Kafr el-Sheikh University
Faculty of Pharmacy
Pharm-D program
Course Specification
2025/2026

Pharm-D program
Course Specification
2025/2026
Fifth Level
First Semester

Table of Contents:

Note: Page numbering according to the order of appearance in the merged PDF file.

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

2025

1. Basic Information

Course Title (according to the bylaw)	**Biotechnology**			
Course Code (according to the bylaw)	**PM 906**			
Department/s participating in delivery of the course	**Microbiology and Immunology department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	2	**1**	**----**	**3**
Course Type	**Compulsory course**			
Academic level at which the course is taught	**Fifth level, semester (1)**			
Academic Program	**BSc in Pharmacy (Pharm D)**			
Faculty/Institute	**Faculty of Pharmacy**			
University	**Kafrelsheikh University**			
Name of Course Coordinator	**Prof. Dr. Mysara Mohammed**			
Course Specification Approval Date	**9/2025**			
Course Specification Approval	**Department council**			

2. Course Overview (Brief summary of scientific content)

The course aims to provide students with fundamentals, scope, and applications in

biotechnology through studying fermentation technology, upstream, downstream, scaling up and down processes, use of molecular techniques for production of recombinant products, and other major biotechnological products, biotransformation, bioremediation, bioleaching, bioinsecticides, biosurfactants and biopolymer production.

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 biotechnological sciences to standardize biological materials, develop biopharmaceutical products, apply recombinant DNA technologies, and support patient-centered and population-based therapeutic strategies.** **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**	Identify the structure and function of nucleic acids and proteins involved in genetic engineering
		1.1.2	Describe the physicochemical properties and formulation principles of biopharmaceutical products (e.g., proteins, peptides, monoclonal antibodies).
		1.1.3	Define the principles and steps of recombinant DNA technology and gene cloning.

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	Demonstrate the ability to apply basic molecular biology techniques in pharmaceutical biotechnology.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care	**1.1.5**	Identify new biotechnological tools used in drug development.
		1.1.6	Describe the potential therapeutic implications of novel biotechnologies in treating genetic and chronic diseases.
		1.1.7	Define the difference between biotech-based therapies and conventional treatments in terms of patient outcomes
		1.1.8	List the benefits and risks of using gene therapy and personalized medicine
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE 2-2- COMPETENCY		**Upon finishing this course, students will be able to standardize biological materials, apply biotechnology-based methods in the development and production of biopharmaceuticals, and contribute to the systems responsible for the handling, storage, and distribution of biotechnology-derived medicinal products.** **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**	Follow safety and quality rules when working with biological and biotech materials.
		2.2.2	Apply good manufacturing and laboratory practices during biotech product development
		2.2.3	Demonstrate ethical issues in using genetic engineering, stem cells, or animal materials
		2.2.4	Report any mistakes or problems that may affect the quality or safety of biotech 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**
		2.2.5	Use proper methods for storing and transporting sensitive biotech products (like vaccines).
2.2.3	Recognize the principles of various tools and instruments and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	**2.2.6**	Select suitable equipment and techniques for synthesis and analysis of biotech products
		2.2.7	Adhere to environmental and waste disposal regulations when using and maintaining instruments.
		2.2.8	Assess the quality of biotech products.
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.	**2.2.9**	Apply accurate pharmaceutical calculations in designing and adjusting biotechnology-based formulations
		2.2.10	Use biostatistical tools to analyze and interpret experimental data ethically and accurately
2-3- COMPETENCY		**Upon finishing this course, students will be able to handle and dispose biologicals and pharmaceutical materials/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,	**2.3.1**	Handle and process chemicals, biological products, experimental microorganisms, and specimens safely and effectively according to relevant laws and regulations.

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**
	biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical fields.	**2.3.2**	Dispose chemicals, biological and microbiological products/waste safely to avoid the environmental hazards.
2.3.2	Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	**2.3.3**	Recognize and adopt safety guidelines for safe and appropriate handling, use, storage and disposal of biological , microbiological specimens and chemical materials
2-5- COMPETENCY		**Upon finishing this course, students will be able to contribute to microbiological research studies and clinical trials needed to authorize biotech products.** **This competency will be developed via the following key elements:**	
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	**2.5.1**	Contribute to the design and execution of biotechnology research using appropriate experimental methods and analytical techniques.
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 team working, 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**	Demonstrate responsibility in collaborative biotechnology projects, contribute to peer evaluation, and apply effective time management 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**
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4.1.2**	Retrieve and critically evaluate biotechnology-related information, identify and solve scientific problems, and work both independently and collaboratively within a team.
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**	Deliver presentations on advanced biotechnological drug delivery systems and their therapeutic benefits.
		4.2.2	Utilize effective presentation skills in the modern technology and media to create memorable experiences through 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 lifelong learners 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**	Collect and analyze information from different sources to determine limitation and improve personal and professional skills.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

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

4- **Assignment** (√)

5- **Seminars** (√)

6- **Virtual lab** (√)

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 biotechnology	**4**	**2**	**2**		
2	Genetic engineering	**4**	**2**	**2**		
3	Tissue culture	**4**	**2**	**2**		
4	Microbial growth and optimization conditions	**4**	**2**	**2**		
5	Antibiotics production	**4**	**2**	**2**		
6	Production of hormones	**4**	**2**	**2**		
7	**Periodical exam**					
8	Production of vaccines	**4**	**2**	**2**		
9	Production of enzymes	**4**	**2**	**2**		
10	Applications of Monoclonal antibodies in pharmaceutical market	**4**	**2**	**2**		
11	Applications of Monoclonal antibodies in Pharmaceutical market (continue)	**4**	**2**	**2**		
12	Gene therapy	**4**	**2**	**2**		
13	Gene therapy (continue)	**4**	**2**	**2**		
14	Quality control of biological products as vaccines, antibodies,…..	**4**	**2**	**Practical exam**		

15	Quality control of biological products as vaccines, antibodies,….. (continue)	**4**	**2**	**Practical exam**		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1written (formative exam)	**5**	**Training**	**---------**
2	Periodical exam	**7**	**15**	**15%**
3	Final Written Exam	**16, 17**	**50**	**50%**
4	Final Practical Exam	**14, 15**	**25**	**25%**
5	Final Oral Exam	**16, 17**	**10**	**10%**
6	Assignments / Portfolio/ Logbook	**13,14**	**--------**	**----------**

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)	Textbook of Genetics and Biotechnology. (2023). American Academic Publishers. ISBN: 1666867527. An Introduction to Genetic Engineering (4th Edition). Watson, J. D., & Crick, F. H. C. (2023). An Introduction to Genetic Engineering (4th ed.). Cambridge University Press. Principles of Biotechnology and Genetic Engineering – by A. J. Nair.(2022)
	Other References	Notes and Lab manual prepared by the department staff.
	Electronic Sources (Links must be added)	www.pubmed.com www.sciencedirect.com
	Learning Platforms (Links must be added)	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	Laboratory facilities .
	Supplies	Laboratory facilities, microscope, laminar flow & autoclave
	Electronic Programs	----
	Skill Labs/ Simulators	----
	Virtual Labs	----
	Other (to be mentioned)	Data show, 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: Biotechnology Course code: PM 906

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction to biotechnology	1.1.1,1.1.2	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 2	Genetic engineering	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.7, 2.2.6, 2.2.6, 2.3.1, 2.3.2, 2.5.1, 4.2.2, 4.3.1	Lectures, E-learning, practical training, virtual lab	Written, practical and oral exams
Week # 3	Tissue culture	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.7, 2.2.3, 2.2.6, 2.2.6, 2.3.1, 2.3.2, 2.5.1, 4.2.2, 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 4	Microbial growth and optimization conditions	2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6, 2.2.7, 2.2.9, 2.3.1, 2.3.2, 2.3.3, 4.1.1, 4.2.2, 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 5	Antibiotics production	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.7 , 2.2.9 ,2.3.1, 2.3.2, 2.3.3, 4.1.1 , 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 6	Production of hormones	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.7 , 2.2.9 ,2.3.1, 2.3.2, 2.3.3, 4.1.1 , 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 7	Periodical exam			
Week # 8	Production of vaccines	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.7 , 2.2.9 ,2.3.1, 2.3.2, 2.3.3, 4.1.1 , 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams
Week # 9	Production of enzymes	1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.7 , 2.2.9 ,2.3.1, 2.3.2, 2.3.3, 4.1.1 , 4.3.1	Lectures, E-learning, practical training	Written, practical and oral exams

Week # 10	Applications of Monoclonal antibodies in pharmaceutical market	1.1.7,1.1.8, 2.2.1 ,2.2.2, 2.2.3, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.5.1, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 11	Applications of Monoclonal antibodies in Pharmaceutical market (continue)	1.1.7,1.1.8, 2.2.1 ,2.2.2, 2.2.3, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.5.1, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures, E-learning, practical training, seminars	Written, practical and oral exams
Week # 12	Gene therapy	1.1.7, 1.1.8, 2.2.1 ,2.2.2, 2.2.3, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.5.1, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures, E-learning, seminars and practical training	Written, practical and oral exams
Week # 13	Gene therapy (continue)	1.1.7, 1.1.8, 2.2.1 ,2.2.2, 2.2.3, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.5.1, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures, assignment and E-learning	Written, practical and oral exams
Week # 14	Quality control of biological products as vaccines, antibodies,…..	2.2.4, 2.2.8, 2.2.10, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures , assignment and E-learning	Written and oral exams
Week # 15	Quality control of biological products as vaccines, antibodies,…..(continue)	2.2.4, 2.2.8, 2.2.10, 4.1.2 , 4.2.1, 4.2.2., 4.3.1	Lectures and E-learning	Written and oral exams

Name and Signature
Course Coordinator
Prof. Dr. Mysara Mohammed

Name and Signature
Program Coordinator
Prof. Dr. Abdel Aziz El-Ashmawy

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

(2025)

Course Title (according to the bylaw)	**Clinical pharmacy 1**			
Course Code (according to the bylaw)	**PP904**			
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, first semester**			
Academic Program	**Pharm D**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelsheikh University**			
Name of Course Coordinator	**Associate. Prof. Noha Elkhodary** **Associate. Prof. Ahmed Amin**			
Course Specification Approval Date	**31-8-2025**			
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, definition and concepts of clinical pharmacy and pharmaceutical care, and qualification to become a clinical pharmacy. Patient history, medication reconciliation, therapeutic planning and drug related problems. Interpretation of clinical laboratory data and physical examination. Providing medication therapy management services. Principles of special care populations (geriatric, pediatric, pediatric, obesity & pregnancy& lactation). The course also introduces the student to the principles of management and supportive care of cardiovascular diseases (hypertension, hypertension emergencies, heart failure ..)

