

Republic of Yemen

University of Science and Technology

Deanship of Development and Quality Assurance



الجمهورية اليمنية
جامعة العلوم والتكنولوجيا
عمادة التطوير وضمان الجودة

Faculty: pharmacy

Department: Clinical pharmacy and pharmacy practice

Program: Bachelor of PharmD

Bachelor of Doctor of Pharmacy Program Specification



Introduction:

The Faculty of Pharmacy, University of Science and Technology – Yemen, bachelor of doctor of Pharmacy program is a six year undergraduate program which primarily aims to provide an academically challenging and professionally relevant education and training in pharmacy, both theoretical and practical, so that the students acquire an up-to-date knowledge and understanding, and development of intellects to appreciate and apply acquired knowledge, skills and technology primarily for the benefit of their community and profession by providing an evidence-based advice to patients and the public on general health matters. Graduates will have a strong academic science fundamentals and will be competed pharmacists and prepared for their roles in improving health care. This program started in 1997 and was developed in 2016. In 2017, amendment was achieved based on the request of the Ministry of Higher Education.

Part 1: Program Identification and General Information:

1	Program Title	Bachelor of Doctor of Pharmacy degree
2	Program Type	Single Program () Joint Program () Multidisciplinary Program (√)
3	Number of years needed for completion of the program	Six Years
4	Total credit hours needed for completion of the program	205 credit hours
5	Award granted on completion of the program	Bachelor of Doctor of Pharmacy degree
6	Name of the university which provide the award	University of Science & Technology
7	Name of the faculty which own the program and provide the award	Faculty of Pharmacy
8	Department which own the program	NA
9	Name of the faculty which participates in teaching some of the program courses	Faculty of Medicine and Health Sciences, Faculty of Humanities and Social Sciences, Faculty of Administrative Sciences
10	Date of program development	2017
11	Program coordinator	Assoc. Prof . Gamil Althobhany
12	External Reviewer\ External Reviewers	Assoc. Prof. Noman Alnagar
13	Date of program approval from the university and the MoHE	1. Department Council: 2. Faculty Council: 3. Deans Council: 4. University Council:



University Vision, Mission and Goals:

University Vision:

To become one of the leading and distinguished universities regionally and intentionally

University Mission:

The University of Science and Technology strives to provide an excellent education service, enhancing student knowledge and skills that meet the requirements of the labor market, contributing to community development by providing training, advisory, and research services and the continuing education programs through competent administrative and academic staff, stimulating learning environment, and cutting-edge programs. The University shall expand local, regional, and international partnerships according to the comprehensive quality systems, transparency, and the professional ethics.

University Goals:

1. Enhance student knowledge and skills in various academic disciplines.
2. Contribute to support efforts of practical and scientific research in all different areas.
3. Link the learning outcomes with the requirements of the labor market to ensure the graduates are employable
4. Provide the necessary infrastructure to support the learning process and students' services and activities.
5. Provide opportunities of separate education for male and female students.
6. Expand the partnerships and develop the relationships with other peers and institutions of scientific research domestically, regionally, and internationally.
7. Enhance the role of the university in the community services by providing training and consulting programs in various aspects of development.

Faculty Vision, Mission and Goals:

Faculty Vision:

To be pioneers in pharmacy education and pharmaceutical research regionally and internationally.

Faculty Mission:

Faculty of Pharmacy at the University of Science and Technology(UST) strives to provide distinct educational services and furnish students with knowledge and skills in the pharmaceutical and research fields that cater the needs of the community and labor market and contribute to the community development. This is achieved through providing conducive learning and research environment, competent staff, and cutting-edge curriculum and laboratories while adhering to profession ethics and total quality standards.

Faculty Goals:

- To graduate distinct qualified and proficient pharmacists according to regional and international professional academic standards to meet the requirements of development and labor market.
- To promote scientific research in the pharmaceutical fields.
- To promote the role of the university in community service by providing training and



consulting programs in the pharmaceutical fields.

Program Vision, Mission and Goals

■ Program Mission

To prepare clinical pharmacist able to serve the community, provide patient centered care and participate effectively in other pharmacy areas through advanced education, clinical training and collaborative research.

