

Future University in Egypt
Faculty of Pharmacy
Training and Internship Committee

Advanced Pharmacy Practice Experience (APPE)

Manual

For

Bachelor of Pharmacy

PharmD & PharmD-Clinical Pharmacy

2025/2026

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[Preceptor's evaluation of the APPE round Effectiveness](#)

Faculty Vision and Mission

Faculty vision:

"Leadership and innovation in the pharmaceutical field locally, regionally and internationally"

Faculty Mission:

The Faculty of Pharmacy - Future University in Egypt is committed to :

- Provide distinguished and qualified pharmacist with creative competencies consistent with international standards, capable of improving health care services and pharmaceutical industries while endorsing lifelong learning.
- Develop research – stimulating environment.
- Establish community partnership that help to achieve sustainable development goals within a framework of international cooperation and ethical values.

Introduction

Pharm D and Pharm D-Clinical Pharmacy offer a one-year advanced pharmacy practice experience (APPE) at the final 6th year of the program. The APPE is designed to amend the student clinical and pharmaceutical skills, through practical training in different practice sites, such as, pharmaceutical and cosmetics factories and companies, hospitals, community pharmacy (educational and private), laboratories and units of pharmaceutical and medical research, bioavailability and clinical studies, pharmaceutical sales and marketing. The internship year is one of the requirements for granting the university degree Bachelor of Pharmacy - PharmD and Bachelor of Pharmacy - PharmD-Clinical Pharmacy.

The APPE includes 6 rotational training rounds. The duration of each is 6 weeks, with a total of 36 weeks (one academic year).

Objectives of the APPE

- Prepare a pharmacist capable of competing in the labor market locally, regionally and internationally and capable of working as a member of medical team.
- Foster the graduates' employability skills and expertise through development of their competencies such as team working, professionalism and leadership to provide a graduate.
- Expand collaboration aspects between academia and practice sites.
- Prepare a pharmacist who is able to practice the profession within the framework of ethics and governing values.
- Create opportunities to supply various practice sites (pharmaceutical and clinical institutions) with practice-ready graduates.
- Provide job opportunities to the graduates.

Requirements for Joining the APPE

Successful completion of the study of (181) credit hours according to the Bachelor of Pharmacy PharmD and PharmD-Clinical Pharmacy bylaws as well as completion of the summer training (100 hours).

Organizational Structure of the Training and Internship Committee

The Training and Internship Committee was structured through meetings of the faculty's administrative leaders, approved by faculty council and added to the faculty's hierarchy.

1. Dean of the faculty of Pharmacy, Future University, Head of the Committee.
2. Vice Dean for Education and Student Affairs.
3. Vice Dean for Community Service and Environmental Development.
4. Director of the training committee (Staff member).
5. Graduation Project Approval Coordinator.
6. Three departments' heads.
7. Director of the Quality Assurance Unit.
8. A Qualified Administrator.
9. Director of Financial Affairs at the university.
10. Two or more labor market experts, representing pharmaceutical and clinical settings.

Role of the Training and Internship Committee

- The committee meets at least once every three months or whenever necessary to discuss training issues.
- The committee sets the APPE program regulation and scheduling, in accordance with the national and faculty regulations.
- The committee sets, revises and update the APPE manual that identify and describe all processes and activities of the APPE program.
- Identification of the supervising coordinators for each training site/training round (faculty staff member) and their responsibilities.
- Identification of coordinators for every 30 students (Teaching Assistants; TAs) and their responsibilities.
- Setting the selection criteria for the practice sites as well as the preceptors.
- Setting the selection criteria for the graduation projects specialty as well as the supervision committees.
- Identification of the training sites according to the criteria set for selection.
- Approval of the preceptors at the training sites according to the criteria set for selection and setting plans for their orientation, development and evaluation.
- Identification and following up of the graduation projects supervision committees.
- Following up the implementation of the APPE plans and collection of the interns feed-back as well as the feed-back of the training sites on the APPE.
- Identify the target competencies for the training rounds in alignment with the pharmacy program competencies.
- Coordination with the different departments' areas directly related to the development of the internship program and its relationship to the target competencies.
- Implementation of the improvement plans emerging from the analyzed evaluation and feedback reports of the whole process.
- Renewal of the affiliation agreements and/or protocols and expansion of the agreements to include new scopes of practice in coordination with national and international collaboration committee.
- Taking measures for evaluation and quality improvement.

Role of the Director of Training and Internship Committee

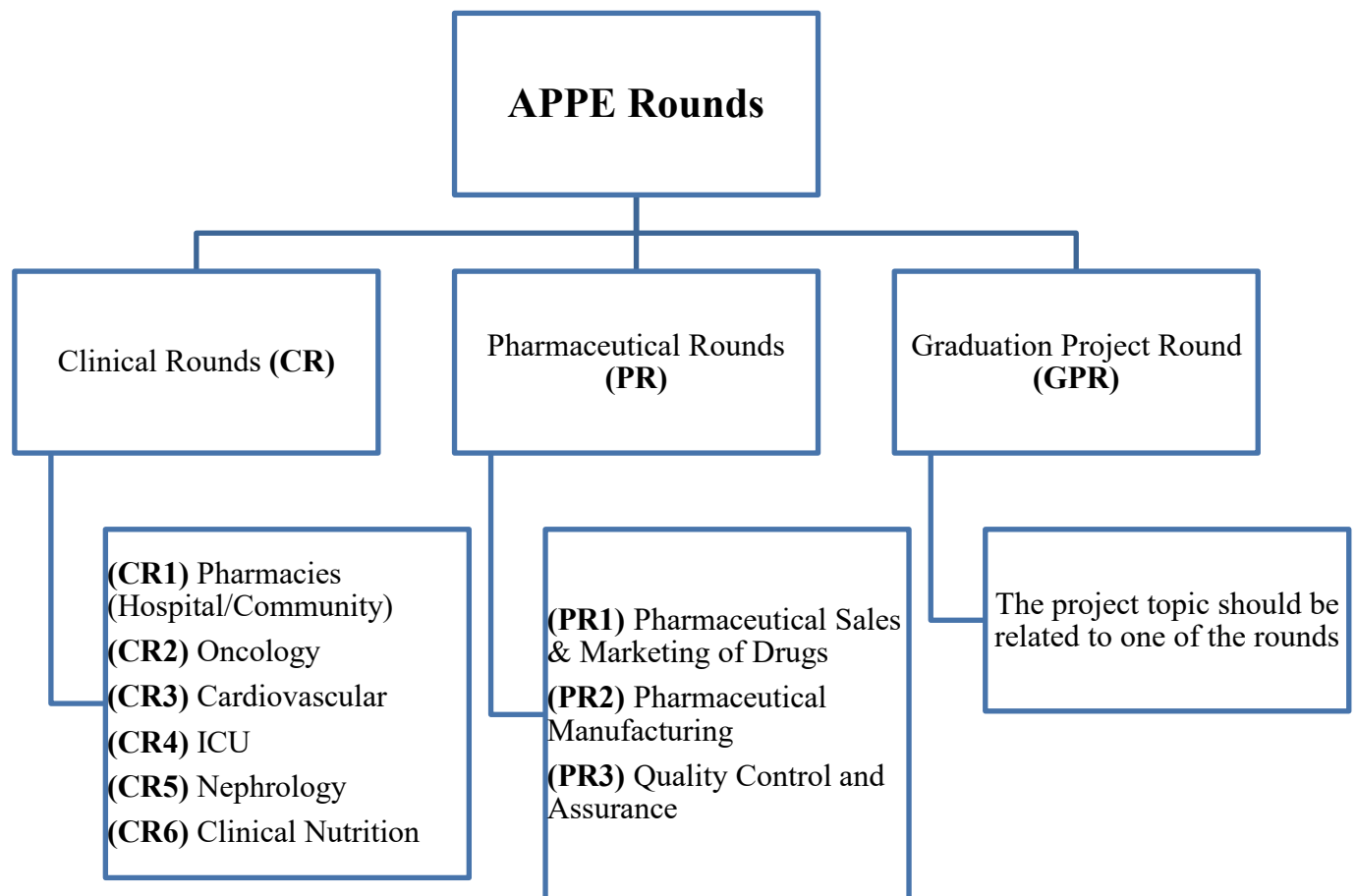
- Responsible for all logistics of APPE and preparation of the APPE documents: number of students - responsibilities - methods of communication - methods of evaluation - evaluation forms - training logbooks.... etc.
- Preparation of students training lists for each training round.
- Recording and validation of interns' results.
- Approval of sick leaves.
- Notification of all faculty graduates of the schedules of the training for the internship year, provided that the training rounds begin immediately after the completion of 181 h (5 years), as follows:
 - The training begins on the first of September of each year for spring graduates and ends in May of the following year.
 - The training begins on the first of December of each year for summer semester graduates and ends at the end of August of the following year.
 - The training begins on the first of March of each year, for graduates of the fall semester, and ends at the end of November of the following year.
- Approval of replacing the training site, according to the availability.
- Approval of the replacement of training rounds, in the event of not passing one or more training rounds.
- Approval for Foreigner interns or Egyptian interns to spend some rounds outside Egypt, after validation of the round/practice site.
- Coordination and Monitoring of meetings between the different related parties.