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 principles of special care populations (geriatric, pediatric, pediatric, renal and hepatic patients, obesity & pregnancy& lactation). Also, students will be able to recognize the principles of management and supportive care of cardiovascular diseases 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 cardiovascular 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 different definitions and concepts of clinical pharmacy.
		1.1.2	Recognize patient history, medication reconciliation, therapeutic planning and drug related problems.
		1.1.3	Integrate clinical knowledge in understanding the principles of special care populations.
		1.1.4	Understand different cardiovascular diseases.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their	1.1.5	Explain the mechanism of ACE inhibitors, beta blockers, ARBs, Ca channel blockers, anti-emetics, muscle relaxants,….etc

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**
	appropriateness, effectiveness, and safety in individuals and populations.	**1.1.6**	Evaluate drug safety in pregnancy (e.g., teratogenic drugs).
		1.1.7	Justify selection of anti-hypertensive medications in HTN based on staging and respons.
		1.1.8	Justify selection of appropriate antibiotics in treatment of UTI in pregnancy.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems	**1.1.9**	Use clinical guidelines to guide treatment of cardiovascular disorders.
		1.1.10	Solve drug selection issues in complex cases like angina.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.11**	Review recent trials for new obesity treatments or autism.
		1.1.12	Identify lab values (e.g., BNP test, LDL, HDL,…) to support clinical decisions.
		1.1.13	Identify studies comparing different regimens in HF.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.14**	Discuss the impact of SGLT 2 inhibitors on cardiac treatment outcomes.
		1.1.15	Explore different strategies in treatment of arrythmia.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Through studying principles of special care populations (geriatric, pediatric, pediatric, obesity & pregnancy& lactation) and management of different cardiovascular disorders , 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 autism, fibromyalgia, hyperemesis gravidarum, UTI in pregnancy, HTN, HTN crisis, HF and arrythmia. The course emphasizes ethical practice, respect for patient rights, appropriate referral, and communication skills to improve patients' quality of life. It also prepares 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**
		to support community health initiatives related to disease prevention and education 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**	Understand the role of the pharmacist in patient counseling.
		2.1.2	Recognize the importance of rational drug use.
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.3**	Students learn how to deal with patients in an ethical and respectful way .
		2.1.4	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 HTN or HF.
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**	Identify when referral to a specialist is needed (e.g., for HF, refractory HTN).
		2.1.6	Acknowledge limits in managing heart transplant patients or refractory HTN.
2-2- COMPETENCY		**In the Clinical pharmacy 1 course, students gain the ability to apply scientific principles to ensure the quality and effectiveness of medications used in different conditions. They learn:** **• How patient age affect drug metabolism, and how this influences drug formulation and dosing.** **• How to choose proper dosage forms.** **• How to ensure proper storage of sensitive medications.** **• How to participate in safe and accurate dispensing systems, especially for chronic treatments requiring long-term adherence.**	

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:	
2.2.4	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 HF.
		2.2.3	Understand the impact of cardiovascular disease on drug bioavailability and metabolism.
2-4- COMPETENCY		In the clinical pharmacy 1 course, students learn how to take professional and quick action in emergency situations that may affect the cardiovascular system or be life-threatening. They are trained to Recognize emergency cases like angina.	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Detect and correct inappropriate medication use in pregnancy.
		2.4.2	Manage ADRs related to drugs.

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	Address non-adherence in chronic HTN or HF cases.
		2.4.4	Apply first-aid knowledge and appropriate drug use in emergency settings.
2-5- COMPETENCY		The clinical pharmacy1 course, students are introduced to how pharmaceutical research and clinical trials and other resources are essential for developing and approving new treatments for different 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 new treatments.
		2.5.2	Participate in reviewing and discussing case studies or clinical trial. complex information, and leave a lasting impact.
Domain 3: Pharmaceutical Care **3-1- Competency**		Student must know: how body systems 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 HTN, Dyslipidemia, HF..	
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of	3.1.1	Describe the full clinical picture of diseases of special populations and cardiovascular diseases like atrial fibrillation, angina…..etc

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**
	infections/diseases and their pharmacotherapeutic approaches.	3.1.2	Correlate lab/imaging findings with therapeutic options in different conditions.
3-2- Competency		Students are trained to educate patients and communities about how to use different medications safely and effectively (e.g., CCB, BB, ACEI…).	
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 cardiovascular diseases (e.g., ACEI for HTN).
		3.2.2	Explain ADRs of different medications (e.g., BB in HF)
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 different medications.
		3.2.4	Monitor drug interactions in polypharmacy for HF patients.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.5	Detect and manage pharmacokinetic and pharmacodynamic interactions between complementary products and conventional drugs. (ginkgo biloba and beta blockers)
		3.2.6	Advice on evidence for herbal treatments and evaluate safety and efficacy of supplements for general health(use of ginger, vitamin b6 or acupuncture for morning sickness in pregnancy)
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.7	describe common toxicity sources such as digoxin, beta-blockers, calcium channel blockers, antiarrhythmics, anticoagulants, and cardiovascular environmental toxins (e.g., carbon monoxide, heavy metals with vascular 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**
		3.2.8	develop patient-specific plans to prevent toxicity (dose adjustment, drug–drug interaction screening, patient education) and advise on monitoring parameters.
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.	**3.2.9**	Counsel patients on proper use of ACEI, CCB, statins, and OTCs.
		3.2.10	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.	**3.2.11**	Explain ADRs of medications related to their abuse.
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 Principles of special care populations (e.g., autism in pediatrics, fibromyalgia in geriatrics, UTI in pregnancy). • Manage time to finish tasks on schedule. • Take responsibility and show leadership when needed. • 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	**4.1.1**	Take responsibility for their role in preparing the cardiovascular case discussion or treatment plan presentation, ensuring the team performs well.

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**
	members, and express time management skills.	**4.1.2**	Give constructive feedback to peers on how to improve parts like explaining complications of dyslipidemia or patient counseling tips for HF.
		4.1.3	Manage time effectively by organizing tasks like researching drug therapies for pre-eclampsia, 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 obesity or monitoring blood pressure in HTN).
		4.1.5	Solve problems such as explaining complex pharmacotherapy approaches simply or adjusting treatment in patients with HF 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. 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 cardiovascular 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., “New medication in treatment of obesity”) using modern tools like PowerPoint, infographics, videos, or digital charts making the

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**
			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 different 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 cardiovascular-related tasks (such as presenting a case on HTN or designing a care plan for HF). 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 different 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 dyslipidemia and arrythmia.
		4.3.4	Use independent learning to stay updated on drug safety and new therapies.

3. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

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

4- **Class activity** (√)

5- **Seminars** (√)

6- **Brainstorming** (√)

7- **Assignments** (√)

8- **Case study** (√)

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	SOAP format	2	2	-	---	---
2	Medication safety in pediatrics.	4	2	2	---	---
3	Medication safety in geriatrics.	4	2	2	---	---
4	Medication safety in pregnancy.	4	2	2	---	---
5	Overweight & obesity	4	2	2	---	---
6	Overweight& obesity (cont.)	4	2	2	---	---
7	**Periodical exam**					
8	Hypertension	4	2	2	---	---
9	Hypertension **(cont.)**	4	2	2	---	---
10	Heart failure	4	2	2	---	---
11	Heart failure (cont.)	4	2	2	---	---
12	Arrythmia	4	2	2	---	---

13	Atrial fibrillation	4	2	2	---	---
14	Dyslipidemia	4	2	Practical exam		
15	Angina and acute coronary syndrome	4	2	Practical exam		

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	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	-	-	-

5. 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)	A Pathophysiologic Approach(5005). Dipiro JT.McGrw-Hill (Ed).13th edition
	Other References	Notes in clinical pharmacy 1. Practical notes in clinical pharmacy 1.
	Electronic Sources (Links must be added)	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms (Links must be added)	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other (to be mentioned)	Applied Therapeutics, The clinical Use of Drugs Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 12th Edition.

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	**----**
	Skill Labs/ Simulators	-Educational pharmacy

Course Plan

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

Course title: clinical pharmacy 1 **Course code: PP904**

Course Contents	**Key elements**	**Teaching and Learning Methods**	**Student Assessment Methods**	Written, practicial and oral exams
Week # 1	SOAP format	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures	Written, and oral exams
Week # 2	Medication safety in pediatrics.	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 3	Medication safety in geriatrics.	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams

		.1.2,3.2.1,3.2.2,3.2.2,3.2.3 ,3.2.4,3.2.5,3.2.6,3.2.7,3.2 .8,3.2.9.3.2.10,3.2.11,4.1. 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	Medication safety in pregnancy	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, 1.1.14,1.1.15,1.2.1,1.2.2,1 .2.3,1.2.4,1.2.5,1.2.6,2.2.1 ,2.2.2,2.2.3,2.4.1.2.4.2,2.4 .3,2.4.4,2.5.1,2.5.2,3.1.1,3 .1.2,3.2.1,3.2.2,3.2.2,3.2.3 ,3.2.4,3.2.5,3.2.6,3.2.7,3.2 .8,3.2.9.3.2.10,3.2.11,4.1. 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 and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 5	Overweight & obesity	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, 1.1.14,1.1.15,1.2.1,1.2.2,1 .2.3,1.2.4,1.2.5,1.2.6,2.2.1 ,2.2.2,2.2.3,2.4.1.2.4.2,2.4 .3,2.4.4,2.5.1,2.5.2,3.1.1,3 .1.2,3.2.1,3.2.2,3.2.2,3.2.3 ,3.2.4,3.2.5,3.2.6,3.2.7,3.2 .8,3.2.9.3.2.10,3.2.11,4.1. 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 and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practical and oral exams
Week # 6	Overweight & obesity(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, 1.1.14,1.1.15,1.2.1,1.2.2,1 .2.3,1.2.4,1.2.5,1.2.6,2.2.1 ,2.2.2,2.2.3,2.4.1.2.4.2,2.4 .3,2.4.4,2.5.1,2.5.2,3.1.1,3 .1.2,3.2.1,3.2.2,3.2.2,3.2.3 ,3.2.4,3.2.5,3.2.6,3.2.7,3.2 .8,3.2.9.3.2.10,3.2.11,4.1. 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 and Tutorial, (case study) , class activity (discussion, brain storm	Written, practical and oral exams
Week # 7	**Mid-term exam**			
Week # 8	Hypertension	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, 1.1.10,1.1.11,1.1.12,1.1.1 3,1.1.14,1.1.15,1.2.1,1.2. 2,1.2.3,1.2.4,1.2.5,1.2.6,2 .2.1,2.2.2,2.2.3,2.4.1.2.4. 2,2.4.3,2.4.4,2.5.1,2.5.2,3 .1.1,3.1.2,3.2.1,3.2.2,3.2. 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 .11,4.1.1,4.1.2,4.1.3,4.1.4 ,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 and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 9	Hypertension (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, 1.1.10,1.1.11,1.1.12,1.1.1 3,1.1.14,1.1.15,1.2.1,1.2. 2,1.2.3,1.2.4,1.2.5,1.2.6,2 .2.1,2.2.2,2.2.3,2.4.1.2.4. 2,2.4.3,2.4.4,2.5.1,2.5.2,3 .1.1,3.1.2,3.2.1,3.2.2,3.2. 2,3.2.3,3.2.4,3.2.5,3.2.6,3	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams

		.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4		
Week # 10	Heart failure	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4 .	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 11	Heart failure (cont.)	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 12	Arrythmia	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 13	Atrial fibrillation	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures and Tutorial, (case study) , class activity (discussion, brain storm)	Written, practicial and oral exams
Week # 14	Dyslipidemia	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2	Lectures	Written and oral exams

		.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4		
Week # 15	Angina and acute coronary syndrome	1.1.1,1.1.2,1.1.3,1.1.4,1.1.5,1.1.6,1.1.7,1.1.8,1.1.9,1.1.10,1.1.11,1.1.12,1.1.13,1.1.14,1.1.15,1.2.1,1.2.2,1.2.3,1.2.4,1.2.5,1.2.6,2.2.1,2.2.2,2.2.3,2.4.1.2.4.2,2.4.3,2.4.4,2.5.1,2.5.2,3.1.1,3.1.2,3.2.1,3.2.2,3.2.2,3.2.3,3.2.4,3.2.5,3.2.6,3.2.7,3.2.8,3.2.9.3.2.10,3.2.11,4.1.1,4.1.2,4.1.3,4.1.4,4.1.5,4.1.6,4.2.1,4.2.2,4.2.3,4.2.4,4.3.1,4.3.2,4.3.3,4.3.4	Lectures	Written and oral exams

Name and Signature

Course Coordinator

Associate. Prof. Noha Mahmoud El-Khodary

Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator

Prof. Abd Elaziz Elashmawoy

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

2025

1. Basic Information

Course Title (according to the bylaw)	**Public Health**			
Course Code (according to the bylaw)	**PM 907**			
Department/s participating in delivery of the course	**Microbiology and Immunology department**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	2	**0**	**----**	**2**
Course Type	**Compulsory course**			
Academic level at which the course is taught	**Fifth level, semester (1)**			
Academic Program	**BSc in Pharmacy (Pharm D)**			
Faculty/Institute	**Faculty of Pharmacy**			
University	**Kafrelsheikh University**			
Name of Course Coordinator	**Prof. Dr. Mysara Mohammed**			
Course Specification Approval Date	**9/2025**			
Course Specification Approval	**Department council**			

2. Course Overview (Brief summary of scientific content)

This course aims to understand all scientific disciplines required for health education and promotion directed to community health. How epidemiology acts as the basis of public health actions will be taught. Detailed scientific information and practice programs will be provided for control of communicable, non-communicable diseases, improving mental, social, environmental, occupational, geriatric, and family health, use of sufficient and balanced food and nutrition, supplying safe drinking water, treating and disposing of wastes, and proper intervention during disasters

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 Public health science to understand the epidemiological characteristics of infectious diseases and outbreak epidemiology.** **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**	Describe core concepts of epidemiology, determinants of health, and disease prevention.
		1.1.2	Identify major public health problems.
		1.1.3	Explain the stages of the infection cycle and describe the interactions between pathogen, host, and environment, emphasizing factors influencing transmission, prevention, and control in public health and pharmacy practice
		1.1.4	Describe occupational and nosocomial diseases and describe their causes, risk factors, and prevention strategies.
		1.1.5	Classify major diseases, their modes of transmission, and outline their epidemiology,

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**
			prevention, and control measures in the community.
		1.1.6	Describe the principles of nutrition and their impact on individual and family health, and relate nutritional interventions to the prevention and management of common public health problems.
1.1.2	Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.	**1.1.7**	Utilize appropriate pharmaceutical and medical terminology, abbreviations, and symbols when documenting, reporting, and communicating public health data, disease surveillance findings, and community health interventions
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	**1.1.8**	Integrate knowledge from public health science to evaluate the effectiveness and safety of drugs for both individuals and populations in the context of disease prevention and health promotion.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.9**	Retrieve information from pharmaceutical and public health sciences to address therapeutic problems, considering both individual patient needs and population-level health priorities.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.10**	Utilize scientific literature and gather relevant epidemiological and clinical data to inform evidence-based professional decisions that improve individual and population health outcomes.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE 2-1- COMPETENCY		**Upon finishing this course, students will be able to collaborate effectively within inter-professional health care teams to plan and implement public health interventions, promote patients' rights, and enhance the quality of life for 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**
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**	Fulfill professional responsibilities in accordance with legal, ethical, and professional frameworks, while respecting the roles of all health care team members in delivering public health services.
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.2**	Adhere to national and international public health laws, ethical codes, and professional standards when delivering pharmacy-related public health services.
2-4- COMPETENCY		**Upon finishing this course, students will be able to collaborate with relevant public health authorities to protect patient safety and the community. This competency will be developed via the following key elements:**	
2.4.1	Ensure safe handling/use of poisons to avoid their harm to individuals and communities.	**2.4.1**	Apply legal, ethical, and professional guidelines and support public health safety measures.
2.4.2	Demonstrate understanding of the first aid measures needed to save patient's Life.	**2.4.2**	Follow the evidence-based first aid measures and apply them effectively to preserve life, prevent complications, and support community emergency preparedness in public health contexts.
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	**2.4.3**	Detect related health care problems and implement public health–oriented strategies such as patient counseling and community education to prevent recurrence.
2-5- COMPETENCY		**Upon finishing this course, students will be able to participate in public health research studies and generate evidence required for the authorization, safety monitoring, and public health evaluation of medicinal 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**
		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**	Interpret and critically evaluate epidemiological data and public health surveillance findings to inform evidence-based pharmaceutical care decisions and support community health interventions.
Domain 3: Pharmaceutical Care **3-1- Competency**		**Upon finishing this course, students will be able to evaluate patient health status and epidemiological evidence to design and deliver pharmaceutical care interventions that enhance health outcomes and support public health initiatives.** **This competency will be developed via the following key elements:**	
3.1.2	Apply the principles of public health and pharmaceutical microbiology to select and assess proper methods of infection control.	**3.1.1**	Apply principles of public health to select and evaluate evidence-based infection control methods that prevent disease transmission, protect patient safety, and reduce community health risks.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	**3.1.2**	Relate etiology, epidemiology and clinical features of diseases to their public health impact and prevention strategies.
3-2- Competency		**Upon finishing this course, students will be able to deliver community education programs to enhance public health awareness.** **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**
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.	**3.2.1**	Counsel communities to enhance public health awareness
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	**3.2.2**	Raise public awareness about the health hazards through preventive strategies and targeted education, and outreach activities
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 team working, 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**	Apply effective time management skills to plan and complete public health activities that improve patient and community outcomes.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4.1.2**	Retrieve, critically appraise, and synthesize evidence from scientific literature, epidemiological datasets, and surveillance findings to support public-health decisions.
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	**4.2.1**	Produce accurate, concise, and audience-appropriate written communications (e.g., patient information leaflets, clinical documentation, public health awareness

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**
	professional health care team, patients, and communities.		materials) that support safe and effective healthcare delivery.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	**4.2.2**	Design clear and evidence-based presentations using digital tools and media to effectively communicate healthcare and public health information.
4-3- Competency		**Upon finishing this course, students will be able to express self-awareness and be lifelong learners 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**	Perform self-assessment to enhance public health awareness.
4.3.2	Practice independent learning needed for continuous professional development.	**4.3.2**	Select appropriate resources to enhance professional knowledge and skills in public health practices.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

3- **Assignments** (√)

4- **Self learning** (√)

5- **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, epidemiologic characteristics of infectious diseases and outbreak epidemiology	**2**	**2**	**0**		
2	The dynamics of infection and the cycle of infection	**2**	**2**	**0**		
3	Preventive and control of communicable diseases	**2**	**2**	**0**		
4	Non communicable health problems	**2**	**2**	**0**		
5	(continue) Non communicable health problems	**2**	**2**	**0**		
6	Ocupitional diseases	**2**	**2**	**0**		
7	**Periodical exam**					
8	Nosocomial infection	**2**	**2**	**0**		
9	Airborne diseases	**2**	**2**	**0**		
10	Food, water and milk borne diseases	**2**	**2**	**0**		
11	Food, water and milk borne disease	**2**	**2**	**0**		
12	Diseases transmitted primarily from animals to humans and arthropods borne diseases	**2**	**2**	**0**		
13	(continue) Diseases transmitted primarily from	**2**	**2**	**0**		

	animals to humans and arthropods borne diseases					
14	Nutrition and family health	**2**	**2**	**0**		
15	Revision and ope discussion	**2**	**2**	**0**		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1written (formative exam)	**5**	**Training**	**------**
2	Periodical exam	**7**	**15**	**15%**
3	Final Written Exam	**16, 17**	**85**	**85%**
4	Assignments	**9,10**	**-------**	**------**