■ Program Goals

The program goals are to:

1. Enhance student knowledge and skills in various academic disciplines.
2. Support efforts of practical and scientific research in all different areas.
3. Correlate the learning outcomes with the requirements of the labor market
4. Provide the necessary infrastructure to support the learning process and students' services and activities.
5. Provide opportunities for education in separate locations for male and female students.
6. Expand the partnerships and develop the relationships with other universities and institutions of scientific research domestically, regionally, and internationally.
7. Prepare graduates for high quality patient care and the ability to work with other health care professionals to meet patients' needs.

Program Standards:

This section introduces academic standards , benchmarks and other references which include labor market needs and academic staff . These references are as follows:

■ Academic Standards:

The academic standards offered by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) were adopted in the developed program.

The Canadian Council for Accreditation of Pharmacy Programs (CCAPP) – (Annex 1)

AFPC Educational Outcomes for Entry-to-Practice Pharmacy Programs – (Annex 2)

■ Benchmarks:

This program has been developed in accordance to five similar programs (regional and international) accredited by CCAPP and according to the following annexes:

(Annex 3) similar programs names and information.

(Annex 4) Survey of Intended Learning Outcomes for Similar Accredited Programs at International Universities

(Annex 5) Survey of credit hours for programs similar to the current program.

(Annex 6) Survey of courses for Similar Accredited Programs at International Universities

■ Academic Staff:

(Annex7) Academic Staff Names (Academic development committee) and other staff involved in PSD development process.



A. Knowledge and understanding		
Program Outcomes	Teaching & Learning Methods	Assessment Methods
<p><u>Biomedical Sciences:</u> A1. Define the fundamentals of the biomedical sciences including structure of the body, normal and abnormal body function, basis of genomes and different biochemical pathways and their relations with different diseases.</p>	<ul style="list-style-type: none"> • Lectures • Practical sessions • Case studies • Tutorials • Seminars • Assignments • Small group training. • Group work 	<ul style="list-style-type: none"> • Laboratory reports evaluation • Seminars evaluation • Problem-solving exercises evaluation • Objective structured practical examination (OSPE) • Written evaluation assignments evaluation • Written examinations. • Observation & notes.
<p><u>Pharmaceutical Sciences:</u> A2. List the sources, purification methods, physico-chemical properties, molecular structure and design of substances used in medicine, including biotechnology products. A3. Recall the properties of formulations additives, principles of medicines formulation and manufacturing techniques, and pharmaceutical analytical methods. A4. Identify the actions of medicines within living systems; pharmacokinetics and pharmacodynamics of drugs, therapeutic uses of medicines in humans, adverse reactions, interactions of medicines, and their significance in treatment. A5. Relate the etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.</p>		
<p><u>The behavioral, social, and administrative pharmacy sciences</u> A6. Review the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care, health care systems, health policy and economics, pharmacy law, and causes and prevention of medical errors.</p>		
<p><u>Clinical Sciences and Practice Skills</u> A7. State the pharmacist's role in health care; managing medicines: responding to symptoms, non-prescription drug use, compounding, dispensing, provision of medicine and patient information, documentation, reporting of adverse reactions of medicines, drug information, and drug abuse.</p>		
<p>A8. Describe the principles of pharmacy practice including pharmaceutical care and promoting patient's health.</p>		



B. Intellectual Skills

Program Outcomes	Teaching & Learning Methods	Assessment Methods
B1. Integrate the relevant knowledge and understanding required to meet the needs of patients and other health care professionals	<ul style="list-style-type: none"> critical analysis case studies problem solving clinical decision-making skills through group and individual tutorials, and in-course exercises and workplace feedback. seminars, use of advanced database searches, individual supervision, field training academic project support. 	<ul style="list-style-type: none"> Written and practical examinations Class tests Coursework including: presentations, problem-solving exercises, laboratory and project work, scientific log books and reports from practical sessions, assignments, seminars, and viva voce.
B2. Propose medicine doses, dosage regimens related to normal and abnormal clinical situations.		
B3. Interpret prescription, medication orders, pharmaceutical information, clinical data, including patient records held within practice settings.		
B4. Select the appropriate methods of isolation, synthesis, purification, identification, standardization, and formulation of active substances from different origins.		
B5. Propose appropriate strategies for infection control practice.		