Supervision of the training rounds

- The training rounds supervision is the responsibility of the **supervisors**, consisting of the **training round/site coordinator** (Faculty staff member) and a **preceptor at the training site** (determined by the training organization) and approved by the Training and Internship Committee.
- The **supervisors orient** the interns about the round and all logistics of the training including regulations.
- The **supervisors** continuously **monitor** training and **evaluate** the performance of the intern during and at the end of the training round in each round and **sign** the training logbooks.
- The **faculty training coordinator** visits the training site at least 3 times during each round, for follow-up and provides the report on the training site, preceptors and activities to the director of Training and Internship Committee, to be used for quality improvement.

- **Graduation project** is supervised by a joint committee of a Staff member at the faculty and a supervisor from the training site provided that the supervisors are selected with the start of the third round. The graduation project coordinator, member of the training and internship committee approves the graduation project proposals before starting the research. Also, a joint committee (from the faculty and the training site/ other faculty / research institutions) evaluates and discusses the project.

APPE Rotation Types



- More rounds will be proposed, specified and implemented in the academic year 2024-2025, for example, pediatrics, diabetes and endocrinology, hepatology and endemic diseases, medical insurance, pharmacovigilance, regulatory affairs...etc.

Training Sites

Hospitals

- Baheya Foundation For Early Detection & Treatment of Breast Cancer
- Teachers' Hospital (New Heart)
- Children's Cancer Hospital Egypt (57357)
- General Organization for Teaching Hospitals and Institutes*

Pharmaceutical Companies/Factories

- Nerhadou
- Future Factory for Industrial Training (FFIT)
- EVA pharma
- Pioneer Pharmaceutical Industries
- Egyptian drug authority
- Limitless: Medical insurance

Pharmacies

- Delmar & Attallah
- Limitless: Community pharmacy

***General Organization for Teaching Hospitals and Institutes:**

National Institute of Liver and Endemic diseases
National Institute of Kidney and Urology
National Institute of Diabetes and Endocrinology
Mataria Educational Hospital
Ahmed Maher Educational Hospital
Shebeen elkom Educational Hospital
Damanhour Educational Institute

Structure of the training rounds

Bachelor of Pharmacy PharmD

Compulsory Rounds	Elective Rounds
One round in Pharmacies (inpatient/outpatient/community)	Three pharmaceutical rounds
One Clinical Round from the proposed rounds according to the availability	
Graduation Project	

Rounds scheduling:

Two compulsory rounds are offered: a training round in pharmacies and clinical pharmacy round, then two elective rounds in the field of pharmaceutical manufacturing. The fifth round is the graduation project, followed by the last elective round in the field of pharmaceutical manufacturing. The student can register for the graduation project starting from the third round.

Bachelor of Pharmacy PharmD-Clinical Pharmacy

Compulsory Rounds	Elective Rounds
Four clinical rounds from the proposed rounds according to the availability	One pharmaceutical round
Graduation Project	

Rounds scheduling:

Four clinical rounds in hospitals, the fifth round is the graduation project round, then the sixth is the elective pharmaceutical round. The student can register for the graduation project starting from the third session

Performance and code of ethics of interns

- The intern should adhere to the regulations at the training site and the instructions of the training supervision. The intern's performance is evaluated and directed on a regular basis during the training period by the training supervisors.
- Dealing with the medical team and colleagues in the training site ethically and professionally.
- Active participation in training sites activities, for example, participation in seminars, awareness programs, conferences, presentations and discussions or as identified by practice site preceptor.
- The intern must adhere to the patients' rights and respect the confidentiality of the sites.
- The intern shall deliver the evaluation forms approved by the training authority to the training coordinator (TA) upon completion of the training round.

Practice Site Responsibilities

- Facilitate the delivery of the required tasks according to the agreement set ahead of the activity.
- Ensure an equal and fair opportunity for practice to all interns.
- Provide all required tools and databases to perform as successful training.
- Provide a safe and productive environment for intern training.

Practice Site Preceptor Responsibilities

- Assume primary responsibility for the intern(s) assigned to the site.
- Provide orientation and definition of activities.
- Provide an environment that create opportunities for students to accomplish the stated goals and objectives of the learning experience.
- Prepare and conduct discussion sessions to expand the student's knowledge and experiences.
- Provide interns with frequent and specific feedback on their performance, while guiding them for improvement.
- Complete required intern evaluations and verification of intern training completion and achievement of the required competencies.
- Communicate with the round coordinator about any odd/undisciplined behavior exerted by any of the participating interns as well as all the agreed upon documents as per the signed protocol.

Internship Policies

A- Round's Evaluation

1. The intern is graded as Pass or Fail in each round.
2. The minimum requirement to successfully pass the round is 60% according to the supervisors' evaluation.
3. The attendance rate must not be less than 75% in each training round.
4. The intern is evaluated in each training round according to the evaluation form shown in the Appendices.

B- Conditions for passing the internship year

5. The intern must successfully pass six training rounds after approval of the faculty Council.
6. The result obtained by the trainee in the internship year is not counted in his cGPA upon graduation.
7. The intern is not granted a bachelor's degree certificate unless he has passed the internship year.

C- Penalties

If the intern violates his professional duties or obligations, the training site must submit the matter to the training committee, which approves one of the following penalties:

1. Written warning
2. Repeat the round or part of it

D- Leaves and vacations

The intern may be granted the following leave during the training year after presenting the required document and approval of the training committee:

1. 36 days (not to exceed 6 days per one rotation and not more than 3 consecutive days in the rotation except the sick leaves).
2. If the Sick leave exceeds the allowed percentage for passing the training round, or leave was not approved, it is necessary to repeat the training round in full.

How to apply for Vacation

Complete the leave form and make sure it is signed and approved by the site supervisor.

The intern submits the application online on the students' complaints before the start of the vacation/leave.

Appendices

Specifications of the training rounds

Clinical rounds

Pharmacies Round (CR1)

Inpatient/ Outpatient Hospital Pharmacies Round (CR1-HP)

1. Overall Aim of round

The round provides interns with competencies and practice for the provision of quality pharmaceutical care in a hospital setting aiming at improving use of medicines and therapeutic outcomes. The intern is expected to apply knowledge and advance experience in the processes and functions carried in the inpatient/outpatient hospital with emphasis on pharmaceutical care skills.

2. Competencies, learning outcomes of the round aligned with the learning outcomes of the program.

Competency	Key elements (Of NARS)	Round Learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	1-1-4- Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	<i>By the end of the round the student should be able to:</i> 1. Practice compounding, calculation and preparation under supervision 2. Identify the types of drugs and their names (generic and brand names) and how to dispense drugs that affect the psychological state and narcotic drugs for patients. 3. Recognize medication storage regulations and how to access information related to appropriate medication storage
	1-1-5- Retrieve information from fundamental sciences to solve therapeutic problems.	4. Dispense over-the-counter medications (Over the Counter Drugs - OTC) and other prescription drugs 5. Avoid drug interactions in prescribed drugs.

DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE

<p>2-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights</p>	<p>2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.</p>	<p>6. Demonstrate professional attitudes and behaviors that characterize a professional pharmacist in communication with other healthcare team.</p>
	<p>2-1-3 Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team</p>	<p>7. Identify patient's primary complaint and situations that might require referral to the physician.</p>

DOMAIN 3: PHARMACEUTICAL CARE

<p>3-2 Provide counseling and education services to patients and communities about safe and rational use of medicines</p>	<p>3-2-1 Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.</p>	<p>8. Utilize appropriate resources to provide drug information and assess patient</p>
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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	9. Provide patient counseling regarding drug, route of administration and dosage regimen, side effects, duration of treatment, alternative drug
DOMAIN 4: PERSONAL PRACTICE		
4-2-COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities	4-2-1 Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities	10. Communicate and deal with the public, patients and health care team.

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessments include an assignment given to students as identified by the preceptor

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first part will be devoted to managing medications from their point of supply (manufacturing, companies, etc.) and approving ideal storage conditions, including those for non-central pharmacy drug stores.
- The second part will be about the various dispensing systems that are available, their advantages and disadvantages, the hospital's current dispensing system, handling patient drug sheets, preparation, administration, timing, and interactions. In addition to patient counseling, and finally the hospital's narcotics handling system.

Community Pharmacies Round (CR1-CP)

1. Overall Aim of round

The round provides interns with competencies and practice for the provision of quality pharmaceutical care in community pharmacy setting aiming at improving use of medicines and therapeutic outcomes. The intern is expected to apply knowledge and advance experience in the processes and functions carried in community pharmacy with emphasis on pharmaceutical care skills.