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)	Kaplan, Robert M., and Ron D. Hays. "Health-related quality of life measurement in public health." Annual review of public health 43.1 (2022): 355-373. Steiner, Timothy J., and Lars Jacob Stovner. "Global epidemiology of migraine and its implications for public health and health policy." Nature Reviews Neurology 19.2 (2023): 109-117.
	Other References	Notes prepared by the department staff.
	Electronic Sources (Links must be added)	www.pubmed.com www.sciencedirect.com
	Learning Platforms (Links must be added)	https://lms3.kfs.edu.eg/pharm/login/index.php
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	Faculty facilities.
	Supplies	Class rooms
	Electronic Programs	----
	Skill Labs/ Simulators	----
	Virtual Labs	----
	Other (to be mentioned)	Data show, 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: Public health Course code: PM 907

Course Contents		Key elements	**Teaching and Learning Methods**	**Student Assessment Methods**
Week # 1	Introduction, epidemiologic characteristics of infectious diseases and outbreak epidemiology	1.1.1,1.1.2	Lectures, E-learning	Written exams
Week # 2	The dynamics of infection and the cycle of infection	1.1.2, 1.1.3,	Lectures, E-learning, and self learning	Written exams
Week # 3	Preventive and control of communicable diseases	1.1.1, 1.1.3, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3,	Lectures, E-learning, and self learning	Written exams
Week # 4	Non-communicable health problems	1.1.2, 1.1.3, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, and self learning	Written exams
Week # 5	(continue) Non-communicable health problems	1.1.2, 1.1.3, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, and self learning	Written exams
Week # 6	Ocupitional diseases	1.1.4, 1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, seminar, and self learning	Written exams
Week # 7	**Periodical exam**			
Week # 8	Nosocomial infection	1.1.4, 1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, seminar, and self learning	Written exams
Week # 9	Airborne diseases	1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, assignments and self learning	Written exams

Week # 10	Food, water and milk borne diseases	1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, assignments and self learning	Written exams
Week # 11	Food, water and milk borne diseases	1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, and self learning	Written exams
Week # 12	Diseases transmitted primarily from animals to humans and arthropods borne diseases	1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures, E-learning, and self learning	Written exams
Week # 13	(continue) Diseases transmitted primarily from animals to humans and arthropods borne diseases	1.1.5, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures and E-learning	Written exams
Week # 14	Nutrition and family health	1.1.61.1.7, 1.1.8, 1.1.9, 1.1.10, 2.1.1, 2.1.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.2.1, 3.2.2	Lectures and E-learning	Written exams
Week # 15	Revision and open discussion	1.1.7, 1.1.8, 1.1.9, 1.1.10, 2.5.1, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.3.1, 4.3.2	Lectures and E-learning	Written exams

Name and Signature
Course Coordinator
Prof. Dr. Mysara Mohammed

Name and Signature
Program Coordinator
Prof. Dr. Abdel Aziz El-Ashmawy

Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	Phytotherapy and Aromatherapy			
Course Code (according to the bylaw)	PG 907			
Department/s participating in delivery of the course	Pharmacognosy			
Number of credit hours/points of the course (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	2	1		3
Course Type	compulsory			
Prerequisite	Phytochemistry II			
Academic level at which the course is taught	Level 5, semester (1)			
Academic Program	Bachelor of Pharmacy (Pharm D.)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	ASS. Prof. Dr. Mai H. El-nagar			
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)

The course aims to enable students to attain the systematic approach for herbal prescribing through a comparative study of both traditional and scientifically based uses of herbal drugs in the treatment of various clinical disorders. The course provides clinical pharmacy students with review of the available information on how botanicals may normalize an altered function. Approval by World Health Organization (WHO), German Federal Institute for Drugs and Medical Devices (Commission E) is the base for selection of the studied herbs. The herbal drugs treated in combined way relative to pharmacognosy, pharmacology and toxicology. Special concern is given to the possible mode of action of the herbal drugs based on experimental and clinical pharmacological studies. Also, the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic 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 Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	**Student will be able to integrate knowledge from basic and applied pharmaceutical sciences, including phytotherapy and aromatherapy, to standardize herbal and aromatic materials, formulate natural products, and deliver patient-centered care that incorporates evidence-based complementary therapies.**	
1.1.1	emonstrate understanding of knowledge of rmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1.1.1**	Analyze principles of pharmacognosy, phytochemistry, and phytopharmacology in relation to herbal medicines, comparing their therapeutic rationale, regulation, and pharmacokinetic/pharmacodynamic profiles with synthetic drugs.
1.1.2	Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.	**1.1.2**	Apply correct phytotherapeutic terminology in professional communication, including botanical nomenclature, phytochemical constituents, standardized extract parameters, and mechanisms of action.
1.1.4	Articulate knowledge from fundamental ences to explain drugs' actions and evaluate ir appropriateness, effectiveness, and safety in individuals and populations.	**1.1.3**	Perform analytical and preparative techniques for quality control of herbal materials and products using chromatographic and spectroscopic methods for extraction, isolation, and quantification of active or marker compounds.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.4**	Critically evaluate efficacy, safety, and mechanisms of herbal medicines for disorders of the central nervous, gastrointestinal, respiratory, metabolic, and urinary systems.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.5**	Integrate clinical, preclinical, and regulatory evidence to provide safe, effective phytopharmaceutical recommendations, including assessment of herb–drug interactions.

1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.6**	Examine current trends, innovations, and challenges in the phytopharmaceutical industry, including advances in standardization, biotechnology applications, regulatory policies, and their impact on patient care.
	``DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1. competency** 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.	**Upon finishing his course, students will be able to work as a collaborative member of an inter-professional healthcare team to improve the quality of life of patients and communities through the integration of herbal medicine, phytotherapy, and aromatherapy. They will respect human rights, cultural diversity, and patient preferences while promoting evidence-based complementary therapies.**	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.1**	Demonstrate professional ethics in herbal medicine practice by respecting patients' rights, privacy, and cultural beliefs related to traditional remedies.
		2.1.2	Collaborate with healthcare professionals to integrate phytotherapy and aromatherapy safely within multidisciplinary treatment plans
		2.1.3	and caregivers about the benefits, limitations, and potential risks of medicinal plants and essential oils..
	2-2. Competency **Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.**	**Upon finishing his course, students will be able to to standardize herbal and aromatic materials, formulate and manufacture natural pharmaceutical products, and participate in systems for the dispensing, storage, and distribution of herbal medicines, essential oils, and related medical devices.**	
2.2.2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials	**2.2.1**	Evaluate drug-induced disorders and drug interactions, including herb-drug, herb-food, and herb-disease interactions, with emphasis on safety and efficacy in phytotherapy and aromatherapy.
		2.2.2	Apply appropriate methods for the isolation, purification, and identification of compounds found in aromatherapy
		2.2.3	Formulate and prepare herbal medicinal products, nutraceuticals, and aromatherapy

			blends following GMP and quality assurance standards.
	2-4-Competency **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.**	**Upon finishing his course, students will be able to share professional decisions and take proper actions to save patients' lives in emergency situations, including poisoning with various xenobiotics. They will also be equipped to address emergencies related to the misuse or adverse effects of herbal and aromatic products. This competency will be developed via the following key elements:**	
2.4.1	Ensure safe handling/use of poisons to avoid their harm to individuals and communities.	**2.4.1**	Identify and manage cases of poisoning caused by medicinal plants, essential oils, or contaminated herbal products.
		2.4.2	Apply toxicological principles to assess the safety limits of phytochemicals and essential oil constituents.
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	**2.4.3**	Participate in the development of guidelines for safe handling, storage, and disposal of potentially toxic herbal substances.
	2-5-Competency **Contribute to pharmaceutical research studies and clinical trials needed to authorize medicinal products.**	**Upon finishing his course, students will be able to contribute to pharmaceutical research studies and clinical trials needed to authorize medicinal products, including herbal and aromatic therapies. They will apply their knowledge of phytotherapy and aromatherapy to design, conduct, and evaluate research that ensures the safety, efficacy, and quality of natural medicinal products.**	
2.5.2	**Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.**	**2.5.1**	Retrieve, interpret, and critically evaluate scientific literature related to herbal medicine, essential oils, and phytotherapy clinical trials.
		2.5.2	Participate in the design and execution of phytotherapy-related research, applying suitable experimental and analytical methods.

2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	**2.5.3**	Analyze and present research findings on herbal therapies in compliance with ethical standards for scientific publication.
	Domain 3: Pharmaceutical Care 3-2- Competency Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	**Upon finishing his course, students will be able to provide counseling and education services to patients and communities about safe and rational use of complementary medicine.**	
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	Integrate the pharmacological profile of herbal medicines and essential oils, including their mechanism of action, therapeutic uses, dosing, contraindications, adverse reactions, and interactions with conventional drugs and foods.
		3.2.2	Effectively utilize herbal medicines, phytotherapy, nutraceuticals, and aromatherapy in the management of various diseases. Apply evidence-based approaches to incorporate complementary and alternative medicine into patient care while ensuring safety and efficacy.
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	3.2.3	Recognize evidence-based resources that can be used to assess the effectiveness of herbal medicine efficacy and safety
		3.2.4	Collaborate with healthcare professionals to promote patient awareness and safe use of herbal medicines in therapy based on recent evidence-based data.
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.5	Recognize symptoms and signs of poisoning or adverse reactions. And appropriate management
		3.2.6	Identify sources and causes of toxicity in herbal and aromatherapy products.
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.	3.2.7	Select appropriate OTC herbal and conventional preparations based on patient symptoms, and
		3.2.8	provide counseling for patients, healthcare professionals, and caregivers on the safe and

			proper use of herbal medicines, essential oils, and medical devices
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.9	Educate patients and the public on the safe use of herbal medicines and essential oils, highlighting the risks of misuse, abuse, and self-medication.
		3.2.10	romote evidence-based awareness of potential toxicities, drug–herb, and drug–aroma interactions to minimize health hazards and support safe therapeutic practice.
	Domain 4: Personal Practice **4-1- Competency** **Express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills.**	**Upon finishing his course, students will be able to express leadership, time management, critical thinking, problem-solving, independent and team working, creativity, and entrepreneurial skills in the field of herbal medicine, phytotherapy, and aromatherapy.**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Demonstrate **critical thinking, problem-solving, and creativity** to evaluate and improve team performance in herbal medicine and phytotherapy projects
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.2	Retrieve relevant information on herbal treatments and set realistic targets with a time plan to achieve therapeutic goals within deadlines.
	Domain 4: Personal Practice **4-2- Competency** **Effectively communicate verbally, non-verbally and in writing with individuals and communities.**	**Upon finishing his course, students will be able to effectively communicate verbally, non-verbally and in writing with individuals and communities.**	

4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities.	4.2.1	Communicate clearly with patients, caregivers, and healthcare professionals about herbal and aromatherapy treatments.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.2	Present phytotherapy and herbal medicine topics using recent technologies and multimedia tools.
	4-3- Competency **Express self-awareness and be a life-long learner for continuous professional improvement.**	**Upon finishing his course, students will be able able to express self-awareness and be a life-long learner for continuous professional improvement.**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	Assess personal strengths and areas for improvement through reflection and peer feedback in herbal medicine practice.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.2	Stay updated with current guidelines, regulations, and research related to herbal and aromatherapy treatments
		4.3.3	Pursue continuous independent learning to enhance professional competence in phytotherapeutic and integrative medicine applications.