C. Professional and Practical Skills

Program Outcomes	Teaching & Learning Methods	Assessment Methods
C1. Handle the chemical, biological, and pharmaceutical materials safely, taking into account their physical and chemical properties, including proper operation of pharmaceutical instruments.	<ul style="list-style-type: none"> Clinical and drug consulting skills are included in practical components case-based learning, community and hospital pharmacy training. Pharmaceutical industry competencies are embraced in course work Practical sessions and pharmaceutical industry training. Throughout, the learner is expected to consolidate their development of practical 	<ul style="list-style-type: none"> Formative and summative assessment in laboratory classes laboratory reports problem-solving exercises examinations; exercises preparing and displaying of posters preparing proposals Seminars Project.
C2. Execute the planning, design and carrying out of pharmaceutical research investigations, from the problem-recognition stage through to the evaluation and appraisal of results and findings.		
C3. Employ the relevant way of analysis, preparation, determination of quality, and presentation of medicines, by manufacture and extemporaneous dispensing.		
C4. Advise the patient and health care professionals on the safe and effective use of medicines as well as developing and		



<p>supporting therapeutic plans with continuous monitoring with the capability to refer patients to other health care professionals when required.</p> <p>C5. Implement class room training in hospital setting practice by providing interventions and recommendations about treatment strategies directly to preceptors during clinical training.</p> <p>C6. Construct therapeutic plans in different clinical setting</p> <p>C7. Apply current therapeutics guidelines to assure proper therapeutic decision and continue learning.</p>	<p>computer skills by use of computers available in computer labs.</p>	
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D. General Skills

Program Outcomes	Teaching & Learning Methods	Assessment Methods
<p>D1. Interact effectively with patients, the public and health care professionals; including both written and oral communications. Taking into account the ability to demonstrate sensitivity, respect, and empathy while communicating with diverse groups or individuals.</p>	<ul style="list-style-type: none"> Laboratory work and reports Exercises Oral presentations Projects Field training Critical reading Small group discussions, Seminars, posters, Tutors feedback, Simulation and role-playing. Computer skills are developed throughout the program. 	<ul style="list-style-type: none"> essays, abstracts, laboratory reports, posters, seminars, group reports, the project report and written examinations feedback in the laboratory and personal tutor groups summatively in individual and group reports, posters, presentations and the project
<p>D2. Retrieve information in relation to primary and secondary information sources, including information retrieval through online computer searches with the ability to analyze the published literature.</p>		
<p>D3. Adopt ethical, legal and safety guidelines while maintaining the code of practice.</p>		
<p>D4. Develop financial, teamwork, management, decision-making, time management, organization, sales and marketing skills</p>		



Mapping PILO's with the benchmarks

PILOs		Standards and Benchmarks
Knowledge & Understanding	A1	CCAPP, University Goal 1 , University Mission
	A2	CCAPP, University Goal 1 , University Mission
	A3	CCAPP, University Goal 1 , University Mission
	A4	CCAPP, University Goal 1 , University Mission
	A5	CCAPP, University Goal 1 , University Mission
	A6	CCAPP, University Goal 1 , University Mission
	A7	CCAPP, University Goal 1 , University Mission
	A8	CCAPP, University Goal 1 , University Mission
Intellectual Skills	B1	CCAPP, University Goal 1,2&7 , University Mission
	B2	CCAPP, University Goal 1,2&7 , University Mission
	B3	CCAPP, University Goal 1,2&7 , University Mission
	B4	CCAPP, University Goal 2&7 , University Mission
	B5	CCAPP, University Goal 2&7 , University Mission
Professional and Practical Skills	C1	CCAPP, University Goal 1,2&7 , University Mission
	C2	CCAPP, University Goal 1,2&7 , University Mission
	C3	CCAPP, University Goal 1,2&7 , University Mission
	C4	CCAPP, UG1, UM
	C5	CCAPP, University Goal 1,2&7 , University Mission
	C6	CCAPP, University Goal 1,2&7 , University Mission
	C7	CCAPP, University Goal 1,2&7 , University Mission
General Skills	D1	CCAPP, University Goal 1,2&7 , University Mission
	D2	CCAPP, University Goal 1,2&7 , University Mission
	D3	CCAPP, University Goal 1,2&7 , University Mission
	D4	CCAPP, University Goal 1,2&7 , University Mission



Intended Learning Outcomes Mapping:

To ensure a comprehensive balanced distribution of courses to cover all main themes, several comparisons were undertaken:

Annex (8): Main Themes/Sub-Themes with Relative weight for Program.

