

Republic of Yemen

University of Science & Technology

Faculty of Pharmacy



الجمهورية اليمنية
جامعة العلوم والتكنولوجيا
كلية الصيدلة

Bachelor of Doctor in Pharmacy Program Specification 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	202 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	
11	Program coordinator	Associ. Pro . Gamil Althobhany
12	External Reviewer\ External Reviewers	Associ. Pro. 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.

FacultyGoals:

- 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 Vision

Educational leadership and distinction in clinical pharmacy and pharmacy practice

■ 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 four 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 style="text-align: center;"><u>Biomedical Sciences:</u></p> <p>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. <p>Observation & notes.</p>		
<p style="text-align: center;"><u>Pharmaceutical Sciences:</u></p> <p>A2. List the sources, purification methods, physico-chemical properties, molecular structure and design of substances used in medicine, including biotechnology products.</p> <p>A3. Recall the properties of formulations additives, principles of medicines formulation and manufacturing techniques, and pharmaceutical analytical methods.</p> <p>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.</p> <p>A5. Relate the etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.</p>				
<p style="text-align: center;"><u>The behavioral, social, and administrative pharmacy sciences</u></p> <p>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 style="text-align: center;"><u>Clinical Sciences and Practice Skills</u></p> <p>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
<p>B1. Integrate the relevant knowledge and</p>	<ul style="list-style-type: none"> critical analysis 	<ul style="list-style-type: none"> Written and practical

understanding required to meet the needs of patients and other health care professionals	<ul style="list-style-type: none"> • 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.	examinations <ul style="list-style-type: none"> • 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. <p>Throughout, the learner is expected to consolidate their development of practical computer skills by use of</p>	<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 supporting therapeutic plans with continuous monitoring with the capability to refer patients to other health care professionals when required.		

	computers available in computer labs.	
C5. Implement class room training in hospital setting practice by providing interventions and recommendations about treatment strategies directly to preceptors during clinical training.		
C6. Construct therapeutic plans in different clinical setting.		
C7. Apply current therapeutics guidelines to assure proper therapeutic decision and continue learning.		

Program Outcomes, Teaching & Learning Methods, and Assessment Methods		
Program Outcomes	Teaching & Learning Methods	Assessment Methods
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.	<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
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.		
D3. Adopt ethical, legal and safety guidelines while maintaining the code of practice.		
D4. Develop financial, teamwork, management, decision-making, time management, organization, sales and marketing skills		

Mapping PILO's with the benchmarks		
	PILOs	Standards and Benchmarks
Knowledge & Understanding	A1	CCAPP, UG*1, UM**
	A2	CCAPP, UG1, UM

	A3	CCAPP, UG1, UM
	A4	CCAPP, UG1, UM
	A5	CCAPP, UG1, UM
	A6	CCAPP, UG1, UM
	A7	CCAPP, UG1, UM
	A8	CCAPP, UG1, UM
Intellectual Skills	B1	CCAPP, UG1, UG2, UG7, UM
	B2	CCAPP, UG1, UG2, UG7, UM
	B3	CCAPP, UG1, UG2, UG7, UM
	B4	CCAPP, UG2, UG7, UM
	B5	CCAPP, UG2, UG7, UM
Professional and Practical Skills	C1	CCAPP, UG1, UG2, UG7, UM
	C2	CCAPP, UG1, UG2, UG7, UM
	C3	CCAPP, UG1, UG2, UG7, UM
	C4	CCAPP, UG1, UM
	C5	CCAPP, UG1, UG2, UG7, UM
	C6	CCAPP, UG1, UG2, UG7, UM
	C7	CCAPP, UG1, UG2, UG7, UM
General Skills	D1	CCAPP, UG1, UG2, UG7, UM
	D2	CCAPP, UG1, UG2, UG7, UM
	D3	CCAPP, UG1, UG2, UG7, UM
	D4	CCAPP, UG1, UG2, UG7, UM

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: 202

Program delivery mode: In person (on campus)

Study Plan Framework

Requirements		Credit Hours
1. University Requirements		25
2. Faculty requirements	Compulsory	40
3. Program requirements	Compulsory	137
Total of Credit Hours		202

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 I	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 II	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	BPH56/Co-Req
Total of Credit Hours			11	-	14	25	