4. Teaching and Learning Methods

1- Lectures
2. Practical training/ laboratory
3. Class activity
4. E-learning
5. case studies

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-1	**4**	**2**	**2**		
2	Introduction-2	**4**	**2**	**2**		
3	Aromatherapy-1	**4**	**2**	**2**		
4	Aromatherapy-2	**4**	**2**	**2**		
5	Phytotherapy for CNS disorders	**4**	**2**	**2**		
6	Phytotherapy for GIT disorders	**4**	**2**	**2**		
7	**Mid-term exam**					
8	Phytotherapy for respiratory disorders	**4**	**2**	**2**		
9	Phytotherapy for metabolic disorders	**4**	**2**	**2**		
10	Phytotherapy for metabolic disorders	**4**	**2**	**2**		
11	Phytotherapy for Urinary tract disorders	**4**	**2**	**2**		
12	Phytotherapy for women health and skin disorders	**4**	**2**	**2**		
13	Phytotherapy for inflammatory disorders	**4**	**2**	**2**		
14	New trends in Phytotherapy	**2**	**2**	**Practical exam**		

15	Revision	**2**	**2**	**P**ractical 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	Practical exam	14, 15	25	25%
3	Final exam	16, 17	50	50%
4	Oral	16, 17	10	10%

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)	1- Heinrich, Michael, et al. *Fundamentals of Pharmacognosy and Phytotherapy E-Book*. Elsevier Health Sciences, 2023 2-Bone, Kerry, M. C. P. P. Simon Mills, and MA FNIMH. *Principles and practice of phytotherapy: modern herbal medicine*. Elsevier Health Sciences, 2013.
	Other References	- Notes on Phytotherapy prepared in the form of a book authorized by the department Lab Manual of Phytotherapy prepared and distributed by the Department
	Electronic Sources (Links must be added)	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov
	Learning Platforms (Links must be added)	**https://lms3.kfs.edu.eg/pharm/login/index.php**
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	Laboratory facilities (Water baths, Microscopes)
	Supplies	Class rooms. - Data show. - Computers. –Library. –Internet. -Interactive boards
	Electronic Programs	----
	Skill Labs/ Simulators	----
	Virtual Labs	----
	Other (to be mentioned)	

Name and Signature
Course Coordinator

Assistant. Prof. Dr. Mai El Naggar

Name and Signature
Program Coordinator

Prof. Dr. Abdelaziz El Ashmawy

Course Specification
(2025)

1. Basic Information

Course Title (according to the bylaw)	Good Manufacture Practice (GMP)			
Course Code (according to the bylaw)	PT 910			
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	Compulsory			
Academic level at which the course is taught	Fifth level, semester (1)			
Academic Program	Bachelor of Pharmacy (PharmD)			
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.
2.2.3	Recognize the principles of various tools and instruments and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	**2.2.2**	Identify and understand the principles of essential tools, instruments, and equipment used in pharmaceutical manufacturing under GMP guidelines.
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	**2.2.3**	Employ international guidelines of cGMP in pharmaceutical manufacturing, drug distribution, and storage, complaint handling, and product recalls taking into consideration incompatibility problems
		2.2.4	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 synthetic/natural pharmaceutical materials used in preparation of semisolid pharmaceutical**	

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**
		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 materials/products used in pharmaceutical fields.	**2.3.1**	Safely handle different chemicals to avoid harm to the students.
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.

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**
4.1.3	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
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.**	Draw different models for the same instrument needed and search for a suitable one to be easy to draw
4.3.2	Practice independent learning needed for continuous professional development	**4.3.2**	Discover 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- **DISCUSION** (√)

5- **Brain storming** (√)

6- **Assignment** (√)

7- **Presentation** (√)

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%**
	Total		**100**	**100%**

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 for teaching	**Devices/Instruments**	Laboratory facilities (Equipment of factory).
	Supplies	Water bath, digital balances and other lab instruments
	Electronic Programs	**----**
	Skill Labs/ Simulators	**----**
	Virtual Labs	**----**

and learning	**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 910

Week	Course Contents	ILOs	Teaching and Learning Methods	Student Assessment Methods
1	Introduction	4.2.1, 2.3.1, 4.1.3	Lectures and discussion	Written and oral exams
2	Introduction	4.2.1, 4.1.2 ,4.1.1, 4.3.2	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, 4.2.1	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, 4.2.2	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, 4.2.1	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, 4.2.1	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, 2.2.4	Lectures and discussion	Written and oral exams

Name and Signature
Course Coordinator
Ass. Prof. Eman Mazyd
Lecturer. Ahmed Adel

Name and Signature
Program Coordinator

Prof. Abdel Aziz ElSayed

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	**Marketing &Pharmacoeconomics**			
Course Code (according to the bylaw)	**NP-905**			
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**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Fifth level**			
Academic Program	**BSc in pharmacy (pharm-D)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof.Ahmed Amin Ali** **Associate. Prof. Abdelaziz elsayed**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Counsil**			

2. Course Overview (Brief summary of scientific content)

the basic concepts of health economics, learning basic terms of health economics and understand key principles. Topics cover the economic mechanisms of health care markets as market failures, and government intervention. The course covers the key components of health care financing, and some methods of how to contain health care expenditure. Alongside the major definitions in health technology assessment, students should have an overview about different types of economic evaluation, budget impact analysis and their uses. Moreover, students should get familiar with different methods of pricing among which value-based pricing.

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		**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**	Apply administrative science principles (planning, organizing, controlling) to pharmaceutical practice

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**
		1.1.2	Understand managerial roles and leadership theories (administrative & behavioral **(**sciences
		1.1.3	Integrate administrative and social sciences in strategic goal setting and marketing plan design
		1.1.4	Apply pharmaceutical science knowledge ethically in marketing while considering social responsibility
Domain 2: Professional and Ethical Practice **2-6- Competency**		**Upon finishing this course, students will be able to 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:**	
2-6-1	Apply the principles of business administration and management to ensure rational use of financial and human resources.	**2.6.1**	Define and apply the functions of planning organizing, leading, and controlling to optimize financial and human resources in pharmacy practice

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**
		2.6.2	Identify roles and responsibilities of managers; develop leadership, decision-making, and delegation skills.
		2.6.3	design and evaluate effective marketing plans for pharmaceutical products or services.
		2.6.4	Apply ethical and professional pharmacy standards in marketing; use clinical knowledge to ensure rational medicine .promotion
		2.6.5	Analyze psychological and practical factors influencing purchasing decisions in .healthcare markets
		2.6.6	Integrate product, price, place, and promotion strategies to meet business and patient care .goals
		2.6.7	,Design ethical advertising; segment markets select target audiences, and position products .effectively
		2.6.8	Apply structured sales stages from prospecting to closing, ensuring value and compliance in pharmacy sales.
		2.6.9	Use effective questioning techniques to uncover customer needs and improve service delivery.
		2.6.10	Monitor and assess customer feedback to enhance satisfaction and loyalty.
		2.6.11	Identify and prioritize customer expectations; adapt pharmacy services accordingly.
		2.6.12	Implement systems to monitor safety and effectiveness of marketed products; use data to adjust strategies and comply with regulations.

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**
2-6-2	Utilize the principles of drug promotion, sales, marketing, accounting, and pharmacoeconomic analysis.	**2.6.13**	Planning, organizing, leading, and controlling resources to achieve pharmaceutical marketing and sales .objectives
		2.6.14	,Role of managers in decision-making coordination, and performance monitoring .within pharmaceutical business operations
		2.6.14	Setting long-term goals, identifying Plan opportunities, and creating a structured .marketing plan for pharmaceutical products
		2.6.15	Applying pharmaceutical expertise to ethical ,promotion, bridging manufacturers .healthcare providers, and patients
		2.6.16	Understanding psychological, social, and ,economic factors influencing prescribers .pharmacists, and patient decisions
		2.6.17	Managing product, price, place, and promotion to meet market needs while .ensuring regulatory compliance
		2.6.18	Developing effective, ethical communication strategies to highlight product benefits and .safety
		2.6.19	egmentation, Targeting & PositioningS Dividing the market, selecting target (STP) segments, and positioning products to .address specific healthcare needs
		2.6.20	Process from prospecting to Sales Cycle → follow-up: prospect → approach presentation → handle objections → close .sale → follow-up

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**
		2.6.21	Using open- and closed-ended questions to uncover customer needs, build trust, and .guide sales conversations
		2.6.22	,Managing feedback, addressing concerns and maintaining strong customer .relationships
		2.6.23	Identifying and fulfilling unmet therapeutic .needs through tailored products and services
		2.6.24	Monitoring safety and effectiveness after product launch; reporting adverse events to .regulatory authorities
		2.6.25	Applying cost-minimization, cost-effectiveness, cost-utility, and cost-benefit studies to guide pricing and formulary .decisions
		2.6.26	;Tracking sales, expenses, and profits budgeting for marketing and promotional .activities
Domain 4: Personal Practice **4-1- Competency**		**Upon finishing this course, students will be able 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**	,Work collaboratively to plan, organize, lead ,and control marketing and sales activities .ensuring tasks are completed on time
		4.1.2	,Share responsibility with team members evaluate roles and contributions, and ensure .smooth coordination

