUM CRITERIA OF ACCREDITATION BOARD

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ANNEX- 3, UNIFIED REGULATIONS FOR STUDENT AFFAIRS, MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

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ANNEX- 4, SURVEY OF SIMILAR ACCREDITED PROGRAMS AT NATIONAL AND INTER-(NATIONAL UNIVERSITIES (BENCHMARKS

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ANNEX- 5, SURVEY ON MISSION AND OBJECTIVES OF THE PROGRAM AND SIMILAR ACCREDITED PROGRAMS AND ITS ALIGNMENT TO THE UNIVERSITY, FACULTY, AND FACULTY MISSIONS AND OBJECTIVES

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ANNEX- 6, ALIGNMENT OF PROGRAM INTENDED LEARNING OUTCOMES (PILOS) TO THE FACULTY OBJECTIVE

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ANNEX- 7, ALIGNMENT OF PROGRAM INTENDED LEARNING OUTCOMES (PILOS) TO (PROGRAM OBJECTIVES (POS

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ANNEX- 8, MAPPING OF PROGRAM INTENDED LEARNING OUTCOMES (PILOS) TO THE :(FACULTY OBJECTIVES (FOS

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ANNEX- 9, ALIGNMENT OF PRGRAM INTENED LEARNING OUTCOMES (PILOs) TO THE FACULTY OBJECTIVES

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ANNEX- 10, ALIGNMENT OF PROGRAM PILOs WITH COUNCIL OF ACCREDITATION AND OTHER STANDARDS

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## 10. Program Structure:

No	Requirements		No. of Courses	Credit Hours	Rational Weight %	
1	University Requirements	Compulsory	4	8	4.7%	
		Elective	-	-		
2	Faculty Requirements	Compulsory	21	51	30%	
		Elective				
3	Program Requirements *	Compulsory	38	105	61.8 %	65.3 %
		Elective				
4	Field Training	Compulsory	2	6*	3.5 %	
		Elective	-	-		
Total:			65	170		

\*: 6 Credit hours are equivalent to 650 actual hours at the field

## A. University Requirements

### Compulsory Courses: (8 Credit hours)

No.	Course Code	Course Name	Credit hrs	Theoretical	Seminar	Practical	Training
1	UMS 01	Arabic language	2	2	-	-	-
2	UMS 02	Introduction to Computer	2	1	-	1	-
3	UMS 03	Islamic culture	2	2	-	-	-
4	UMS 04	Communication Skills	2	2	-	-	-
Total of Credit Hours			8	7		1	

Elective Courses: None



## B. Faculty Requirements

### Compulsory Courses: (44 Credit hours)

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	FOP 111	General Biology	أحياء عامة	3	2		1
2	FOP112	General Chemistry	كيمياء عامة	3	2		1
3	FOP 113	Physics for Pharmacy	فيزياء للصيدلة	2	2		-
4	FOP 114	Medical English (1)	انجليزي طبي (1)	2	2	-	-
5	FOP 115	Pharmacy Orientation	اتجاهات صيدلانية	2	2	-	-
6	FOP 121	Mathematics	رياضيات	2	2	-	-
7	FOP 122	First Aid	اسعافات اولية	2	2		-
8	FOP 125	Medical English (2)	نجليزي طبي (2)	2	2	-	-
9	FOP 126	Anatomy & Histology	علم التشريح والأنسجة	3	2		1
10	FOP 212	Pharmacy Public Health	صيدلة صحة مجتمع	2	2		-
11	FOP 213	Physiology (1)	علم وظائف الأعضاء 1	2	2		-
12	FOP 222	Physiology II	علم وظائف الأعضاء 2	2	2		-
13	FOP 226	Biochemistry & Molecular Biology	الكيمياء الحيوية والبيولوجية الجزيئية	3	2		1
14	FOP 313	General Microbiology	علم الأحياء الدقيقة	3	2		1
15	FOP 314	Metabolic Biochemistry	ايض الكيمياء الحيوية	3	2		1
16	FOP 321	Pathology	علم أمراض	2	2	-	-
17	FOP 323	Biostatistics	إحصاء حيوي	2	2		-
18	FOP 326	Pharmaceutical Microbiology	أحياء دقيقة صيدلانية	3	2		1
19	FOP 416	Pathophysiology	علم وظائف الأعضاء الممرضة	2	2		
20	FOP 424	Physical assessment skills	مهارات التقييم البدني	2	1		1
21	FOP 522	Graduation project	مشروع التخرج	4	-		4
<b>Total</b>				<b>51</b>	<b>39</b>		<b>12</b>

## C. Program Requirements

### Compulsory Courses (40 courses ); (110 Credit hours)

#### I- Pharmaceutics & Related disciplines ; (13) Courses ; (32) Credit hours

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHT 123	Physical Pharmacy	صيدلة فيزيائية	3	2		1
2	PHT 124	Pharmaceutical Calculation	حسابات صيدلانية	2	2		-
3	PHT 211	Pharmaceutics (1)	صيدلانيات (1)	3	2		1
4	PHT 221	Pharmaceutics (2)	صيدلانيات (2)	3	2		1
5	PHT 311	Pharmaceutics (3)	صيدلانيات (3)	3	2		1
6	PHT 315	Pharmaceutical Drug discovery & development	تطوير واكتشاف الأدوية	2	2		-
7	PHT 316	Dermatological & Cosmetic preparations	تحضيرات تجميلية وجلدية	3	2		1
8	PHT 411	Industrial pharmacy	صيدلة صناعية	2	2	-	-
9	PHT 415	Biopharmaceutics & Pharmacokinetics (1)	صيدلة حيوية وحركية (1)	2	2	-	-
10	PHT 417	Pharmaceutical Biotechnology	التكنولوجيا الحيوية الصيدلانية	2	2	-	-
11	PHT 425	Biopharmaceutics & Pharmacokinetics (2)	صيدلة حيوية وحركية (2)	2	2	-	-
12	PHT 511	Nuclear Pharmacy	صيدلة نووية	2	2	-	-
13	PHT 512	Pharmaceutical Quality Control	رقابة دوائية	3	2	-	1
Total				32	26	0	6



## II- Pharmacology & Related disciplines (PHL) ; (4 courses ; (11) Credit hours

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHL 312	Pharmacology (1)	علم أدوية (1)	3	2		1
2	PHL 322	General Toxicology	علم السموم	3	2		1
3	PHL 324	Pharmacology (2)	علم ادوية (2)	3	2		1
4	PHL 412	Pharmacology (3)	علم ادوية (3)	2	2	-	-
Total				11	8	-	3

## III- Medicinal chemistry & Related disciplines (PHC) ; (8) courses ; (24) Credit hours

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHC 214	Pharmaceutical Organic Chemistry (1)	كيمياء عضوية صيدلانية (1)	3	2		1
2	PHC 216	Pharmaceutical Analytical Chemistry (1)	كيمياء تحليلية صيدلانية (1)	3	2		1
3	PHC 223	Pharmaceutical Organic chemistry (2)	كيمياء عضوية صيدلانية (2)	3	2		1
4	PHC 225	Pharmaceutical Analytical Chemistry (2)	كيمياء تحليلية صيدلانية (2)	3	2		1
5	PHC 325	Medicinal Chemistry (1)	كيمياء دوائية (1)	3	2		1
6	PHC 414	Medicinal Chemistry (2)	كيمياء دوائية (2)	3	2	-	1
7	PHC 423	Medicinal Chemistry (3)	كيمياء دوائية (3)	3	2	-	1
8	PHC 516	Pharmaceutical instrumental analysis	تحليل آلي صيدلاني	3	2		1
Total				24	16	-	8



#### IV- Pharmacognosy & Related disciplines (PHG) ; (4) courses ; (14) Credit hours

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHG127	Botany and medicinal plants	علم النباتات ونباتات طبية	3	2		1
2	PHG215	Pharmacognosy & Phytochemistry (1)	عقاقير وكيمياء عقاقير (1)	4	3		1
3	PHG 224	Pharmacognosy & Phytochemistry (2)	عقاقير وكيمياء عقاقير (2)	4	3		1
4	PHG 421	Applied Pharmacognosy	عقاقير تطبيقية	3	2	-	1
<b>Total</b>				<b>14</b>	<b>10</b>	<b>-</b>	<b>4</b>

#### V- Pharmacy practice & Related disciplines (PHPP; (9) courses ; (23) Credit hours

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHPP 413	Community Pharmacy (1)	صيدلة مجتمع (1)	3	2	-	1
2	PHPP 422	Community Pharmacy (2)	صيدلة مجتمع (2)	3	2	-	1
3	PHPP 426	Principles of Pharmacy practice	مبادئ الممارسة الصيدلانية	3	2	-	1
4	PHPP 513	Pharmacy administration	ادارة صيدلانية	2	2		-
5	PHPP 515	Clinical Pharmacy I	صيدلة سريرية (1)	3	2		1
6	PHPP 517	Pharmacy Regulation and ethics	اخلاقيات مهنة الصيدلة	2	2		-
7	PHPP 521	Pharmaceutical Marketing & promotion	تسويق دوائي	2	2	-	-
8	PHPP 523	Hospital pharmacy	صيدلية مستشفيات	2	2	-	-
9	PHPP 526	Clinical pharmacy (2)	صيدلة سريرية (2)	3	2		1
<b>Total</b>				<b>23</b>	<b>18</b>	<b>-</b>	<b>5</b>

