Kafr el-Sheikh university
Faculty of Pharmacy
Clinical (Pharm-D) program
Course Specification
2025/2026

Clinical (Pharm-D) program

Course Specification

2025/2026

Fifth Level

Second Semester

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Course Specification

(2025)

Course Title (according to the bylaw)	**Management of critical care patients**			
Course Code (according to the bylaw)	**PP 008**			
Department/s participating in delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**1**	**----**	**2**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**BSc in pharmacy (pharm-D clinical)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Ahmed Amin**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Counsil**			

2. Course Overview (Brief summary of scientific content)

This course aims to provide the student with the knowledge in, pathophysiology, clinical interpretation, pharmacotherapy and management of critical care illness (e.g. medical and surgical crises, trauma patients, supportive care, ICU infections, burns, neuro-critical care, cardiovascular critical care, sepsis, septic shock, pain and analgesia, bleeding disorders and anticoagulation, nutritional support and therapy, hemodynamic monitoring, fluid and electrolyte disorders)

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) **1-1- COMPETENCY**		**Upon finishing this course, students will be able to recognize critical disorders including symptoms, signs, pathophysiology, risk factors and lab investigations that help them for diagnosis patients and identify the pharmacological treatment for each condition.** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Understand the main scientific terms in the science of critical conditions and disorders.
		1.1.2	Recognize different devices and drugs found mainly in ICU.
		1.1.3	Show understanding of most common critical disorders such as shock, sepsis, cardiac arrest, respiratory failure and acid base disturbance and the mechanisms underlying these disorders.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and	1.1.4	Outline different classes of medications used in management of critical and life-threatening conditions.
		1.1.5	Recognize the pharmacological properties of these classes and their mechanisms of action

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	safety in individuals and populations.	**1.1.6**	Identify different safety aspects of the medications used in management of these disorders.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.7**	Recall disease mechanisms to differentiate between different conditions and determine appropriate treatments.
		1.1.8	Resolve drug selection dilemmas in pregnancy and childhood based on safety classifications.
		1.1.9	State different mechanisms of different pharmacological classes and use them for best selection of drug according to specific condition.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.10**	Analyze clinical guidelines on treatment of different conditions and Use literature to guide drug choice for most common critical disorders to save patient's life.
		1.1.11	Interpret clinical trials on biological markers to serve in management of different conditions and evaluate emerging therapies using evidence-based sources.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.12**	Evaluate the impact of inotropes and fluid resuscitation in shock, first hour bundle in management of sepsis and treatment of the underline causes of different conditions such as acid -base disturbance and respiratory failure.
		1.1.13	Analyze regulatory updates on drug safety in life -threatening disorders
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Through studying Management of critical care patients, students develop the ability to work effectively within an inter-professional healthcare team to provide patient-centered care. They collaborate with physicians, nurses, and other professionals to manage conditions such as shock, sepsis, cardiac arrest, respiratory failure, and acid -base disturbance. The course emphasizes ethical practice, respect for patient rights, appropriate referral, and communication skills to improve patients' quality of life.**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		This competency will be developed via the following key elements:	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.1**	Respect confidentiality in sensitive health cases and promote equitable access to intensive care for all serious conditions
		2.1.2	Provide unbiased education on choice of the best management options in controlling life – threatening conditions.
		2.1.3	Students learn how to deal with patients in an ethical and respectful way.
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team .	**2.1.4**	Recognize need for hospitalization or admission in intensive care unit according to the severity of the condition.
		2.1.5	Refer suspected ADRs or treatment failures to appropriate specialists.
2-2- COMPETENCY		**In the Management of critical care patients course, students gain the ability to apply scientific principles to ensure the quality and effectiveness of medications used in critical conditions.** **This competency will be developed via the following key elements:**	
2.2.4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their	**2.2.1**	Apply PK/PD principles for drug dosing in sepsis and septic shock. And calculate bioequivalence considerations in switching products.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.	2.2.2	Adjust drug doses in special populations (e.g., elderly, pregnant women) and evaluate the importance of oxygen therapy in serious conditions.
2-4- COMPETENCY		**Upon finishing this course, students will be able to Actively share professional decisions and proper actions to save patient's life in emergency situations including cardiac arrest, shock, sepsis and respiratory failure and effectively work in forensic fields.** **This competency will be developed via the following key elements:**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems .	2.4.1	Identify and resolve drug interactions in cases requiring polytherapy.
		2.4.2	Apply first-aid knowledge and appropriate drug use (like call 911 and CPR in cardiac arrest) in emergency settings.
		2.4.3	Address nonadherence in long-term regimens.
2-5- COMPETENCY		**the Management of critical care patients course, students are introduced to how pharmaceutical research and clinical trials, and other resources are essential for developing and approving new treatments for life-threatening conditions.** **This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	2.5.1	Students must be able to review evidence from Cochrane, NICE, or UpToDate for critical disorders treatments
		2.5.2	Evaluate effectiveness of fluid resuscitation in different health conditions.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		2.5.3	Participate in reviewing and discussing case studies or clinical trial examples relevant to critical disorders. complex information and leave a lasting impact.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.4	Acquire the basics to propose a small-scale study on treatment outcomes of a chosen condition and participate in audits on drug use and safety.
		2.5.5	Learn how to design a survey on quality-of-life in survival patients.
		2.5.6	Contribute to adverse drug reaction reporting projects in ICU.
DOMAIN 3: Pharmaceutical Care **3-1- COMPETENCY**		**Upon finishing this course, Students must know:** **how body systems (especially brain, kidney, heart) work in health and disease.** **• Know how infections happen and how to identify them in the lab.** **• Link between disease causes, symptoms, tests, and treatment — e.g. in sepsis, shock, cardiac arrest.** **This competency will be developed via the following key elements:**	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	3.1.1	Explain the pathophysiology of acid-base disturbance and its complications
		3.1.2	Relate genetic predisposition in acute respiratory failure as in conditions like acute respiratory distress syndrome.
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.3	Interpret tissue culture results in sepsis and recognize lab markers of acidosis in this condition.
		3.1.4	Monitor PPV to assess fluid responsiveness like in case of shock.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory	3.1.5	Integrate clinical signs, lab results, and treatment options in management of different conditions.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.6	Relate disease pathogenesis with drug regimen selection and monitoring.
		3.1.7	Describe the full clinical picture of critical diseases like shock, sepsis…..etc.
3-2- COMPETENCY		**Upon finishing this course, students will be able to Provide counselling and education services to patients and communities about safe and rational use of medicines and medical devices. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Describe uses, doses, and ADRs of different pharmaceutical agents (antibiotics, inotropes)
		3.2.2	Detail common drug classes (vasopressors, inotropes) and recognize major drug interactions in patients with chronic therapy.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Monitor ADRs and report side effects of long-term drug use and detect drug-related adverse outcomes (e.g., DVT, bradycardia).
		3.2.4	Apply pharmacovigilance in different therapies.
		3.2.5	Recommend safe medication use in pregnancy and lactation.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	3.2.6	Advice on how specific phototherapeutics and nutraceuticals (e.g., omega-3, curcumin, garlic, melatonin) may affect inflammation, coagulation, vasomotor tone, myocardial performance, and respiratory mechanism.
		3.2.7	Identify and manage pharmacologic and physiological interactions between complementary products and ICU therapies (herbal vasodilators which worsen shock).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.8	Provide list of drugs and xenobiotics that precipitate or worsen sepsis, shock, cardiac arrest and acid – base disturbances (e.g., sympathomimetics, beta-blockers, calcium-channel blockers, digoxin, tricyclic antidepressants, salicylates and alcohols)
		3.2.9	Recognize clinical and laboratory features that identify and differentiate specific toxic syndromes in the critically ill patients (sepsis vs toxin-induced SIRS)
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Counsel patients on proper use of adrenaline autoinjector in case of anaphylactic shock.
		3.2.11	Educate patient about medications that may change PH of blood (acid-base disturbance).
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.12	Recognize clinical presentations of acute drug intoxication in critical care settings (airway compromise, cardiovascular instability, seizures, delirium, and multi-organ failure)
		3.2.13	Provide Patient counselling post-critical care discharge, public awareness campaigns, collaboration with addiction service.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills** **This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of	4.1.1	Participate in interdisciplinary teams managing critical disorders and prioritize patient cases with urgent concerns.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	other team members, and express time management skills.	4.1.2	Manage tasks in collaborative projects on life-threatening disease monitoring and evaluate peer contributions during group assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.3	Research treatment guidelines for serious disorders and independently assess medication plans.
		4.1.4	Solve therapeutic dilemmas in conflicting comorbidities and demonstrate initiative in tackling nonadherence issues.
4-2- COMPETENCY		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.** **This competency will be developed via the following key elements:**	
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Communicate counseling information clearly to patients and discuss chronic treatment plans with empathy especially in recurrent cases.
		4.2.2	Provide community education on different life-threatening conditions.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.3	Prepare digital presentations on ICU updates and use mobile apps for patient education.
		4.2.4	Employ tele pharmacy for follow-up in chronic patients and therapy tracking.
4-3- COMPETENCY		**Upon finishing this course, students will be able to express self-awareness and be a life-long learner for continuous professional improvement.** **This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	Reflect on knowledge gaps in fluid resuscitation therapy decision-making and evaluate personal fluid responsiveness in critically ill patient.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		4.3.2	Identify improvement areas after peer evaluation and plan steps to improve therapeutic counseling skills.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Seek new research on emerging therapies and track the continuous updates with respect to new regulations and guidelines.
		4.3.4	Use independent learning to stay updated on drug safety and learn independently to develop professional skills.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (Practical/Clinical/ .....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Introduction to critical care.	**3**	**1**	**2**	---	---
2	Terms used in ICU	**3**	**1**	**2**	---	---
3	Shock	**3**	**1**	**2**	---	---
4	Shock (cont.)	**3**	**1**	**2**	---	---
5	Sepsis	**3**	**1**	**2**	---	---
6	Sepsis (cont.)	**3**	**1**	**2**	---	---
7	**Periodical exam**					
8	Acid-base disturbance	**3**	**1**	**2**	---	---
9	Acid – base disturbance (cont.)	**3**	**1**	**2**	---	---
10	Cardiac arrest	**3**	**1**	**2**	---	---
11	Cardiac arrest (cont.)	**3**	**1**	**2**	---	---
12	Acute respiratory failure	**3**	**1**	**2**	---	---
13	Acute respiratory failure (cont.)	**3**	**1**	**2**	---	---
14	Resuscitation fluids and blood transfusion	**1**	**1**	**Practical exam**		
15	Resuscitation fluids and blood transfusion(cont.)	**1**	**1**	**Practical exam**		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	**Week 7**	**15 marks**	**15%**
2	Final Written Exam	**Week 16,17**	**50 marks**	**50%**
3	Final Practical/Clinical/… Exam	**Week 14,15**	**15 marks**	**15%**
4	Final Oral Exam	**Week 16,17**	**15 marks**	**15%**
5	Assignments / Project /Rubric/ Logbook	**All semester long**	**10 marks**	**10%**
6	Quizzes	-	-	-

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	Textbook of therapeutics, drugs and disease management. Helms R, Quan DJ, Herfindal ET(Ed), Williams and Wilkins, 15th Edition.
	Other References	Notes in management of critical care patients. Practical notes in management of critical care patients.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	-Pharmacotherapy: A Pathophysiologic Approach DiPiro JT, Yee GC, Posey LM, Haines ST, Nolin TD, Ellingrod VL. Pharmacotherapy: A Pathophysiologic Approach. 13th ed. New York: McGraw Hill; 2024. -Applied Therapeutics: The Clinical Use of Drugs

		Koda-Kimble MA, Young LY, Kradjan WA, Guglielmo BJ, Alldredge BK, Corelli RL, et al. Applied Therapeutics: The Clinical Use of Drugs. -12th ed. Philadelphia: Wolters Kluwer; 2023. -American board of pharmacotherapy 2024.
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**/https://www.mdcalc.com**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: Management of critical care patients. Course code: P008