2. Faculty Requirements(40 credit hours)

Faculty Compulsory Courses

Course Title	Code/ NO.	Credit Hours			Total C.H.	Pre-Requisites	
		Th.	Tut.	Pr.			
1	General Chemistry I	BPH01	2	-	1	3	-
2	General Chemistry II	BPH02	2	-	1	3	BPH01
3	Biology I	BPH03	2	-	1	3	-
4	Biology II	BPH04	2	-	1	3	-
5	Mathematics	BPH05	2	1	-	3	-
6	Organic Chemistry I	BPH06	2	-	1	3	BPH02
7	Organic Chemistry II	BPH07	2	-	1	3	BPH06
8	Physiology I	BPH08	2	-	-	2	BPH03
9	Physiology II	BPH09	2	-	1	3	BPH08
10	Biochemistry I	BPH10	2	-	1	3	-
11	Biochemistry II	BPH11	2	-	1	3	BPH10
12	Anatomy	BPH12	2	-	1	3	-
13	Microbiology and Immunology	BPH35	2	-	1	3	BPH03
14	Pathology	BPH36	2	-	-	2	BPH09
Total of Credit Hours			28	1	11	40	

3.1 Program Requirements(74 credit hours)

Program Compulsory Courses

Course Title	Code/ NO.	Credit Hours			Total C.H.	Pre-Requisites
		Th.	Tut.	Pr.		
1 Pharmacognosy I	BPH13	2	-	1	3	BPH04
2 Pharmacognosy II	BPH14	1	-	1	2	BPH13
3 Analytical Chemistry	BPH15	2	-	1	3	BPH02
4 Physical Pharmacy	BPH16	2	-	1	3	BPH02
5 Pharmacology I	BPH24	2	-	-	2	BPH12,BPH09,BPH36/Co-Req
6 Pharmacology II	BPH25	3	-	-	3	BPH24
7 Pharmacology III	BPH26	2	-	1	3	BPH25
8 Pharmacology IV	BPH44	2			2	BPH26
9 Pharmaceutical Technology I	BPH27	2	-	1	3	BPH16
10 Pharmaceutical Technology II	BPH28	2	-	1	3	BPH27
11 Pharmaceutical Chemistry I	BPH30	2	-	-	2	BPH07
12 Pharmaceutical Chemistry II	BPH31	2	-	-	2	BPH30
13 Pharmaceutical Chemistry III	BPH32	2	-	1	3	BPH31
14 Phytochemistry I	BPH33	2	-	-	2	BPH14
15 Phytochemistry II	BPH34	2	-	1	3	BPH33
16 Instrumental Analysis	BPH37	2	-	1	3	BPH15
17 Pharmaceutical Microbiology	BPH38	2	-	1	3	BPH35
18 Pathophysiology I	BPH39	2	-	-	2	BPH36
19 Pathophysiology II	BPH40	2	-	-	2	BPH39
20 Nutrition	BPH41	2	-	-	2	BPH11
21 Biopharmaceutics	BPH50	2	-	-	2	BPH16
22 Biostatistics	BPH56	2	-	-	2	UST10/Co-Req
23 Pharmacokinetics	BPH57	2	-	-	2	BPH50
24 Toxicology	BPH58	2	-	-	2	BPH26
25 Pharmacoepidemiology and Pharmacoeconomics	BPH59	1	-	-	1	BPH26
26 Public Health	BPH60	1	-	-	1	-
27 Pharmacy Management	BPH61	1	-	-	1	BPH22
28 Clinical Pharmacokinetics	BPH62	2	-	-	2	BPH57
29 Pharmacy Law & Ethics	BPH63	1	-	-	1	BPH20
30 Pharmaceutical Biotechnology	BPH65	2	-	-	2	BPH35

31	Pharmaceutical Marketing	BPH66	2	-	-	2	BPH61, BPH63
32	Complementary and Alternative Medicine	BPH67	1	-	-	1	BPH14
33	Professional Skills I	BPH17	1	-	-	1	-
34	Professional Skills II	BPH18	1	-	-	1	BPH17
35	Professional Skills III	BPH19	1	-	-	1	BPH18
36	Professional Skills IV	BPH20	1	-	-	1	BUST07
Total of Credit Hours			64		11	75	