Annex (9): PILOs Distribution to General Themes for Program.

Annex (10): Course Titles and P- ILOs Distribution to General Themes for Program.

Annex (11): Matrix of mapping program P- ILO's with courses.

Annex (12): Study plan for the program.

Program Structure / Plan

Duration of the program: Six Years

Total credit hours: 205

Program delivery mode: semester based

Study Plan Framework

Requirements		Credit Hours
1. University Requirements		25
2. Faculty requirements `	Compulsory	40
3. Department requirements	Compulsory	72
4. Program requirements	Compulsory	68
Total of Credit Hours		205

1. University Requirements(25 credit hours)

Courses Of University Requirements

Course Title	Code/ NO.	Credit Hours			Total C.H.	Pre-Requisites
		Th.	Tut.	Pr.		
1 Skills of Holy Quran Recitation &Tajweed	BUST01	-	-	1	1	-
2 English Language 1	BUST02	-	-	4	4	-
3 Arabic Language	BUST03	2	-	2	4	-
4 Leadership Skills Development	BUST04	1	-	-	1	-
5 Islamic Culture	BUST05	4	-	-	4	-
6 English Language 2	BUST06	-	-	4	4	-
7 Communications Skills	BUST07	1	-	-	1	-



8	Critical Thinking	BUST08	1	-	-	1	-
9	Computer Skills	BUST09	-	-	3	3	-
10	Research Methodology	BUST10	2	-	-	2	-
Total of Credit Hours			11	-	14	25	

2. Faculty Requirements (40 credit hours)

Faculty Compulsory Courses

No.	Course Name	Code/ NO.	Credit Hours			Total C.H.	Pre- request	co-request
			L	T	P			
1	Biology 1	PHF110	2	-	1	3	-	-
2	Mathematics	PHF111	2	1	-	3	-	-
3	Biology 2	PHF121	2	-	1	3	-	-
4	Biochemistry 1	PHF212	2	-	1	3	-	-
5	Biochemistry 2	PHF222	2	-	1	3	PHF212	-
6	Physiology 1	PHF211	2	-	-	2	PHF110	-
7	Physiology 2	PHF221	2	-	1	3	PHF211	-
8	Anatomy	PHF213	2	-	1	3	-	-
9	Microbiology & Immunology	PHF314	2	-	1	3	PHF110	-
10	Pathology	PHF315	2	-	-	2	PHF221	-
11	Nutrition	PHF326	2	-	-	2	PHF222	-
12	Pharmaceutical Microbiology	PHF324	2	-	1	3	PHF314	-
13	Pathophysiology 1	PHF325	2	-	-	2	PHF315	-
14	Pathophysiology 2	PHF413	2	-	-	2	PHF325	-
15	Public Health	PHF416	1	-	-	1	-	-
16	Biostatistics	PHF511	2	-	-	2	BUST10	-
Total of Credit Hours			31	1	8	40		



3.1 Department Requirements (72 credit hours)

Program Compulsory Courses

No	Course Name	Code/ no.	Credit Hours			Total C.H.	Pre- request	co- request
			L	T	P			
1	General Chemistry 1	PHS112	2	-	1	3	-	-
2	General Chemistry 2	PHS120	2	-	1	3	PHS112	-
3	Organic Chemistry 1	PHS210	2	-	1	3	PHS120	-
4	Pharmacognosy 1	PHS214	2	-	1	3	PHF121	-
5	Professional Skills 1	PHS215	1	-	-	1	-	-
6	Organic Chemistry 2	PHS220	2	-	1	3	PHS210	-
7	Analytical Chemistry	PHS223	2	-	1	3	PHS120	-
8	Pharmacognosy 2	PHS224	1	-	1	2	PHS214	-
9	Physical Pharmacy	PHS225	2	-	1	3	PHS120	-
10	Professional Skills 2	PHS226	1	-	-	1	PHS215	-
11	Pharmacology 1	PHS310	2	-	-	2	PHF213, PHF221	PHF315
12	Pharmaceutical Technology 1	PHS311	2	-	1	3	PHS120	-
13	Pharmaceutical Chemistry 1	PHS312	2	-	-	2	PHS220	-
14	Phytochemistry 1	PHS313	2	-	-	2	PHS224	-
15	Instrumental Analysis	PHS316	2	-	1	3	PHS223	-
16	Professional Skills 3	PHS317	1	-	-	1	PHS226	-
17	Pharmacology 2	PHS320	3	-	-	3	PHS310	-
18	Pharmaceutical Technology 2	PHS321	2	-	1	3	PHS311	-
19	Pharmaceutical Chemistry 2	PHS322	2	-	-	2	PHS312	-
20	Phytochemistry 2	PHS323	2	-	1	3	PHS313	-
21	Professional Skills 4	PHS327	1	-	-	1	BUST07	-
22	Pharmacology 3	PHS410	2	-	1	3	PHS320	-
23	Pharmaceutical Chemistry 3	PHS412	2	-	1	3	PHS321	-
24	Bio pharmaceuticals	PHS415	2	-	-	2	PHS225	-
25	Pharmacology 4	PHS420	2	-	-	2	PHS410	-
26	Pharmacokinetics	PHS423	2	-	-	2	PHS415	-
27	Toxicology	PHS424	2	-	-	2	PHS410	-
28	Pharmacy Administration	PHS512	1	-	-	1	-	-
29	Pharmacy Law Ethics	PHS513	1	-	-	1	PHS327	-
30	Pharmaceutical Biotechnology	PHS514	2	-	-	2	PHF314	-