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction to crictical care.	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written, practical and oral exams
Week # 2	Terms used in ICU	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11.	Lectures, E-learning, practical	Written, practical and oral exams

		1.1.12, 1.1.13 , 2.1.4, 2.1.5 , 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	training and class activities	
Week # 3	Shock	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 4	Shock (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 5	Sepsis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 6	Sepsis (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Periodical exam**			
Week # 8	Acid-base disturbance	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 9	Acid-base disturbance (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 10	Cardiac arrest	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 11	Cardiac arrest (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2,	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams

		2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 12	Acute respiratory failure	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, seminars and practical training	Written, practical and oral exams
Week # 13	Acute respiratory failure(cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2,	Lectures and E-learning	Written, practical and oral exams

		2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 14	Resuscitation fluids and blood transfusion	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written and oral exams
Week # 15	Resuscitation fluids and blood transfusion (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11.	Lectures and E-learning	Written and oral exams

		1.1.12, 1.1.13, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		

Name and Signature
Course Coordinator
Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator
Associate. Prof. Ahmed Amin Ali

Course Specification

(2025)

Course Title (according to the bylaw)	**Management of dermatological, reproductive and musculoskeletal diseases**			
Course Code (according to the bylaw)	**PP 009**			
Department/s participating in delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**1**	**----**	**2**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**BSc in pharmacy (pharm-D clinical)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Noha Mahmoud El-Khodary**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Counsil**			

2. Course Overview (Brief summary of scientific content)

This course covers Skin structure and function, primary and secondary lesions, it also covers most popular skin diseases involving infective and non-infective types and their differentiation. Sexually transmitted diseases, male infertility and women health. Musculoskeletal disorders are also included.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) **1-1- COMPETENCY**		**Upon finishing this course, students will be able to Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1.1.1**	Understand the main scientific terms in the science of dermatological, reproductive and musculoskeletal diseases
		1.1.2	Recognize different parts and structures of skin and how they are affected by different pathologies
		1.1.3	Show understanding of most common dermatological, reproductive and musculoskeletal diseases such as psoriasis, eczema, and acne, hormonal regulation and abnormalities leading to reproductive system disorders and the mechanisms underlying musculoskeletal disorders
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and	**1.1.4**	Outline different classes of medications used in management of dermatological, reproductive and musculoskeletal diseases
		1.1.5	Recognize the pharmacological properties of these classes and their mechanisms of action

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	safety in individuals and populations.	**1.1.6**	Identify different safety aspects of the medications used in management of these disorders.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.7**	Recall disease mechanisms to differentiate between different skin lesions and determine appropriate treatments.
		1.1.8	Resolve drug selection dilemmas in pregnancy and childhood based on safety classifications.
		1.1.9	State different mechanisms of different pharmacological classes and use them for best selection of drug according to specific condition
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.10**	Analyze clinical guidelines on treatment of different conditions and Use literature to guide drug choice for most common dermatological, reproductive and musculoskeletal diseases
		1.1.11	Interpret clinical trials on biological markers to serve in management of different inflammatory conditions and evaluate emerging therapies using evidence-based sources.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.12**	Evaluate the impact of biologics and biosimilars in managing chronic inflammatory skin/joint diseases and entitle the implications of cosmetic dermatology trends and hormonal misuse.
		1.1.13	Analyze regulatory updates on drug safety in dermatologic, reproductive or musculoskeletal care
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, students will be able 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.** **This competency will be developed via the following key elements:**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.1.1	Respect confidentiality in sensitive health cases and promote equitable access to dermatologic care for all skin types.
		2.1.2	Provide unbiased education on choice of different management options in different dermatologic, reproductive or musculoskeletal cases.
		2.1.3	Respect patient autonomy in decisions about cosmetic and hormone therapies
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team .	2.1.4	Refer patients with complex skin lesions or suspected malignancies and identify when to seek gynecologist input for reproductive pharmacotherapy.
		2.1.5	Recognize need for physiotherapy consultation or psychiatric therapy in chronic some chronic cases.
		2.1.6	Refer suspected ADRs or treatment failures to appropriate specialists.
2-2- COMPETENCY		**Upon finishing this course, students will be able to standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines. This competence will be developed via the following key elements:**	
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.	2.2.1	Apply PK/PD principles for drug dosing in inflammatory skin/MSK conditions. And calculate bioequivalence considerations in switching topical products.
		2.2.2	Adjust drug doses in special populations (e.g., elderly, obese) and evaluate new delivery systems (e.g., transdermal patches for hormone therapy).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2-4- COMPETENCY		**Upon finishing this course, students will be able to 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.** **This competency will be developed via the following key elements:**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems .	**2.4.1**	Identify and resolve drug interactions in cases requiring polytherapy (retinoids + antibiotics).
		2.4.2	Modify hormonal therapy in patients with thromboembolic risk and resolve NSAID-related GI issues in MSK patients with comorbidities.
		2.4.3	Address nonadherence in long-term regimens.
2-5- COMPETENCY		**Upon finishing this course, students will be able to contribute to pharmaceutical research studies and clinical trials needed to authorize medicinal products** **This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	**2.5.1**	Use updated guidelines to compare different treatments options and review safety profiles of biologics use in different skin or MSK inflammatory disorders.
		2.5.2	Evaluate effectiveness of dietary supplements in different health conditions.
		2.5.3	Assess role of complementary medicine in skin and reproductive care

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.4	Acquire the basics to propose a small-scale study on treatment outcomes of a chosen condition and participate in audits on drug use and safety.
		2.5.5	Learn how to design a survey on quality-of-life in chronic patients.
		2.5.6	Contribute to adverse drug reaction reporting projects in dermatology.
DOMAIN 3: Pharmaceutical Care **3-1- COMPETENCY**		**Upon finishing this course, students will be able to apply the principles of body functions to participate in improving health care services using evidence-based data.** **This competency will be developed via the following key elements:**	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	3.1.1	Apply hormonal feedback principles to guide drug therapy and use genetic predisposition in diseases such as psoriasis to justify biologic selection.
		3.1.2	Recognize genomic factors in drug metabolism for different treatments. And tailor therapy based on patient physiology (e.g., menstrual cycle phase).
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.3	Interpret skin culture results in infectious dermatologic conditions and recognize lab markers of reproductive tract infections.
		3.1.4	Interpret diagnostic swabs and hormonal assays in STDs and PCOS
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.5	Integrate clinical signs, lab results, and treatment options in management of different conditions.
		3.1.6	Relate disease pathogenesis with drug regimen selection and monitoring.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		3.1.7	Explain the rationale behind topical vs systemic agents based on disease site.
3-2- COMPETENCY		**Upon finishing this course, students will be able to Provide counselling and education services to patients and communities about safe and rational use of medicines and medical devices. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Describe uses, doses, and ADRs of different dermatologic agents (retinoids, corticosteroids)
		3.2.2	Detail common drug classes (NSAIDs, bisphosphonates, biologics) and recognize major drug interactions in patients with chronic therapy.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Monitor ADRs and report side effects of long-term drug use and detect drug-related adverse outcomes (e.g., DVT, steroid side effects).
		3.2.4	Apply pharmacovigilance in biologic therapy.
		3.2.5	Recommend safe medication use in pregnancy and lactation.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.6	Advice on evidence for herbal acne or PCOS treatments and evaluate safety and efficacy of supplements for joint health.
		3.2.7	Discuss risks and benefits of phytoestrogens in menopausal women and counsel patients on use of natural remedies for different conditions.
3.2.4	Provide information about toxic profiles of drugs and other	3.2.8	Identify signs of drug toxicity (e.g., retinoid, steroids).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	xenobiotics including sources, identification, symptoms, and management control.	3.2.9	Provide management steps for drug overuse/misuse (e.g., topical corticosteroid overuse)
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Counsel patients on the correct application of dermatological topical preparations (e.g., corticosteroid creams, antifungal agents), including dosage, frequency, and duration of therapy.
		3.2.11	Educate patients and healthcare professionals on safe selection and use of OTC dermatologic agents (e.g., sunscreen, acne cleansers) and musculoskeletal pain relievers (e.g., NSAIDs, topical analgesics).
		3.2.12	instruct communities on proper storage and disposal of dermatology, reproductive, and musculoskeletal medications to prevent degradation and misuse.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.13	Educate the public on the dangers of unsupervised long-term use of topical corticosteroids, skin-lightening products, pain management products and unapproved dermatologic agents.
		3.2.14	Highlight risks of overuse and dependence on analgesics (NSAIDs, opioids) in musculoskeletal disorders, and their potential adverse effects on renal, hepatic, and GI systems.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		This competency will be developed via the following key elements:	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	**4.1.1**	Participate in interdisciplinary teams managing dermatological, reproductive or MSK care and prioritize patient cases with urgent concerns.
		4.1.2	Manage tasks in collaborative projects on chronic disease monitoring and evaluate peer contributions during group assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4.1.3**	Research treatment guidelines for rare disorders and independently assess medication plans.
		4.1.4	Solve therapeutic dilemmas in conflicting comorbidities and demonstrate initiative in tackling nonadherence issues.
4-2- COMPETENCY		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.** **This competency will be developed via the following key elements:**	
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	**4.2.1**	Communicate counseling information clearly to patients and discuss chronic treatment plans with empathy especially in disfiguring cases.
		4.2.2	Provide community education on different skin or reproductive health issues.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	**4.2.3**	Prepare digital presentations on dermatological drug updates and use mobile apps for patient education.
		4.2.4	Employ tele pharmacy for follow-up in chronic patients and therapy tracking.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4-3- COMPETENCY		**Upon finishing this course, students will be able to express self-awareness and be a life-long learner for continuous professional improvement. This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	**4.3.1**	Reflect on knowledge gaps in hormonal therapy decision-making and evaluate personal biases in dermatologic condition management.
		4.3.2	Identify improvement areas after peer evaluation and plan steps to improve therapeutic counseling skills.
4.3.2	Practice independent learning is needed for continuous professional development.	**4.3.3**	Seek new research on emerging therapies and track the continuous updates with respect to new regulations and guidelines.
		4.3.4	Maintain a learning portfolio on dermatology pharmacotherapy and learn independently to develop professional skills.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (Practical /Clinical/ .....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Introduction to dermatology, skin structure and function, primary and secondary lesions.	**3**	**1**	**2**	---	---
2	Skin hyperpigmentation cases	**3**	**1**	**2**	---	---
3	Skin hypopigmentation cases	**3**	**1**	**2**	---	---
4	Viral infection of skin	**3**	**1**	**2**	---	---
5	Bacterial infection of skin	**3**	**1**	**2**	---	---
6	fungal infection of skin	**3**	**1**	**2**	---	---
7	**Periodical exam**					
8	fungal infection of skin cont'd	**3**	**1**	**2**	---	---
9	parasitic infection of skin	**3**	**1**	**2**	---	---
10	psoriasis	**3**	**1**	**2**	---	---
11	Atopic dermatitis	**3**	**1**	**2**	---	---
12	Contact dermatitis	**3**	**1**	**2**	---	---
13	Scaly dermatosis	**3**	**1**	**2**	---	---
14	Sexually transmitted diseases	**1**	**1**	**Practical exam**		
15	Musculoskeletal pain	**1**	**1**	**Practical exam**		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	Week 7	10 marks	10%
2	Final Written Exam	Week 16,17	50 marks	50%
3	Final Practical/Clinical/… Exam	Week 14,15	15 marks	15%
4	Final Oral Exam	Week 16,17	10 marks	10%
5	Assignments / Project /Rubric/ Logbook	All semester long	10 marks	10%
6	Quizzes	Week 4. 8.12	5 marks	5%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	Textbook of therapeutics, drugs and disease management. Helms R, Quan DJ, Herfindal ET(Ed), Williams and Wilkins, 8th Edition.
	Other References	Notes in treatment of Management of dermatological, reproductive and musculoskeletal diseases. Practical notes in Management of dermatological, reproductive and musculoskeletal diseases.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	Applied Therapeutics, The clinical Use of Drugs(2024) Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 11th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 11th Edition(2020)

Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**/https://www.mdcalc.com**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: Management of dermatological, reproductive and musculoskeletal diseases.
Course code: PP009

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction to dermatology, skin structure and function, primary and secondary lesions.	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written, practical and oral exams
Week # 2	Skin hyperpigmentation cases	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6 , 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 3	Skin hypopigmentation cases	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 4	Viral infection of skin	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

Week # 5	Bacterial infection of skin	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 6	fungal infection of skin	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Periodical exam**			
Week # 8	fungal infection of skin cont'd	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 9	parasitic infection of skin	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 ,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.134.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 10	psoriasis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 11	Atopic dermatitis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.134.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 12	Contact dermatitis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 13	Scaly dermatosis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written, practical and oral exams

Week # 14	Sexually transmitted diseases	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written and oral exams
Week # 15	Musculoskeletal pain	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6,	Lectures and E-learning	Written and oral exams

		3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		

Name and Signature
Course Coordinator
Associate. Prof. Noha Mahmoud El-Khodary

Name and Signature
Program Coordinator

Associate. Prof. Ahmed Amin Ali

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification
(2025)

1. Basic Information

Course Title (according to the bylaw)	**Management of pediatric diseases**			
Course Code (according to the bylaw)	**PP 010**			
Department/s participating in delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	2	**1**	**----**	**3**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**Bachelor of Pharmacy (Pharm D.) (Clinical pharmacy)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Noha Mahmoud EL-Khodary**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department council**			

2. Course Overview (Brief summary of scientific content)

This course covers drugs used in pediatrics patient populations, etiology, diagnosis and pharmacotherapy of some disorder, case studies of certain pediatrics diseases

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) 1-1- COMPETENCY		**Upon finishing pediatric course, Graduates will be able to Integrate knowledge from basic and applied pharmaceutical and clinical therapeutics to standardize materials, formulate and manufacture products, and guide safe and effective management of common childhood diseases This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Explain pharmacokinetic and pharmacodynamic changes in pediatrics and their impact on drug dosing.
		1.1.2	Describe the pathophysiology and clinical features of common pediatric infections (URTI, otitis media, meningitis).
		1.1.3	Recognize behavioral and psychosocial aspects of pediatric chronic diseases (ADHD, nocturnal enuresis).
		1.1.4	Integrate biomedical and clinical knowledge in management of pediatric emergencies (sepsis, septic shock).
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and	1.1.5	Correlate drug mechanisms of action with pediatric conditions such as rheumatic fever and epilepsy.
		1.1.6	Evaluate appropriateness and safety of antibiotics in pediatric infections (bacterial meningitis, UTI).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	safety in individuals and populations.	1.1.7	Assess risk-benefit ratio of ADHD medications in children.
		1.1.8	Critically analyze drug safety in pediatric nutrition and milk formula supplementation.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	1.1.9	Use pharmacological data to adjust doses in sepsis and septic shock.
		1.1.10	Apply developmental physiology knowledge to ADHD and nocturnal enuresis management.
		1.1.11	Interpret laboratory results (CBC, renal and liver functions) to guide therapy in infections.
		1.1.12	Link immunological basis of pediatric rheumatic fever to therapeutic interventions.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	1.1.13	Retrieve current pediatric clinical guidelines for common disorders and infections.
		1.1.14	Evaluate evidence for nutritional interventions in pediatrics (milk formula, supplements).
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	1.1.15	Evaluate the impact of antimicrobial resistance in children.
		1.1.16	Critically appraise pediatric drug shortages and off-label drug use.
		1.1.17	Analyze trends in pediatric psychostimulant use for ADHD.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, Graduates will be able Work collaboratively within pediatric healthcare teams to ensure safe, ethical, and patient-centered management of children with acute and chronic illnesses and respect their rights.** **This competency will be developed via the following key elements:**	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.1.1	Respect parents' and guardians' decisions while prioritizing child welfare.
		2.1.2	ensure confidentiality in pediatric health records.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		2.1.3	Address ethical concerns in pediatric consent/assent.
		2.1.4	Value cultural differences in feeding practices and pediatric nutrition.
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.	**2.1.5**	Recognize when to refer children to pediatric specialists.
		2.1.6	Identify scope limits in pediatric emergency management
		2.1.7	Collaborate with pediatricians, dietitians, and nurses in care planning.
		2.1.8	Seek guidance from child psychologists in ADHD management.
2-2- COMPETENCY		**Upon finishing this course, Graduates will be able to apply professional standards in the dispensing, storage, and distribution of pediatric medicines and nutritional products, ensuring proper dosage forms and minimizing medication errors. This competence will be developed via the following key elements:**	
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.	**2.2.1**	Apply weight-based and body surface area–based dosing accurately.
		2.2.2	Interpret pediatric pharmacokinetic parameters for dose adjustment.
2-4- COMPETENCY		**Upon finishing this course, Graduates will be able to Actively participate in clinical decision-making and provide appropriate interventions in pediatric**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		emergencies, including septic shock, meningitis, and other life-threatening conditions. **This competency will be developed via the following key elements:**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	**2.4.1**	Identify and resolve pediatric medication errors in UTI and meningitis therapy.
		2.4.2	Adjust therapy in case of adverse drug reactions in children.
		2.4.3	Counsel parents on drug storage and adherence challenges.
2-5- COMPETENCY		**Upon finishing this course, Graduates will be able to contribute to pediatric-focused research and clinical practice studies aimed at improving drug safety, therapeutic efficacy, and evidence-based pediatric care. This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	**2.5.1**	Critically appraise Cochrane reviews in pediatric medicine.
		2.5.2	Evaluate safety of herbal and OTC product use in children.
		2.5.3	Translate global guidelines (AAP, WHO) into local practice.
2.5.3	Contribute to planning and conducting research studies using appropriate methodologies.	**2.5.4**	Participate in pediatric clinical research on safety and efficacy of drugs.
		2.5.5	Collect and analyze data on pediatric nutrition outcome.
DOMAIN 3: Pharmaceutical Care **3-1- COMPETENCY**		**Upon finishing this course, Graduates will be able to apply the principles of pediatric pharmacotherapy and body functions to design and monitor evidence-based care plans that improve children's health outcomes. This competency will be developed via the following key elements:**	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	**3.1.1**	Explain pediatric immunology in infectious disease susceptibility.
		3.1.2	Apply developmental physiology in therapeutic decision-making.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.3	Interpret lab tests for diagnosis of bacterial meningitis and UTI.
		3.1.4	Apply laboratory findings in guiding antibiotic selection.
		3.1.5	Perform and analyze throat swab cultures in URTI and rheumatic fever.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.6	Link epidemiology of common pediatric diseases (diarrhea, pneumonia, asthma) with treatment.
		3.1.7	Explain pathophysiology of pediatric chronic diseases (asthma, epilepsy, diabetes).
		3.1.8	Correlate clinical pathophysiology with therapeutic interventions.
3-2- COMPETENCY		**Upon finishing this course, Graduates will be able to Provide counselling and education to parents, caregivers, and communities on the safe, rational, and effective use of pediatric medicines, nutritional formulas, and preventive measures. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Identify contraindications of common pediatric drugs (e.g., aspirin in viral illness).
		3.2.2	Recognize common pediatric adverse reactions (e.g., antibiotic rash, corticosteroid effects).
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Monitor adverse drug reactions in neonates and children.
		3.2.4	Promote rational prescribing in pediatric wards.
		3.2.5	Apply dose modification in hepatic/renal impairment.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.6	Counsel parents on herbal remedies in children.
		3.2.7	Assess risks of nutraceutical use in ADHD management.
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.8	Recognize pediatric poisoning emergencies (iron, paracetamol, kerosene).
		3.2.9	Apply management protocols for common pediatric toxicities.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Counsel caregivers on adherence to antibiotic regimens in infections.
		3.2.11	Provide guidance on OTC medication safety in pediatrics.
		3.2.12	Promote vaccination adherence in pediatric populations.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.13	Raise awareness about stimulant misuse among adolescents with ADHD.
		3.2.14	Educate communities on dangers of self-medicating children.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, Graduates will be able to demonstrate leadership, teamwork, critical thinking, and problem-solving skills in managing pediatric pharmaceutical cases. This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Lead pediatric case discussions in groups
		4.1.2	Coordinate collaborative projects on sepsis and meningitis guidelines.
		4.1.3	Evaluate peer contributions in group pediatric research assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.4	Research treatment guidelines for rare disorders and independently assess medication plans.
		4.1.5	Solve therapeutic dilemmas in conflicting comorbidities.
		4.1.6	Work effectively in team-based projects on pediatric nutrition.
4-2- COMPETENCY		**Upon finishing this course, Graduates will be able to communicate effectively with children, parents, caregivers, and healthcare professionals regarding medication use and disease management in pediatrics. This competency will be developed via the following key elements:**	
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Communicate counseling information clearly to patients and discuss chronic treatment plans with empathy and in patient-friendly terms.
		4.2.2	Engage with healthcare teams effectively in pediatric ward rounds.
4.2.2		4.2.3	deliver pediatric case presentations using digital tools.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.4	Apply simulation technologies in pediatric emergency teaching.
		4.2.5	Incorporate multimedia in educational campaigns on child nutrition.
4-3- COMPETENCY		**Upon finishing this course, graduates will be able to practice self-awareness and engage in continuous professional development to stay updated with advances in pediatric pharmacotherapy and child healthcare. This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	Reflect on patient counseling effectiveness
		4.3.2	Develop a personal improvement plan for common pediatrics diseases knowledge.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Seek new research on emerging therapies and track the continuous updates with respect to new regulations and guidelines.
		4.3.4	Maintain a learning portfolio on pediatrics pharmacotherapy and learn independently to develop professional skills.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	**Training (Practical /Clinical/ .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
1	Pharmacokinetic changes in pediatrics	**4**	**2**	**2**	**---**	**---**
2	Pharmacokinetic changes in pediatrics (cont.)	**4**	**2**	**2**	**---**	**---**
3	Common disorders in pediatrics	**4**	**2**	**2**	**---**	**---**
4	Common disorders in pediatrics (cont.)	**4**	**2**	**2**	**---**	**---**
5	ADHD	**4**	**2**	**2**	**---**	**---**
6	Rheumatic Fever	**4**	**2**	**2**	**---**	**---**
7	**Mid-term exam**					
8	Otitis media	**4**	**2**	**2**	**---**	**---**
9	Upper respiratory tract infections	**4**	**2**	**2**	**---**	**---**
10	Bacterial meningitis	**4**	**2**	**2**	**---**	**---**
11	Septic and septic shock	**4**	**2**	**2**	**---**	**---**
12	Urinary tract infections	**4**	**2**	**2**	**---**	**---**
13	Nocturnal enuresis	**4**	**2**	**2**	**---**	**---**
14	Pediatric nutrition and milk formula	**2**	**2**	**Practical exam**	**---**	**---**
15	Pediatric nutrition and milk formula(cont.)	**2**	**2**	**Practical exam**	**---**	**---**

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	Week 7	15 marks	15%
2	Final Written Exam	Week 16,17	50 marks	50%
3	Final Practical/Clinical/… Exam	Week 14,15	15 marks	15%
4	Final Oral Exam	Week 16,17	10 marks	10%
5	Assignments / Project / rubric system/ Logbook	All semester long	10 marks	10%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	-Pharmacotherapy: Principles & Practice, 7th Edition, latest release. -Clinical Pharmacy and Therapeutics, 7th Edition, 2025. Pharmacotherapy: A Pathophysiologic Approach, DiPiro JT, 12th Edition (2023), McGraw-Hill
	Other References	- Notes in managment of pediatric diseases for fifth year students. - Practical notes in managment of pediatric diseases for fifth year students.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	Applied Therapeutics: The Clinical Use of Drugs, 12th Edition, 2024. Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 11th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 12th Edition (2023)

Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**https://www.mdcalc.com** www.medscape.com/
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: managment of pediatric diseases
Course code: PP 010

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Pharmacokinetic changes in pediatrics	1.1.1, 1.1.2, 1.1.3, 1.1.14, 1.1.15, 1.1.16, 1.1.17 2.1.1, 2.1.2, 2.1.3, 2.1.7, 2.1.8	Lectures, E-learning	Written, practical and oral exams
Week # 2	Pharmacokinetic changes in pediatrics (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 3	Common disorders in pediatrics	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2, 4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 4	Common disorders in pediatrics (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 5	ADHD	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2, 4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 6	Rheumatic Fever	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Mid-term exam**			
Week # 8	Otitis media	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 9	Upper respiratory tract infections	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2, 4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	Bacterial meningitis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 11	Septic and septic shock	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2,	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams

		4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 12	Urinary tract infections	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, seminars and practical training	Written, practical and oral exams
Week # 13	Nocturnal enuresis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2,	Lectures and E-learning	Written, practical and oral exams

		2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2, 4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 14	Pediatric nutrition and milk formula	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.4, 4.3.1,	Lectures and E-learning	Written and oral exams

		4.3.2, 4.3.3, 4.3.4		
Week # 15	Pediatric nutrition and milk formula(cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 2.5.4, 2.5.5, 3.1.3, 3.1.4, 3.1.7 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.6, 4.1.2, 4.1.3, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written and oral exams

Name and Signature
Course Coordinator
Associate. Prof. Noha Mahmoud EL-Khodary

Name and Signature
Program Coordinator
Associate. Prof. Ahmed Amin Ali

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification
(2025)

Course Title (according to the bylaw)	**Management of Cardiovascular diseases**			
Course Code (according to the bylaw)	**PP 011**			
Department/s participating in delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**1**	**----**	**2**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**BSc in pharmacy (pharm-D clinical)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Ahmed Amin Ali**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Council**			

2. Course Overview (Brief summary of scientific content)

This course covers main diseases affecting the cardiovascular system, symptoms, prognosis, pharmacological and non-pharmacological management, patient counseling and monitoring of dyslipidaemias, hypertension, coronary artery disease, acute coronary syndromes, heart failure, dysrhythmias, thromboembolic disorders, and stroke.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) **1-1- COMPETENCY**		**Upon finishing this course, students will be able to Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1.1.1**	Explain the pathophysiology of common cardiovascular diseases such as hypertension, ischemic heart disease, heart failure, and arrhythmias.
		1.1.2	Recognize the social and behavioral risk factors for cardiovascular disease (e.g., smoking, diet, inactivity).
		1.1.3	Understand healthcare system and administrative aspects of cardiovascular disease prevention and management.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and	**1.1.4**	Relate the mechanism of action of antihypertensive agents, antianginals, antiarrhythmics, and anticoagulants to their therapeutic effects.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	safety in individuals and populations.	**1.1.5**	Compare the effectiveness of guideline-recommended therapies in different cardiovascular conditions.
		1.1.6	Evaluate drug regimens for safety in patients with comorbidities such as CKD or diabetes.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.7**	Use knowledge of cardiovascular physiology to adjust drug therapy.
		1.1.8	Resolve drug selection dilemmas in pregnancy based on safety classifications.
		1.1.9	State different mechanisms of different pharmacological classes and use them for best selection of drug according to specific condition
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.10**	Review and apply ACC/AHA and ESC cardiovascular guidelines.
		1.1.11	Evaluate systematic reviews on management strategies of different conditions.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.12**	Discuss new drug classes in cardiovascular therapy (e.g., SGLT2 inhibitors in heart failure).
		1.1.13	Evaluate novel drug delivery systems for different therapy regimens.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, students will be able 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.** **This competency will be developed via the following key elements:**	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.1**	Maintain patient confidentiality when discussing cardiovascular risk profiles.
		2.1.2	Respect patient preferences in treatment plans (e.g., invasive vs conservative management).
		2.1.3	Avoid bias in counseling patients with lifestyle-related cardiovascular conditions.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.	2.1.4	Refer patients with severe uncontrolled condition (e.g., hypertension urgency, heart block) to specialist care.
		2.1.5	Collaborate with dietitians and physiotherapists for holistic CVD management.
		2.1.6	Refer suspected ADRs or treatment failures to appropriate specialists.
2-2- COMPETENCY		**Upon finishing this course, students will be able to standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines. This competence will be developed via the following key elements:**	
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.	2.2.1	Apply PK/PD principles for drug dosing to optimize antiarrhythmic or antihypertensive therapy and to calculate appropriate heparin bolus and infusion doses based on body weight.
		2.2.2	Adjust drug doses in special populations (e.g., elderly, obese) and in case of Adjust drug dosing for renal impairment.
2-4- COMPETENCY		**Upon finishing this course, students will be able to 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.** **This competency will be developed via the following key elements:**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Identify and resolve drug interactions in cases requiring polytherapy (e.g., between antiarrhythmics and anticoagulants)
		2.4.2	Adjust polypharmacy regimens in elderly CVD patients.
		2.4.3	Address nonadherence in long-term regimens.
2-5- COMPETENCY		**Upon finishing this course, students will be able to contribute to pharmaceutical research studies and clinical trials needed to authorize medicinal products This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	2.5.1	Use updated guidelines to compare different treatments options and review safety profiles (e.g., Evaluate recent evidence for ARNI use in heart failure).
		2.5.2	Evaluate effectiveness of dietary supplements in different health conditions.
		2.5.3	Review literature on blood pressure targets in elderly patients.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.4	Acquire the basics to participate in studies evaluating medication adherence in CVD patients.
		2.5.5	Learn how to Design surveys on cardiovascular risk awareness
		2.5.6	Contribute to adverse drug reaction reporting projects in CVD.
DOMAIN 3: Pharmaceutical Care 3-1- COMPETENCY		**Upon finishing this course, students will be able to apply the principles of body functions to participate in improving health care services using evidence-based data. This competency will be developed via the following key elements:**	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	3.1.1	Discuss genetic factors influencing drug metabolism.
		3.1.2	Relate cardiovascular pathophysiology to drug target sites.
3.1.3		3.1.3	Use lab data (BNP, troponin) for diagnosis and monitoring

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.4	Evaluate different inflammatory markers affecting CVD such as in myocarditis.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.5	Correlate risk factors with pathophysiology in CVD.
		3.1.6	Relate ECG and ECHO findings to diseases diagnosis and management.
		3.1.7	Link pharmacotherapy choice to disease stage and comorbidities
3-2- COMPETENCY		**Upon finishing this course, students will be able to Provide counselling and education services to patients and communities about safe and rational use of medicines and medical devices. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Describe MOA, indications, ADRs, and interactions of major cardiovascular drug classes.
		3.2.2	Identify contraindications and list drug-drug interactions in patients on multiple cardiovascular agents.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Monitor ADRs and report side effects of long-term drug use and detect drug-related adverse outcomes (e.g., bleeding from anticoagulants).
		3.2.4	Report ADRs related to cardiovascular drugs to pharmacovigilance centers.
		3.2.5	Recommend safe medication use in pregnancy and lactation and promote safe use of cardiovascular medical devices (e.g., stents, pacemakers).
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.6	Evaluate evidence for complementary medicine such as omega-3 fatty acids in hyperlipidemia.
		3.2.7	Counsel patients on potential interactions of supplements with different CVD management medications.
3.2.4		3.2.8	Identify signs of drug toxicity (e.g., digoxin)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.9	Provide management steps for drug overuse/misuse (e.g., Educate patients on safe OTC use such as avoiding decongestants in hypertension)
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Teach correct use of home blood pressure monitors.
		3.2.11	Guide patients on correct use, storage and administration of different CVD medications
		3.2.12	Counsel on adherence to chronic therapy use
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.13	Warn against misuse of PDE-5 inhibitors in patients with CVD.
		3.2.14	Discuss the harm of unregulated "natural" heart tonics.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills** **This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Participate in interdisciplinary teams managing CVDs and prioritizing patient cases with urgent concerns.
		4.1.2	Manage tasks in collaborative projects on chronic disease monitoring and evaluate peer contributions during group assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.3	Research treatment guidelines for rare disorders and independently assess medication plans.
		4.1.4	Solve therapeutic dilemmas in conflicting comorbidities and demonstrate initiative in tackling nonadherence issues.
4-2- COMPETENCY		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.** **This competency will be developed via the following key elements:**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Communicate counseling information clearly to patients and discuss chronic treatment plans with empathy and in patient-friendly terms.
		4.2.2	Provide community education on cardiovascular diseases prevention.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.3	Prepare multimedia case presentations on different CVDs
		4.2.4	Employ tele pharmacy for follow-up in chronic patients and therapy tracking and Create infographic summaries of cardiovascular guidelines.
4-3- COMPETENCY		**Upon finishing this course, students will be able to express self-awareness and be a life-long learner for continuous professional improvement. This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	Reflect on patient counseling effectiveness
		4.3.2	Develop a personal improvement plan for cardiovascular knowledge.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Seek new research on emerging therapies and track the continuous updates with respect to new regulations and guidelines.
		4.3.4	Maintain a learning portfolio on CVDs and learn independently to develop professional skills.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	**Training (Practical /Clinical/ .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
1	Introduction to CVS	**3**	**1**	**2**	**---**	**---**
2	Diagnostic data interpretation in CVS	**3**	**1**	**2**	**---**	**---**
3	Hypertension	**3**	**1**	**2**	**---**	**---**
4	Hypertension (cont.)	**3**	**1**	**2**	**---**	**---**
5	Heart failure	**3**	**1**	**2**	**---**	**---**
6	Myocardial infarction	**3**	**1**	**2**	**---**	**---**
7	**Mid-term exam**					
8	Angina	**3**	**1**	**2**	**---**	**---**
9	arrhythmia	**3**	**1**	**2**	**---**	**---**
10	Arrhythmia	**3**	**1**	**2**	**---**	**---**
11	hyperlipidemia	**3**	**1**	**2**	**---**	**---**
12	Coagulation disorders	**3**	**1**	**2**	**---**	**---**
13	Anemia	**3**	**1**	**2**	**---**	**---**
14	Anemia (cont.)	**1**	**1**	**Practical exam**		
15	Hypovolemic shock	**1**	**1**	**Practical exam**		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	Week 7	15 marks	15%
2	Final Written Exam	Week 16,17	50 marks	50%
3	Final Practical/Clinical/… Exam	Week 14,15	15 marks	15%
4	Final Oral Exam	Week 16,17	10 marks	10%
5	Assignments / Project /Rubric/ Logbook	All semester long	10 marks	10%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	Textbook of therapeutics, drugs and disease management. Helms R, Quan DJ, Herfindal ET(Ed), Williams and Wilkins, 8th Edition.
	Other References	Notes in managment of cardiovascular diseases for fifth year students. - Practical notes in managment of cardiovascular diseases for fifth year students.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	Applied Therapeutics, The clinical Use of Drugs(2024) Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 11th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 11th Edition(2020)

Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**https://www.mdcalc.com/**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: management of cardiovascular disease Course code: PP011

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction to CVS	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written, practical and oral exams
Week # 2	Diagnostic data interpretation in CVS	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6 , 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 3	Hypertension	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11.	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 4	Hypertension (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 5	Heart failure	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 6	Myocardial infarction	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Mid-term exam**			
Week # 8	Angina	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 9	arrhythmia	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	Arrhythmia	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 11	hyperlipidemia	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 12	Coagulation disorders	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 13	Anemia	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2,	Lectures and E-learning	Written, practical and oral exams

		4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 14	Anemia (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written and oral exams
Week # 15	Hypovolemic shock	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2,	Lectures and E-learning	Written and oral exams

		3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		

Name and Signature
Course Coordinator
Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator
Associate. Prof. Ahmed Amin Ali