#### VI. Professional Practice Experience (PHPP) ; (2) courses ; (6) Credit hours equivalent to (360) actual hour

No.	Course Code	Course Name	اسم المقرر	Cr. Hrs.	L	T	P
1	PHPP514	Professional Practice Experience (1) *	تدريب ميداني (1)	3*			325 hrs.
2	PHPP524	Professional Practice Experience (2)**	تدريب ميداني (2)	3**			325 hrs
<b>Total</b>				<b>6</b>			<b>650 hrs</b>

\*: 3 credit hours are equivalent to 325 actual hours at the field

\*\* : 3 credit hours are equivalent to 325 actual hours at the field

☐: 6 Credit hours are equivalent to 650 actual hours at the field



## 11. Study Plan: الخطة الدراسية لبرنامج الصيدلة

**No. of Courses: 65**  
**Total Credit Hours =170 C.H**

### FIRST YEAR- FIRST SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	FOP 111	General Biology	3	2	1
2	FOP112	General Chemistry	3	2	1
3	UMS 01	Arabic language	2	2	-
4	FOP 113	Physics for Pharmacy	2	2	-
5	FOP 114	Medical English (1)	2	2	-
6	FOP 115	Pharmacy Orientation	2	2	-
7	UMS 02	Introduction to Computer	2	1	1
<b>TOTAL CREDIT HOURS</b>			<b>16</b>		

### FIRST YEAR- SECOND SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	FOP 121	Mathematics	2	2	-
2	FOP 122	First Aid	2	2	
3	PHT 123	Physical Pharmacy	3	2	1
4	PHT 124	Pharmaceutical Calculation	2	2	-
5	FOP 125	Medical English (2)	2	2	-
6	FOP 126	Anatomy & Histology	2	2	-
7	UMS 03	Islamic Culture	2	2	-
8	PHG127	Botany and medicinal plants	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>18</b>		



## SECOND YEAR- FIRST SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHT 211	Pharmaceutics (1)	3	2	1
2	FOP 212	Pharmacy Public Health	2	2	-
3	FOP 213	Physiology (1)	3	2	1
4	PHC 214	Pharmaceutical Organic Chemistry (1)	3	2	1
5	PHG215	Pharmacognosy & Phytochemistry (1)	4	3	1
6	PHC 216	Pharmaceutical Analytical Chemistry (1)	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>18</b>		

## SECOND YEAR- SECOND SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHT 221	Pharmaceutics (2)	3	2	1
2	FOP 222	Physiology II	2	2	-
3	PHC 223	Pharmaceutical Organic chemistry (2)	3	2	1
4	PHG 224	Pharmacognosy & Phytochemistry (2)	4	3	1
5	PHC 225	Pharmaceutical Analytical Chemistry (2)	3	2	1
6	FOP 226	Biochemistry & Molecular Biology	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>18</b>		



### THIRD YEAR- FIRST SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHT 311	Pharmaceutics (3)	3	2	1
2	PHL 312	Pharmacology (1)	3	2	1
3	FOP 313	General Microbiology	3	2	1
4	FOP 314	Metabolic Biochemistry	3	2	1
5	PHT 315	Pharmaceutical Drug discovery & development	2	2	-
6	PHT 316	Dermatological & Cosmetic preparations	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>17</b>		

### THIRD YEAR- SECOND SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	FOP 321	Pathology	3	2	1
2	PHL 322	General Toxicology	3	2	1
3	FOP 323	Biostatistics	2	2	-
4	PHL 324	Pharmacology (2)	3	2	1
5	PHC 325	Medicinal Chemistry (1)	3	2	1
6	FOP 326	Pharmaceutical Microbiology	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>17</b>		



### FOURTH YEAR- FIRST SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHT 411	Industrial pharmacy	2	2	-
2	PHL 412	Pharmacology (3)	2	2	-
3	PHPP 413	Community Pharmacy (1)	3	2	1
4	PHC 414	Medicinal Chemistry (2)	3	2	1
5	PHT 415	Biopharmaceutics & Pharmacokinetics (1)	2	2	-
6	FOP 416	Pathophysiology	2	2	-
7	PHT 417	Pharmaceutical Biotechnology	2	2	-
<b>TOTAL CREDIT HOURS</b>			<b>16</b>		

### FOURTH YEAR- SECOND SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHG 421	Applied Pharmacognosy	3	2	1
2	PHPP 422	Community Pharmacy (2)	3	2	1
3	PHC 423	Medicinal Chemistry (3)	3	2	1
4	FOP 424	Physical assessment skills	2	1	1
5	PHT 425	Biopharmaceutics & Pharmacokinetics (2)	2	2	-
6	PHPP 426	Principles of Pharmacy practice	3	2	1
<b>TOTAL CREDIT HOURS</b>			<b>16</b>		



### FIFTH YEAR- FIRST SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHT 511	Nuclear Pharmacy	2	2	-
2	PHT 512	Pharmaceutical Quality Control	3	3	-
3	PHPP 513	Pharmacy administration	2	2	-
4	PHPP 514	Professional Practice Experience	3*	0	3*
5	PHPP 515	Clinical Pharmacy I	3	2	2
6	PHC 516	Pharmaceutical instrumental analysis	3	2	2
7	PHPP 517	Pharmacy Regulation and ethics	2	2	-
<b>TOTAL CREDIT HOURS</b>			<b>18</b>		

\*: 3 credit hrs are equivalent to 325 contact hrs; 25 hrs/ week for 13 weeks

### FIFTH YEAR- SECOND SEMESTER

No.	CODE	SUBJECT	CREDIT HOURS		
			TOTAL	L	P
1	PHPP 521	Pharmaceutical Marketing & promotion	2	2	-
2	FOP 522	Graduation project	4	-	4
3	UMS 04	Communication skills	2	2	-
4	PHPP 523	Hospital pharmacy	2	2	-
5	PHPP 524	Professional Practice Experience (2)	3**	0	3**
6	PHPP 525	Clinical pharmacy (2)	3	2	1
<b>Total credit hours</b>			<b>16</b>		

\*\* : 3 credit hrs are equivalent to 325 contact hrs; 25 hrs/ week for 13 weeks.



## 12. Teaching and Learning Strategies:

- Active Lectures (supported with discussion),
- Group learning and Problem-based learning,
- Seminars, journal clubs and workshops,
- Practical classes,
- Office hours
- Field training,
- Simulated software program
- Field visits to industries,
- Computer and web-based learning,
- Use of communication and information technology,
- Project work,
- Directed self-study.



Teaching Strategy	Description
Lectures	It is the most frequently employed teaching method to convey knowledge and explain theories to students in large groups (50-100) or in sessions, which consist of more than one group gathered in one classroom.
Seminars	These are mainly used with small groups of students in which they find better chances for discussing and negotiating the different concerns of their studies.
Lab experiments	Students doing practices in labs individually or in small groups.
Training	This is a practical kind of course where the students are required to plan and execute field training in community Pharmacy, hospitals, corporations and industrial plants to accomplish and obtain certificate of training.
Discussion	This is done by allowing the students to ask questions during the lecture and respond to them by the lecturer or other students for the purpose of establishing and clarify the subject of the lecture strongly and increase the concentration and absorption of the student and the attention and not to enter the boredom.
Presentations	Helps the students to be more confident with themselves and make them to show the others what knowledge they have acquired. It can be followed in many types of courses and tasks.
Self-learning	Self-learning is the process by which learners teach themselves using any materials or resources to achieve clear goals without the direct help of the teacher
Case study	Case studies are defined as the scientific documentation of a single clinical observation which is so important study design in advancing medical scientific knowledge especially of rare disease.
Office Hours	Office hours are hours determined by the faculty member (professor of the course) to which the student studies. The hours allocated by the professor to meet with his students to help them and answer their queries in the event of any questions they may not be enough time for the lecture to answer it.
Project-based learning	Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge It promotes interaction between students
Video clips	can bring a subject to students in a completely new way and help them comprehend the material they're reading or working with.
Role-play	is a technique that allows students to explore realistic situations by interacting with other people in a managed way in order to develop experience and trial different strategies in a supported environment.
A concept map	is a visual representation of a topic that students can create using words, phrases, lines, arrows, space on the page, and perhaps color to help organize their ideas and show their understanding of an idea, vocabulary term, or essential question.
Demonstration	is a teaching method used to communicate an idea with the aid of visuals such as flip charts, posters, power point, etc. A demonstration is the process of teaching someone how to make or do something in a step-by-step process. As you show how, you "tell" what you are doing.
One Minute Paper	is based on a concept called retrieval learning. Just fill out a small questionnaire within 15 minutes after taking a class, reading a chapter, watching a documentary, or learning in another way.





### 13. Assessment Methods:

- Short essays,
- Written assessments, such as multiple choice questions (MCQs),
- Faculty assessment by structured observation through checklists and rating scales,
- Seminar assessment,
- Multi-source assessments, such as student self-assessment,
- Simulations, such as computer-based clinical scenarios,
- summative practical assessments,
- Graduate Research project.
- laboratory and other written reports,
- Work samples, such as, logbooks and portfolios.