3.2 Specialist course (63 credit hours)

Program Compulsory Courses

Course Title	Code/ NO.	Credit Hours			Total C.H.	Pre-Requisites
		Th.	Tut.	Pr.		
1 Therapeutic- Cardiology	BDPH01	2	-	-	2	BPH25, BPH39
2 Therapeutic- Endocrine system and renal system	BDPH02	2	-	-	2	BPH26, BPH39, BPH40
3 Therapeutic- Women and man health	BDPH03	1			1	BPH26, BPH39, BPH40
4 Therapeutic- Neurological and psychiatric	BDPH04	2	-	-	2	BPH43
5 Therapeutic- Respiratory and GIT	BDPH05	1			1	BPH26, BPH39, BPH40
6 Therapeutic- Infectious disease	BDPH06	2	-	-	2	BPH26, BPH39, BPH40
7 Therapeutic- Hematology and oncology	BDPH07	1			1	BPH26, BPH39, BPH40
8 Integrated Case- Based Learning I	BDPH08	-	1	-	1	BDPH01/Co-Req
9 Integrated Case- Based Learning II	BDPH09	-	1	-	1	BDPH02, BDPH03/Co-Req
10 Integrated Case- Based Learning III	BDPH 10	-	1	-	1	BDPH04, BDPH05/Co-Req
11 Integrated Case- Based Learning IV	BDPH 11	-	1	-	1	BDPH06, BDPH07/Co-Req
12 Pharmacy practice I	BDPH12	1	-	-	1	BPH20
13 Pharmacy Practice II	BDPH13	1	-	-	1	BPH21
14 Clinical Nutrition	BDPH14	1	-	-	1	BPH41

15	Medication Therapy Management	BDPH15	2			2	BDPH08
16	Selected topics in clinical Toxicology	BDPH16	2	-	-	2	BPH58
17	Pharmacy Practice Training	BDPH17		2	-	2	BDPH12, BDPH13
18	Cardiology rotation	BDPH18	-	4	-	4	BDPH01
19	Oncology rotation	BDPH19	-	4	-	4	BDPH07
20	Ambulatory care rotation	BDPH20	-	4	-	4	BDPH01, BDPH02, BDPH03, BDPH05
21	Intensive care unit	BDPH21	-	4	-	4	BDPH01, BDPH02, BDPH04, BDPH05, BDPH06
22	Internal medicine I	BDPH22		4	-	4	BDPH01, BDPH02 BDPH05, BDPH06
23	Internal medicine II	BDPH23		4	-	4	BDPH02, BDPH03, BDPH04, BDPH05
24	Pediatrics rotation	BDPH24		4	-	4	BDPH05, BDPH06, BDPH07
25	Hospital Pharmacy	BDPH25		4	-	4	BDPH13, BDPH17
26	Infectious disease	BDPH26		4	-	4	BDPH06
Total of Credit Hours			18	42	-	60	

3.3 Graduation Project (2 credit hours)

Program Compulsory Courses

COURSE TITLE	Code/ NO.	Credit Hours			Total C.H.	Pre-Requisites	
		Th.	Tut.	Pr.			
1	Pharmaceutical Research Rotation	BDPH30	-	-	2	2	BPH56, BUST10
Total of Credit Hours			-	-	2	2	

Study Plan

First Year : First Semester

Courses Titles	Code / No	Credit Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Islamic Culture	BUST01	4	-	-	4	-
2	English Language I	BUST04	-	4	-	4	-
3	Communication skills	BUST07	1	-	-	1	-
4	Biology I	BPH03	2	1	-	3	-
5	Mathematics	BPH05	2	-	1	3	-
6	General Chemistry I	BPH01	2	1	-	3	-
Total of Credit Hours			11	6	1	18	

First Year : Second Semester

Courses Titles	Code / No	Credit Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Arabic Language	BUST02	2	2	-	4	-
2	Computer skills	BUST06	-	3	-	3	-
3	English Language II	BUST05	-	4	-	4	-
4	General Chemistry II	BPH02	2	1	-	3	BPH01
5	Skills of Quraan Recitation and Tajweed	BUST03	-	1	-	1	-
6	Biology II	BPH04	2	1	-	3	-
7	Critical Thinking	BUST08	1	-	-	1	-
Total of Credit Hours			7	12	0	19	