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

(2025)

Course Title (according to the bylaw)	Management of Gastrointestinal Diseases			
Course Code (according to the bylaw)	PP012			
Department/s participating in delivery of the course	Clinical Pharmacy Department			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	2	**1**		**3**
Course Type	Obligatory			
Academic level at which the course is taught	Fifth level, second semester			
Academic Program	Pharm D-Clinical			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Associate professor. Noha Elkhodary			
Course Specification Approval Date	8/31/2025			
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	Department council			

2. Course Overview (Brief summary of scientific content)

This course aims to provide the student with the knowledge in, pathophysiology, clinical interpretation, pharmacotherapy and management of gastrointestinal disorders including viral hepatitis, pancreatitis, gastrointestinal bleeding, peptic ulcer, gastro-esophageal reflux disease, inflammatory bowel diseases and irritable bowel syndrome as well as gastrointestinal symptoms including nausea, vomiting, constipation, and diarrhea

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) 1-1- COMPETENCY		Upon finishing this course, students will be able to recognize gastrointestinal (GIT) disorders including symptoms, signs, pathophysiology, risk factors and lab investigations that help them for diagnosis patients and identify the non-pharmacological and pharmacological treatment for each GIT disorder. This competency will be developed via the following key elements:	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Understand GI anatomy and physiology to explain disease development.
		1.1.2	Recognize psychosocial factors contributing to IBS and IBD.
		1.1.3	Integrate clinical knowledge in selecting appropriate treatment for peptic ulcer, hepatitis, or cirrhosis.
		1.1.4	Understand the administrative and public health aspects of managing hepatitis outbreaks.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.1.5	Explain the mechanism of PPIs, 5-ASA, antivirals, antiemetics, antidiarrheal, laxative,….etc.
		1.1.6	Evaluate drug safety in hepatic impairment (e.g., dose adjustment in cirrhosis).
		1.1.7	Justify selection of biologics in IBD based on disease severity and response.
		1.1.8	Justify selection of antivirals in hepatitis based on genotype.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems	1.1.9	Use clinical guidelines (e.g., ACG, AASLD) to guide treatment of GI disorders.
		1.1.10	Solve drug selection issues in complex cases like hepatic encephalopathy.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	1.1.11	Review recent trials for new IBD treatments or hepatitis antivirals.
		1.1.12	Identify lab values (e.g., liver function tests, stool calprotectin) to support clinical decisions.
		1.1.13	Identify studies comparing different regimens in H. pylori eradication.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	1.1.14	Discuss the impact of new hepatitis C antivirals on treatment outcomes.
		1.1.15	Explore microbiome-based therapies in IBS as an emerging trend.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE 2-1- COMPETENCY		Through studying Management of Gastrointestinal Diseases, students develop the ability to work effectively within an inter-professional healthcare team to provide patient-centered care. They collaborate with physicians, nurses, and other professionals to manage conditions such as IBD, IBS, peptic ulcer, hepatitis, and cirrhosis. The course emphasizes ethical practice, respect for patient rights, appropriate referral, and communication skills to improve patients' quality of life. It also prepares students to	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		support community health initiatives related to GI disease prevention and education This competency will be developed via the following key elements:	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.1.1	Students learn how to deal with patients in an ethical and respectful way .
		2.1.2	They respect the patient's right to choose their treatment, keep personal information private, and give advice that suits each patient's culture and background — especially in chronic cases like IBD, cirrhosis, or hepatitis.
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.	2.1.3	Identify when referral to a gastroenterologist is needed (e.g., for endoscopy, complex cirrhosis).
		2.1.4	Acknowledge limits in managing hepatic transplant patients or refractory IBD.
2-2- COMPETENCY		In the Management of Gastrointestinal Diseases course, students gain the ability to apply scientific principles to ensure the quality and effectiveness of medications used in GI conditions. They learn: • How liver diseases like cirrhosis or hepatitis affect drug metabolism, and how this influences drug formulation and dosing. • How to choose proper dosage forms (e.g., enteric-coated tablets for peptic ulcer, rectal formulations for IBD). • How to ensure proper storage of sensitive GI medications such as interferons, antivirals, and probiotics. • How to participate in safe and accurate dispensing systems, especially for chronic treatments requiring long-term adherence. This competency will be developed via the following key elements:	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
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	2.2.1	Calculate dose modifications for hepatically metabolized drugs.
		2.2.2	Apply pharmacokinetic knowledge to manage drug levels in cirrhotic patients.
		2.2.3	Understand the impact of liver disease on drug bioavailability and metabolism.
2-4- COMPETENCY		In the Management of Gastrointestinal Diseases course, students learn how to take professional and quick action in emergency situations that may affect the gastrointestinal system or be life-threatening. They are trained to Recognize emergency GI cases like upper GI bleeding,	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Detect and correct inappropriate NSAID use in peptic ulcer patients.
		2.4.2	Manage ADRs related to drugs.
		2.4.3	Address non-adherence in chronic hepatitis or IBD cases.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		2.4.4	Apply first-aid knowledge and appropriate drug use (like lactulose for encephalopathy or IV fluids for vomiting) in emergency GI settings.
2-5- COMPETENCY		the Management of Gastrointestinal Diseases course, students are introduced to how pharmaceutical research and clinical trials and other resources are essential for developing and approving new treatments for GI conditions.	
2.5.2	Competency Contribute to pharmaceutical research studies and clinical trials needed to authorize medicinal products.	2.5.1	Students must be able to review evidence from Cochrane, NICE, or UpToDate for GI treatments.
		2.5.2	Participate in reviewing and discussing case studies or clinical trial examples relevant to GI disorders. complex information, and leave a lasting impact.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies	2.5.3	Design small-scale studies on probiotics in IBS
Domain 3: Pharmaceutical Care 3-1- Competency		Student must know: how body systems (especially GI, liver, pancreas) work in health and disease. Understand how genetics can affect disease and treatment. • Know how infections happen and how to identify them in the lab. • Link between disease causes, symptoms, tests, and treatment — e.g. in hepatitis, IBD, ulcers..	
3.1.1	Apply the principles of body function and the basis of genomics	3.1.1	Explain the pathophysiology of liver cirrhosis and its complications

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	in health and disease states to manage different diseases.	3.1.2	Relate genetic predisposition in IBD or drug metabolism in hepatitis treatment.
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/diseases.	3.1.3	Interpret H. pylori diagnostic tests and antimicrobial sensitivity.
		3.1.4	Monitor viral load in hepatitis B/C and lab markers in pancreatitis.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	3.1.5	Describe the full clinical picture of gastrointestinal diseases like peptic ulcer, cirrhosis…..etc
		3.1.6	Correlate lab/imaging findings with therapeutic options in pancreatitis or IBD.
3-2- Competency		Students are trained to educate patients and communities about how to use GI medications safely and effectively.	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.	3.2.1	Match drug MOA to symptom control in GI diseases (e.g., antiemetics for vomiting).
		3.2.2	Explain ADRs of corticosteroids in IBD or antivirals in hepatitis.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Report and manage ADRs from GI medications.
		3.2.4	Monitor drug interactions in polypharmacy for cirrhotic patients.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	3.2.5	Counsel on safe use of herbal remedies like peppermint oil in IBS or milk thistle in hepatitis.
3.2.4	Provide information about toxic profiles of drugs and other	3.2.6	Identify early signs and laboratory findings of toxicity in GIT diseases.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	xenobiotics including sources, identification, symptoms, and management control.	3.2.7	Understand the symptoms caused by drug- or toxin-induced GIT and liver injury.
		3.2.8	Apply proper management steps, including antidote use and supportive care.
		3.2.9	Educate patients on how to avoid harmful substances, especially in chronic GIT conditions like cirrhosis, hepatitis, or peptic ulcer.
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Counsel patients on proper use of PPIs, antivirals, laxatives, and OTCs.
		3.2.11	Educate on diet and medication timing in IBD and cirrhosis.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse	3.2.13	Explain how misuse or abuse of certain drugs (e.g., laxatives, NSAIDs, alcohol) can harm the GIT and liver.
		3.2.14	Identify social and health consequences of chronic alcohol use, including alcoholic liver disease and gastritis.
		3.2.15	Recognize the role of opioid misuse in causing severe constipation and bowel dysfunction.
		3.2.16	Raise awareness in the community about safe medicine use to prevent complications like GI bleeding or liver failure.
		3.2.17	Promote healthy alternatives and lifestyle modifications to reduce dependence on harmful substances.
Domain 4: Personal Practice 4-1- Competency		From this competency, the student should learn how to: • Work well with others when preparing and presenting a topic like GIT diseases (e.g., cirrhosis, hepatitis, IBD). • Manage time to finish tasks on schedule. • Take responsibility and show leadership when needed.	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
			• Think clearly and solve problems — for example, how to explain treatment options or organize the content in a better way. • Be creative in making the presentation easy to understand and interesting. • Work independently but also support the team when needed. This competency will be developed via the following key elements:
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Take responsibility for their role in preparing the GIT case discussion or treatment plan presentation, ensuring the team performs well.
		4.1.2	Give constructive feedback to peers on how to improve parts like explaining complications of cirrhosis or patient counseling tips for hepatitis
		4.1.3	Manage time effectively by organizing tasks like researching drug therapies for IBD, designing slides, and rehearsing together before the deadline
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.4	Retrieve and critically analyze evidence (e.g., guidelines for treating H. pylori infection or monitoring liver function in hepatitis C).
		4.1.5	Solve problems such as explaining complex pharmacotherapy approaches simply, or adjusting treatment in patients with liver cirrhosis and comorbidities.
		4.1.6	collaborate and contribute meaningfully to team discussions about treatment strategies or patient care plans.
4-2- Competency		Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		This competency will be developed via the following key elements:	
4.2.1	Show the ability to effectively present a topic of interest using recent technology.	4.2.1	Present GI case studies and write care plans clearly and concisely. • Use non-verbal cues effectively in patient role plays and counseling sessions.
		4.2.2	Learn how to present the topic (e.g., "Management of Peptic Ulcer") using modern tools like PowerPoint, infographics, videos, or digital charts making the presentation clear, engaging, and evidence-based.
4.2.2	Communicate clearly by verbal and written means with patients and members of healthcare society	4.2.3	Develop the ability to explain GIT conditions and treatments both verbally (in discussions or presentations) and in writing (e.g., patient education leaflets or summary slides).
		4.2.4	Communicate effectively with patients and healthcare team members, respecting their level of understanding and cultural background.
4-3- Competency		The student should learn how to reflect on their own performance when working on GIT-related tasks (such as presenting a case on hepatitis or designing a care plan for cirrhosis). They should identify their strengths and weaknesses This competency will be developed via the following key elements:	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	Reflect on knowledge gaps in managing GI diseases and plan improvement.
		4.3.2	Complete self-assessment tasks post-lecture
4.3.2		4.3.3	Follow latest guidelines and journals on hepatitis and IBD.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		4.3.4	Use independent learning to stay updated on drug safety and new therapies.