## Republic of Yemen

Ministry of Higher Education & Scientific Research  
Council for Accreditation & Quality Assurance  
University of Modern Sciences  
FACULTY of pharmacy



جامعة العلوم الحديثة  
University of Modern Sciences



الجمهورية اليمنية  
وزارة التعليم العالي والبحث العلمي  
مجلس الاعتماد الأكاديمي وضمان الجودة  
جامعة العلوم الحديثة  
كلية الصيدلة

Assessment Strategy	Description
Assessment Strategy	Its description (in which course it will be used and in which rate)
Written examinations	Mid-term test is conducted between 6th to 8th Class and final exam is conducted at the end of each course.
Oral exams	For selected courses
Technical or practical reports / Presentations	As indicated in the course specification
Assignments including problem-solving exercises	The entire assignments including problem-solving exercises of coursework activities during the teaching period of each course. (which includes group and individual work, tests and presentations, etc.)
Individual and group project work	As indicated in the course specification
Quizzes	For all courses except for project
Home work	For all courses except for project



## 14. Alignment of Program Intended Learning Outcomes (PILOs) to Teaching Strategies and Assessment Methods:

PILOs	Teaching Strategy	Assessment Methods
<b>Knowledge and Understanding</b> A1 – A12	<ul style="list-style-type: none"> <li>•Active lecture</li> <li>•Tutorial</li> <li>•Seminars</li> <li>•Feed-back learning</li> <li>•Problem-based learning</li> </ul>	<ul style="list-style-type: none"> <li>•Written tests (mid and final terms)</li> <li>• Quiz</li> <li>•Assignment</li> </ul>
<b>Intellectual Skills</b> B1-B9	<ul style="list-style-type: none"> <li>•Active lecture</li> <li>•Problem-based learning</li> <li>•Video clips</li> <li>•Tutorial</li> <li>•Laboratory practice</li> <li>•Feed-back learning</li> <li>•Group project</li> </ul>	<ul style="list-style-type: none"> <li>•Written tests (mid and final terms)</li> <li>• Quiz</li> <li>• Final practical exam.</li> <li>• Lab. accomplishments</li> <li>•Seminar assessment</li> <li>•Assignment assessment</li> </ul>
<b>Professional &amp; practical skills</b> C1-C7	<ul style="list-style-type: none"> <li>•Active lecture</li> <li>•Tutorial</li> <li>•Demonstrations</li> <li>•Seminars</li> <li>•Laboratory practice</li> <li>•Feed-back learning</li> <li>•Group project</li> </ul>	<ul style="list-style-type: none"> <li>•Written tests (mid and final terms)</li> <li>• Quiz</li> <li>• Final practical exam.</li> <li>• Lab. accomplishments</li> <li>•Seminar assessment</li> <li>•Assignment assessment</li> <li>•Attitude assessment</li> <li>•Field-training assessment</li> </ul>
<b>General &amp; Transferable Skills</b> D1- D5	<ul style="list-style-type: none"> <li>•Tutorial</li> <li>•Seminars</li> <li>•Laboratory practice</li> <li>•Feed-back learning</li> <li>•Group project</li> </ul>	<ul style="list-style-type: none"> <li>•Lab. accomplishments</li> <li>•Attitude assessment</li> <li>•Field-training assessment</li> </ul>



## 15. Training Course Assessment:

The training course will be assessed through:

- In Details see the training guide

## 16. Graduation Project Assessment:

Each project will be assessed as follows:

Item	Marks Distribution
Research project supervisor	70
Internal examiner: a member of the Faculty teaching staff.	15
External examiner: a qualified external examiner (either from other Facultys of the faculty or from another university)	15
Total	100

## 17. Intended Learning Outcomes Mapping:

See below Annexes.



## 18. Distribution of Total Credit Hours:

Level	Term	University Requirements		Faculty Requirements		Faculty/ Program * Requirements		Training		Project		Total Cr. Hrs.		Total Cr. Hrs./ Level
		No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	
First	First	2	4	5	12	-	-	-	-	-	-	7	16	34
	Second	1	2	4	9	3	8	-	-	-	-	8	18	
Second	First	-	-	2	4	3	12	-	-	-	-	6	18	36
	Second	-	-	2	5	3	13	-	-	-	-	6	18	
Third	First	-	-	2	6	4	11	-	-	-	-	6	17	34
	Second	-	-	3	7	3	9	-	-	-	-	6	17	
Fourth	First	-	-	1	2	6	14	-	-	-	-	7	16	32
	Second	-	-	1	2	5	14	-	-	-	-	6	16	
Fifth	First	-	-	-	-	7	18	1	3	-	-	7	18	34
	Second	1	2	1	4	4	10	1	3	1	4	6	16	
Total:		4	8	21	51	38	109	2	6**	1	4	65	170	170
Percentage:		4.7 %		30 %		64.1 %		3.5		2.4				

\* : Program requirements and Faculty requirements are the same.

\*\* : 25 hrs. /week for 26 weeks: 650 contact hrs.



## 19. Admission Requirements:

1. Admissions to the program shall be made as per the admission rules set by the Ministry of Higher Education and Scientific Research as well as University of Modern Sciences admission guidelines (hyperlink)
2. General Secondary school certificate (Science Section) or any equivalent certificate with grade as specified in the admission rules made by Ministry of Higher Education and Scientific Research.
3. Pass the personal interview .

## 20. Attendance and Graduation Requirements:

1. Student attendance should not be less than 75% in each course.
2. Student will graduate after successfully passing all program requirements.
3. Total credit hours for the program are 180 credit hours.
4. Minimum score for any student to pass a program course is 50 % of marks.

## 21. Grading System:

From 90% to 100% from total marks	Excellent
From 80% to 89%	Very Good
From 70 % to 79%	Good
From 50 % to 69 %	Pass
Less than 50 %	Poor/Fail



## 22. Facilities Required for Running the Program:

1. Sufficient Classrooms furnished with all necessary pieces and equipment.
2. Labs as per the course's specifications.
3. Computer Labs.
4. Academic and administrative staff offices.

## 23. Program Assessment:

Type of the Sample who Assess the program		Instruments used	Sample
1	Final year assessment	Competency based assessment	All Students
2	External examiner evaluation	Performance based assessment of practical skills,	10 % of total students
3	Graduated student evaluation	Competency based assessment	All students by Medical Council
4	External evaluator	Performance based assessment of practical skills,	10 % of total students
5	Criteria of the Council for Accreditation and Quality Assurance in Yemen	Qualifying exam	-

## 24. Internal and external training to satisfy program standards:

-Internally :- training in well equipped labs

-Externally :- Training in pharmaceutical work fields involving community pharmacies, hospitals and pharmaceutical manufacturing plants



## 25. Program Policies:

### Based on University Regulations

1.	<b>(Class Attendance) :</b> A student should attend not less than 75 % of total hours of the subject; otherwise, he/she will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic. If the absent is more than 25% of a course total contact hours, student will be required to retake the entire course again.
2.	<b>(Tardy):</b> For late in attending the class, the student will be initially notified. If he repeated lateness in attending class he/she will be considered as absent.
3.	<b>(Exam Attendance/Punctuality):</b> A student should attend the exam on time. He/she is permitted to attend an exam half one hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
4.	<b>(Assignments &amp; Projects):</b> Assignments and projects are given as per course specification; the student has to submit all the assignments for checking on time, mostly one week after given the assignment.
5.	<b>(Cheating):</b> For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the Faculty.
6.	<b>(Plagiarism):</b> Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he/she will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Council Affair of the university or according to the university roles.
7.	<b>(Other policies):</b> -Mobile phones are not allowed to use during a class lecture. It must be closed; otherwise the student will be asked to leave the lecture room. -Mobile phones are not allowed in class during the examination. -Lecture notes and assignments might be given directly to students using soft or hard copy.



## ANNEX- 1, SURVEY ON THE STRATEGIC ORIENTATION OF THE DEPARTMENT AND SIMILAR FACULTYS, AND THEIR ALIGNMENT TO THE STRATEGIC ORIENTATION OF THE UNIVERSITY AND FACULTY:

### 1- Vision of the Corresponding Faculty and Suggested Vision:

No	The Faculty	Vision
1.	Pharmacy	<p>كلية متميزة ورائدة محلياً وإقليمياً في العلوم الصيدلانية والبحوث التطبيقية.</p> <p>A distinguished and pioneering Faculty locally and regionally in health and medical sciences and applied research.</p>

### 2- Mapping of faculty Vision to the University Vision:

University Vision	Faculty Vision
<p>التميز والريادة محلياً وإقليمياً، في الخدمات التعليمية ومخرجات التعليم وخدمة المجتمع وتنميته</p> <p>A world leading and distinguished university in building a knowledge society, concerned with various sciences, in its multiple fields, to serve and develop humanity.</p>	<p>التميز والريادة في التعليم والبحث العلمي الصيدلاني محلياً وإقليمياً</p> <p>ce and leadership locally and regionally in pharmacy education and research</p>

### 3-Mission of the Corresponding Faculties and Suggested Mission:

No.	The Faculty	Mission
1.	Pharmacy	<p>تسعى كلية الصيدلة بجامعة العلوم الحديثة إلى تأهيل كادر متخصص وقادر على مواولة الصيدلة بكفاءة مما يسهم في جودة القطاع الطبي والصحي وتنمية المجتمع وتلبية احتياجاته.</p> <p>Faculty of pharmacy at the University of Modern Sciences seeks to prepare distinguished doctors who are capable of innovation and creativity in preparing distinguished high-quality research and applied studies, through efficient academic staff and modern educational programs to contribute to the quality of the medical and health sector, community development and meeting its needs.</p>