Second Year : First Semester

Courses Titles	Code / No	Credit Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Organic Chemistry I	BPH06	2	1	-	3	BPH02
2	Physiology I	BPH08	2	-	-	2	BPH03
3	Biochemistry I	BPH10	2	1	-	3	-
4	Anatomy	BPH12	2	1	-	3	-
5	Pharmacognosy I	BPH13	2	1	-	3	BPH04
6	Leadership Skills Development	BUST09	1	-	-	1	-
7	Professional Skills I	BPH17	1	-	-	1	-
Total of Credit Hours			12	4	-	16	

Second Year : Second Semester							
Courses Titles		Code / No	Credit Hours			Credit Hours	Pre-Requisites
			Lecture	Practical	Tutorial		
1	Organic Chemistry II	BPH07	2	1	-	3	BPH06
2	Physiology II	BPH09	2	1	-	3	BPH08
3	Biochemistry II	BPH11	2	1	-	3	BPH10
4	Analytical Chemistry	BPH15	2	1	-	3	BPH02
5	Pharmacognosy II	BPH14	1	1	-	2	BPH13
6	Physical Pharmacy	BPH16	2	1	-	3	BPH02
7	Professional Skills II	BPH18	1	-	-	1	BPH17
Total of Credit Hours			12	6	-	18	

Third Year : First Semester							
Courses Titles		Code / No	Credit Hours			Credit Hours	Pre-Requisites
			Lecture	Practical	Tutorial		
1	Pharmacology I	BPH24	2	-	-	2	BPH12,BPH09,BPH36/Co-Req
2	Pharmaceutical Technology 1	BPH27	2	1	-	3	BPH16
3	Pharmaceutical Chemistry I	BPH30	2	-	-	2	BPH07
4	Phytochemistry I	BPH33	2	-	-	2	BPH14
5	Microbiology and Immunology	BPH35	2	1	-	3	BPH03
6	Pathology	BPH36	2	-	-	2	BPH09
7	Instrumental Analysis	BPH37	2	1	-	3	BPH15
8	Professional Skills III	BPH19	1	-	-	1	BPH18
Total of Credit Hours			15	3	-	18	

Third Year : Second Semester

Courses Titles	Code / No	Credit Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Pharmacology II	BPH25	3	-	-	3	BPH24
2	Pharmaceutical Technology II	BPH28	2	1	-	3	BPH27
3	Pharmaceutical Chemistry II	BPH31	2	-	-	2	BPH30
4	Phytochemistry II	BPH34	2	1	-	3	BPH33
5	Pharmaceutical Microbiology	BPH38	2	1	-	3	BPH35
6	Pathophysiology I	BPH39	2	-	-	2	BPH36
7	Nutrition	BPH41	2	-	-	2	BPH11
8	Professional Skills IV	BPH20	1	-	-	1	BUST07
Total of Credit Hours			16	3	-	19	

Fourth Year : First Semester							
Courses Titles		Code / No	Contact Hours			Credit Hours	Pre-Requisites
			Lecture	Practical	Tutorial		
1	Pharmacology III	BPH26	2	2	-	3	BPH25
2	Pharmaceutical Chemistry III	BPH32	2	2	-	3	BPH31
3	Therapeutic- Cardiology	BDPH01	2	-	-	2	BPH26, BPH39
4	Integrated Case- Based Learning I	BDPH09	-	-	2	1	BDPH01,/Co-Req
5	Biopharmaceutics	BPH50	2			2	BPH16
6	Pathophysiology II	BPH40	2	-	-	2	BPH39
7	Pharmacy practice I	BDPH13	1	-	-	1	BPH20
8	Public Health	BPH60	1	-	-	1	-
Total of Credit Hours			12	4	2	15	

Fourth Year : Second Semester

Courses Titles	Code / No	Contact Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Therapeutic- Endocrine system and Renal system	BDPH02	2	-	-	2	BPH26, BPH39, BPH40
2	Integrated Case- Based Learning II	BDPH10	-	-	2	1	BDPH02, BDPH03/Co-Req
3	Pharmacology IV	BPH44	2			2	BPH26
4	Research Methodology	BUST10	2	-	-	2	BPH56/Co-Req
5	Clinical Nutrition	BDPH15	2			2	BPH41
6	Pharmacokinetics	BPH57	2	-		2	BPH50
7	Toxicology	BPH58	2	-	-	2	BPH26
8	Pharmacy Practice II	BDPH14	1	-	-	1	BPH21
9	Therapeutic- Women and man health	BDPH03	1			1	BPH26, BPH39, BPH40
Total of Credit Hours			14		2	15	