31	Pharmaceutical Marketing	PHS520	2	-	-	2	PHS513,PH S512	-
32	Complementary and Alternative Medicine	PHS521	1	-	-	1	PHS224	-
33	Pharmacoeconomics & Pharmacoepidemiology	PHS523	1	-	-	1	PHS410	-
Total of Credit Hours			58			14	72	

3.2 Specialist course (66 credit hours)

Program Compulsory Courses

No	Course Name	Code/ no.	Credit Hours			Total C.H.	Pre- request	co- request
			L	T	P			
1	Therapeutics- cardiovascular diseases	PHD411	2	-	-	2	PHF325	-
2	Integrated Case- Based Learning 1	PHD414	-	1	-	1	-	PHD411
3	Pharmacy practice 1	PHD417	1	-	-	1	PHS327	-
4	Therapeutics - Endocrine and renal diseases	PHD421	2	-	-	2	-	PHD422
5	Integrated Case- Based Learning 2	PHD422	-	1	-	1	PHD411	-
6	Clinical Nutrition	PHD425	2	-	-	2	PHF326	-
7	Therapeutics - Woman and man health	PHD426	2	-	-	2	-	PHD422
8	Pharmacy Practice 2	PHD427	1	-	-	1	PHD417	-
9	Integrated Case- Based Learning 3	PHD515	-	1	-	1	PHD422	-
10	Pharmacy Practice Training	PHD517	-	-	2	2	-	-
11	Therapeutics - Respiratory and GIT diseases	PHD518	2	-	-	2	-	PHD515
12	Therapeutics - Neurological and psychiatric disorders	PHD519	2	-	-	2	-	PHD515
13	Clinical Pharmacokinetics	PHD516	2	-	-	2	PHS423	-
14	Therapeutics - Infectious diseases	PHD522	2	-	-	2	-	PHD524
15	Integrated Case- Based Learning 4	PHD524	-	1	-	1	PHD515	-
16	Medication Therapy Management	PHD525	2	-	-	2	PHD411	-
17	Selected topics in clinical Toxicology	PHD526	2	-	-	2	PHS424	-
18	Therapeutics - Hematology and oncology diseases	PHD527	2	-	-	2	-	PHD524
Total of Credit Hours			24	4	2	30		



Program Compulsory Courses (Clinical Training)

No .	Course Name	Code/ no.	Clinical Training (Contact hrs.)	Total C.H.	Pre-Requisites	co-request
19	Clinical training: cardiovascular diseases	PHD611	160	4	PHD411	-
20	Clinical training: Oncology diseases	PHD612	160	4	PHD527	-
21	Clinical training: Ambulatory care	PHD613	160	4	PHD411, PHD421	-
22	Clinical training: Intensive care unit	PHD614	160	4	PHD411	-
23	Clinical training: Internal medicine I	PHD621	160	4	PHD522, PHD421	-
24	Clinical training: Internal medicine II	PHD622	160	4	PHD519, PHD421	-
25	Clinical training: Pediatrics	PHD623	160	4	PHD522	-
26	Clinical training: Hospital Pharmacy	PHD624	160	4	PHD517	-
27	Clinical training: Infectious diseases	PHD625	160	4	PHD522	-
Total of Credit Hours			1440	36		