#### 4-Objectives (Educational) of the Corresponding Faculties and Suggested Objectives:

No	The Faculty	Objectives	الأهداف
1.	Pharmacy	<p>1.Preparing competent pharmacists who are capable to provide various pharmacy services and are supplied with the standardized relevant knowledge, professional skills and ethical values to meet the needs of the labor market.</p> <p>2.Enhancing and creating the necessary educational environment by Updating the academic pharmacy curricula and learning sources to support the educational process and raise the efficiency of the college's competitive position.</p> <p>3.Supporting quality enhancement processes in the college's educational system and upgrading its programs in accordance with academic accreditation standards.</p> <p>4.Conducting and developing Pharmacy research to solve health-related problems in the community.</p> <p>5.Strengthening the college's role in transferring medical and health knowledge and skills to serve the community.</p> <p>6.Participating in advancing pharmaceutical industry in Yemen.</p> <p>7.Developing the capabilities of scientific research and innovation in all pharmacy fields.</p>	<p>1 - إعداد صيادلة مؤهلين وقادر على تقديم الخدمات الصيدلانية المختلفة ويمتلكون المعارف المتخصصة والمهارات المهنية والقيم الأخلاقية. بما يلبي احتياجات سوق العمل.</p> <p>2- تعزيز وتهيئة البيئة التعليمية اللازمة لدعم العملية التعليمية من خلال تطوير المناهج الدراسية الصيدلانية ورفع كفاءة الوضع التنافسي للكلية</p> <p>3- دعم عمليات تعزيز الجودة في النظام التعليمي بالكلية والارتقاء ببرامجها وفق معايير الاعتماد الأكاديمي.</p> <p>4- إجراء البحوث الصيدلانية وتطويرها بما يساهم في حل المشاكل الصحية في المجتمع.</p> <p>5- تعزيز دور الكلية في نقل المعرفة والمهارات الصيدلانية لخدمة المجتمع.</p> <p>6- المساهمة في تطوير الصناعة الدوائية في اليمن.</p> <p>7- تطوير قدرات البحث العلمي والابتكار في كافة المجالات الصيدلانية</p>

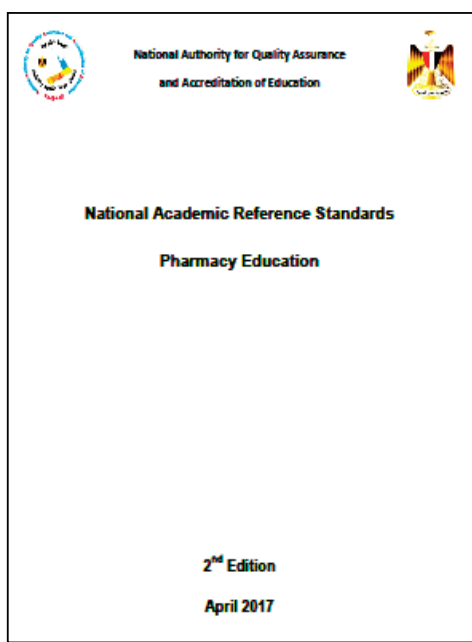
## 5-Mapping of Faculty Objectives to the University and Faculty Objectives:

University Objectives	Faculty Objectives
<p>1 - إتاحة فرص الدراسة التخصصية والتميز للطلاب، في ميادين المعرفة المختلفة بما يلبي؛ احتياجات سوق العمل.</p> <p>1-Providing students with specialized and distinguished study opportunities in various fields of knowledge to meet the needs of; labor market needs.</p> <p>2 - توفير البنية التحتية اللازمة لدعم العملية التعليمية، ورفع كفاءة الوعي الطلابي لمنح الطلاب فرصا لإدراك قدراتهم وإمكانياتهم.</p> <p>2-Providing the necessary infrastructure to support the educational process, and raising the efficiency of student awareness to give students opportunities to realize their abilities and capabilities.</p> <p>3 - دعم عمليات تعزيز الجودة في النظام التعليمي بالجامعة، والارتقاء ببرامجها؛ للحصول على الاعتماد الأكاديمي.</p> <p>3. Supporting quality enhancement processes in the university's educational system, and upgrading its programs; To obtain academic accreditation.</p> <p>4 - تعزيز دور الجامعة في تطبيق المعرفة، والمهارات؛ لخدمة المجتمع من خلال تطوير الشراكات المحلية والإقليمية والدولية.</p> <p>4. Enhancing the role of the university in applying knowledge and skills; To serve the community by developing local, regional and international partnerships.</p> <p>5 - إعداد خريجين قياديين ورواد في تخصصاتهم من خلال تطوير ودعم الابتكار في التعليم والتعلم، وطرح برامج أكاديمية نوعية ومتطورة.</p> <p>5.Preparing graduates who are leaders and pioneers in their specializations by developing and supporting innovation in teaching and learning, and offering qualitative and advanced academic programs.</p> <p>6 - تعزيز التعليم والتعلم الإلكتروني وتطوير الأساليب والوسائل التعليمية، والاهتمام بمصادر تكنولوجيا التعليم.</p> <p>6.Enhancing education and e-learning, developing educational methods and means, and paying attention to educational technology resources.</p> <p>7 - تطوير قدرات البحث العلمي والابتكار في كافة المجالات الحديثة.</p> <p>7.Developing the capabilities of scientific research and innovation in all modern fields.</p> <p>8 - تعزيز دور الجامعة في خدمة المجتمع وتحقيق برامج التنمية الشاملة.</p> <p>8.Strengthening the university's role in serving the community and achieving comprehensive development programs.</p>	<p>1 - تقديم برامج أكاديمية متميزة وفق احتياجات سوق العمل.</p> <p>1.Providing distinguished academic programs.</p> <p>2.إعداد صيادلة مؤهلين وقادر على تقديم الخدمات الصيدلانية المختلفة ويمتلكون المعارف المتخصصة والمهارات المعنوية والقيم الأخلاقية. بما يلبي احتياجات سوق العمل.</p> <p>2. Preparing competent pharmacists who are capable to provide various pharmacy services and are supplied with the standardized relevant knowledge, professional skills and ethical values to meet the needs of the labor market..</p> <p>3. تعزيز وتهيئة البيئة التعليمية اللازمة لدعم العملية التعليمية من خلال تطوير المناهج الدراسية الصيدلانية ورفع كفاءة الوضع التنافسي للكلية</p> <p>3.Enhancing and creating the necessary educational environment by Updating the academic pharmacy curricula and learning sources to support the educational process and raise the efficiency of the college's competitive position.</p> <p>4 . دعم عمليات تعزيز الجودة في النظام التعليمي بالكلية والارتقاء ببرامجها وفق معايير الاعتماد الأكاديمي.</p> <p>4.Supporting quality enhancement processes in the college's educational system and upgrading its programs in accordance with academic accreditation standards.</p> <p>5 . إجراء البحوث الصيدلانية وتطويرها بما يساهم في حل المشاكل الصحية في المجتمع.</p> <p>5. Conducting and developing Pharmacy research to solve health-related problems in the community.</p> <p>6. تعزيز دور الكلية في نقل المعرفة والمهارات الصيدلانية لخدمة المجتمع.</p> <p>6. Strengthening the college's role in transferring medical and health knowledge and skills to serve the community.</p> <p>7. المساهمة في تطوير الصناعة الدوائية في اليمن.</p> <p>7. Participating in advancing pharmaceutical industry in Yemen.</p> <p>8. تطوير قدرات البحث العلمي والابتكار في كافة المجالات الصيدلانية</p> <p>8. Developing the capabilities of scientific research and innovation in all pharmacy fields.</p>



## ANNEX- 2, ACADEMIC STANDARDS CURRICULUM CRITERIA OF ACCREDITATION BOARD

- 1- Regulations ( level 1) of the council for accreditation and quality assurance – Ministry of Higher education & scientific research, Yemen.
- 2- NARS, National academic reference standards for pharmacy, the council for accreditation and quality assurance – Ministry of Higher education & scientific research, Yemen, 2018.
- 3- AFPC Educational Outcomes for First Professional Degree Programs in Pharmacy in Canada, The Association of Faculties of Pharmacy of Canada's Board of Directors 2017
- 4- National Academic Reference Standards Pharmacy Education, National Authority for Quality Assurance and Accreditation of Education , Egypt, 2017