Fifth Year : First Semester

Courses Titles		Code / No	Contact Hours			Credit Hours	Pre-Requisites
			Lecture	Practical	Tutorial		
1	Therapeutic- Neurological and psychiatric	BDPH04	2	-	-	2	BPH26, BPH39, BPH40
2	Integrated Case- Based Learning III	BDPH11	-	-	2	1	BDPH04, BDPH05/Co-Req
3	Pharmacy Management	BPH61	1			1	BPH22
4	Clinical Pharmacokinetics	BPH62	2	-	-	2	BPH57
5	Pharmacy Law & Ethics	BPH63	1	-	-	1	BPH20
6	Pharmaceutical Biotechnology	BPH65	2	-	-	2	BPH35
7	Pharmacy Practice Training	BDPH20	-	2	-	2	BPH44
8	Therapeutic- Respiratory and GIT	BDPH05	1			1	BPH26, BPH39, BPH40
9	Biostatistics	BPH56	2	-	-	2	BUST10/Co-Req
Total of Credit Hours			11	2	2	14	

Fifth Year : Second Semester

Courses Titles	Code / No	Contact Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Therapeutic- Infectious disease	BDPH06	2	-	-	2	BPH26, BPH39, BPH40
2	Integrated Case- Based Learning IV	BDPH12	-	-	2	1	BDPH06, BDPH07/Co-Req
3	Pharmaceutical Marketing	BPH66	2	-	-	2	BPH61, BPH63
4	Complementary and Alternative Medicine	BPH67	1	-	-	1	BPH14
5	Medication Therapy Management	BDPH17	2	-	-	2	- BDPH08
6	Pharmacoeconomics and Pharmacoepidemiology	BPH59	1			1	
7	Selected topics in clinical Toxicology	BDPH19	2	-	-	2	BPH58
8	Therapeutic- Hematology and oncology	BDPH07	1			1	BPH26, BPH39, BPH40
Total of Credit Hours			11		2	12	

Sixth Year : First Semester

Courses Titles		Code / No	Contact Hours			Credit Hours	Pre-Requisites
			Lecture	Practical	Tutorial		
1	Cardiology rotation	BDPH21	-	8	-	4	BDPH01
2	Oncology rotation	BDPH22	-	8	-	4	BDPH07
3	Ambulatory care rotation	BDPH23	-	8	-	4	BDPH01, BDPH02, BDPH03, BDPH05,
4	Intensive care unit	BDPH24	-	8	-	4	BDPH01, BDPH02, BDPH04, BDPH05, BDPH06,
Total of Credit Hours			-	32	-	16	

Sixth Year : Second Semester

Courses Titles	Code / No	Contact Hours			Credit Hours	Pre-Requisites	
		Lecture	Practical	Tutorial			
1	Internal medicine I	BDPH25		8	-	4	BDPH01, BDPH02 BDPH05, BDPH06,
2	Internal medicine II	BDPH26		8	-	4	BDPH02, BDPH03, BDPH04, BDPH05,
3	Pediatrics rotation	BDPH27		8	-	4	BDPH05, BDPH06, BDPH07,
4	Hospital Pharmacy	BDPH28		8	-	4	BDPH12
5	Infectious disease	BDPH29		8	-	4	BDPH06
6	Pharmaceutical Research Rotation	BDPH30		2		2	BPH56 BUST10
Total of Credit Hours				32		22	-

Total Credit Hours Distribution:						
Level	Semester	University requirements	Faculty requirements	Program requirements	Practical training	Total C.H
First	S1	9	9	-	-	18
	S2	13	6	-	-	19
Second	S1	1	11	4	-	16
	S2	-	9	9	-	18
Third	S1	-	5	13	-	18
	S2	-	-	19	-	19
Fourth	S1	-	-	14		14
	S2	2	-	15		15
Fifth	S1	-	-	12	2	14
	S2	-	-	12		12
Sixth	S1			2	16	18
	S2				20	20
Total of Credit Hours		25	40	98	38	201
%		12.3%	19.7%	50.2%	18.7%	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 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, once 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.