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**
		4.1.3	Contribute to team development of marketing strategies, ensuring deadlines and objectives .are met
			Collaborate with peers to integrate professional knowledge into marketing .efforts and assess each other's input
		4.1.4	Work as a team to research and analyze customer motives, assigning tasks efficiently .to meet project timelines
		4.1.5	,Cooperate with the team to design product price, place, and promotion plans; review .peer contributions and meet project schedules
		4.1.6	,Collaborate to create promotional materials evaluate peers' creative input, and meet .agreed timelines
		4.1.7	,Work in teams to define market segments ,assign research roles, review peer findings .and deliver results on time
		4.1.8	Collaborate to cover all sales steps, evaluate each member's performance in role-play or practice, and manage the timing of each .phase
		4.1.9	Work in pairs or groups to practice questioning techniques, provide constructive peer feedback, and complete exercises .promptly
		4.1.10	Collaborate on strategies to handle customer feedback, assess peer approaches, and ensure .timely follow-up actions
4-1-2	Retrieve and critically analyze information, identify and solve problems, and	**4.1.11**	,Work collaboratively to plan, organize, lead ,and control marketing and sales activities .ensuring tasks are completed on time

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**
	work autonomously and effectively in a team.	**4.1.12**	Share responsibility with team members, evaluate roles and contributions, and ensure smooth coordination.
		4.1.13	Contribute to team development of marketing strategies, ensuring deadlines and objectives are met.
		4.1.14	Collaborate with peers to integrate professional knowledge into marketing efforts and assess each other's input
		4.1.15	Work as a team to research and analyze customer motives, assigning tasks efficiently to meet project timelines.
		4.1.16	Cooperate with the team to design product, price, place, and promotion plans; review peer contributions and meet project schedules.
		4.1.17	Collaborate to create promotional materials, evaluate peers' creative input, and meet agreed timelines.
		4.1.18	Work in teams to define market segments, assign research roles, review peer findings, and deliver results on time.
		4.1.19	Collaborate to cover all sales steps, evaluate each member's performance in role-play or practice, and manage the timing of each phase.
		4.1.20	Work in pairs or groups to practice questioning techniques, provide constructive peer feedback, and complete exercises promptly.
		4.1.21	Collaborate on strategies to handle customer feedback, assess peer approaches, and ensure timely follow-up actions.

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**
		4.1.22	Work as a team to identify and meet customer needs, evaluating peer research and ensuring tasks are completed within deadlines.
		4.1.23	Collaborate to collect and analyze post-launch data, share responsibilities fairly, review peer accuracy, and submit findings on time.
4-1-3	Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	**4.1.24**	Apply innovative approaches to planning, organizing, leading, and controlling simulated marketing and sales projects.
		4.1.25	Use creative leadership techniques to inspire team members and solve problems in simulated business settings.
		4.1.26	Develop unique marketing strategies and creative plans for pharmaceutical products in a simulated market environment.
		4.1.27	Integrate professional pharmacy expertise into creative marketing ideas that add value in a simulated business scenario.
		4.1.28	Creatively analyze and respond to customer motives, tailoring product promotions in the simulated market.
		4.1.29	Create and simulate innovative product, price, place, and promotion strategies for a competitive advantage.
		4.1.30	Develop creative promotional campaigns that comply with ethical and regulatory standards.
		4.1.31	Use innovative thinking to identify niche markets, target them effectively, and position products uniquely in simulations.

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**
		4.1.32	Simulate the full sales process using creative presentation, persuasion, and closing techniques.
		4.1.33	Apply inventive questioning strategies to uncover customer needs and improve sales interactions in simulations.
		4.1.34	Creatively address customer feedback and objections in simulated scenarios to strengthen relationships.
		4.1.35	Design innovative solutions and product concepts to meet simulated market needs.
		4.1.36	Use creative methods to monitor and report product performance and safety in a simulated post-launch environment.
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 competence 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 clearly and professionally when planning, organizing, and coordinating marketing and sales activities with team .members
		4.2.2	Use verbal and non-verbal skills to lead, motivate, and guide teams effectively in a management setting.
		4.2.3	Present marketing strategies in a Plan clear, persuasive manner to colleagues and stakeholders.

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**
		4.2.4	Explain pharmaceutical product benefits and uses effectively to healthcare teams, patients, and the community.
		4.2.5	Use active listening and clear communication to understand and respond to customer purchasing motives.
		4.2.6	Communicate marketing mix strategies in a clear, professional manner during planning and promotional activities.
		4.2.7	Deliver persuasive messages through verbal presentations, written materials, and visual media.
		4.2.8	Clearly explain chosen segments, target audiences, and positioning strategies to the team and stakeholders.
		4.2.9	Use effective verbal and non-verbal communication at each stage of the sales process to engage clients.
		4.2.10	Apply questioning techniques and active listening to foster meaningful dialogues with customers.

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**
		4.2.11	Communicate empathetically and professionally when addressing customer inquiries or complaints.
		4.2.12	Clearly convey proposed solutions to meet identified customer needs in discussions and reports.
		4.2.13	Present post-marketing findings verbally and in writing to regulatory bodies, healthcare teams, and the community.
4-2-2	Use contemporary technologies and media to demonstrate effective presentation skills	**4.2.14**	Use digital tools (e.g., PowerPoint, project management software) to present planning, organizing, and leadership processes effectively.
		4.2.15	Apply multimedia presentations to communicate management roles, responsibilities, and performance strategies.
		4.2.16	Use visual aids, infographics, and presentation software to showcase marketing strategies and action plans.
		4.2.17	Present the pharmacist's role in marketing using videos, animations, or interactive media.

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**
		4.2.18	Use digital surveys, charts, and data visualization tools to present customer buying behavior insights.
		4.2.19	Use visual and digital media to present product, price, place, and promotion strategies effectively.
		4.2.20	Design multimedia advertising mock-ups or campaigns using contemporary design tools.
		4.2.21	Use data visualization and presentation software to clearly communicate STP strategies.
		4.2.22	Demonstrate each stage of the sales process through role-play videos or interactive slides.
		4.2.23	Create training videos or interactive presentations to showcase effective questioning techniques.
		4.2.24	Use technology to present strategies for addressing and resolving customer 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**
		4.2.25	Present customer needs analysis using digital charts, dashboards, and visual storytelling.
		4.2.26	Use databases, graphs, and interactive dashboards to present post-launch safety and performance data.
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 your role in planning, organizing and controlling activities to identify .strengths and areas for improvement
		4.3.2	Assess your leadership and management skills to enhance decision-making and .coordination abilities
		4.3.3	Review your contributions to strategy development to improve analytical and .planning skills
		4.3.4	Evaluate your ability to integrate pharmaceutical expertise into marketing

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**
			activities and identify opportunities for .growth
		4.3.5	Assess your understanding of customer motivations and refine techniques for better .market insight
		4.3.6	Review your application of the marketing mix to strengthen creativity and strategic .thinking
		4.3.7	Reflect on your ability to design effective and .ethical promotional materials
		4.3.8	Assess your market analysis skills and ability .to select and position products effectively
		4.3.9	Evaluate your effectiveness in each stage of .the sales cycle to enhance selling techniques
		4.3.10	Reflect on your questioning methods and adjust them to improve information gathering .and relationship building
		4.3.11	Assess your responsiveness and empathy in .handling customer interactions
		4.3.12	Evaluate your ability to identify and address .customer needs accurately and efficiently

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**
		4.3.13	Review your skills in monitoring and reporting post-launch product data to ensure .ongoing professional development
4-3-2	Practice independent learning is needed for continuous professional development.	**4.3.14**	Independently study new management models and apply them to improve planning, organizing, and leadership skills.
		4.3.15	Seek out resources on leadership styles and management techniques to enhance professional capabilities.
		4.3.16	Research updated marketing strategies and planning tools to strengthen strategic thinking.
		4.3.17	Learn independently about evolving pharmacist roles in marketing and adapt to emerging trends.
		4.3.18	Explore market research literature and case studies to better understand and predict customer behavior.
		4.3.19	Research innovative approaches to the marketing mix to enhance creativity and effectiveness.
		4.3.20	Stay updated on new advertising methods, digital tools, and ethical guidelines.
		4.3.21	Independently study market segmentation analytics and positioning techniques to improve 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**
		4.3.22	Learn and practice modern sales techniques through self-study and online training.
		4.3.23	Research advanced questioning strategies and apply them to improve customer interactions.
		4.3.24	Learn new approaches for managing customer feedback and complaints effectively.
		4.3.25	Stay informed on evolving customer expectations and needs through independent research.
		4.3.26	Study new pharmacovigilance methods and tools to enhance post-launch product monitoring skills.