## ANNEX- 3, UNIFIED REGULATIONS FOR STUDENT AFFAIRS, MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

Attached separately

## ANNEX- 4, SURVEY OF SIMILAR ACCREDITED PROGRAMS AT NATIONAL AND INTERNATIONAL UNIVERSITIES (BENCHMARKS)

Program No.	The Academic Program	The University	Website	The Faculty	The Faculty	The Country	Degree Award at Program Completion	Year of Accreditation	Program Accrediting Body	Study Duration
Current Program	Bachelor of Pharmacy	Modern sciences university	<a href="http://www.ums-edu.com">www.ums-edu.com</a>	Medical sciences	Faculty of Pharmacy	Yemen	Bachelor	-	-	5 years
The 1st Program	Bachelor of Pharmacy	Jordanian University of science & technology	<a href="https://www.just.edu.jo/FacultiesandFacultys/FacultyofPharmacy/Documents/Bsc%202019%20Arabic.pdf">https://www.just.edu.jo/FacultiesandFacultys/FacultyofPharmacy/Documents/Bsc%202019%20Arabic.pdf</a> <a href="https://www.just.edu.jo/FacultiesandFacultys/FacultyofPharmacy/Pages/viewplan.aspx?plan-no=455">https://www.just.edu.jo/FacultiesandFacultys/FacultyofPharmacy/Pages/viewplan.aspx?plan-no=455</a>	Pharmacy	Pharmacy	Jordan	Bachelor	2011	Accreditation Council for Pharmacy Education (ACPE)	5 years
The 2nd Program	Bachelor of Pharmacy	Cairo university	<a href="https://www.pharma.cu.edu.eg/english/AcademicPrograms/UgPrograms/Regular/UgCourses.aspx">https://www.pharma.cu.edu.eg/english/AcademicPrograms/UgPrograms/Regular/UgCourses.aspx</a> <a href="https://www.pharma.cu.edu.eg/English/About-Faculty/MissionStatment.aspx">https://www.pharma.cu.edu.eg/English/About-Faculty/MissionStatment.aspx</a>	Pharmacy	Pharmacy	Egypt	Bachelor	2012	National authority of quality assurance and accreditation	5 years
The 3rd Program	Bachelor of Pharmacy	Zarqa University	<a href="https://zu.edu.jo/ar/Collage/Pharmacology/Dept_Pharmacology/files/plan9details.pdf">https://zu.edu.jo/ar/Collage/Pharmacology/Dept_Pharmacology/files/plan9details.pdf</a> <a href="https://zu.edu.jo/en/Collage/Pharmacology/VisionAndMission.aspx?id=26">https://zu.edu.jo/en/Collage/Pharmacology/VisionAndMission.aspx?id=26</a>	Pharmacy	Pharmacy	Jordan	Bachelor	2012	Accreditation & Quality Assurance Commission For Higher Education Institution (AQACHEI)	5 years
The 4th Program	Bachelor of Pharmacy	Jouf university	<a href="https://www.ju.edu.sa/fileadmin/College_of_Pharmacy/B.Pharm_Program_guide.pdf">https://www.ju.edu.sa/fileadmin/College_of_Pharmacy/B.Pharm_Program_guide.pdf</a> <a href="https://www.ju.edu.sa/en/colleges/health-college/college-of-pharmacy/home/">https://www.ju.edu.sa/en/colleges/health-college/college-of-pharmacy/home/</a>	Pharmacy	Pharmacy	Saudi Arabia	Bachelor		Ministry of Higher education, Saudi Arabia	5 years
The 5th Program	Bachelor of Pharmacy	Al-Ain University	<a href="https://pharmacy.aau.ac.ae/en/programs/bachelor-of-science-in-pharmacy">https://pharmacy.aau.ac.ae/en/programs/bachelor-of-science-in-pharmacy</a>	Pharmacy	Pharmacy	Emirates	Bachelor	2013-2014	ACPE (Accreditation Council of Pharmacy Education)	4.5 years
The 6th program	Bachelor of Pharmacy	Nitte	<a href="https://nitte.edu.in/ngsmips/img/pdf/BPharm-Regulation-&amp;Syllabus.pdf">https://nitte.edu.in/ngsmips/img/pdf/BPharm-Regulation-&amp;Syllabus.pdf</a>	Pharmacy	Pharmacy	India	Bachelor	2013	National Board of Accreditation (NBA)	4 years
The 7th program	Bachelor of Pharmacy	University of science & technology, Yemen	<a href="https://ust.edu/USTY/AR/COMPONENT/K2/ITEM/1895-2016-05-04-13-13-51">https://ust.edu/USTY/AR/COMPONENT/K2/ITEM/1895-2016-05-04-13-13-51</a>	Pharmacy	Pharmacy	Yemen	Bachelor	-	-	5 Years



## ANNEX- 5, SURVEY ON MISSION AND OBJECTIVES OF THE PROGRAM AND SIMILAR ACCREDITED PROGRAMS AND ITS ALIGNMENT TO THE UNIVERSITY, FACULTY, AND FACULTY MISSIONS AND OBJECTIVES

### 1-Survey on Vision, Mission and Objectives of the Program and Similar Accredited Programs

University	University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi Arabia	Al-Ain university, Emirates	Nitte University, India	University of UST, Yemen
Faculty	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Pharmacy	Medical Science
Program	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy	Bachelor of Pharmacy
Country	Yemen	Jordan	Egypt	Jordan	Saudi Arabia	Emirates	India	Yemen



a) Survey on Vision of the Program and Similar Accredited Programs

Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi arabia	Al-Ain university, Emirates	Nitte University, India	University of Modern Science, Yemen	University of Science & Technology
<p>Providing pharmacy students with fulfilling learning experiences, conducting knowledge-producing research, and building firm societal ties, within an environment conducive to creativity, making efficient use of resources and forging fruitful partnerships.</p> <p>Faculty vision Achieving excellence in Pharmaceutical education and Pharmaceutical care.</p>	<p>Vision of the program is not defined</p> <p><u>Faculty vision</u> The faculty of pharmacy -Cairo university maintains its national leadership and continues its distinction in the field of pharmacy</p>	<p>Vision of the program is not defined</p> <p>Faculty vision Excellence in pharmaceutical education, training and scientific research directed to develop pharmaceutical services dedicated to serving the patient and the community at the local, regional and international levels.</p>	<p>To be a frontier program in pharmacy education, scientific research and community service according to national and international standards</p>	<p>Preparing outstanding, highly competent and motivated pharmacists, nutritionists and healthcare providers to meet the contemporary health care needs of the society, improve delivery of essential health-care services, ensure human health through optimization of using effective, safe and economic drug therapy and nutrition care to enhance health-care activities, especially in areas of continued-education, services and researches. The college serves the students by offering an educational program based on best pharmacy and healthcare practices, professional practice experience and educational environment aligned with the needs of the society.</p>	<p>Vision of the program and faculty are not defined</p> <p>To build a humane society through excellence in education and healthcare</p>	<p>Excellence and leadership in pharmacy education and research</p>	<p>To prepare competent pharmacists capable of effective participation in different pharmacy domains locally, regionally, and internationally and life-long-self-learning through providing advanced services in pharmaceutical education, research, and training.</p>



**b) Survey on Mission of the Program and Similar Accredited Programs**

Current Program	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi Arabia	Al-Ain university, Emirates	Nitte University, India	University of UST, Yemen
The Faculty of Pharmacy at the University of Modern Sciences seeks to provide a distinguished educational environment and modern academic programs in conformity with academic standards to graduate pharmacists capable of practicing the profession in a manner that meets the needs of the labor market.	Mission of the program is not defined Faculty mission The preparation of competitive efficient pharmacists through a distinct academic environment, promising scientific research and productive community partnership.	Mission of the program is not defined Faculty mission We are committed to qualify graduates who adhere to values and Ethics of the pharmacy profession. Graduates are able to compete locally and internationally via academic and professional programs that meet the market need by using advanced teaching strategies.	Mission of the program is not defined College Mission Preparing pharmacists with distinguished competence by adopting the highest standards in pharmaceutical education and training and upgrading scientific and applied pharmaceutical research directed to serving the patient and society at the local, regional and international levels	Qualifying competent pharmacists supplied with knowledge and fundamental skills and ethics to practice various pharmacy fields and contribute scientific research and community services	The mission of the Bachelor of Science in Pharmacy (BSc. Pharm) program is to graduate outstanding, highly competent and motivated pharmacists with advanced knowledge and understanding of pharmacy practice; problem solving and transferable skills; ability to think independently to meet higher level expectations in the health care needs of the society, improve delivery of essential pharmacy services, ensure human health through optimization of using effective, safe and economic drug therapy and enhance pharmaceutical activities through pharmaceutical care and pharmaceutical industry, especially in areas of continued-education, services and research.	Mission of the faculty and program are not defined University mission To develop Nitte (Deemed to be University) As a centre of excellence imparting quality education, generating competent, skilled manpower to face the scientific and social challenges with a high degree of credibility, integrity, ethical standards and social concern	To prepare competent pharmacists capable of effective participation in different pharmacy domains locally, regionally, and internationally and life-long self-learning through providing advanced services in pharmaceutical education, research, and training.