2. Competencies, learning outcomes of the round aligned with the learning outcomes of the program.

Competency	Key elements (Of NARS)	Round Learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	1-1-4- Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	<i>By the end of the round the student should be able to:</i> 1. Practice compounding, calculation and preparation under supervision 2. Identify the types of drugs and their names (generic and brand names) and how to dispense drugs that affect the psychological state and narcotic drugs for patients. 3. Recognize medication storage regulations and how to access information related to appropriate medication storage
	1-1-5- Retrieve information from fundamental sciences to solve therapeutic problems	4. Dispense over-the-counter medications (Over the Counter Drugs - OTC) and other prescription drugs 5. Avoid drug interactions in prescribed drugs

DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE

2-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	6. Demonstrate professional attitudes and behaviors that characterize a professional pharmacist in communication with other healthcare team
	2-1-3 Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team	7. Identify patient's primary complaint and situations that might require referral to the physician.

DOMAIN 3: PHARMACEUTICAL CARE

3-2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices	3-2-1 Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contraindications, adverse drug reactions and drug interactions.	8. Utilize appropriate resources to provide drug information and assess patient
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	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	9. Provide patient counseling regarding drug, route of administration and dosage regimen, side effects, duration of treatment, alternative drug
DOMAIN 4: PERSONAL PRACTICE		
4-2-COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities	4-2-1 Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities	10. Communicate and deal with the public, patients and health care team.

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes an assignment given to students as identified by the preceptor

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first part will be devoted to an orientation to the pharmacy workflow and medication reconciliation, medication storage, medication therapy management, medication order processing, drug therapy optimization, patients counseling and to pharmacy practice calculations
- The second part will be about patient physical assessments, medical device use and how to respond to patients' complaints regarding different ailments like headache, migraine, gastrointestinal disorders, mild respiratory conditions, musculoskeletal conditions. In addition to pediatric and geriatric dosing, adverse drug reactions and use of information sources

Oncology Round (CR2)

1. Overall Aim of round

This round develops the ability of the intern to integrate pathophysiologic abnormalities of disease associated with cancers with concepts of drug action and therapy to optimize patients' chemotherapeutic regimens for different types of tumors (solid and hematologic). Emphasis will be given to drug selection, dosing regimen design and therapeutic drug monitoring, individualization of chemotherapy and managing of the toxicities of chemotherapy.

2. Competencies, learning outcomes of the round aligned with the learning outcomes of the program.

Competency	Key elements (Of NARS)	Round Learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE:		
1-1-Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1-1-3- Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products.	<u>By the end of the round the student should be able to:</u> 1. Describe the state of common diseases in the clinical area and their pathophysiology 2. Identify the pharmacological options in relation to evidence-based medicine for treatment of different severity of the selected diseases.
	1-1-5- Retrieve information from fundamental sciences to solve therapeutic problems.	3. Interpret and monitor parameters of patient's response to therapeutic agents

	1-1-7- Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	4. Use updated medical resources to describe the use of different chemotherapeutic or radiopharmaceuticals in treatment of cancer
DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE		
2-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	5. Accompany the medical hospital team on a daily basis in the various departments of oncology
	2-1-2 Adopt ethics of health care and pharmacy profession and respecting patients	6. Respect patients' rights and confidentiality of their data
2-3- COMPETENCY Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.	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.	7. Deal with drugs and chemotherapy used to treat tumors and proper handling according to ASHP guidelines and preparing appropriate doses for the age, weight and condition of the patient.
DOMAIN 3: PHARMACEUTICAL CARE		
3-2 Provide counseling and education services to patients and communities about safe and rational use of	3-2-6 Maintain public awareness on social health hazards of drug misuse and abuse.	8. Counsel patients to manage their adverse drug reactions. 9. Provide complementary care for oncology treatments to treat and alleviate the side effects of

medicines and medical devices.		chemotherapy and radiotherapy.
DOMAIN 4: PERSONAL PRACTICE		
4-1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	10. Practice responsibilities of pharmacists in developing a patient specific pharmaceutical care plan.

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes an assignment given to students as identified by the preceptor

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second parts will include a daily session of 1.5- 2 hours. Then discussions of the related cases, with preceptors.
- The third week of each part will include 2 hours cases presentation. Cases presentations will be evaluated by preceptors. The intern will be requested to recommend a therapeutic plan. The intern recommendations' will be revised with preceptors.

Contents of first part:

1. Introduction and workflow: Management protocols, available chemotherapeutic agents, different diagnostic procedures
2. Breast cancer: Familiarization with early detection and self-examination procedures
3. Breast cancer:
 - Management of Early-stage cases
 - Application of chemotherapy protocols
4. Breast cancer:
 - Management of Advanced stage cases
 - Management of adverse drug reactions of chemotherapy
5. Management of breast cancer in male
 - Case study
 - Management of extravasation and infiltration
6. Medication reconciliation
 - Reconcile patient's medication list
 - Identify potential interactions with dietary and nutritional supplements
7. Oncology supportive care: Management of immunosuppression related infections
8. Oncology supportive care
 - Management of related nausea and vomiting
 - Management of related constipation and diarrhea
9. Sterile compounding preparations
 - Preparation of IV chemotherapeutic agents according to USP 797 & USP 800
 - Preparation of other IV admixtures including antimicrobials and parenteral nutrition
10. Sterile compounding preparations: Preparation of labels and checking the final products

Contents of second part:

1. Laboratory techniques: Blood sampling techniques
2. Infection control measures
 - Donning and doffing
 - Safe injections
3. Nurse and staff education: Educating staff on ways to minimize and manage extravasation
4. Patients and family members education
 - Educating patients and their relatives on side effects and possible toxicities of breast cancer treatment and how to manage
 - Educate patients on possible drug – drug and drug- food interactions and their management
5. Patients and family members education
 - Awareness to patients of self-examination procedures and preventive measures
 - Orientation to effective educational activities related to care of oncology patients
6. Radiotherapy
 - Orientation to different radiation treatment and the machines used
 - Management of adverse drug reactions related to radiotherapy
7. Physiotherapy
 - Assess the needs for patients and their careers
 - Participate in management and rehabilitation of cancer patients from diagnosis to the end of life
8. Radiology and Surgery
 - Orientation to mammography and other diagnostic imaging techniques
 - Differentiation between types of mastectomies
9. Pain outpatient clinic: Selection of best therapeutic options for pain management
10. Pathology department: Handling of different specimens and identify genetic markers in breast cancer

Cardiovascular Round (CR3)

1. Overall Aim of round

In this round, the intern will acquire practical experience in the hospital setting. The intern will also obtain expertise in working with an interdisciplinary team as well as in application of pharmaceutical care plans in different diseases affecting the cardiovascular system. This round enables interns to familiarize with clinical presentations, signs and symptoms, laboratory investigations and their interpretation, prognosis, pharmacological and non-pharmacological management, counseling and monitoring of different cardiovascular diseases.

2. Competencies, learning outcomes of the round aligned with the learning outcomes of the program.

Competency	Key elements (Of NARS)	Round learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1-1-1- Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	<u>By the end of the round the student should be able to:</u> 1. Collect patient information, including medication history, home medication, laboratory investigations and comorbidities. 2. Explain treatment choices and select the most appropriate regimen of therapy.
DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE		
2-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the	3. Accompany the medical hospital team on a daily basis and participate in rounds' discussions

	health care professional team.	
2-4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2-4-3 Take actions to solve any identified medicine-related and pharmaceutical care problems.	4. Identify adverse drug reactions and interactions such as drug-drug, drug-food, drug-disease, or drug-lab 5. Develop collaborative professional relationships and demonstrate excellent communication skills when providing verbal information, presentations, and recommendations to the medical team
		6. Interpret monitoring parameters of patient's response and therapeutic agents to implement pharmaceutical care plans and manage drug therapy problems effectively
2-5 Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	2-5-2 Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.	7. Use various medical resources to apply recent guidelines in treatment and to individualize therapy for different patients.
	2-5-3 Contribute in planning and conducting research studies using appropriate methodologies.	8. Identify and document the pharmacological and non-pharmacological options in relation to evidence-based medicine.
DOMAIN 3: PHARMACEUTICAL CARE		
3-1 Apply the principles of body functions to participate in improving health care services using evidence-based data.	3-1-4 Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	9. Interpret relevant laboratory and clinical data and enumerate the signs and the symptoms of the selected diseases

3-2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3-2-6 Maintain public awareness on social health hazards of drug misuse and abuse.	10. Effectively communicate the drug treatment plan to the patient with the appropriate precautions and expectations
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Index of achievement of competencies:

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes one assignment per day that will be discussed in detail in the next day

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second week of each part include a daily session of 1.5- 2 hours. Then discussions of the related ward coronary care unit (CCU) & Open-Heart surgery unit cases, with preceptors.
- The third week of each part will include 2 hours case presentations. Cases presentations will be evaluated by preceptors. The intern therapeutic plan recommendations will be revised with preceptors.