3.3 Graduation Project (2 credit hours)

Program Compulsory Courses

Course Name	Code/ no.	Credit Hours			Total C.H.	Pre-Requisites
		Th.	Tut.	Pr.		
28	Pharmaceutical Researches	PHD626	-	-	2	BUST10
Total of Credit Hours			-	-	2	



Study Plan

First Year: First Semester

Course Name	Code/ no.	Contact Hours			Total C.H.	Pre-request	Co-request
		L	P	T			
1 Islamic Culture	BUST05	4	-	-	4	-□	-□
2 English Language 1	BUST02	-	8	-	4	-□	-□
3 Communication skills	BUST07	1	-	-	1	-□	-□
4 Biology 1	PHF110	2	2	-	3	-□	-□
5 Mathematics	PHF111	2	-	2	3	-□	-□
6 General Chemistry 1	PHS112	2	2	-	3	-□	-□
Total		11	12	2	18		

First Year: Second Semester

Course Name	Code/ no.	Contact Hours			Total C.H.	Pre-request	co- request
		L	P	T			
1 Skills of Holy Quran Recitation &Tajweed	BUST01	-	2	-	1	-	-□
2 Arabic Language	BUST03	2	4	-	4	-	-
3 English Language 2	BUST06	-	8	-	4	-	-□
4 Critical Thinking	BUST08	1	-	-	1	-	-□
5 Computer skills	BUST09	-	6	-	3	-	-□
6 General Chemistry 2	PHS120	2	2	-	3	PHS112	-□
7 Biology 2	PHF121	2	2	-	3	-	-□
Total		7	24	-	19		



Second Year: First Semester

Course Name	Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
		L	P	T			
1 Organic Chemistry 1	PHS210	2	2	-	3	PHS120	-
2 Physiology 1	PHF211	2	-	-	2	PHF110	-
3 Biochemistry 1	PHF212	2	2	-	3	-	-
4 Anatomy	PHF213	2	2	-	3	-	-
5 Pharmacognosy 1	PHS214	2	2	-	3	PHF121	-
7 Professional Skills 1	PHS215	1	-	-	1	-	-
8 Leadership Skills Development	BUST04	1	-	-	1	-	-
Total		12	8	-	16		

Second Year: Second Semester

Course Name	Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
		L	P	T			
1 Organic Chemistry 2	PHS220	2	2	-	3	PHS210	-□
2 Physiology 2	PHF221	2	2	-	3	PHF211	-□
3 Biochemistry 2	PHF222	2	2	-	3	PHF212	-□
4 Analytical Chemistry	PHS223	2	2	-	3	PHS120	-□
5 Pharmacognosy 2	PHS224	1	2	-	2	PHS214	-□
6 Physical Pharmacy	PHS225	2	2	-	3	PHS120	-□
7 Professional Skills 2	PHS226	1	-	-	1	PHS215	-□
Total		12	12	-	18		



Third Year: First Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
			L	P	T			
1	Pharmacology 1	PHS310	2	-	-	2	PHF213, PHF221	PHF315
2	Pharmaceutical Technology 1	PHS311	2	2	-	3	PHS120	-
3	Pharmaceutical Chemistry 1	PHS312	2	-	-	2	PHS220	-
4	Phytochemistry 1	PHS313	2	-	-	2	PHS224	-
5	Microbiology & Immunology	PHF314	2	2	-	3	PHF110	-
6	Pathology	PHF315	2	-	-	2	PHF221	-
7	Instrumental Analysis	PHS316	2	2	-	3	PHS223	-
8	Professional Skills 3	PHS317	1	-	-	1	PHS226	-
Total			15	6	-	18		

Third Year: Second Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
			L	P	T			
1	Pharmacology 2	PHS320	3	-	-	3	PHS310	-
2	Pharmaceutical Technology 2	PHS321	2	2	-	3	PHS311	-
3	Pharmaceutical Chemistry 2	PHS322	2	-	-	2	PHS312	-
4	Phytochemistry 2	PHS323	2	2	-	3	PHS313	-
5	Pharmaceutical Microbiology	PHF324	2	2	-	3	PHF314	-
6	Pathophysiology 1	PHF325	2	-	-	2	PHF315	-
7	Nutrition	PHF326	2	-	-	2	PHF222	-
8	Professional Skills 4	PHS327	1	-	-	1	BUST07	-
Total			16	6	-	19		