c) Survey on Objectives of the Program and Similar Accredited Programs

University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi arabia	Al-Ain university , Emirates	Nitte University, India	University of UST, Yemen
<p>1. Preparing competent pharmacists who are capable to provide various pharmacy services and are supplied with the standardized relevant knowledge, professional skills and ethical values.</p> <p>2. Updating the academic pharmacy curricula and learning sources to match with the work market.</p> <p>3. Adapting the educational and research environment in the Faculty to match the fast progress in pharmacy education and research.</p> <p>4. Conducting and developing Pharmacy research to solve health-related problems in the community.</p> <p>5. Contributing effectively in community services and progress.</p> <p>6. Participating in advancing pharmaceutical industry in Yemen</p>	<p>1. Graduating students with significant pharmaceutical competence and professionalism</p> <p>2. Creativity in teaching, discovery and research</p> <p>3. Provide health and services to the community and contribute to raising awareness among the community and the health sector about the importance of the pharmacist's role in comprehensive health care.</p> <p>4. Enhance international cooperation and participation and involve stakeholders in Faculty of Pharmacy work</p> <p>5. Create an environment that leads to professional achievement and development for faculty and staff</p>	<p>The main aim of the undergraduate program is to foster pharmacists who can attain a successful career and provide skilled and ethical pharmaceutical care. This is achieved through developing a program with an appropriate mix of basic, pharmaceutical, medical, social, behavioral management, health and environmental sciences. The multi-disciplinary courses of our program prepare our pharmacy graduates to work in any of the various fields of pharmacy including community pharmacies, hospitals, pharmaceutical firms, pharmaceutical Industrial companies as well as, academic and research institutes.</p>	<p>Objectives of the program are not defined.</p> <p><u>Faculty Objectives</u></p> <p>In order to achieve the college's vision and mission, the college works to achieve the following goals:</p> <ul style="list-style-type: none"> <li>- Providing the local, regional and international market with pharmacists with scientific qualifications and high professional ethics. Develop pharmaceutical services and participate in health activities in a way that contributes to improving health care in Jordan.</li> <li>- Encouraging faculty members to conduct innovative scientific and applied pharmaceutical research, which contribute to the development of the pharmaceutical industry and community service at the local, regional and international levels?</li> <li>- Providing students with the skills that enable them to pursue their higher studies in the various fields of pharmacy.</li> <li>- Providing and developing continuing pharmacy education programs and expanding professional interaction with pharmacists.</li> <li>- Developing the pharmaceutical training process through continuous improvement and updating of curricula and study programs.</li> <li>- Preparing and training faculty members to carry out their educational and research tasks.</li> <li>- Developing the capabilities of the administrative staff and the college staff. Communicate with graduates and meet the needs of the local market with pharmaceutical services. Supporting the pharmaceutical delivery quality management system. Supporting extracurricular activities to build a distinct student personality.</li> </ul>	<p>1. offering educational and training doses using sophisticated techniques to graduate highly qualified pharmacists.</p> <p>2- educating students with fundamentals of continuous self-learning , professional ethics and teamwork</p> <p>3- Establishing research environment suitable to encourage and support research programs in accordance with strategic plans of the university and community needs.</p> <p>4- Preparing graduates with leadership skills to deliver healthcare services.</p>	<p>Provide students with a quality educational program which offers knowledge in pharmaceutical, bio-medical and clinical sciences. - Prepare pharmacists with pharmacy practice and pharmaceutical industry skills that ensure competence and superiority. - Prepare pharmacists with professional skills that optimize interaction with health care providers, patients and society. - Prepare pharmacists capable of understanding the most advanced technologies</p>	<p>To provide high quality pharmaceutical education at all levels, to produce efficient pharmacists with enterprising and creative skills.</p> <ul style="list-style-type: none"> <li>-To organize continuing educational programmes</li> <li>-To impart the concept of better patient health care</li> <li>-Should be capable of functioning independently in both rural and urban environment.</li> <li>-To develop effective interaction with fellow health care professionals in hospitals, community and industry of newer developments in Pharmacy.</li> <li>-To be a part of all national and international sponsored health education programs.</li> <li>-To educate the students in the management of disease prevention measures, community hygiene and better health.</li> <li>-To inculcate critical thinking, clarity of expression, independent thinking and scientific temperament.</li> </ul>	<p>Design, develop and supply safe and effective medicines to patients;- Develop a mastery of the knowledge base in the basic, pharmaceutical and clinical sciences essential to fulfill all the roles as health care providers; - Demonstrate skills in the professional, social, and behavioral aspects of pharmacy, including communication skills; - Illustrate the integration of knowledge and skills in the optimization of medication management and use for a wide range of people, including evidence-based decision making skills; - Acquire the skills and attitudes necessary for a commitment to independent learning, including skills to retrieve, critically appraise, disseminate, and apply new knowledge - Develop a thorough understanding of law and ethics relating to pharmacy practice</p>



**ANNEX- 6, ALIGNMENT OF PROGRAM INTENDED LEARNING OUTCOMES (PILOs) TO THE FACULTY OBJECTIVE**

Program PILOs	Faculty Objectives					
	DObj1	DObj2	DObj3	DObj4	DObj5	DObj6
A1	√					
A2	√					
A3	√					√
A4	√					
A5	√					
A6	√					
A7	√					
A8	√					
A9	√	√		√		
A10	√				√	√
A11	√					√
A12	√			√		
B1				√		
B2				√		
B3		√		√		
B4				√		√
B5				√		
B6				√		
B7				√		
B8				√		
B9				√		
C1			√			
C2			√			√
C3			√			√
C4			√			
C5			√			√
C6		√	√			
C7			√	√		
D1					√	
D2					√	
D3					√	
D4					√	√
D5					√	



**ANNEX- 7, ALIGNMENT OF PROGRAM INTENDED LEARNING OUTCOMES (PILOs) TO PROGRAM OBJECTIVES (POS)**

Program PILOs	Program Objectives					
	PObj1	PObj2	PObj3	PObj4	PObj5	PObj6
A1	√					
A2	√					
A3	√					√
A4	√					
A5	√					
A6	√					
A7	√					
A8	√					
A9	√	√		√		
A10	√				√	√
A11	√					√
A12	√			√		
B1				√		
B2				√		
B3		√		√		
B4				√		√
B5				√		
B6				√		
B7				√		
B8				√		
B9				√		



**ANNEX- 8, MAPPING OF PROGRAM INTENDED LEARNING OUTCOMES (PILOs) TO THE FACULTY OBJECTIVES (FOS):**

Program PILOs	Faculty Objectives				
	FObj1	FObj2	FObj3	FObj4	FObj5
A1	√				
A2	√				
A3	√				
A4	√				
A5	√				
A6	√				
A7	√				
A8	√				
A9	√	√		√	
A10	√				√
A11	√				
A12	√			√	
B1				√	
B2				√	
B3		√		√	
B4				√	
B5				√	
B6				√	
B7				√	
B8				√	
B9				√	
C1			√		
C2			√		
C3			√		
C4			√		
C5			√		
C6		√	√		
C7			√	√	
D1					√
D2					√
D3					√
D4					√
D5					√



**ANNEX- 9, ALIGNMENT OF PRGRAM INTENED LEARNING OUTCOMES (PILOs) TO THE FACULTY OBJECTIVES**

Program PILOs	Faculty Objectives					
	DObj1	DObj2	DObj3	DObj4	DObj5	DObj6
A1	√					
A2	√					
A3	√					√
A4	√					
A5	√					
A6	√					
A7	√					
A8	√					
A9	√	√		√		
A10	√				√	√
A11	√					√
A12	√			√		
B1				√		
B2				√		
B3		√		√		
B4				√		√
B5				√		
B6				√		
B7				√		
B8				√		
B9				√		

## Republic of Yemen

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جامعة العلوم الحديثة  
University of Modern Sciences



الجمهورية اليمنية  
وزارة التعليم العالي والبحث العلمي  
مجلس الاعتماد الأكاديمي وضمان الجودة  
جامعة العلوم الحديثة  
كلية الصيدلة

PILOs	Faculty Objectives					
	DObj1	DObj2	DObj3	DObj4	DObj5	DObj6
C1			√			
C2			√			√
C3			√			√
C4			√			
C5			√			√
C6		√	√			
C7			√	√		
D1					√	
D2					√	
D3					√	
D4					√	√
D5					√	



**ANNEX- 10, ALIGNMENT OF PROGRAM PILOs WITH COUNCIL OF ACCREDITATION AND OTHER STANDARDS**

**Accreditation Body: National Academic Reference Standards (NARS), Yemen, May 2018**

Program PILOs	NARS (Yemen), ILOs for Pharmacy Bachelor Programs, 2018	NARS- Egypt,2017		AFPC, Canada, 2017
A1, A2	The graduate attributes and learning outcomes of this program are the same as those of NARS (Yemen), ILOs for Pharmacy Bachelor Programs	1-1-1 Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.		X
A3,A5, A7, A10, A11		X		
A4, A6, A8, A12		2-2-3 Recognize the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals		
Program PILOs	NARS (Yemen), ILOs for Pharmacy Bachelor Programs, 2018	NARS- Egypt,2017	AFPC, Canada, 2017	
B1	The graduate attributes and learning outcomes of this program are the same as those of NARS (Yemen), ILOs for Pharmacy Bachelor Programs	1-1-6- Utilize scientific literature, and collect and interpret information to enhance professional decision.	CP2.1 Collect, interpret and assess relevant, necessary information about a patient's health-related care needs	
B2,B3, B5, B6, B7		X	X	
B4, B8, B9		2-5-2. Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.	SC2.1 Generate focused questions related to needs for information, recommendations and decisions in practice.	



Program PILOs	NARS (Yemen), ILOs for Pharmacy Bachelor Programs, 2018	NARS- Egypt, 2017		AFPC, Canada, 2017
C1, C2		2-3-1. Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field. 2-4-1 Ensure safe handling/use of poisons to avoid their harm to individuals and communities.		X
C3, C4	The graduate attributes and learning outcomes of this program are the same as those of NARS (Yemen), ILOs for Pharmacy Bachelor Programs	1-1-3 Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products. 2-2-2 Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.		X





Program PILOs	NARS (Yemen), ILOs for Pharmacy Bachelor Programs, 2018	NARS- Egypt,2017	AFPC, Canada, 2017
C5, C6, C7	The graduate attributes and learning outcomes of this program are the same as those of NARS (Yemen), ILOs for Pharmacy Bachelor Programs	3-2-2. Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices 3-2-5. Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices. 3-2-6. Maintain public awareness on social health hazards of drug misuse and abuse.	SC3.2 Apply ethical principles that underlie research and scholarly inquiry. PR 1.2 Use ethical frameworks as one component of professional judgment. PR 1.3. Recognize and respond to situations presenting ethical dilemmas, including conflicts of interest.
D1		4-2-1 Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities	CM1.1 Select and use oral, non-verbal and written communication strategies (tools, techniques, technologies) effectively so that the patient's best
D2		4-1. Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	SC1.1 Use knowledge and problem-solving to arrive at recommendations and decisions that are appropriate, accurate and practical. SC1.2 Use professional ,experience to solve routine previously encountered .problems
D3		4-1-1. Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	CM.2.4 In word and in action, convey the importance of teamwork in patient-centred care, patient safety, health care quality improvement and health program delivery. CL 1.2. Recognize, respect and negotiate the roles and shared/overlapping responsibilities of team .members
Program PILOs	NARS (Yemen), ILOs for Pharmacy Bachelor Programs, 2018	NARS- Egypt,2017	AFPC, Canada, 2017
D4, D5		2-1-2. Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity	CL 2.2. Recognize, respect and honour the negotiated shared and overlapping responsibilities of patients, pharmacy team members and other health team members when handovers occur. PR2.1 Take responsibility and accountability for actions and inactions.