Contents of first part:

1. Drug induced cardiovascular disease and drugs to avoid in cardiovascular disease.
2. Cardiovascular Infections: Infective endocarditis, Infections of Cardiovascular Implantable Electronic Devices, Pericarditis, and Myocarditis.
3. Acute coronary syndrome
4. Acute Heart Failure
5. Dyslipidemia
6. ECG interpretation
7. Echocardiography interpretation
8. Hypertensive Crisis, and cardiac tamponade .
9. Anticoagulation
10. Basic Life Support Protocol

Contents of second part:

- 1- Pulmonary arterial hypertension (PAH): Pulmonary Hypertension Risk Factors, PAH Classification, Diagnosis, and Treatment
- 2- Acute Aortic Syndromes: Aortic dissection, Intramural hematoma (IMH), and penetrating atherosclerotic ulcer
- 3- Cardiac Surgeries: Coronary artery bypass grafting (CABG), heart valve repair or replacement
- 4- Arrhythmias: Supraventricular Tachycardia, sinus bradycardia, and AV block
- 5- Cardiogenic shock
- 6- Rheumatic Fever
- 7- Different Cardiac devices
- 8- Cardiorenal syndrome: Types, diagnosis & treatment
- 9- Advanced Life Support Protocol
- 10- Nutrition plan for cardiovascular patients

Intensive care Unit Round (CR4)

1. Overall Aim of round

This round aims to provide the intern with practice in clinical manifestations, laboratory investigations and interpretation, pharmacotherapy and management of critical care illness. The intern will participate in discussions in which healthcare providers review clinical information and develop customized treatment care plans for critically ill patients. The intern will be able to design, recommend and implement and monitor therapeutic regimens and nutritional plan for a critically ill patient utilizing patient-specific data and best available evidence. The round emphasizes a systematic approach not only to patient data presentation but also to formation and documentation of treatment plans.

3. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competency	Key elements (Of NARS)	Round Learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	1-1-7- Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care	<i>By the end of the round, the student should be able to:</i> 1. Practice reading of patients' files and interpretation of the results of laboratory investigations and clinical medical examinations
DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE		
2-1-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	2_ Deal with various types of acute and chronic diseases and the resulting complications. 3. Accompany the medical team in the emergency departments to participate quickly and effectively in the treatment and care of patients in the emergency departments.

<p>2-2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.</p>	<p>2-2-2 Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.</p>	<p>4.Practice calculating drug doses for special patients' populations (Pediatrics & Geriatrics). 5. Practice assessment of compatibility and stability of drug products and preparations.</p>
<p>2-4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.</p>	<p>2-4-3 Take actions to solve any identified medicine-related and pharmaceutical care problems</p>	<p>6. Deal with drug related problems in critically ill patients, including need for nutritional support.</p>
DOMAIN 3: PHARMACEUTICAL CARE		
<p>3-2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices</p>	<p>3-2-1 Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.</p>	<p>7. Recommend therapeutic options in critically ill patients.</p>
	<p>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</p>	<p>8.Participate in emergency situation and provide patient counselling</p>

DOMAIN 4: PERSONAL PRACTICE

<p>4-1- Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills</p>	<p>4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team</p>	<p>9. Provide consultations and discuss medical conditions with the medical team.</p> <p>10. Provide information and contribute to the selection of medicines and determining their appropriate doses for critical cases</p>
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Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes one assignment per day that will be discussed in detail the next day. These assignments will be scored and will be used for training evaluation.

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second week of each part include a daily session of 1.5- 2 hours. Then discussions of the related ICU cases, with preceptors.
- The third week of each part will include 2 hours case presentations. Cases presentations will be evaluated by preceptors. The intern therapeutic plan recommendations will be revised with preceptors.

Contents of first part:

1. EBM (evidence-based medicine): What are the available resources (Mobile apps, websites, guidelines ...etc.) and how to use them.
2. Common devices used in the ICU and brief description about each device.
3. Introduction to FASTHUG-MAIDENS in the ICUs: Feeding, Sedation, Analgesia, Thromboembolic prophylaxis, Head of bed elevation, Ulcer prevention and Glucose control.
4. Arterial Blood Gases (ABG): Acidosis, alkalosis and Anion GAP.
5. Fluid and electrolytes: Crystalloids, Colloids, Fluid maintenance, hypernatremia, hyponatremia, hypokalemia and hyperkalemia.
6. Neurology: Anatomy of the brain -Ischemic Stroke-Hemorrhagic Stroke & Traumatic Brain Injury.
7. Cardiology: Acute Coronary syndrome and decompensated Heart failure.
8. Nephrology: Chronic kidney disease (CKD) – Acute kidney injury (AKI) and Renal Dose adjustment.
9. Hepatology: Acute Liver Failure and complications of liver cirrhosis
10. Respiratory: Hospital acquired Pneumonia (HAP) – Community acquired Pneumonia (CAP)- Ventilator associated Pneumonia (VAP), acute respiratory stress syndrome, respiratory failure

Contents of second part:

1. Analgesia and sedation in ICU: The types of sedative and analgesic agents and their use in certain circumstances, types of delirium and their treatment
2. Noninvasive & invasive ventilation: Modes of ventilation and difference between them
3. Respiratory: Idiopathic pulmonary fibrosis, chronic obstructive pulmonary disease (COPD) & Asthma Exacerbations
4. Antimicrobial stewardship: Antibigram and antimicrobial protocol
5. Infectious diseases: Urinary tract infection (UTI), skin and soft tissue infection (SSTI), Catheter related blood stream infection (CRBSI), and fungal infections
6. Neurology: Brain edema, meningitis, and encephalitis
7. Cardiology: Atrial fibrillation and Advanced Life Support
8. Nephrology: Renal replacement therapy, types of dialysis, and dose adjustment in end stage renal disease (ESRD)
9. Hepatology: Autoimmune hepatitis
10. Clinical Nutrition: Nutrition plan for critically ill patients

Nephrology Round (CR5)

1. Overall Aim of round

This round aims for the interns to develop and deliver competent clinical care with a focus on patients with renal disease. The interns would become competent at delivering a clinical pharmacy service to patients with common renal disorders through experiencing the delivering of the service to those patients.

The aim is for interns to develop advanced knowledge and skills in order to deliver good quality clinical care to the various groups of patients with renal disease. The intern is expected to be an integrated member of the wider multi-professional team and as such works alongside other professionals to achieve the aims of the team-leading where appropriate.

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competency	Key elements (Of NARS)	Round Learning Outcomes
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	1-1-7- Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care	<u>By the end of the round, the student should be able to:</u> 1. Understand the basic pathophysiology and risk factors for the development of chronic kidney disease. 2. Understand the mechanism of action, characteristics and clinical use of treatments for the management of kidney disease.
DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE		
2-1-1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	3. Educate and advise patients, medical staff, nursing staff effectively on renal pharmaceutical care issues and related relevant healthcare issues

2-2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	2-2-2 Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.	4. Practice assessment of compatibility and stability of drug products and preparations.
2-4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2-4-3 Take actions to solve any identified medicine-related and pharmaceutical care problems	5. Deal with drug related problems in nephrology patients.
DOMAIN 3: PHARMACEUTICAL CARE		
3-2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices	3-2-1 Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.	6. Understands the principles and make recommendations on dose adjustment in renal impairment and renal replacement therapy.
	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	7. Provide a clinical pharmacy service and deliver effective pharmaceutical care to patients with renal impairment
DOMAIN 4: PERSONAL PRACTICE		
4-1- Express leadership, time management, critical thinking, problem solving, independent and team	4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	8. Provide consultations and discuss medical conditions with the medical team.

working, creativity and entrepreneurial skills		
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Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes one assignment per day that will be discussed in detail in the next day

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second week of each part include a daily session of 1.5- 2 hours. Then discussions of the related renal cases, with preceptors.
- The third week of each part will include 2 hours cases presentations. Cases presentations will be evaluated by preceptors. The intern will be asked to recommend a therapeutic plan that will be revised with preceptors.

Contents of first part:

1. Acute kidney injury (AKI)
2. Drug induced kidney damage
3. Chronic kidney disease overview
4. Complications of Chronic kidney disease
5. Nephrotic syndrome

Contents of second part:

1. Hemodialysis
2. Continuous renal replacement therapy (CRRT)
3. Peritoneal dialysis
4. Dose adjustment in kidney disease
5. Nutrition Plan for non-dialysis & dialysis patients

Clinical Nutrition Round (CR6)

1. Overall Aim of round

This round helps the intern to develop evidence – based experience in clinical nutrition and health promotion that they can deal professionally with patients and healthy subjects. By the end of this round the intern will be able to Acquire the necessary skills to describe nutritional regimens for different disease conditions such as diabetes, obesity, malnutrition cardiovascular disease, and others.