Fourth Year: First Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre- request	co-request
			L	P	T			
1	Pharmacology 3	PHS410	2	2	-	3	PHS320	-
2	Therapeutics -cardiovascular diseases	PHD411	2	-	-	2	PHF325	-
3	Pharmaceutical Chemistry 3	PHS412	2	2	-	3	PHS322	-
4	Pathophysiology 2	PHF413	2	-	-	2	PHF325	-
5	Integrated Case- Based Learning 1	PHD414	-	-	2	1	-	PHD411
6	Bio pharmaceuticals	PHS415	2	-	-	2	PHS225	-
7	Public Health	PHF416	1	-	-	1	-	-
8	Pharmacy practice 1	PHD417	1	-	-	1	PHS327	-
Total			12	4	2	15		

Fourth Year: Second Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre- request	co-request
			L	P	T			
1	Pharmacology 4	PHS420	2	-	-	2	PHS410	-
2	Therapeutics - Endocrine and Renal diseases	PHD421	2	-	-	2	-	PHD422
3	Integrated Case- Based Learning 2	PHD422	-	-	2	1	PHD411	-
4	Pharmacokinetics	PHS423	2	-	-	2	PHS415	-
5	Toxicology	PHS424	2	-	-	2	PHS410	-
6	Clinical Nutrition	PHD425	2	-	-	2	PHF326	-
7	Therapeutics - Woman and man health	PHD426	2	-	-	2	-	PHD422
8	Pharmacy Practice 2	PHD427	1	-	-	1	PHD417	-
9	Research Methodology	BUST10	2	-	-	2	-	-
Total			15	-	2	16		



Fifth Year: First Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
			L	P	T			
1	Biostatistics	PHF511	2	-	-	2	BUST10	-
2	Pharmacy Administration	PHS512	1	-	-	1	-	-
3	Pharmacy Law Ethics	PHS513	1	-	-	1	PHS327	-
4	Pharmaceutical Biotechnology	PHS514	2	-	-	2	PHF314	-
5	Integrated Case- Based Learning 3	PHD515	-	-	2	1	PHD422	-
6	Clinical Pharmacokinetics	PHD516	2	-	-	2	PHS423	-
7	Pharmacy Practice Training	PHD517	-	4 (200)	-	2	-	-
8	Therapeutics - Respiratory and GIT diseases	PHD518	2	-	-	2	-	PHD515
9	Therapeutics - Neurological and psychiatric disorders	PHD519	2	-	-	2	-	PHD515
Total			12	4	2	15		

Fifth Year: Second Semester								
Course Name		Code/ no.	Contact Hours			Total C.H.	Pre-request	co-request
			L	P	T			
1	Pharmaceutical Marketing	PHS520	2	-	-	2	PHS513, PHS512	-
2	Complementary and Alternative Medicine	PHS521	1	-	-	1	PHS224	-
3	Therapeutics - Infectious diseases	PHD522	2	-	-	2	-	PHD524
4	Pharmacoeconomics & Pharmacoepidemiology	PHS523	1	-	-	1	PHS410	-
5	Integrated Case- Based Learning 4	PHD524	-	-	2	1	PHD515	-
6	Medication Therapy Management	PHD525	2	-	-	2	PHD411	-
7	Selected topics in clinical Toxicology	PHD526	2	-	-	2	PHS424	-
8	Therapeutics - Hematology and oncology diseases	PHD527	2	-	-	2	-	PHD524
Total			12	-	2	13		



Sixth Year: First Semester						
Course Name	Code/ no.	Clinical training	Total C.H.	Pre-request	co-request	
		Duration/ Contact Hours				
1	Clinical training: cardiovascular diseases	PHD611	4 Weeks/ 40 Hours	4	PHD411	-
2	Clinical training: Oncology diseases	PHD612		4	PHD527	-
3	Clinical training: Ambulatory care	PHD613		4	PHD411, PHD421	-
4	Clinical training: Intensive care unit	PHD614		4	PHD411	-
Total			640	20		