**ANNEX- 11, SURVEY OF PILOS FOR SIMILAR ACCREDITED PROGRAMS AT NATIONAL AND INTERNATIONAL UNIVERSITIES**

University	University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi A Arabia	Al-Ain university, Emirates	Nitte University, India	UST, Yemen
Program Intended learning outcomes (PILOs)	Knowledge A1- A12	A. During their five years of study, the students receive theoretical and practical knowledge through taking courses offered by the three pharmacy Faculties in topics related to drug delivery, pharmaceuticals, and pharmacokinetics among others.	<p><b>Knowledge</b> The pharmacy graduate must demonstrate comprehensive knowledge and clear understanding of the core information associated with the profession as follows:</p> <p>II.1. Basic principles of physical, organic, inorganic and analytical chemistry.</p> <p>II.2. Basic principles of mathematics, computer sciences, and biophysics.</p> <p>II.3. Principles of pharmaceutical, medical, health and environmental sciences as well as pharmacy practice.</p> <p>II.4. Principles of social, behavioral and pharmacy management sciences.</p> <p>II.5. Types of active and inactive ingredients used in the preparation of pharmaceutical products as well as their physical and chemical properties.</p> <p>II.6. Principles of biotechnology and radio-labelled products.</p> <p>II.7. Different analytical procedures taking into account GLP guidelines and different validation procedures</p> <p>II.8. Principles of isolation, purification, identification and standardization methods of active substances and primary chemicals from natural and synthetic origin.</p> <p>II.9. Principles of synthesis and purification of active pharmaceutical ingredients</p> <p>II.10. Basics of stereoisomerism, drug-receptor interaction using various techniques.</p> <p>II.11. Pharmacodynamics of existing drugs to develop and synthesize new drugs.</p> <p>II.12. Fundamentals of clinical applications of targeted therapies</p> <p>II.13. Different types of pharmaceutical dosage forms.</p> <p>II.14. Properties and advantages of novel drug delivery systems</p> <p>II.15. Principles of equipment and techniques used in different stages of pharmaceutical industry including synthesis, and distribution of pharmaceutical compounds.</p> <p>II.16. Unit operation and unit processes; sampling, packaging, labelling and proper storage of pharmaceutical compounds from different origins.</p> <p>II.17. Basics of pharmacokinetics and biopharmaceutics principles.</p> <p>II.18. Therapeutic drug monitoring, dose adjustment and bioequivalence studies.</p> <p>II.19. Principles of hospital pharmacy including total parenteral nutrition and drug distribution system.</p> <p>II.20. Sources and control of microbial contaminations, sanitation, disinfection, and other public health issues.</p> <p>II.21. Principles of sterilization and microbiological quality control of pharmaceutical products.</p> <p>II.22. Principles of physiology and pathophysiology.</p> <p>II.23. Principles of genomics and molecular biology technique.</p> <p>II.24. Biochemical pathways and their correlation with various diseases.</p> <p>II.25. Etiology, signs and symptoms of different diseases.</p> <p>II.26. Interpretation of different laboratory diagnostic results.</p> <p>II.27. Mechanism of action, therapeutic use, dosage of different pharmacological drug classes as well as, from natural origin.</p> <p>II.28. Adverse drug reactions, interactions, contraindications and other properties of different pharmacological drug classes including drugs of natural sources.</p> <p>II.29. Basis of clinical pharmacology, and rational drug use.</p> <p>II.30. Principles of alternative and complementary therapy.</p> <p>II.31. Toxicological characteristics of xenobiotics including origin and identification.</p> <p>II.32. Toxicity symptoms and control measures.</p> <p>II.33. Principles of first aid measures.</p> <p>II.34. Basics of mathematics, biostatistical analysis and pharmaceutical calculations.</p> <p>II.35. Principles of accounting and pharmacoconomics.</p> <p>II.36. Principles of pharmaceutical business administration and management.</p> <p>II.37. Basis of drug sales, marketing and drug promotion.</p> <p>II.38. Basics of drug documentation and drug approval process.</p> <p>II.39. Pharmacy laws and ethics as well as governmental regulations.</p>	• Domain 1. Knowledge • 1.1. Learner (Learner): Develop, integrate, and apply knowledge from the foundational sciences to evaluate the scientific literature, explain drug action, understand formulations, and industrial technologies.	Not defined	Standard Knowledge (A) Demonstrate knowledge and ability to integrate and apply basic concepts and principles of biomedical science, pharmaceutical sciences, clinical sciences and social and behavioral sciences required for drug discovery, drug development, and pharmacy practice context, to promote population health and patient centered care.	Acquire an in-depth knowledge of formulation, storage and analysis of various pharmaceutical dosage forms including herbal medicines required for both large scale commercial production and research. - Acquire adequate knowledge about screening of drugs for several pharmacological activities and understand the mechanism of action of drugs.	-Display professional knowledge about pharmacy and pharmacy Practice. -Creative and critical thinking abilities in identifying and solving the specific drug manufacturing - related problems. -Apply of the essential and appropriate methods, procedures, and modern pharmacy resources in preparation, evaluation and storage of pharmaceutical products. -Employ the relevant way of analysis, preparation, and determination of quality of medicines. -Handle the chemical, biological, and pharmaceutical materials safely, -Prepare, dispense and store medications legally, ethically and according to guidelines. -Use of recent information technologies and research skills in professional development and lifelong learning. -Cooperation with other healthcare providers, in providing high quality pharmaceutical services. -Perform leadership, and necessary pharmacy administrative duties with teamwork, decision making, sales and marketing skills. Employ the planning, design and carrying out of pharmaceutical research investigations.



Current Program	University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi arabia	Al-Ain university, Emirates	Nitte University, India	UST, Yemen
Program Intended learning outcomes (PILOs)	Intellectual B1-B9	Not defined	<p>IV.3. Implement GLP, GMP, GSP, GCP and GPMP guidelines in pharmacy practice.</p> <p>IV.4. Select appropriate tools or analytical method for the assay and quality control of raw materials and pharmaceutical products.</p> <p>IV.5. Select appropriate biological method for the assay of different drug classes.</p> <p>IV.6. Predict and prevent physical, chemical and biological incompatibilities during dispensing process.</p> <p>IV.7. Select suitable methods for isolation, identification and standardization of active pharmaceutical substances.</p> <p>IV.8. Select suitable methods for synthesis, purification and identification of active pharmaceutical substances.</p> <p>IV.9. Apply mathematics, computer-aided facilities, biological databases and bio-informatics in drug design.</p> <p>IV.10. Apply molecular modelling techniques in drug design.</p> <p>IV.11. Utilize different tools to estimate the properties of biopharmaceutical natural pharmaceutical products.</p> <p>IV.12. Select different methods for infection control and improve public health.</p> <p>IV.13. Apply pharmacological and pharmacotherapeutic principles in the proper selection of drugs from different sources for the management of different diseases.</p> <p>IV.14. Adjust the dose of different medication based on patient condition and select appropriate dose regimen.</p> <p>IV.15. Identify adverse drug reactions, interactions and contra-indications of different pharmaceutical drug classes.</p> <p>IV.16. Apply the pharmacoeconomics principles in maintaining drug effectiveness with reducing the drug.</p> <p>IV.17. Interpret and report on results obtained from experimental studies.</p> <p>IV.18. Evaluate data from published literature using critical analysis.</p> <p>IV.19. Apply evidence-based guidelines, involving sciences, technology, psychology and professional principles required in pharmacy practice.</p>	<p>Domain 3</p> <p>3.1. Problem Solving (Problem Solver):</p> <p>Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.</p>	Not defined	<p>Standard 4: Self-development</p> <p>Describe, conduct, interpret and appraise pharmaceutical and clinical research, ethics, principles and methodologies.</p>	- Develop critical thinking, clarity of expression and scientific temperament.	