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competency	Key elements (Of NARS)	Round learning outcome
DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1-1-5 Retrieve information from fundamental sciences to solve therapeutic problems.	<p><u>By the end of the round the student should be able to:</u></p> <ol style="list-style-type: none"> 1. Demonstrate understanding of biochemical symptoms of nutritional disease 2. Identify different types of nutrition (intravenous, enteral feeding) reasons for using them and contraindications
	1-1-7- Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	
DOMAIN 2: PROFESSIONAL & ETHICAL PRACTICE		
2-1-Work collaboratively as a member of an inter-professional	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all	<ol style="list-style-type: none"> 4. Describe the dietary regimens for different pathological conditions 5. Accompanies the medical team daily and participate in rounds' discussions

health care team to improve the quality of life of individuals and communities, and respect patients' rights	members of the health care professional team.	
	2-1-3 Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.	6. Identify patient's primary complaint and situations that might require referral to other health care team member
DOMAIN 3: PHARMACEUTICAL CARE		
3-1-COMPETENCY Apply the principles of body functions to participate in improving health care services using evidence-based data.	3-1-1 Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.	7.Provides recommendations as to the proper therapeutic nutritional regimen
DOMAIN 4: PERSONAL PRACTICE		
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	8.Interpret clinical reports and nutritional needs in a scientific way

<p>4-2- COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities</p>	<p>4-2-1 Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.</p>	<p>9. Communicate professionally and deal with patients and health care team.</p>
<p>4-3 COMPETENCY Express self-awareness and be a life-long learner for continuous professional improvement.</p>	<p>4-3-1 Practice independent learning needed for continuous professional development.</p>	<p>10. Argue about independent/critical opinions on definitive problems</p>

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessment includes one assignment per day that will be discussed in detail in the next day

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second week of each part include a daily session of 1.5- 2 hours. Then discussions of the related cases, with preceptors.
- The third week of each part will include 2 hours cases presentations. Cases presentations will be evaluated by preceptors. The intern will be asked to recommend a clinical nutritional plan that will be revised with preceptors.

Contents of first part:

1. Nutrition Screening & Assessment
2. Oral & Enteral Nutrition
3. Parenteral Nutrition
4. Nutrition in Renal & Hepatic Failure
5. Nutrition in Pancreatitis & Short bowel syndrome

Contents of second part:

1. Nutrition in Acute Traumatic Brain Injury
2. Cancer and Nutrition Status
3. Nutrition in Neurological impairment
4. GIT Surgery
5. Obesity

Pharmaceutical Rounds

Pharmaceutical Sales and Marketing of drugs Round (PR1)

1. Overall Aim of round

This training round helps the interns to develop skills of medical advertising and dealing professionally with customers in the healthcare systems. The intern will practice marketing methods and will apply the principles of pharmaceutical product promotion.

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competency	Key elements (Of NARS)	Program Learning Outcomes (PLOs)	Round Learning Outcomes
DOMAIN 1- FUNDAMENTAL KNOWLEDGE			
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1-1-1- Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	<i>By the end of the round the student should be able to:</i> 1. Identify the process and legal steps of new product development and promotion.	
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE			
2-1 Work collaboratively as a member of an inter-professional health care team to improve the	2-1-2 Adopt ethics of health care and pharmacy profession respecting patients'	2.Demonstrate professional integrity in performing pharmaceutical product promotion	

quality of life of individuals and communities, and respect patients' rights.	rights and valuing people diversity.	
2-6 Perform pharmaco-economic analysis and develop promotion, sales, marketing, and business administration skills.	2-6-1 Apply the principles of business administration and management to ensure rational use of financial and human resources.	3. Apply the principles for conducting business and best utilization of resources
	2-6-2 Utilize the principles of drug promotion, sales, marketing, accounting, and pharmaco-economic analysis.	4. Acquire the needed information and perform studies to promote drug sales
DOMAIN 4: PERSONAL PRACTICE		
4-2 Effectively communicate verbally, non-verbally and in writing with individuals and communities	4-2-2 Use contemporary technologies and media to demonstrate effective presentation skills	5. Use all available facilities & resources for presentation and marketing.
4-3 Express self awareness and be life Long learner for continuous Professional improvement	4-3-1 Perform self-assessment to enhance professional and personal competencies.	6. Perform self assessment
	4-3-2 Practice independent learning needed for continuous professional development	7. Establishes and maintains effective independent learning

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessments include assignments as identified by preceptors

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first part will include a daily session of 1.5- 2 hours. Then the intern will prepare plans for drug promotion on different products.
- The second part the intern will attend hospital and clinic visits for drug promotion with preceptor.

Contents of the round:

1. Advertisement, post-marketing surveillance and pharmacovigilance on products within the healthcare industry
2. Awareness of corporate organizations, national and international regulatory constraints in the pharmaceutical industry
3. Professional and inter-professional skills including communication skills
4. Impact of promotion on overall sales
5. Guidelines for post-marketing surveillance
6. Ethics in drug promotion
7. Guidelines for package inserts and compendia

Pharmaceutical Manufacturing Round (PR2)

1. Overall aim of round:

The round aims to allow the intern to perform defined activities in the different departments of the factory (production, planning, development, research).and conduct the procedure in order to receive, store and prepare the raw materials and the products. Also, the intern will practice the necessary procedures in packaging and storage and apply good manufacturing requirements and practices (cGMP).

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competencies	Key element of NARS	Program Learning Outcomes (PLOs)	Round Learning Outcomes
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE			
2-1 Work collaboratively as an interprofessional health care team to improve the quality of life of individuals and communities, and respect patient's right	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team	<i>By the end of the round the student should be able to:</i> 1. Exhibit responsibilities for own actions and decisions	
2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in system for dispensing, storage and distribution of medicines.	2-2-2 Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities	2. Applies the rules of quality management system in the manufacturing process. 3. Familiarize with the usual process of packaging & storage of pharmaceutical products	

	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	4. Recognize the use of different tools and instruments 5. Select the proper technique for production and quality control of pharmaceuticals
	2.2.4 Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice	6. Applies the fundamentals of pharmaceutical calculations, bioinformatics, pharmacokinetics, and biopharmaceutics
2.3 Handle and dispose biologicals and synthetic / natural pharmaceutical materials/ products effectively and safely with respect with relevant laws and legislation.	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	7. Participate in the process of handling, identifying /disposing biotechnology -based and other materials in pharmaceutical field
	2-3-2 Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products	8. Practice within ethical, legal requirements and safety guidelines for handling and disposal of biological and pharmaceutical material/ products
DOMAIN 4: PERSONAL PRACTICE		
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity	4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	9. Collaborates with other parties to define the role and responsibilities of each

and entrepreneurial skills.	4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	10. Exhibit critical thinking and problem solving ability
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Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessments include assignments as identified by preceptors

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- Each part (first and second weeks) will include a daily session of 1.5- 2 hours to discuss the challenges and problem-solving in manufacturing pharmaceutical dosage forms (as tablets, semi-solid and liquid formulations). The preceptor will also introduce the application of Good Manufacturing Practices (GMPs) guidelines for manufacturing processes and quality control procedures.
- The third week of each part will include 2 hours of evaluation of the final pharmaceutical product and how to prepare a report for such manufacturing and evaluation process.

Contents of first part:

1. Research and development (R&D); process development and scale-up: Pre-formulation issues and product development: according to pharmacopoeia, preparation and evaluation of pharmaceutical dosage forms on a small scale.
2. Production planning (processing order and batch formula): Transformation of formulation from R&D scale into a larger scale according to the market needs and factory plan.
3. Dispensing raw materials from storage area
 - Determining proper storage and handling practices.

- Dispensing active ingredients and excipients according to the predetermined calculations for the large scale

Contents of second part:

1. Manufacturing the pharmaceutical dosage form: Acquire the knowledge for key processing steps in the production of pharmaceutical dosage forms as type of tablet machine, selection of suitable punches, and adjusting adequate compression parameters
2. Validation for production batches (R&D, quality control and quality assurance): Investigation of the prepared pharmaceutical dosage forms, quality control studies and solving critical points related to the scale-up.
3. Batch manufacturing record: How to finalize the document system to provide a complete record of the manufacturing history of a batch of product?

Quality Control and Assurance Round (PR3)

1. Overall aim of round:

The aim of this round is to provide interns with a practical experience in good manufacturing practices (GMPs), as regulated and guided by national and international agencies for the pharmaceutical industry covering pharmaceutical products and biologicals, as well as, modern methods of practical pharmaceutical analysis.

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

Competencies	Key element of NARS	Program Learning Outcomes (PLOs)	Round Learning Outcomes
DOMAIN 1- FUNDAMENTAL KNOWLEDGE			
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1-1-1- Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	<u>By the end of the round the student should be able to:</u> 1. Apply understanding, and problem solving abilities, in arising regulatory and analytical challenges and multidisciplinary applications using quality control, quality assurance.	
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE			
2-1 Work collaboratively as an interprofessional health care team to improve the quality of life of individuals and communities, and respect patient's right	2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team	2. Exhibit responsibilities for own actions and decisions	

2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in system for dispensing, storage and distribution of medicines.	2-2-2 Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities	3. Develop and apply elements and requirements of a quality system, evaluate various types of audits and self-inspections, and analyze documents and record management systems.
	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	4. Apply advanced qualitative and quantitative tools and applications of Pharmaceutical analysis with different goals.
DOMAIN 4: PERSONAL PRACTICE		
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	5. Design and implement teamwork processes, work effectively within groups.
	4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	6. Analyze and act to troubleshoot different theoretical, practical and quality related problems.
4.3 Express self-awareness and be life-long learner for continuous professional improvement.	4.3.1. Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	7. Think critically and creatively.

Index of achievement of competencies

- Passing the final evaluation of the round by a minimum of 60%
- The final evaluation is based on completed competencies
- Formative assessments include assignments as identified by preceptors

Round content:

The round includes two parts.