4. Teaching and Learning Methods

.1- **Lectures** **(√)**

1- **E-learning** **(√)**

2- **Discussion** **(√)**

3- **Brainstorming (√)**

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	The Management Process	**1**	**1**	---	---	---
2	Managers and Management	**1**	**1**	---	---	---
3	Strategic Planning &Marketing plan	**1**	**1**	---	---	---
4	Importance of professional pharmacist in marketing	**1**	**1**	----	---	---
5	Managers and Management- The Management Process	**1**	**1**	---	---	---
6	Buying motives	**1**	**1**	---	---	---
7	**Periodical exam**					
8	Pharmaceutical marketing- Sales &Marketing Mix	**1**	**1**	----	---	---
9	-Basics of advertising and promotion- Segmentation, Targeting & Positioning	**1**	**1**	----	---	---
10	Sales cycle	**1**	**1**	---	---	---
11	art of questioning	**1**	**1**	----	---	---
12	Customer response	**1**	**1**	----	---	---
13	Customer needs	**1**	**1**	-----	---	---
14	Post marketing surveillance	**1**	**1**			
15	Post marketing surveillance	**1**	**1**			

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	**Week 7**	**20 marks**	**20%**
2	Final Written Exam	**Week 16,17**	**80 marks**	**80%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	Kotler, Philip & Keller, Kevin Lane. Marketing Management, latest edition. Kotler, Philip & Armstrong, Gary. Principles of Marketing, latest edition.
	Other References	Lamb, Charles W., Hair, Joseph F., & McDaniel, Carl. Marketing, latest edition. Alkhateeb, Fadi M., & Latif, David A. Pharmaceutical Marketing: Principles, Environment, and Practice.
	Electronic Sources	https://blog.hubspot.com/marketing https://www.thinkwithgoogle.com https://www.pharma-mkting.com https://www.fiercepharma.com/marketing
	Learning Platforms	**https://www.coursera.org** **https://www.linkedin.com/learning**
	Other	https://www.pharmamarketinguniversity.com https://www.fiercepharma.com/marketing
Supportive facilities & equipment	**Devices/Instruments**	- Data show. - Computers.

for teaching and learning *		–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: P009

Course Contents		**Key elements**	**Teaching and Learning Methods**	**Student Assessment Methods**
Week # 1	The Management Process	1.1.1,1.1.2,1.1.3,1.1.4,2.6.1 , 2.6.13,4.1.1,4.1.11,4.1.24,4.2.1,4.2.14,4.3.1,4.3.14	Lectures, E-learning	Written, and oral exams
Week # 2	Managers and Management	1.1.1,1.1.2,1.1.3,1.1.4,2.6.2 , 2.6.14,4.1.2,4.1.12,4.1.25,4.2.2,4.2.15,4.3.2,4.3.15	Lectures, E-learning, practical training and class activities	Written,and oral exams
Week # 3	Strategic Planning &Marketing plan	1.1.1,1.1.2,1.1.3,1.1.4,2.6.3 , 2.6.15,4.1.3,4.1.13,4.1.26,4.2.3,4.2.16,4.3.3,4.3.16	Lectures, E-learning, practical training and class activities	Written,and oral exams
Week # 4	Importance of professional pharmacist in marketing	1.1.1,1.1.2,1.1.3,1.1.4,2.6.4 , 2.6.16,4.1.4,4.1.14,4.1.27,4.2.4,4.2.17,4.3.4,4.3.17	Lectures, E-learning, practical training and class activities	Written, and oral exams

Week # 5	Managers and Management-The Management Process	1.1.1,1.1.2,1.1.3,1.1.4,2.6.5 , 2.6.17,4.1.5,4.1.15,4.1.28,4.2.5,4.2.18,4.3.5,4.3.18	Lectures, E-learning, practical training and class activities	Written, and oral exams
Week # 6	Buying motives	1.1.1,1.1.2,1.1.3,1.1.4,2.6.6 , 2.6.18,4.1.6,4.1.16,4.1.29,4.2.6,4.2.19,4.3.6,4.3.19	Lectures, E-learning, practical training and class activities	Written, and oral exams
Week # 7	**Periodical exam**			
Week # 8	Pharmaceutical marketing-Sales &Marketing Mix	1.1.1,1.1.2,1.1.3,1.1.4,2.6.7 , 2.6.19,4.1.7,4.1.17,4.1.30,4.2.7,4.2.20,4.3.7,4.3.20	Lectures, E-learning, practical training and class activities	Written, and oral exams
Week # 9	Basics of advertising and promotion-Segmentation, Targeting & Positioning	1.1.1,1.1.2,1.1.3,1.1.4,2.6.8 , 2.6.20,4.1.8,4.1.18,4.1.31,4.2.8,4.2.21,4.3.8,4.3.21	Lectures, E-learning, practical training and class activities	Written, and oral exams
Week # 10	Sales cycle	1.1.1,1.1.2,1.1.3,1.1.4,2.6.9, 2.6.21,4.1.9,4.1.19,4.1.32,4.2.9,4.2.22,4.3.9,4.3.22	Lectures, E-learning, practical training and class activities	Written, and oral exams
Week # 11	art of questioning	1.1.1,1.1.2,1.1.3,1.1.4,2.6.10, 2.6.22,4.1.10,4.1.20,4.1.33,4.2.10,4.2.23,4.3.10,4.3.23	Lectures, E-learning, practical training, seminars and class activities	Written, and oral exams

Week # 12	Customer response	1.1.1,1.1.2,1.1.3,1.1.4,2.6.11, 2.6.23,4.1.11,4.1.21,4.1.34,4.2.11,4.2.24,4.3.11,4.3.24	Lectures, E-learning, seminars and practical training	Written, and oral exams
Week # 13	Customer needs	1.1.1,1.1.2,1.1.3,1.1.4,2.6.12, 2.6.24,4.1.12,4.1.22,4.1.35,4.2.12,4.2.25,4.3.12,4.3.25	Lectures and E-learning	Written, and oral exams
Week # 14	post marketing surveillance	1.1.1,1.1.2,1.1.3,1.1.4,2.6.13, 2.6.25,4.1.13,4.1.23,4.1.36,4.2.13,4.2.26,4.3.13,4.3.26	Lectures and E-learning	Written and oral exams
Week # 15	post marketing surveillance	1.1.1,1.1.2,1.1.3,1.1.4,2.6.13, 2.6.25,4.1.13,4.1.23,4.1.36,4.2.13,4.2.26,4.3.13,4.3.26	Lectures and E-learning	Written and oral exams

Name and Signature
Course Coordinator
Prof. Abdelaziz EL-Ashmawy
Associate. Prof. Ahmed Amin Ali

Name and Signature
Program Coordinator

Prof. Abdelaziz EL-Ashmawy

Kafrelsheikh University
Faculty of Pharmacy

جامعة كفر الشيخ
كلية الصيدلة

Course Specification
(2025)

Course Title (according to the bylaw)	**First Aid**			
Course Code (according to the bylaw)	**MD 907**			
Department/s participating in delivery of the course	**Department of Adult Nursing (clinical pharmacy department)**			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**
	1	**0**	**----**	**1**
Course Type	**Compulsory**			
Academic level at which the course is taught	**Level 5**			
Academic Program	**BSc in pharmacy (pharm-D)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate.Prof: Fatma Abouelala** **Associate.Prof: Maha Elsherbiny**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval	**Department Counsil**			

2. Course Overview (Brief summary of scientific content)

This course covers Knowing how to deal with medical emergencies based on the different aspects studied in this course such as: accidents, first aid ABCs, chosen medical emergencies, effect of temperature, transportation of an injured casualty & first aid kit, respiratory emergencies, fractures and dislocations, bleeding and surgical emergencies, burns and scalds, animal bites or stings and poisoning.

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	Describe the anatomy and physiology relevant to emergency care, including cardiovascular, respiratory, and nervous systems.
		1.1.2	Identify the basic principles of first aid for common medical emergencies (e.g., bleeding, burns, fractures).
		1.1.3	Recognize the influence of cultural and social factors on bystander response to emergencies.
1.1.2	Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice	1.1.4	Correctly use medical abbreviations in documenting first aid interventions (e.g., CPR, AED, LOC).
		1.1.5	Communicate using standardized terminology for injury types and emergency procedures.
		1.1.6	Use universally recognized symbols for hazardous materials in emergency settings.

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**
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.7**	Review updated resuscitation guidelines (e.g., AHA, ERC) for BLS procedures
		1.1.8	Apply evidence-based protocols for management of choking, cardiac arrest, and shock.
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**	Respect patient privacy and dignity during emergency interventions.
		2.1.2	Provide unbiased first aid regardless of patient's age, gender, or cultural background.
		2.1.3	Maintain professional behavior under high-stress emergency conditions.
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**	Identify when advanced medical care is required beyond first aid.
		2.1.5	Refer or transfer patients to trained paramedics or emergency services when necessary.
		2.1.6	Seek assistance from more experienced team members in complex cases and recognize limits of scope in drug administration during emergencies.
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.**	

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:	
2.4.2	Demonstrate understanding of the first aid measures needed to save patient's life.	2.4.1	Describe the steps for cardiopulmonary resuscitation (CPR) in adults, children, and infants.
		2.4.2	Identify signs of life-threatening conditions such as shock, stroke, or myocardial infarction
		2.4.3	Outline immediate actions in airway obstruction, severe bleeding, burns, and fractures.
DOMAIN 3: Pharmaceutical Care **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:**	
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.1	Recognize symptoms of common poisonings (e.g., pesticides, opioids, alcohol).
		3.2.2	Know antidotes for common toxins and when to initiate them.
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.	3.2.3	Demonstrate correct use of emergency medical devices (e.g., epinephrine auto-injector, asthma inhaler).
		3.2.4	Provide guidance on when OTC products are insufficient for emergency conditions
		3.2.5	Teach safe storage of medicines to prevent accidental ingestion.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse.	3.2.6	Raise awareness of the dangers of self-medicating during emergencies.
		3.2.7	Promote safe community practices to reduce accidental overdoses.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Express leadership, time management, critical thinking, problem solving, independent and team working, 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**
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	**4.1.1**	**Ensure timely completion of life-saving steps according to the chain of survival.**
		4.1.2	**Manage time effectively when prioritizing multiple casualties.**
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4.1.3**	**Collaborate efficiently with healthcare professionals during multi-rescuer BLS.**
		4.1.4	**Work independently when leading a response team in practical simulations.**
4.1.3	Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	**4.1.5**	**Design innovative first aid training tools or awareness campaigns for the community.**
		4.1.6	**Simulate different situations that require first aid.**
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**	Give clear and concise verbal instructions during emergencies.
		4.2.2	Communicate vital signs and interventions accurately to emergency responders.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	**4.2.3**	Record and share educational videos on first aid topics.
		4.2.4	Utilize smartphone apps for real-time CPR guidance and AED location
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.**	

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:	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	**4.3.1**	Reflect on personal performance after first aid scenarios.
		4.3.2	Plan targeted skill improvement activities..
4.3.2	Practice independent learning is needed for continuous professional development.	**4.3.3**	Stay updated with annual revisions of BLS protocols.
		4.3.4	Review case reports of emergency interventions