University	University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi arabia	Al-Ain university, Emirates	Nitte University, India	UST, Yemen
Program Intended learning outcomes (PILOs)	Practical & Professional  C1-C7	B. Students are given the chance of practical training in community pharmacies for 8 consecutive weeks during which they get an idea of the different generics of medications available in the market  C. The syndicate of pharmacy in Jordan requires students with bachelor of pharmacy to finish 1440 hours of training in community and outpatient pharmacies	III.1. Proper use of international union of pure and applied chemistry (IUPAC) nomenclature as well as pharmaceutical and medical terminology. III.2. Handle chemicals and natural products according to safety guidelines. III.3. Dispose hazardous solvents in laboratories using safety measures. III.4. Demonstrate skills in compounding and dispensing pharmaceutical preparations III.5. Apply adequate conditions for storing, handling and distribution of pharmaceutical preparations according to their nature and constitution as stated in the specified storage conditions. III.6. Extract and isolate active ingredients from different sources. III.7. Synthesize preliminary chemical substances and active constituents of different drug categories. III.8. Purify and identify the newly synthesized chemical compounds or drugs. III.9. Detect impurities in different pharmaceutical preparations and assess their limits. III.10. Estimate different active ingredients using various analytical tools and techniques. III.11. Select the appropriate medication therapy for a given disease based on its etiology, pathophysiology, severity, patient medical history, possible interactions and age-related factors. III.12. Evaluate the selected drug therapy based on the patient's progress and laboratory results. III.13. Perform the suitable laboratory tests to diagnose infectious and non-infectious diseases. III.14. Apply the appropriate techniques for qualitative and quantitative assessment of microbial growth. III.15. Assess the activity of different antimicrobial agents in controlling microbial growth. III.16. Investigate toxicity profiles of different xenobiotics III.17. Test for poisons in biological samples. III.18. Determine drug metabolites in biological samples. III.19. Operate and maintain laboratory and manufacturing equipments and instruments safely and efficiently. III.20. Maintain public awareness on social health hazards of drug abuse and misuse. III.21. Counsel the patients and other health care professions about the proper and safe use of medicines from different sources and possible interactions with other drugs or food. III.22. Educate patients about the appropriate health measures they should maintain during and after drug administration. III.23. Advise health care professionals about safety and efficacy of pharmaceutical products. III.24. Perform research studies based on scientific background and rationale approach with good interpretation and analysis of the obtained results. III.25. Demonstrate ability in preparing drug reports	2.1. Patient care (Caregiver): Provide patient care as the medication expert (collect and interpret evidence, prioritize, dispense, patient counseling, and document activities).  2.2. Medication use systems management (Manager): Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.  2.5. Dosage forms and dispensing (Formulator): Design formulations and compounding dosage forms with dispensing competencies.	Not defined	Standard 2: Skills  Recognize and use pharmacy operational systems, appropriate medication dispensing, medication storage, and inventory control, appropriate distribution of prescription and non-prescription products and patient's education and counselling.  Standard 2: Skill  Provide patient-centered care by collecting, reviewing and utilizing relevant patient socioeconomic and medical data; to assess, develop, modify and implement a care plan in collaboration with the patient and other healthcare providers.	-Be capable of functioning independently in both rural and urban environment with adequate knowledge and skill in the area of health care.  - Able to educate the community about disease prevention measures, community hygiene and better health.	



University	University of Modern Science, Yemen	Jordanian UST, Jordan	Cairo University, Egypt	Zarqa University, Jordan	Jouf university, Saudi arabia	Al-Ain university, Emirates	Nitte University, India	UST, Yemen
Program Intended learning outcomes (PILOs)	General & Transferable D1-D5	E. Communications skills are taught to students and enforced during their training in hospitals and community pharmacies F. Volunteering in providing free pharmaceutical services to local community is encouraged which motivates communication skills of students	V.1. Communicate clearly by verbal means. V.2. Write report on the interpreted results of his/her research projects. V.3. Search the literature from different sources including the library, internet ....etc. V.4. Evaluate the information obtained from different sources. V.5. Share and participate effectively in team work. V.6. Calculate and statistically analyze data. V.7. Demonstrate good information technology skills. V.8. Demonstrate self-learning skills. V.9. Be coherent with pharmaceutical ethical, legal and safety guidelines. V.10. Implement different skills required for sales, marketing and pharmacy administration. V.11. Work effectively in a creative way within pre-determined time frame. V.12. Develop different writing and presentation skills. V.13. Evaluate and make decision to deal with different problems.	3.4. Interprofessional collaboration (Collaborator): Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs. 3.5. Cultural sensitivity (Includer): Recognize social determinants of health to diminish disparities and inequities in access to quality care. 3.6. Communication (Communicator): Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization. 4.2. Leadership (Leader): Demonstrate responsibility for creating and achieving shared goals, regardless of position. 4.4. Professionalism (Professional): Exhibit behaviors and values that are consistent with the trust given by the profession by patients, other healthcare providers, and society.			- Understand the role of pharmacist in health care system and develop skill to interact with other professionals.  - Able to educate the community about disease prevention measures, community hygiene and better health.	



## ANNEX- 12, ALIGNMENT OF PROGRAM PILOS WITH COUNCIL OF ACCREDITATION AND NARS STANDARDS

Accreditation Body: National Academic Reference Standards (NARS), Yemen, Jun.2015

Program PILOs	NARS (Yemen), ILOs for Undergraduate Pharmacy Programs
A1	Show understanding of fundamentals of biomedical sciences, physics, mathematics and chemistry and organization of human body.
A2	Explain the fundamental of social and behavioral sciences.
A3	Explain physicochemical properties of materials and products.
A4	Describe analytical methods, principles, design and development techniques.
A5	Identify actions of medicines on human body.
A6	Explain the basis of complementary and alternative medicines.
A7	Identify types of poisons and mechanisms and actions of poisoning
A8	Describe Biopharmaceutics and pharmacokinetics of medicines.
A9	Define the basis of health policy, Pharmacoeconomics, pharmacoepidemiology , pharmaceutical marketing and administration.
A10	Describe the pharmacists role in different pharmacy practices.
A11	Identify the properties of dosage forms and novel drug delivery systems.
A12	Describe the methods of biostatistics and pharmaceutical calculations
B1	Collect interpret and assess information and data relevant to pharmacy practice.
B2	Classify drugs, approaches and other information relevant to pharmacy based on scientific classification system
B3	Design an evaluate different types of safe and effective drugs , pharmaceutical dosage forms and cosmetic preparations
B4	Select appropriate standard operation procedures to conduct qualitative and quantitative analysis.
B5	Plan a modern system for administration of foundations and merge ethics to business in drug marketing.
B6	Develop and design suitable methods for extraction of active medicinal agents from various sources.
B7	Formulate and evaluate patient care plan about rational drug use of medications.
B8	Use appropriate research methods including experimental, observational and electronic to collect data and solve problems.
B9	Apply mathematical equations to calculate data relevant to pharmacy practices.
C1	Handle safely the chemicals, biological samples and pharmaceutical ingredients and products.
C2	Operate different instruments and use emerge technologies for preformulation, formulation and analysis of materials according to standard guidelines.
C3	Screen for drugs from different sources and carry out pharmacy relevant experiments successfully.
C4	Advice patients and healthcare professionals to optimize medicines use.
C5	Employ the relevant ways to produce extemporaneous preparations including TPN and IV admixtures.
C6	Utilize appropriate manual and automated techniques in Laboratory investigations.
C7	Conduct research and utilize the results in different pharmaceutical fields.
D1	Interact and communicate effectively and behave in disciplines with colleagues, patients and healthcare professionals effectively in team-activities.
D2	Develop and demonstrate skills of time managements, self-learning and decision making.
D3	Participate collaboratively in team work with colleagues and healthcare professionals.
D4	Take the responsibility for adaption to change needs in pharmacy practice.
D5	Retrieve essential references of evidence-based to achieve maximal clinical effectiveness







**ANNEX- 13: Curriculum Map**

I = Introduced  
E = Extension  
A = Application

Year	Term	Course Name	Course Code	CH	Program Intended Learning Outcomes (PILOs)																																
					A. Knowledge and understanding												B. Intellectual Skills							C. Practical & Professional Skills							D. Transferrable Skills						
					A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	B1	B2	B3	B4	B5	B6	B7	B8	B9	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5
2	1	Pharmaceutics I	PHT 211	3			E						E				E					E	√										E				
		Pharmacy Public Health	FOP 212	2	I																			I										I		I	
		Physiology (1)	FOP 213	3	I													I						I										I			
		Pharmaceutical Organic Chemistry I(	PHC 214	3			E											E						E													E
		Pharmacognosy & Phyto-chemistry I	PHG215	4							E																	E							E		E
		Pharmaceutical Analytical Chemistry I	PHC 216	3					E										E						E									E			E
	2	Pharmaceutics II	PHT 221	3			E							E				E					E	√										E			
		Physiology II	FOP 222	2	I													I						I													
		Pharmaceutical Organic chemistry II	PHC 223	3			E											E						E													E
		Pharmacognosy & Phyto-chemistry II	PHG 224	4							E																	E							E		E
		Pharmaceutical Analytical Chemistry II	PHC 225	3					E										E						E									E			E
		Biochemistry & Molecular Biology	FOP 226	3	I													I						I										I		I	I







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## ANNEX- 14 CVs & NAMES FOR THE PREPARATION COMMITTEE

### Preparation Committee:

Dr. Ahmed Al-Sobati	Dr. Abdulkarim Al-Zomar	Dr. Jalal Al-Qadasi	Dr. Shawqi Al-Awadi	Prof. Abdulrahman Humaid	Dr. Anees Thabit
Associate Professor of Professor of Pharmaceutics	Associate Professor of Professor of Pharmaceutics	Associate Professor of Medicinal Chemistry	Associate Professor of Pharmacology	Professor of Microbiology	Committee Secretary

### Reviewed Committee:

Prof. Ali Al-Kaf Professor of Medicinal Chemistry
Dr. Ali Al-Ragawi Assistant Professor - Pharmacology

**CVs are attached Separately**