- First part (3 weeks)
- Second part (3 weeks)

Activities within each part:

- The first and second week of each part include a daily session of 1.5- 2 hours. Then the intern will practice quality control analysis techniques on different dosage forms.
- The third week of each part will include cases presentation. Case presentations will be evaluated by preceptors. The intern will be asked to recommend a quality control plan for a certain pharmaceutical product that will be revised with preceptors.

Contents of first part:

1. Quality Management System
2. Advanced Concepts of Pharmaceutical Analysis
3. Systematic HPLC Method Development and Validation
4. Pharmaceutical and Biological Analytical Applications
5. Impurities in pharmaceuticals

Contents of second part:

1. GMP
2. Quality control of solid dosage forms
3. Quality control of liquid dosage forms
4. Quality control of sterile products
5. Sampling techniques
6. Quality control of mechanical utilities

Graduation project Round (GPR)

1. Overall Aim of round

This round aims to provide the intern with the opportunity to develop skills in research and get hands on experience in application of various research methodologies that they have learned and to integrate the research with the pharmaceutical practice. It also includes e-portfolio which the student should submit, and which serves as a learning tool for self-assessment, self-awareness and lifelong learning.

2. Competencies and learning outcomes of the round, aligned with learning outcomes of the program:

DOMAIN 1: FUNDAMENTAL KNOWLEDGE		
Competency	Key elements (Program Learning Outcomes)	Round learning outcomes
1-1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	1-1-6- Utilize scientific literature, and collect and interpret information to enhance professional decision	1-Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations. 2- Collect and interpret information from scientific literature to enhance professional decision. 3- Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE		
2-2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and	2-2-4 Adopt the principles of pharmaceutical calculations, bio statistical analysis, bioinformatics, pharmacokinetics, and bio-pharmaceutics and their applications in new drug delivery systems, dose	4- Apply the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and bio-pharmaceutics and their applications in new drug delivery

participate in systems for dispensing, storage, and distribution of medicines	modification, bioequivalence studies, and pharmacy practice.	systems, dose modification, bioequivalence studies, and pharmacy practice
2-3 Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations	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	5- Identify the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals
2-4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2-4-4 Assess toxicity profiles of different xenobiotics and detect poisons in biological specimens	6- Evaluate toxicity and poisons in different specimens.
2-5 Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products	2-5-2 Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	7- Integrate and critically evaluate evidence-based information needed in pharmacy profession.
	2-5-3 Contribute in planning and conducting research studies using appropriate methodologies	8- Participate in planning and conducting research studies using appropriate methodologies.
DOMAIN 4: PERSONAL PRACTICE		
4-1 Express leadership, time management, critical thinking, problem solving,	4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	9- Illustrate responsibility for team performance and peer evaluation of other team members, 10- Express time management skills.

independent and team working, creativity and entrepreneurial skills	4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	11- Work independently and effectively in a team. 12- Explore and critically analyze information, identify and solve problems
	4-1-3 Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	13- Develop skills as creativity and entrepreneurial skills.
4-2 Effectively communicate verbally, non-verbally and in writing with individuals and communities	4-2-1 Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities	14- Communicate effectively verbally and non-verbally with professional health care team.
	4-2-2 Use contemporary technologies and media to demonstrate effective presentation skills	15- Present data effectively using technology.
4-3 Express self-awareness and be a life-long learner for continuous professional improvement	4-3-1 Perform self-assessment to enhance professional and personal competencies	16- Express self-assessment to enhance professional and personal competencies
	4-3-2 Practice independent learning needed for continuous professional development	17- Be a life-long learner for continuous professional development.

Index of achievement of competencies

- Formative assessments to follow up achievement of tasks of Graduation Project (GP) and e-Portfolio
- Thesis submission
- Final Oral presentation for Graduation Project (GP) and e-Portfolio.

Evaluation Forms

Inpatient/ Outpatient Hospital Pharmacies Round (CR1-HP)

Name of Intern:.....

ID. No.

Training Site:.....

Training period: From.../.../.... To/.../.....

Overall Aim of Round

The round provides interns with competencies and practice for the provision of quality pharmaceutical care in a hospital setting aiming at improving use of medicines and therapeutic outcomes. The intern is expected to apply knowledge and advance experience in the processes and functions carried in the inpatient/outpatient hospital with emphasis on pharmaceutical care skills.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (max=4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	*NA
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.4	1	Practice compounding, calculation, and preparation under supervision.					
		2	Identify the types of drugs and their names (generic and brand names) and how to dispense drugs that affect the psychological state and narcotic drugs for patients.					
		3	Recognize medication storage regulations and how to access information related to appropriate medication storage.					
	1.1.5	4	Dispense over-the-counter medications (Over the Counter Drugs - OTC) and other prescription drugs.					
		5	Avoid drug interactions in prescribed drugs.					

2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2.1.1	6	Demonstrate professional attitudes and behaviors that characterize a professional pharmacist in communication with other healthcare team.					
	2.1.3	7	Identify patient's primary complaint and situations that might require referral to the physician.					
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.1	8	Utilize appropriate resources to provide drug information and assess patient.					
	3.2.5	9	Provide patient counseling regarding drug, route of administration and dosage regimen, side effects, duration of treatment, alternative drug.					
4.2 Effectively communicate verbally, non-verbally and in writing with individuals and communities.	4.2.1	10	Communicate and deal with the public, patients and health care team.					

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Result:

- The intern has successfully passes the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours,days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the training round: 60%).

Signatures of preceptors:

Signature of the round coordinator

For the Training site:

For the Faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Community Pharmacies Round (CR1-CP)

Name of Intern:

ID. No.

Training site:.....

Training Period: From .../.../..... to .../.../...

Overall Aim of round

The round provides interns with competencies and practice for the provision of quality pharmaceutical care in community pharmacy setting aiming at improving use of medicines and therapeutic outcomes. The intern is expected to apply knowledge and advance experience in the processes and functions carried in community pharmacy with emphasis on pharmaceutical care skills.

Competencies	Key elements No	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.4	1	Practice compounding, calculation and preparation under supervision.					
		2	Identify the types of drugs and their names (generic and brand names) and how to dispense drugs that affect the psychological state and narcotic drugs for patients.					
		3	Recognize medication storage regulations and how to access information related to appropriate medication storage.					
	1.1.5	4	Dispense over-the-counter medications (Over the Counter Drugs - OTC) and other prescription drugs.					
		5	Avoid drug interactions in prescribed drugs.					
2.1 Work collaboratively as a member of an inter-professional health care team to improve	2.2.1	6	Demonstrate professional attitudes and behaviors that characterize a professional pharmacist in communication with other healthcare team.					

the quality of life of individuals and communities, and respect patients' rights.	2.1.3	7	Identify patient's primary complaint and situations that might require referral to the physician.						
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.1	8	Utilize appropriate resources to provide drug information and assess patient.						
	3.2.5	9	Provide patient counseling regarding drug, route of administration and dosage regimen, side effects, duration of treatment, alternative drug.						
4.2 Effectively communicate verbally, non-verbally and in writing with individuals and communities.	4.2.1	10	Communicate and deal with the public, patients and health care team.						

NA * , not applicable

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(% marks should not be less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours, ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Oncology Round (CR2)

Name of Intern:

ID. No.

Training Site:

Training period: from ... /... /... to .../.../...

Overall Aim of round

This round develops the ability of the intern to integrate pathophysiologic abnormalities of disease associated with cancers with concepts of drug action and therapy to optimize patients' chemotherapeutic regimens for different types of tumors (solid and hematologic). Emphasis will be given to drug selection, dosing regimen design, therapeutic drug monitoring, individualization of chemotherapy and managing of the toxicities of chemotherapy.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.3	1	Describe the state of common diseases in the clinical area and their pathophysiology.					
		2	Identify the pharmacological options in relation to evidence-based medicine for treatment of different severity of the selected diseases.					
	1.1.5	3	Interpret and monitor parameters of patient's response and therapeutic agents.					
	1.1.7	4	Use updated medical resources to describe the use of different chemotherapeutic or					

			radiopharmaceuticals in treatment of cancer.					
2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2.1.1	5	Accompany the medical hospital team on a daily basis in the various departments of oncology.					
	2.1.2	6	Respect patients' rights and confidentiality of their data.					
2.3 Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.	2.3.1	7	Dealing with drugs and chemotherapy used to treat tumors and proper handling according to ASHP guidelines and preparing appropriate doses for the age, weight and condition of the patient.					
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.6	8	Counsel patients to manage their adverse drug reactions.					
		9	Provide complementary care for oncology treatments to treat and alleviate the side effects of chemotherapy and radiotherapy.					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.2	10	Practice responsibilities of pharmacists in developing a patient specific pharmaceutical care plan.					

NA * , not available

$$\% = \frac{\text{The total points scored by the trainee} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours , ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature of preceptors:

For the Training Site:

Name:

Signature:

Stamp:

Signature of the round coordinator

For the faculty of pharmacy:

Name:

Signature:

Stamp:

Cardiovascular Round (CR3)

Name of intern:

ID. No.

Training Site:

Training period: from ... /... /... to .../.../...