4. Teaching and Learning Methods

1. **Lectures (√)**
2. **Tutorial (Case study) (√)**
3. **Seminar / Workshop (√)**
4. **Class Activity (discussion, brain storm) (√)**
5. **Assignments (√)**

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (Practical /Clinical/ .....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Irritable bowel syndrome	4	2	2	---	---
2	Peptic ulcer	4	2	2	---	---
3	Peptic ulcer (cont.)	4	2	2	---	---
4	Nausea and Vomiting	4	2	2	---	---
5	Inflammatory Bowel Disease	4	2	2	---	---
6	Inflammatory Bowel Disease(cont.)	4	2	2	---	---
7	Periodical exam					
8	Acute pancreatitis	4	2	2	---	---
9	Chronic pancreatitis	4	2	2	---	---
10	Celiac Disease	4	2	2	---	---
11	Constipation	4	2	2	---	---
12	Non- alcoholic fatty liver disease	4	2	2	---	---
14	Acute liver injury – autoimmune hepatitis	4	2	2	---	---
14	Cirrhosis and complications	4	2	Practical exam		
15	Cirrhosis and complications (cont.)	4	2	Practical exam		

6. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	Week 7	10 marks	10%
2	Final Written Exam	Week 16,17	50 marks	50%
3	Final Practical/Clinical/… Exam	Week 14,15	15 marks	15%
4	Final Oral Exam	Week 16,17	10 marks	10%
5	Assignments / Project /rubric system / Logbook	All semester long	10 marks	10%
6	Quizzes	Week 4. 8.12	5 marks	5%

7. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	A Pathophysiologic Approach. Dipiro JT.McGrw-Hill (Ed).12th edition (2023) Clinical Pharmacy and therapeutics 6th edition (2019) -Applied therapeutics 12th edition (2024)
	Other References	Theoretical Notes in Mangement of Gastrointestinal Diseases Practical Notes in Mangement of Gastrointestinal Diseases .
	Electronic Sources	Drugs.com - Prescription Drug Information

		www.medscape.com
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	Pharmacotherapy principles and practice6th edition (2022) Harrison' s Gastroenterology and Hepatology 3rd edition (2020) Pharmacotherapy handbook 12th edition (2023)
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**/https://www.mdcalc.com**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: Management of Gastrointestinal diseases

Course code: P012

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Irritable bowel syndrome	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, `3.2.11,3.2.12,3.2.13,3.2.14, 3.2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning	Written, practical and oral exams
Week # 2	Peptic ulcer	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

Week # 3	Peptic ulcer (cont.)	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 4	Nausea and Vomiting	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 5	Inflammatory Bowel Disease	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4		
Week # 6	Inflammatory Bowel Disease(cont.)	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 7	Periodical exam			
Week # 8	Acute pancreatitis	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4		
Week # 9	Chronic pancreatitis	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	Celiac Disease	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4		
Week # 11	Constipation	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16, 4.1.1,4.1.2, 4.1.3,4.1.5,4.1.6,4.2.1,4.2.2, 42.3,4.2.4,4.3.1,4.3.2,4.3.3,4 .3.4	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 12	Non- alcoholic fatty liver disease	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16,4.1.1,4.1.2,4.1.3 ,4.1.5,4.1.6,4.2.1,4.2.2,42.3, 4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

Week # 13	Acute liver injury – autoimmune hepatitis	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16,4.1.1,4.1.2,4.1.3 ,4.1.5,4.1.6,4.2.1,4.2.2,42.3, 4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures, E-learning, seminars and practical training	
Week # 14	Cirrhosis and complications	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6, 3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16,4.1.1,4.1.2,4.1.3 ,4.1.5,4.1.6,4.2.1,4.2.2,42.3, 4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures, E-learning, seminars and practical training	Written, practical and oral exams
Week # 15	Cirrhosis and complications(cont.)	1.1.1, 1.1.2, 1.1.3, 1.1.4 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9,1.1.10 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1,2.1.2, 2.1.3, 2.1.4, 2.2.1,2.2.2, 2.2.3, 2.4.1,2.4.2,2.4.3,2.4.,4, 2.5.1,2.5.2,2.5.3, 3.1.1,3.1.2,3.1.3, 3.1.4, 3.1.5,3.1.6,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		3.2.1.,3.2.2,3.2.3,3.2.4,3.2.5, 3.2.6,3.2.7,3.2,8,3.2.9,32.10, 3.2.11,3.2.12,3.2.13,3.2.14,3 .2.15,3.2,16,4.1.1,4.1.2,4.1.3 ,4.1.5,4.1.6,4.2.1,4.2.2,42.3, 4.2.4,4.3.1,4.3.2,4.3.3,4.3.4		

Name and Signature
Course Coordinator
Associate professor/ Noha Elkhodary

Name and Signature
Program Coordinator
Associate professor/ Ahmed Amin

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	**Management of respiratory diseases**			
Course Code (according to the bylaw)	**PP 013**			
Department/s participating in delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**1**	**----**	**2**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**Bachelor of Pharmacy (Pharm D.) (Clinical pharmacy)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Ahmed Amin Ali**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department council**			

2. Course Overview (Brief summary of scientific content)

This course covers epidemiology, etiology, pathophysiology, clinical manifestation, investigations, treatment, monitoring, and patient counseling of bronchial asthma, chronic obstructive pulmonary disease, pulmonary hypertension, cystic fibrosis, upper and lower respiratory tract infections, and drug induced respiratory problems.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) 1-1- COMPETENCY		**Upon finishing this course, Graduates will be able to Integrate knowledge from basic and applied pharmaceutical, clinical sciences, respiratory pharmacology, pathophysiology, and therapeutics to guide safe and effective management of respiratory diseases as asthma, and COPD. and deliver patient-centered care** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1.1.1**	Explain pediatric and adult respiratory anatomy and physiology relevant to asthma, COPD, and pneumonia.
		1.1.2	Describe epidemiology and risk factors of influenza, common cold, sinusitis, and allergic rhinitis.
		1.1.3	Recognize behavioral and environmental factors such as smoking and air pollution affecting respiratory diseases.
		1.1.4	Identify clinical manifestations of acute and chronic respiratory tract diseases.
1.1.4	Articulate knowledge from fundamental sciences to explain	**1.1.5**	Explain mechanisms of bronchodilators in asthma and COPD symptom relief.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	**1.1.6**	Evaluate safety and efficacy of antibiotics and antivirals in respiratory infections (e.g., pneumonia, influenza).
		1.1.7	Assess the role of corticosteroids in allergic rhinitis, asthma, and COPD management.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.8**	Apply weight-based and adult dosing strategies in influenza and pneumonia management.
		1.1.9	Utilize knowledge of immunology to guide vaccine selection (e.g., influenza vaccine).
		1.1.10	Solve therapeutic dilemmas in overlapping conditions like asthma-COPD overlap.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.11**	Critically review clinical trials on novel biologics for severe asthma and COPD.
		1.1.12	Apply international respiratory disease guidelines (GOLD, GINA, WHO) to local practice.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.13**	Evaluate antimicrobial resistance trends in pneumonia and sinusitis.
		1.1.14	Discuss the emergence of viral variants affecting influenza management.
		1.1.15	Critically assess the impact of self-medication and misuse of antibiotics in respiratory infections.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, Graduates will be able Work collaboratively within respiratory healthcare teams to ensure ethical, safe, and patient-centered management of acute and chronic respiratory conditions and Respect patients' rights.** **This competency will be developed via the following key elements:**	

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.1.1	Ensure confidentiality of patient data in respiratory disease management (e.g., TB, asthma).
		2.1.2	Address ethical concerns in prescribing antibiotics for viral respiratory infections.
		2.1.3	Respect patient autonomy in choosing treatment options (e.g., inhalers vs nebulizers).
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.	2.1.4	Refer complicated COPD or asthma cases to pulmonologists.
		2.1.5	Recognize limitations in managing resistant pneumonia and involve infectious disease specialists.
		2.1.6	Work with physiotherapists on pulmonary rehabilitation programs.
2-2- COMPETENCY		**Upon finishing this course, Graduates will be able to apply professional standards in dispensing, storage, and distribution of medicines used in respiratory disorders, ensuring proper dosage forms, inhaler techniques, and safe medication practices. This competence will be developed via the following key elements:**	
2.2.4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their	2.2.1	Calculate inhaled drug doses in pediatrics and geriatrics with asthma/COPD.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.	2.2.2	Interpret pharmacokinetic parameters for antibiotics in pneumonia treatment.
2-4- COMPETENCY		**Upon finishing this course, Graduates will be able to Actively contribute to saving patients' lives in respiratory emergencies by participating in the management of acute asthma exacerbations, COPD flare-ups, and severe pneumonia. This competency will be developed via the following key elements:**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Identify and resolve inhaler misuse in asthma and COPD patients.
		2.4.2	Counsel patients on adherence to antibiotic courses in pneumonia and URTIs.
		2.4.3	Prevent drug interactions in multi-drug regimens for chronic respiratory patients.
2-5- COMPETENCY		**Upon finishing this course, graduates will be able to contribute to clinical research and practice-based studies aimed at improving therapeutic outcomes and drug safety in respiratory diseases. This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	2.5.1	Evaluate systematic reviews on biologic therapy in severe asthma.
		2.5.2	Apply evidence to update local guidelines on COPD management.
		2.5.3	Interpret meta-analyses comparing different antibiotic regimens for pneumonia.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.4	Participate in clinical trials on new inhaler devices for COPD and asthma.
		2.5.5	Collect outcome data on quality of life in asthma and COPD patients.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
DOMAIN 3: Pharmaceutical Care **3-1- COMPETENCY**		**Upon finishing this course, graduates will be able to apply principles of pharmacotherapy and respiratory physiology to design and monitor individualized care plans that optimize outcomes in patients with acute and chronic respiratory diseases. This competency will be developed via the following key elements:**	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	3.1.1	Explain immune response in viral respiratory infections (influenza, common cold).
		3.1.2	Apply pathophysiology of COPD to guide therapeutic interventions.
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.3	Interpret sputum cultures in bacterial pneumonia.
		3.1.4	Evaluate diagnostic markers in sinusitis and URTIs.
		3.1.5	Monitor antimicrobial resistance patterns in respiratory pathogens.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.6	Describe etiology and risk factors of COPD and asthma.
		3.1.7	Correlate clinical features of pneumonia with radiological and laboratory findings.
		3.1.8	Apply pharmacotherapeutic approaches to allergic rhinitis and sinusitis.
3-2- COMPETENCY		**Upon finishing this course, graduates will be able to provide counseling and education to patients and communities on the safe and rational use of respiratory medicines, inhalation devices, vaccines, and preventive health measures. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Identify contraindications for aspirin in viral respiratory illnesses in children.
		3.2.2	Recognize common ADRs of antibiotics used in pneumonia and sinusitis.
3.2.2	Apply the principles of clinical pharmacology and	3.2.3	Monitor adverse drug reactions in COPD patients on long-term bronchodilators.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	pharmacovigilance for the rational use of medicines and medical devices.	3.2.4	Evaluate pharmacovigilance reports on vaccine-related respiratory events.
		3.2.5	Apply rational prescribing principles in URTI to minimize antibiotic misuse.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.6	Evaluate aromatherapy as adjunctive therapy in asthma symptom control.
		3.2.7	Assess risks of nutraceuticals marketed for immune boosting in respiratory diseases.
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.8	Recognize toxicity signs of excessive beta-agonist use in asthma.
		3.2.9	Identify sources of inhalant abuse causing respiratory complications.
3.2.5	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	3.2.10	Educate patients on correct inhaler technique.
		3.2.11	Counsel caregivers on safe OTC use for common cold in children.
		3.2.12	Guide proper use of nasal sprays in allergic rhinitis.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.13	Raise awareness about overuse of antibiotics in URTI and common cold.
		3.2.14	Promote campaigns against smoking as a risk factor for COPD and asthma.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, graduates will be able to demonstrate leadership, teamwork, critical thinking, and problem-solving skills in managing pharmaceutical care for patients with respiratory diseases. This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Lead group discussions on case management of pneumonia and asthma.
		4.1.2	Coordinate tasks during collaborative research on influenza outbreaks.
		4.1.3	Evaluate peer contributions during group clinical assignments.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.4	Independently research rare respiratory conditions (e.g., cystic fibrosis).
		4.1.5	Critically appraise conflicting treatment options for asthma-COPD overlap.
		4.1.6	Collaborate with peers in clinical simulations of respiratory emergencies.
4.1.3	Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	4.1.7	Design innovative awareness campaigns on respiratory health.
		4.1.8	Develop educational applications for inhaler technique training.
4-2- COMPETENCY		**Upon finishing this course, graduates will be able to communicate effectively with patients, caregivers, and healthcare professionals regarding the appropriate use of respiratory medications, devices, and preventive strategies. This competency will be developed via the following key elements:**	
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Communicate effectively with patients on long-term management of COPD.
		4.2.2	Provide empathetic counseling for parents of asthmatic children.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.3	Use simulation tools for training on respiratory emergencies (e.g., status asthmaticus).
		4.2.4	Apply digital platforms to spread awareness on smoking cessation.
4-3- COMPETENCY		**Upon finishing this course, graduates will be able to practice self-awareness and engage in continuous professional development to stay updated with emerging therapies and evidence-based guidelines in respiratory disease management. This competency will be developed via the following key elements:**	
4.3.1		4.3.1	Reflect on effectiveness of patient counseling in asthma management.