Sixth Year: Second Semester						
Course Name	Code/ no.	Clinical training	Total C.H.	Pre-request	co-request	
		Duration/ Contact Hours				
1	Clinical training: Internal medicine I	PHD621	4 Weeks/ 40 Hours	4	PHD522, PHD421	-
2	Clinical training: internal medicine II	PHD622		4	PHD519, PHD421	-
3	Clinical training: Pediatrics	PHD623		4	PHD522	-
4	Clinical training: Hospital Pharmacy	PHD624		4	PHD517	-
5	Clinical training :Infectious diseases	PHD625		2	PHD522	-
6	Pharmaceutical Researches	PHD626	4	2	BUST10	-
Total			804	18		



Total Credit Hours Distribution:							
Level	Semester	University requirements	Faculty requirements	department requirements	Program requirements		Total C.H
					Lecture	Practical training	
First	S1	9	6	3		-	18
	S2	13	3	3		-	19
Second	S1	1	8	7		-	16
	S2	-	6	12		-	18
Third	S1	-	5	13		-	18
	S2	-	7	12		-	19
Fourth	S1	-	3	8	4		15
	S2	2	-	6	8		16
Fifth	S1	-	2	4	7	2	15
	S2	-	-	4	9		13
Sixth	S1	-	-	-		16	16
	S2	-	-	-		22	22
Total of Credit Hours		25	40	72	28	40	205
%		12.2%	19.5%	35.2%	13.6%	19.5%	100%



Admission Requirements for the Program:

- Secondary School Certificate (Scientific Track) or an equivalent certificate from Yemen or other countries with not less than the minimum score determined by the Ministry of Higher Education.
- Fulfilling the university and the Ministry of Higher Education requirements.

Teaching and Learning resources for the program:

- Lectures and seminars are conducted in modern audio-visually equipped lecture classrooms.
- Practical sessions are conducted in newly refurbished laboratories equipped with a range of pharmaceutical and analytical instruments.
- Teaching and organizational materials are communicated via hard copies and an electronic learning environment.
- Computer labs are equipped with adequate number of computers to accommodate students' needs.
- Hard copy and soft copy references are available in the library.
- Access to journals and several scientific databases is provided via UST library website.

The Total number of students who are expected to get admission to the program:

- 120 students are expected to be enrolled per year in this program.

The Total number of teaching staff who are going to teach the program courses:

- 4 Professors
- 4 Associate Professors
- 6 Assistant Professors
- 6 Lecturers
- 5 Teaching Assistants

The Total number of Technicians:

- Nine technicians are responsible for providing support during the teaching of this program courses.

Facilities

Classrooms, laboratories, computer labs, and library.

Graduation & Upgrading Requirements

- a. Degree Classifications:
- Marks from the second year to the fifth year are weighted so that determines the overall marks of the degree.
 - The final overall marks in classes determine the degree classification as follows:

Excellent	90% or more
Very Good	At least 80% and less than 90%
Good	At least 65% and less than 80%
Fair	At least 50% and less than 65%
Fail	Less than 50%

- b. For the students to be transferred from one academic year to the next, he/she is required to have successfully passed in all subjects in the final or in the complementary exams in October of the same year.



- c. However, the student may still be transferred if he has failed in not more than two basic subjects and any number of complementary ones from the same academic year or from previous years. In such cases, students "carrying" subjects from one year to the next should re-sit for their "failed" subjects in their proper respective semesters.
- d. Final year students who have failed in October exam also has to re-sit for his exams in those subjects in their proper respective semesters thereafter as many times as necessary until he/she passes that subject.
- e. By university laws, every student has only two opportunities for every level to succeed, on the student exhausts the number of opportunities, he/she will be excluded from the department and can change to another major.

Program Assessment:

Type of the Sample who Assess the program	Instruments used	Sample
1- Final Year students	Surveys, both closed and open ended questions	10
2- Graduates from the program	Surveys, both closed and open ended questions	10
3- Employer	Surveys, both closed and open ended questions	10
4- Quality assurance Unit	Internal evaluation carried annually	All items
5- External evaluators	A copy of the program will be sent to external evaluators who are recognized as experts in pharmacy education	3
6- External examiner	NA	NA

A workshop was carried out to match stakeholders expected competencies with NAPRA competencies (Annex 14)

Internal and external training to satisfy program standards:

Continuous training seminars and workshops are offered for faculty members involved in the curriculum development. This include internal (teaching and learning center, and quality assurance department within university) and external (key speakers and specialists in the area) training in the subject.