Overall Aim of round

In this round, the intern will acquire practical experience in the hospital setting. The intern will also obtain expertise in working with an interdisciplinary team as well as in application of pharmaceutical care plans in different diseases affecting the cardiovascular system. This round enables interns to familiarize with clinical presentations, signs and symptoms, laboratory investigations and their interpretation, prognosis, pharmacological and non-pharmacological management, counseling and monitoring of different cardiovascular diseases.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.1	1	Collect patient information, including medication history, home medication, laboratory investigations and comorbidities.					
		2	Explain treatment choices and select the most appropriate regimen of therapy.					
2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and	2.1.1	3	Accompany the medical hospital team on a daily basis and participate in rounds' discussions.					

respect patients' rights.								
2.4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2.4.3	4	Identify adverse drug reactions and interactions such as drug-drug, drug-food, drug-disease, or drug-lab.					
		5	Develop collaborative professional relationships and demonstrate excellent communication skills when providing verbal information, presentations, and recommendations to the medical team.					
		6	Interpret monitoring parameters of patient's response and therapeutic agents to implement pharmaceutical care plans and manage drug therapy problems effectively.					
2.5 Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	2.5.2	7	Use various medical resources to apply recent guidelines in treatment and to individualize therapy for different patients.					
		2.5.3	8	Identify and document the pharmacological and non-pharmacological options in relation to evidence-based medicine.				
3.1 Apply the principles of body functions to participate in improving health care services using evidence-based data.	3.1.4	9	Interpret relevant laboratory and clinical data and enumerate the signs and the symptoms of the selected diseases.					
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.6	10	Effectively communicate the drug treatment plan to the patient with the appropriate precautions and expectations.					

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours , ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature of preceptors:

For the Training Site:

Name:

Signature:

Stamp:

Signature of the round coordinator

For the faculty of pharmacy:

Name:

Signature:

Stamp:

Intensive care Unit Round (CR4)

Name of Intern:

ID. No.

Training Site:

Training period: from ... /... /... to .../.../...

Overall Aim of round

This round aims to provide the intern with practice in clinical manifestations, laboratory investigations and interpretation, pharmacotherapy and management of critical care illness. The intern will participate in discussions in which healthcare providers review clinical information and develop customized treatment care plans for critically ill patients. The intern will be able to design, recommend and implement and monitor therapeutic regimens and nutritional plan for a critically ill patient utilizing patient-specific data and best available evidence, The round emphasizes a systematic approach not only to patient data presentation but also to formation and documentation of treatment plans.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.7	1	Practice reading of patients' files and interpretation of the results of laboratory investigations and clinical medical examinations.					
2.1 Work collaboratively as a member of an inter-	2.1.1	2	Deal with various types of acute and chronic diseases and the resulting complications.					

professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.		3	Accompany the medical team in the emergency departments to participate quickly and effectively in the treatment and care of patients in the emergency departments.					
2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	2.2.2	4	.Practice calculating drug doses for special patients' populations (Pediatrics & Geriatrics).					
		5	Practice assessment of compatibility and stability of drug products and preparations.					
2.4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2.4.3	6	Deal with drug related problems in critically ill patients, including need for nutritional support.					
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.1	7	Recommend therapeutic options in critically ill patients.					
		8	Participate in emergency situation and provide patient counselling.					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.2	9	Provide consultations and discuss medical conditions with the medical team.					
		10	Provide information and contribute to the selection of medicines and determining their					

		appropriate doses for critical cases.					
--	--	---------------------------------------	--	--	--	--	--

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours , ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Nephrology Round (CR5)

Name of Intern:.....

ID. No.

Training Site:.....

Training period: From.../.../.... To/.../.....

Overall Aim of round

This round aims for the interns to develop and deliver competent clinical care with a focus on patients with renal disease. The interns would become competent at delivering a clinical pharmacy service to patients with common renal disorders through experiencing the delivering of the service to those patients.

The aim is for interns to develop advanced knowledge and skills in order to deliver good quality clinical care to the various groups of patients with renal disease. The intern is expected to be an integrated member of the wider multi-professional team and as such works alongside other professionals to achieve the aims of the team-leading where appropriate.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (max=4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	*NA
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.7	1	By the end of the round, the student should be able to: Understand the basic pathophysiology and risk factors for the development of chronic kidney disease.					
		2	Understand the mechanism of action, characteristics and clinical use of treatments for the management of chronic kidney disease.					

2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2.1.1	3	Educate and advise patients, medical staff, nursing staff effectively on renal pharmaceutical care issues and related relevant healthcare issues					
2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	2.2.2	4	Practice assessment of compatibility and stability of drug products and preparations.					
2.4 Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	2.4.3	5	Deal with drug related problems in nephrology patients.					
3.2 Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	3.2.1	6	Understands the principles and is able to make recommendations on dose adjustment in renal impairment and renal replacement therapy.					
	3.2.5	7	Provide a clinical pharmacy service and deliver effective pharmaceutical care to patients with renal impairment					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.2	8	Provide consultations and discuss medical conditions with the medical team.					

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Result:

- The intern has successfully passes the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours,days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the training round: 60%).
- **Signatures of preceptors:**

For the Training site:

Name:.....

Signature:.....

Stamp:

Signature of the round coordinator

For the faculty of pharmacy:

Name:.....

Signature:.....

Stamp:

Clinical Nutrition (CR6)

Name of Intern: ID. No.

Training site:.....

Training Period: From .../ ... /..... to/.../...

Overall aim of round:

This training round helps the trainees to develop evidence – based experience in clinical nutrition and health promotion that they can deal professionally with patients and healthy subjects. By the end of this round the trainee will be able to acquire the necessary skills to describe nutritional regimens for different disease conditions such as diabetes, obesity, malnutrition cardiovascular disease, and others.

Competencies	Key elements No	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.5	1	Demonstrate understanding of biochemical symptoms of nutritional disease.					
		2	Identify different types of nutrition (intravenous, enteral feeding) reasons for using them and contraindications.					
	1.1.7	3	Describe the physiological implications of nutritional diseases and interrelations between them.					
2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality	2.1.1	4	Describe the dietary regimens for different pathological conditions.					
		5	Accompany the medical team daily and participate in rounds' discussions.					

of life of individuals and communities, and respect patients' rights.	2.1.3	6	Identify patient's primary complaint and situations that might require referral to other health care team member.					
3.1 Apply the principles of body functions to participate in improving health care services using evidence-based data.	3.1.1	7	Provide recommendations as to the proper therapeutic nutritional regimen.					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.2	8	Interpret clinical reports and nutritional needs in a scientific way					
4.2 Effectively communicate verbally, non-verbally and in writing with individuals and communities.	4.2.1	9	Communicate professionally and deal with patients and health care team.					
4.3 Express self-awareness and be a life-long learner for continuous professional improvement.	4.3.1	10	Argue about independent/critical opinions on definitive problems					

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(% marks should not be less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours, ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:.....

Signature:

Stamp:

Stamp:

Pharmaceutical Sales and Marketing of drugs Round (PR1)

Name of Intern: ID. No.

Training Site:

Training period: from ... /... /... to .../.../...

Overall Aim of round:

This training round helps the interns to develop skills of medical advertising and dealing professionally with customers in the healthcare systems. The intern will practice marketing methods and will apply the principles of pharmaceutical product promotion.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.1	1	Identify the process and legal steps of new product development and promotion.					
2.1 Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	2.1.2	2	Demonstrate professional integrity in performing pharmaceutical product promotion.					

2.6 Perform pharmaco-economic analysis and develop promotion, sales, marketing, and business administration skills.	2.6.1	3	Apply the principles for conducting business and best utilization of resources.					
	2.6.2	4	Acquire the needed information and perform studies to promote drug sales.					
4.2 Effectively communicate verbally, non-verbally and in writing with individuals and communities.	4.2.2	5	Use all available facilities for presentation and marketing.					
4.3 Express self-awareness and be lifelong learner for continuous Professional improvement.	4.3.1	6	Perform self-assessment.					
	4.3.2	7	Establish and maintain effective independent learning.					

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours, ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Pharmaceutical Manufacturing Round (PR2)

Name of Intern:..... ID. No.

Training Site:.....

Training period: From.../.../.... To/.../.....

Overall aim of round:

The round aims to allow the intern to perform defined activities in the different departments of the factory (production, planning, development, research) and conduct the procedure in order to receive, store and prepare the raw materials and the products. Also, the intern will practice the necessary procedures in packaging and storage and apply good manufacturing requirements and practices (cGMP).

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
2.1 Work collaboratively as an interprofessional health care team to improve the quality of life of individuals and communities, and respect patient's right.	2.1.1	1	Exhibit responsibilities for own actions and decisions.					
		2	Apply the rules of quality management system in the manufacturing process.					
2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in system	2.2.2	3	Familiarize with the usual process of packaging & storage of pharmaceutical products.					

for dispensing, storage and distribution of medicines.	2.2.3	4	Recognize the use of different tools and instruments.					
		5	Select the proper technique for production and quality control of pharmaceuticals.					
	2.2.4	6	Apply the fundamentals of pharmaceutical calculations, bioinformatics, pharmacokinetics, and biopharmaceutics.					
		7	Participate in the process of handling, identifying /disposing biotechnology -based and other materials in pharmaceutical field.					
	2.3.2	8	Practice within ethical, legal requirements and safety guidelines for handling and disposal of biological and pharmaceutical material/products.					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.1	9	Collaborate with other parties to define the role and responsibilities of each.					
	4.1.2	10	Exhibit critical thinking and problem solving ability.					