Program Outcomes (NARS/ARS) (According to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	Perform self-assessment to enhance professional and personal competencies.	4.3.2	Identify personal gaps in knowledge on COPD treatment advances.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Stay updated with latest GOLD and GINA guidelines for COPD and asthma.
		4.3.4	Track updates on biologic therapies in severe asthma.
		4.3.5	Engage in lifelong learning activities related to respiratory health.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	**Training (Practical /Clinical/ .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
1	Introduction	**3**	**1**	**2**	**---**	**---**
2	Influenza and common cold.	**3**	**1**	**2**	**---**	**---**
3	Influenza and common cold (cont.)	**3**	**1**	**2**	**---**	**---**
4	Sinusitis	**3**	**1**	**2**	**---**	**---**
5	Allergic rhinitis	**3**	**1**	**2**	**---**	**---**
6	Allergic rhinitis (cont.)	**3**	**1**	**2**	**---**	**---**
7	**Mid-term exam**					
8	Upper respiratory tract infection	**3**	**1**	**2**	**---**	**---**
9	Upper respiratory tract infections (cont.) .	**3**	**1**	**2**	**---**	**---**
10	Pneumonia	**3**	**1**	**2**	**---**	**---**
11	Pneumonia (cont.).	**3**	**1**	**2**	**---**	**---**
12	Asthma	**3**	**1**	**2**	**---**	**---**
13	Asthma (cont.).	**3**	**1**	**2**	**---**	**---**
14	COPD	**1**	**1**	**Practical exam**	**---**	**---**
15	COPD (cont.)	**1**	**1**	**Practical exam**	**---**	**---**

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	**Week 7**	**15 marks**	**15%**
2	Final Written Exam	**Week 16,17**	**50 marks**	**50%**
3	Final Practical/Clinical/… Exam	**Week 14,15**	**15 marks**	**15%**
4	Final Oral Exam	**Week 16,17**	**10 marks**	**10%**
5	Assignments / Project /rubric system/ Logbook	**All semester long**	**10 marks**	**10%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	Textbook of therapeutics, drugs and disease management. Pharmacotherapy. A Pathophysiologic Approach(2023) Dipiro JT,McGraw-Hill. 12th edition
	Other References	Notes in managment of pediatric diseases for fifth year students. - Practical notes in managment of pediatric diseases for fifth year students.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php

	Other	Applied Therapeutics, The clinical Use of Drugs(2024) Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 11th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 12th Edition(2023)
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	- Data show. - Computers. –Library. –Internet. -Interactive boards and distant learning unit -sphygmomanometer. -peak flow meter. -spirometry.
	Supplies	Classrooms. -Educational pharmacy
	Electronic Programs	**https://www.mdcalc.com** www.medscape.com/
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: management of respiratory diseases Course code: PP013

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction	1.1.1, 1.1.2, 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written, practical and oral exams
Week # 2	Influenza and common cold	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.4, 2.5.5, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4,4.1.7,4.1.8, 4.2.1.4, 4.2.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 3	Influenza and common cold (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1, 2.1.2, 2.1.3, 2.4.1, 2.4.2, 2.4.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.12, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 4	Sinusitis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.4, 2.5.5, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 5	Allergic rhinitis	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1, 2.1.2, 2.1.3, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.1, 3.1.12, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7,4.1.8,4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 6	Allergic rhinitis (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 7	**Mid-term exam**			
Week # 8	Upper respiratory tract infection	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.4,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.5.5, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.1.7,4.1.8, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5		
Week # 9	Upper respiratory tract infections (cont.) .	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1, 2.1.2, 2.1.3, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.12, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	Pneumonia	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.4, 2.5.5, 3.1.5, 3.1.6,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5		
Week # 11	Pneumonia (cont.).	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1, 2.1.2, 2.1.3, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.12, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 12	Asthma	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.7,4.1.8, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 13	Asthma (cont.).	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.4, 2.5.5, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5	Lectures and E-learning	Written, practical and oral exams
Week # 14	COPD	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 1.1.14, 1.1.15, 2.1.1, 2.1.2, 2.1.3, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.12, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5,	Lectures and E-learning	Written and oral exams

		3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7,4.1.8, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 15	COPD (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written and oral exams

Name and Signature
Course Coordinator
Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator
Associate. Prof. Ahmed Amin Ali

Course Specification

(2025)

Course Title (according to the bylaw)	**Clinical research and pharmacovigilance**			
Course Code (according to the bylaw)	**PP 014**			
Department/s participating in the delivery of the course	**Clinical pharmacy department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**----**	**----**	**1**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**BSc in pharmacy (Pharm-D clinical)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Ahmed Amin**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Council**			

2. Course Overview (Summary of scientific content)

This course introduces the student to the basic principles of clinical research, design of research studies, types of research studies, clinical trials, statistical presentation of research data, and ethical guidelines in drug research. This course also provides the students with an understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations, and reporting systems.

Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) **1-1- COMPETENCY**		**Upon finishing this course, students will be able to integrate knowledge from clinical science to contribute to the advancement of medical knowledge, the improvement of patient care, and the development of effective therapeutic interventions in cases such as ADRs and drug interactions.** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Understand the foundational principles of clinical research.
		1.1.2	Recognize different types of clinical research studies, ADRs and drug interactions.
		1.1.3	Understanding pharmacovigilance systems for monitoring drug safety post -marketing, real -world implications of drug use and safety and the mechanism for reporting ADRs.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.1.4	Outline different types of drug interactions(pharmacokinetic and pharmacodynamics).
		1.1.5	Recognize the causality and probability of ADRs.
		1.1.6	Identify different harmful reactions of drugs (side effects, secondary effects, toxic effects , drug tolerance…..)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.7**	Recall different ADRs based on scientific understanding of how drugs interact with biological components in the body.
		1.1.8	Analyzing case studies to understand the relationship between drugs and adverse effects.
		1.1.9	Establishing a drug safety monitoring center to develop effective strategies for data collection and analysis to take appropriate actions to solve different drug use related problems.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.10**	Evaluate the impact of clinical research to elucidate the underlying mechanisms of disease, enabling researchers and clinicians to identify potential targets for new treatments.
		1.1.11	Interpret evidence – based guidelines that inform healthcare professionals on the best practices for diagnosis and treating different conditions.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.12**	Understanding the importance of case studies in understanding the real- world implications of drug safety and the need for proactive monitoring.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, students will be able 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.** **This competency will be developed via the following key elements:**	
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	**2.1.1**	Understanding the protocols for reporting ADRs to ensure compliance with regulatory standards which upload professional integrity.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.1.2	Adopt the ethics of health care and pharmacy profession, respecting patients' rights and valuing people diversity.	2.1.2	Respect confidentiality in sensitive health cases and promote equitable access to the pharmacovigilance center.
		2.1.3	Provide unbiased education on choice of different management options in different ADRs and drug interaction conditions.
		2.1.4	Respect patient decisions about involvement in a specific clinical trial.
2.1.3	Recognize your own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team .	2.1.5	Refer patients with serious drug interactions, which may cause serious conditions that require hospitalization or intensive care.
		2.1.6	Refer suspected ADRs or treatment failures to appropriate specialists.
2-2- COMPETENCY		**Upon finishing this course, students will be able to formulate economically viable distribution systems for medicine** **This competence will be developed via the following key elements:**	
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.	2.2.1	Apply general safety guidelines in drug monitoring and tailored therapeutic protocols for special populations (pediatric, pregnant, geriatric, renal and hepatic patients).
		2.2.2	Achieve good pharmacy practice parameters using the basis of pharmacoeconomics and Pharmacovigilance
2-4- COMPETENCY		**Upon finishing this course, students will be able to actively share professional decisions and proper actions to save a patients' life in emergencies, including**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		poisoning with various xenobiotics, and effectively work in forensic fields **This competency will be developed via the following key elements:**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems .	**2.4.1**	Identify and resolve drug interactions in cases requiring polytherapy.
		2.4.2	Recognize adverse reaction (ADR) and toxicity of different pharmaceuticals and manage such problems to improve individual health care
2-5- COMPETENCY		**Upon finishing this course, students will be able to design, conduct, evaluate and monitor research that meets regulatory standards.** **This competency will be developed via the following key elements:**	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	**2.5.1**	Retrieve information, design, conduct, analyze and interpret results from experimental and clinical research.
		2.5.2	Evaluate effectiveness of reporting ADRs in decrease harms to the patient.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	**2.5.4**	Acquire the basics to propose a small-scale study on treatment outcomes of a chosen condition and participate in audits on drug use and safety.
		2.5.5	Learn how to design a survey on the quality of life in chronic patients.
		2.5.6	Contribute to adverse drug reaction reporting projects.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
3-2- COMPETENCY		**Upon finishing this course, students will be able to Provide counselling and education services to patients and communities about safe and rational use of medicines and medical devices based on clinical studies and research.** **This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs, including mechanisms of action, therapeutic uses, dosage, contraindications, adverse drug reactions and drug interactions	3.2.1	Correlate between information from other health professionals, medical records, pharmacy records, pharmacovigilance and appropriate medical literature to use this information to provide rational use of medication and medical devices.
		3.2.2	Understanding the role of reporting ADRs in identify patterns and risks associated with drug products.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Monitor ADRs and report side effects of long-term drug use and detect drug-related adverse outcomes (e.g., DVT, steroid side effects).
		3.2.4	Apply pharmacovigilance principles.
		3.2.5	Recommend safe medication use based on evidence-based studies and trials.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse	3.2.6	Advice on evidence for treatments of different conditions and evaluate the safety and efficacy of supplements and medications
		3.2.7	Educate the public on the classification of ADRs to help them recognize potential risks associated with drug misuse.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving,**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		independent and teamwork, creativity and entrepreneurial skills This competency will be developed via the following key elements:	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Manage time effectively by organizing tasks and rehearsing together before the deadline
		4.1.2	Manage tasks in collaborative projects on pharmacoepidemiology and pharmacovigilance and evaluate peer contributions during group assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.3	collaborate and contribute meaningfully to team discussions about pharmacovigilance strategies and processes.
		4.1.4	Solve therapeutic dilemmas in conflicting comorbidities and demonstrate initiative in tackling nonadherence issues.
4-2- COMPETENCY		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities. This competency will be developed via the following key elements:**	
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Communicate counseling information clearly to patients and discuss possible side effects and ADRs of different classes of medications.
		4.2.2	Provide community education on the conditions required for ADRs reporting.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.3	Prepare digital presentations on principles of clinical research and use mobile apps for patient education.
		4.2.4	Employ telepharmacy for follow-up in chronic patients and therapy tracking.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4-3- COMPETENCY		**Upon finishing this course, students will be able to express self-awareness and be a lifelong learner for continuous professional improvement. This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	**4.3.1**	Complete self-assessment tasks post-lecture
		4.3.2	Identify improvement areas in clinical research.
4.3.2	Practice independent learning is needed for continuous professional development.	**4.3.3**	Seek new research on updates of clinical studies and latest outcomes from different clinical trials.
		4.3.4	Use independent learning to stay updated on drug safety.

3. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (Practical/Clinical/ .....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Introduction to principal of clinical research.	**1**	**1**	---	---	---
2	Types of clinical research studies and clinical trials.	**1**	**1**	---	---	---
3	Introduction to principal of pharmacoepidemiology	**1**	**1**	---	---	---
4	Principal of pharmacoepidemiology applied to the study of medical use.	**1**	**1**	---	---	---
5	Study design of pharmacoepidemiology	**1**	**1**	---	---	---
6	Evaluation of the pharmacoepidemiology literature	**1**	**1**	---	---	---
7	**Periodical exam**					
8	Introduction to pharmacovigilance and adverse drug reactions (ADRs)	**1**	**1**	---	---	---
9	Classification of ADRs	**1**	**1**	---	---	---
10	Case studies in pharmacovigilance	**1**	**1**	---	---	---
11	Causality and probability of ADRs	**1**	**1**	---	---	---
12	The process of pharmacovigilance	**1**	**1**	---	---	---
13	Reporting ADRs	**1**	**1**	---	---	---
14	Establishing a pharmacovigilance center	**1**	**1**	---		
15	Establishing a pharmacovigilance center (cont.)	**1**	**1**	---		

4. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	Week 7	15 marks	15%
2	Final Written Exam	Week 16,17	50 marks	85%
3	Final Practical/Clinical/… Exam	-	-	-
4	Final Oral Exam	-	-	-
5	Assignments / Project /Rubric/ Logbook	-	-	-
6	Quizzes	-	-	-

5. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	-Cobert's manual of drug safety and pharmacovigilance -Pharmacotherapy: A Pathophysiologic Approach. DiPiro JT et al. .(Eds).12th Edition, 2023
	Other References	Notes in clinical research and pharmacovigilance.
	Electronic Sources	https://www.socra.org/ EKB https://www.acrpnet.org/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other	Understanding Pharmacoepidemiology by Yi Yang, Donna We
Supportive facilities &	**Devices/Instruments**	- Data show.

equipment for teaching and learning *		- Computers. –Library. –Internet. -Interactive boards and distant learning unit
	Supplies	Classrooms.
	Electronic Programs	**/https://www.mdcalc.com**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: Clinical Research and Pharmacovigilance.
Course code: P014

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction to principles of clinical research.	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written exams
Week # 2	types of clinical research studies and evaluation of clinical trials.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6 , 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2,	Lectures, E-learning	Written exams

		4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 3	Introduction to the principles of pharmacoepidemiology.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written, exams
Week # 4	The principle of pharmacoepidemiology is applied to the study of medical use.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1,	Lectures, E-learning	Written exams

		4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 5	study design for pharmacoepidemiology.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning,	Written exams
Week # 6	evaluation of the pharmacoepidemiology literature.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1,	Lectures, E-learning	Written exams

		4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Periodical exam**			
Week # 8	Introduction to pharmacovigilance and ADRs.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning,	Written exams
Week # 9	classification of ADRs.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2,	Lectures, E-learning,	Written exams

		3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 10	case studies in pharmacovigilance.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams
Week # 11	causality and probability of ADRs	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5,	Lectures, E-learning,	Written exams

		3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 12	the process of pharmacovigilance.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning,	Written exams
Week # 13	reporting ADRs**.**	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2,	Lectures and E-learning	Written exams

		2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 14	establishing a pharmacovigilance center.	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written exams
Week # 15	establishing a pharmacovigilannce center (cont.)	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13,	Lectures and E-learning	Written exams

		2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		

Name and Signature
Course Coordinator
Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator

Associate. Prof. Ahmed Amin Ali

Kafrelsheikh University
Faculty of Pharmacy

جامعة كفر الشيخ
كلية الصيدلة

Course Specification
2025

1. Basic Information

Course Title (according to the bylaw)	Good Manufacture Practice (GMP)			
Course Code (according to the bylaw)	PT E10			
Department/s participating in delivery of the course	Pharmaceutics & Pharmaceutical Technology			
Number of credit hours/points of the course (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	1	1	----	2
Course Type	Elective			
Academic level at which the course is taught	Fifth level, semester 2			
Academic Program	Bachelor of pharmacy (Pharm D) (Clinical Pharmacy)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Ass. Prof. Eman Mazyd Lecturer. Ahmed Adel			
Course Specification Approval Date	9/2025			
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	Department council			

2. Course Overview (Brief summary of scientific content)

This course covers the principles of the Current Good Manufacturing Practices (cGMP), aspects of validation, calibration, inspection, documentation, complaint handling, sanitation, hygiene, packaging, labelling, product recall and the ICH guidance for stability testing of new drug substances and products (Q1A).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
Domain 1 (FUNDAMENTAL KNOWLEDGE) 1-1- COMPETENCY		**Upon finishing this course, students will be able to integrate knowledge from basic pharmaceutical science to formulate different classes of semisolid dosage forms as a preliminary step in the manufacture of therapeutic and cosmetic products.** **This competency will be developed via the following key elements:**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1.1.1**	Know the regulations behind receipt of materials, production, packaging, repackaging, labeling, relabeling, quality control, release, storage, and distribution of APIs and the related controls
1.1.3	Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products.	**1.1.2**	Know how to conduct stability studies for different pharmaceuticals
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care	**1.1.3**	Recognize Complaints and Recalls for the pharmaceutical products

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE 2-2- COMPETENCY		**Upon finishing this course, students will be able to formulate and manufacture different semisolid dosage forms and participate in systems for dispensing, storage, and distribution of all semisolid dosage forms.** **This competency will be developed via the following key elements:**	
2.2.2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.	**2.2.1**	Design and formulate safe and effective pharmaceutical dosage forms and new drug delivery systems.
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	**2.2.2**	Employ international guidelines of cGMP in pharmaceutical manufacturing, drug distribution, and storage, complaint handling, and product recalls taking into consideration incompatibility problems
		2.2.3	Select and implement appropriate analytical methods required to confirm specifications of raw material (synthetic or natural) as well as pharmaceutical preparations.
2-3- COMPETENCY		**Upon finishing this course, students will be able to handle and dispose of synthetic/natural pharmaceutical materials used in preparation of semisolid pharmaceutical products effectively and safely with respect to relevant laws and legislations.** **This competency will be developed via the following key elements:**	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other	**2.3.1**	Safely handle different chemicals to avoid harm to the students.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	materials/products used in pharmaceutical fields.		
2.3.2	Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biological and pharmaceutical materials/products.	**2.3.2**	Recognize and adopt MSDS safety guidelines for safe and appropriate handling and disposal of pharmaceutical chemical materials.
2-5- COMPETENCY		**Upon finishing this course, students will be able to contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.** **This competency will be developed via the following key elements:**	
2.5.1	Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements	**2.5.1**	Determine the quality control tests for different dosage forms
Domain 4: Personal Practice **4-1- Competency**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills.** **This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	**4.1.1**	Support teamwork and time management skills through different activities
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	**4.1.2**	Use recent technologies to effectively present a topic of interest.
4.1.3	Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity	**4.1.3**	Discuss the nature of factories' work and the pharmacist role in different fields there

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4-2- Competency		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.** **This competency will be developed via the following key elements:**	
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	**4.2.1**	Perform presentation on the different dosage forms flow chart
		4.2.2	Acquire effective presentation skills in the modern technology and media to create engaging and memorable experiences. This includes using interactive slides, incorporating multimedia (videos, images, audio), and employing tools for real-time feedback and collaboration. By integrating these elements, student can enhance audience engagement, clarify complex information, and leave a lasting impact.
4-3- Competency		**Upon finishing this course, students will be able to** express self-awareness and be a life-long learner for continuous professional improvement. **This competency will be developed via the following key elements:**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	**4.3.1**	Draw different models for the same instrument needed and search for the suitable one to be easy to draw
4.3.2	Practice independent learning needed for continuous professional development	**4.3.2**	Discover for more videos to imagine the whole flow chart of different dosage forms extended to the factories visit.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training/ laboratory** (√)

4- **Assignment** (√)

5- **Brain storming \ discussion** (√)

Course Schedule						
Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/ discussion groups/ .....)	**Training (Practical/ Clinical/ .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
1	Introduction	2	1	1	------	------
2	Introduction	2	1	1	------	------
3	Stability Testing of New Drug Substances and Products	2	1	1	------	------
4	Stability Testing of New Drug Substances and Products	2	1	1	------	------
5	GMP Guide for Active Pharmaceutical Ingredients (APIs)	2	1	1	------	------
6	GMP Guide for APIs	2	1	1	------	------
7	Periodical exam					
8	GMP Guide for APIs	2	1	1	------	------
9	GMP Guide for APIs	2	1	1	------	------
10	GMP Guide for APIs	2	1	1	------	------
11	GMP Guide for APIs	2	1	1	------	------
12	GMP Guide for APIs	2	1	1	------	------
13	GMP Guide for APIs	2	1	1	------	------
14	GMP Guide for APIs	1	1	Practical exam	------	------
15	Complaints and Recalls	1	1	Practical exam	------	------

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	7	15	15%
2	Final Practical/Clinical/… Exam	14 , 15	10	10%
3	Final Written Exam	16,17	50	50%
4	Final Oral Exam	16,17	10	10%
5	Assignments / Project /Portfolio/ Logbook	14,15	10	10%
6	Field training	9	5	5%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	**The main (essential) reference for the course** (must be written in full according to the scientific documentation method)	Good Manufacturing Practices for Pharmaceuticals, Seventh Edition by Graham P. Bunn.
	Other References	The Certified Pharmaceutical GMP Professional Handbook, 2Nd Edition by Mark Allen Durivage.
	Electronic Sources (Links must be added)	https://www.fda.gov/ https://www.ich.org/
	Learning Platforms (Links must be added)	**https://lms3.kfs.edu.eg/pharm/login/index.php**
	Other (to be mentioned)	
Supportive facilities & equipment	**Devices/Instruments**	Laboratory facilities (Equipment of factory).
	Supplies	Water bath, digital balances and other lab instruments
	Electronic Programs	----

for teaching and learning	**Skill Labs/ Simulators**	----
	Virtual Labs	----
	Other (to be mentioned)	Data shows, smart board, Unit for distance learning, Computers, Internet and Library.

Course Plan

Matrix of course learning outcomes CLOs – Teaching and Learning Strategy and Student Assessment

Course title: Good Manufacturing Practice Course code: PT E10

Week	Course Contents	ILOs	Teaching and Learning Methods	Student Assessment Methods
1	Introduction	4.2.1, 2.3.1, 4.3.2	Lectures and discussion	Written and oral exams
2	Introduction	4.2.1,2.3.2	Lectures and practical training	Written, practical, and oral exams
3	Stability Testing of New Drug Substances and Products	1.1.2, 1.1.3, 2.2.1, 4.1.2, 4.2.1	Lectures and practical training	Written, practical, and oral exams
4	Stability Testing of New Drug Substances and Products	1.1.2, 2.2.1, 2.2.2, 4.2.1	Lectures, practical training, and discussion.	Written, practical, and oral exams
5	GMP Guide for Active Pharmaceutical Ingredients (APIs)	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.1.1, 4.2.1	Lectures and discussion.	Written, practical, and oral exams
6	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1, 4.3.1	Lectures and brainstorming.	Written, practical, and oral exams
7	Semester works			
8	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 2.5.1, 4.2.1	Lectures and practical training	Written, practical, and oral exams
9	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1	Lectures and discussion.	Written, practical, and oral exams
10	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1	Lectures	Written, practical, and oral exams
11	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.1.3, 4.2.1	Lectures and class activities.	Written, practical, and oral exams
12	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1, 4.2.2	Lectures and class activities.	Written, practical, and oral exams

13	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1	Lectures and class activities.	Written, practical, and oral exams
14	GMP Guide for APIs	1.1.1, 2.2.1, 2.2.2, 2.2.3, 4.2.1	Lectures and brainstorming	Written and oral exams
15	Complaints and Recalls	1.1.1, 2.2.1, 2.2.2, 4.2.1	Lectures and discussion	Written and oral exams

Name and Signature **Course Coordinator** Ass. Prof. Eman Mazyd Lecturer. Ahmed Adel	**Name and Signature** **Program Coordinator** Ass. Prof. Ahmed Amin Ali