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours, ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Quality Control and Assurance Round (PR3)

Name of Intern:..... ID. No.

Training Site:.....

Training period: From.../.../.... To/.../.....

Aim of the training round:

Provides interns with a practical experience in good manufacturing practices (GMPs), as regulated and guided by national and international agencies for the pharmaceutical industry covering pharmaceutical products and biologicals, as well as modern methods of practical pharmaceutical analysis.

Competencies	Key elements No (Program Learning Outcomes)	Performance Evaluation Elements		Rating (Max =4)				
		No	Please rate the intern's performance according to the mentioned activities:	1	2	3	4	NA *
1.1 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	1.1.1	1	Apply understanding, and problem-solving abilities, in arising regulatory and analytical challenges and multidisciplinary applications using quality control, quality assurance.					
2.1 Work collaboratively as an interprofessional health care team to improve the quality of life of individuals and communities, and respect patient's right.	2.1.1	2	Exhibit responsibilities for own actions and decisions.					

2.2 Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in system for dispensing, storage and distribution of medicines.	2.2.2	3	Develop and apply elements and requirements of a quality system, evaluate various types of audits and self-inspections, and analyze documents and record management systems.					
	2.2.3	4	Apply advanced qualitative and quantitative tools and applications of pharmaceutical analysis with different goals.					
4.1 Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	4.1.1	5	Design and implement teamwork processes, work effectively within groups.					
	4.1.2	6	Analyze and act to troubleshoot different theoretical, practical and quality related problems.					
4.3 Express self - awareness and be life - long learner for continuous professional improvement.	4.3.1	7	Think critically and creatively.					

NA * , not available

$$\% = \frac{\text{The total points scored by the intern} \times 100}{\text{No. of evaluation elements} \times 4}$$

(%mark should not less than 60% to pass the training round)

The Final Results:

- The intern has successfully passed the training round (...%).
- The intern has to repeat the training round (unexcused absence of more than 25% of the training hours, ... days).
- The intern has to repeat the training round (did not obtain the minimum level to pass the round: 60%).

Signature Of preceptors:

Signature of the round coordinator

For the Training Site:

For the faculty of pharmacy:

Name:

Name:

Signature:

Signature:

Stamp:

Stamp:

Graduation Project Evaluation forms (GPR)

1- Thesis Evaluation Form

Name of Intern:..... **ID. No.**

Name of Supervisor:.....

Thesis Title:.....

Overall Aim of round

This round aims to provide the intern with the opportunity to develop skills in research and get hands on experience in application of various research methodologies that they have learned and to integrate the research with the pharmaceutical practice. It also includes e-portfolio which the student should submit, and which serves as a learning tool for self-assessment, self-awareness and lifelong learning.

Evaluation criteria	Grade
Structure & display (8 points) - Clarity and precision in writing & accurate use of academic language. - Good overall presentation of paper as appropriate to the task. - Using illustrative graphs and images - Proper preface	
Introduction. (4 points) - Contains statement of research problem, aims and significance. - Adequacy of related literature	
Methods (4 points) Correct and appropriate data collection with reliable scientific background.	
Results and Discussion (8 points) - Analysis of the research sources used to address the research problem - Use of logical argument.	
Conclusions. (2 points)	
References (4 points) - Relevance of reference to the study - Proper and homogenous presentation of the references listed	
Total (30 points)	

Evaluator: Prof. Dr.

Graduation project (GPR)

2- Oral Presentation Evaluation Form

Name of Intern:..... **ID. No.**

Name of Supervisor:.....

Thesis Title:.....

Evaluation criteria	Grade
<p>Content: (5 points)</p> <ul style="list-style-type: none"> - Accuracy of scientific background - Use of appropriate range and quantity of sources. - Purposefulness, clear identification of thesis parts to be addressed. 	
<p>Design: (5 points)</p> <ul style="list-style-type: none"> - Clarity of key points. - Professional use of materials, colors, design layout and animation. - Organized Structure and sequence of presentation events. - Orderliness, clear citations of sources. - Use of visual aids (chalkboard, computer graphics, etc.) 	
<p>Presentation and Communication Skills (10 points)</p> <ul style="list-style-type: none"> - Confidence. - Personal appearance. - Eye contact with entire audience, facial expressions. - Appropriate body language. - Fluency in language. - Voice Control. - Responsiveness to audience's questions. 	
Total (20 points)	

Evaluator: Prof. Dr.

3- Assessment Criteria for E-portfolio

Name of Intern:.....

ID. No.

Name of Supervisor.....

Evaluation criteria											
I- Competencies fulfillment: (3 evaluation key elements to be chosen by the student Evaluation of the progress of student personal competencies throughout the curriculum.											
1- Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills. - Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. - Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team. - Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.											
2- Effectively communicate verbally, non-verbally and in writing with individuals and communities. - Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities. - Use contemporary technologies and media to demonstrate effective presentation skills.											
3- Express self-awareness and be a life-long learner for continuous professional improvement. - Perform self-assessment to enhance professional and personal competencies. - Practice independent learning needed for continuous professional development.											
II- Student Reflection & Self-Assessment						Weight	1	2	3	4	5
1- The selected professional examples are directly related to the purpose of the evaluated competences, well-organized and are clearly stated.						1.5					
2- Each description contains an explanation that clearly demonstrates the significance of the professional examples.						1.5					
3- Continuous future professional development is assured through future plans, stated by the student, based on self-assessment.						1					
Grading Score						/ 20					

III- Evaluation of presentation of e-portfolio	Weight	1	2	3	4
1- Content: <ul style="list-style-type: none"> - Purposefulness & clear identification of parts to be addressed. 	0.5				
2- Design: <ul style="list-style-type: none"> - Clear key points with organized structure & sequence of presentation events. - Professional use of design layout, colors, animations & visual aids. 	0.5				
3- Presentation and Communication Skills <ul style="list-style-type: none"> - Confidence & personal appearance. - Appropriate body language; facial expressions & eye contact with entire audience. - Fluency in language & voice control. - Responsiveness to audience's questions. 	1				
Grading Score		/ 10			
Total Grading Score		/ 30			

Evaluators:

1) Name:

Signature:

Logbook

APPE Logbook

Intern Name.

Round Name & code:

Intern ID.

Training Site:

Training period:/...../..... to /...../.....

Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 1	Sunday				
Week 1	Monday				
Week 1	Tuesday				
Week 1	Wednesday				
Week 1	Thursday				
Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 2	Sunday				
Week 2	Monday				
Week 2	Tuesday				
Week 2	Wednesday				
Week 2	Thursday				
Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 3	Sunday				
Week 3	Monday				
Week 3	Tuesday				

Week 3	Wednesday				
Week 3	Thursday				
Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 4	Sunday				
Week 4	Monday				
Week 4	Tuesday				
Week 4	Wednesday				
Week 4	Thursday				
Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 5	Sunday				
Week 5	Monday				
Week 5	Tuesday				
Week 5	Wednesday				
Week 5	Thursday				
Week	Day	Date	Time in	Time out	Preceptor's Signature
Week 6	Sunday				
Week 6	Monday				
Week 6	Tuesday				
Week 6	Wednesday				
Week 6	Thursday				

Intern Feedback Form

Intern Feedback Form

Name of Intern:..... **ID. No.**

Training Site:.....

Training period: From.../.../.... **To**/.../.....

Please rate the following parameters regarding your training round, where 1 is the lowest rated and 4 is the highest rated

Parameter	Rating				
	1	2	3	4	NA
1. Site					
- The site had enough space to accommodate me as an intern					
- The site allowed accessibility to patients' records					
- The site allowed daily assignment with a medical team or specialists					
- The site allowed accessibility to patients for interview and counseling					
- The site allowed accessibility to learning resources like library, Computers, medical Apps					
2. Preceptors					
- Preceptors carefully planned the training time					
- Preceptors were scientifically qualified					
- Preceptors were committed to supervise the performance and attendance of the intern					
- The preceptors promoted discussions, critical thinking and problem- solving ability					
- The preceptors response to inquiries was satisfactory and ethical					

3. Faculty supervision

- Round coordinator provided orientation before attending the round					
- Round coordinator continuously monitor training					
- Round coordinator visits the training site during each round, for follow-up.					
- Obstacles, if any, were communicated and resolved with the round coordinator					
4. My overall assessment of the training rotation					

Signature

Preceptor's evaluation of the APPE round Effectiveness

Name: Training site:

.....

Training round.....

Please evaluate the following points where 1 is the lowest rated and 4 the highest rated.

Point	1	2	3	4
1. The required training learning outcomes were provided by the faculty				
2. Interns achieve the required competencies				
3. Attendance of interns during round				
4. Seriousness of interns during round				
5. Interns' eagerness to learn				
6. Interns have a scientific background that qualifies them to acquire professional competencies				
7. Interns' ability to communicate & work in a group				
8. Interns' ethics and behavior				