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 First Aid**	**1**	**1**	**0**	**---**	**---**
2	**First aid kits**	**1**	**1**	**0**	**---**	**---**
3	**Moving an Injured or Ill Person**	**1**	**1**	**0**	**---**	**---**
4	**First aid for wounds and bleeding**	**1**	**1**	**0**	**---**	**---**
5	**Self-medication and introduction to OTC drugs**	**1**	**1**	**0**	**---**	**---**
6	**First aid care for different types of wounds**	**1**	**1**	**0**	**---**	**---**
7	**Periodical exam**					
8	**First aid for bone and joint injuries**	**1**	**1**	**0**	**---**	**---**
9	**Injuries of joints can be dislocations or sprains of joints.**	**1**	**1**	**0**	**---**	**---**
10	**First aid for back and neck injury (spinal cord injury)**	**1**	**1**	**0**	**---**	**---**
11	**Shock**	**1**	**1**	**0**	**---**	**---**
12	**CHOKING**	**1**	**1**	**0**	**---**	**---**
13	**BURN, Diabetes Emergencies, Seizure and Convulsions**	**1**	**1**	**0**	**---**	**---**
14	**Poisoning**	**1**	**1**	**0**		
15	**Animal Bites (Bites and Stings)**	**1**	**1**	**0**		

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	85 marks	85%

5. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	- ACEP First Aid Manual, 5th Edition (Dk First Aid Manual) - The American Red Cross First Aid and Safety Handbook - Textbook on First Aid and Emergency Nursing. By Clement, I. Clement (College administrator)
	Other References	Lecturer notes on First Aids and BSL.
	Electronic Sources	https://www.ifrc.org/our-work/health-and-care/first-aid https://www.redcross.org.uk/first-aid https://egyptianrc.org/ar/homepage
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	- Data show. - Computers. –Library. –Internet. -mannequins -Interactive boards and distant learning unit
	Supplies	Classrooms.

Course Plan

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

Course title: First Aid **Course code: MD 907**

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	**Introduction to First Aid**	1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6	Lectures, E-learning	Written exams and periodical exams
Week # 2	**First aid kits**	1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 3.2.2, 3.2.3,	Lectures, E-learning	Written exams and periodical exams
Week # 3	**Moving an Injured or Ill Person**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.3, 3.2.4, , 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams
Week # 4	**First aid for wounds and bleeding**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.3, 3.2.4, , 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams
Week # 5	**Self-medication and introduction to OTC drugs**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams
Week # 6	**First aid care for different types of wounds**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams

Week # 7	**Periodical exam**			
Week # 8	**First aid for bone and joint injuries**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 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	Written exams and periodical exams
Week # 9	**Injuries of joints can be dislocations or sprains of joints.**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 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	Written exams and periodical exams
Week # 10	**First aid for back and neck injury (spinal cord injury)**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 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	Written exams and periodical exams
Week # 11	**Shock**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 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	Written exams and periodical exams
Week # 12	**CHOKING**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 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	Written exams and periodical exams
Week # 13	**BURN, Diabetes Emergencies, Seizure and Convulsions**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 4.1.1, 4.1.2,	Lectures, E-learning	Written exams and periodical exams

		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 # 14	**Poisoning**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams
Week # 15	**Animal Bites (Bites and Stings)**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 3.2.6, 3.2.7, 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, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning	Written exams and periodical exams

Name and Signature
Course Coordinator
Associate.Prof: Fatma Abouelala

Name and Signature
Program Coordinator

Prof: Abdelaziz Elashmawy

Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	Advanced Pharmaceutical Analysis – Spectroscopy			
Course Code (according to the bylaw)	PA E6			
Department/s participating in delivery of the course	Pharmaceutical Analytical Chemistry			
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	Level (5)			
Academic Program	Bachelor in pharmacy (Pharm D)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Dr. Galal Magdy			
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)

- Advances spectroscopic methods of analysis which include Mass spectroscopy, principal, instrumentation, factors affecting absorption and applications in pharmaceutical analysis. LC –MSMS, Ion trap MS and QTOF high resolution Mass spectrometry.
- Advanced chromatographic methods for analytical chemistry which includes:
- capillary electrophoresis, Micellar electrokinetic chromatography, high performance capillary electrophoresis, capillary isotachophoresis and capillary electrochromatography

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**		**Graduates will be able to integrate knowledge from basic analytical chemical techniques to identify as well as quantify different active pharmaceutical ingredients either authentic or in different pharmaceutical formulations in addition to biological samples.** **This competency will be developed through understanding the following key elements**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences .	1.1.1	**Define the basic principles and theoretical aspects of spectrophotometry, spectrofluorimetry and atomic absorption spectroscopy and their applications**.
		1.1.2	**Demonstrate different analytical techniques under good laboratory practice to validate and assure quality of pharmaceutical material and products.**
1.1.3	Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare,	1.1.3	Identify introduction to spectrophotometry,

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**
	analyze, and assure quality of synthetic/natural pharmaceutical materials/products.	1.1.4	Identify electromagnetic Radiation, Light as energy, types of shift, effect of pH on absorption spectra
		1.1.5	Identify colorimetry, general requirements of the colored product.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions .	1.1.6	Integrate information from different scientific resources on recent technologies that contribute to pharmaceutical analytical chemistry in the field of spectroscopy.
		1.1.7	Locate and summarize primary and secondary scientific sources relevant to the field of spectroscopy.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	1.1.8	Integrate information from anaytical data obtained from different spectroscopic techniques (spectrophotometry, spectrofluorimetry and atomic absorption spectroscopy).
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2.2. Competency**		**Graduates will be able to determine pharmaceutical active ingredients and their stability in formulations as well as inspection of their shelf lives in addition to calibration of instrumentations.** **This competency will be developed via the following key elements:**	
2.2.1	Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/natural pharmaceutical materials.	2.2.1	Determine active ingredients purity by spectrophotometry or spectrofluorimetry or atomic absorption spectroscopy and finally subjected to analytical quantification.
2.2.3	Recognize the principles of various tools and instruments	2.2.2	Explain the principles of operation and components of the analytical instruments used in the field of spectroscopy as spectrophotometer.

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**
	and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	2.2.3	Apply the theories of different analytical techniques as spectrophotometry, spectrofluorimetry and atomic absorption spectroscopy and the operational basis of different instrumentations
2.3. Competency		**Proper dealing with samples containing active pharmaceutical ingredients either biological, pharmaceutical product or even authentic without deterioration in a manner keeping their physical and chemical characteristics in accordance to national and international regulations.** **Key Elements:**	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical fields.	2.3.1	Proper treatment of different samples of pharmaceutical interest like those are natural, authentic, nano-formulated, radioactive and pharmaceutical products as well as their characterization.
		2.3.2	Identify factors affecting absorption spectrum.
		2.3.3	Identify fluorescence spectra and Instrumentation
2.3.2	Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	2.3.4	Setting regulations for safe dealing with active pharmaceutical ingredients. .
		2.3.5	Understand Spectroflorimetry, luminescence, molecular emission, theory of fluorescence and phosphorescence
DOMAIN 4: PERSONAL PRACTICE **4.1 .Competency**		**Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.** **This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer	4.1.1	Retrieve information from a variety of sources, including libraries, databases and internet

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**
	evaluation of other team members, and express time management skills.	4.1.2	Provide peer evaluation of the performance of team members.
		4.1.3	Adhere to a timeline for completion of the tasks.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.4	Apply skills of Interact independently or as a part of team in different pharmaceutical field
		4.1.5	Analyze data and solve scientific problems and use effectively computer programs (EXCEL) to draw calibration curve
		4.1.6	Work autonomously to complete their analytical tasks.
4.2 .Competency		**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	Show the ability to effectively present a topic of interest using recent technologies.
		4.2.2	Use of digital tools to create formative presentations and incorporation of visual aids as charts and images.
4.3. Competency		**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	Perform self-improvements on both academic and research professional levels at all aspects of pharmaceutical analytical chemistry.
		4.3.2	Perform self-assessment of their own practical work by comparing their results with standards to enhance professional competencies and self-estimation.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Practice independent learning by giving the opportunity to perform internet search and literature survey so as to find out answers to tutorial questions throughout the course.
		4.3.4	Identify learning needs to enhance expertise in the field of spectroscopy

4. Teaching and Learning Methods

1. Lectures
2. Practical training / laboratory
3. Class Activity
4. Discussion
5. Brain storming

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	Training (Practical/Clinical / .....)	Self-learning (Tasks /	Other (to be determined)
1	Spectrophotometry -Introduction to spectrophotometry -Electromagnetic Radiation, Light as energy, types of shift, Effect of pH on absorption spectra	3	1	2	-	-
2	Colorimetry, General requirements of the colored product, General requirement of an ideal chromogen	3	1	2	-	-
3	Spectrophotometer, Light sources, Monochromators, Sample compartment, Types of detectors, Signal processor (meter or recorder)	3	1	2	-	-
4	Factors affecting absorption spectrum	3	1	2	-	-
5	Applications of UV-Visible spectrophotometry	3	1	2	-	-
6	Advantages of spectrophotometry	3	1	2	-	-
7	**Periodical exam**					

8	Spectroflorimetry -Introduction to Spectroflorimetry -Luminescence, molecular emission, theory of fluorescence and phosphorescence	3	1	2	-	-
9	• Fluorescence spectra • Instrumentation	3	1	2	-	-
10	Factors affecting fluorescence intensity	3	1	2	-	-
11	Applications of spectroflorimetry	3	1	2	-	-
12	Advantages of spectroflorimetry	3	1	2	-	-
13	• Atomic Absorption spectroscopy • Introduction to atomic absorption spectroscopy Instrumentation	3	1	2	-	-
14	Applications of atomic absorption spectroscopy	1	1	Practical exam	-	-
15	Advantages of atomic absorption spectroscopy	1	1	Practical exam	-	-

1. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1.	Periodical exam	Week 7	15	15%
2.	Final written exam	Week 16,17 ,	50	50%
3.	Final practical exam	Week 14, 15	25	25%
4.	Final oral exam	Week 16,17	10	10%

2. 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)	- D.A.skoog,D.M.west ,F.J holler and S.R. crouch ,"fundamentals of analytical chemistry", ninth edition , book/cole-thomson learning, inc.(2014) - Lindon, J. C., Tranter, G. E., & Koppenaal, D. (2016). *Encyclopedia of spectroscopy and spectrometry*. Academic Press.Perkampus, H. H. (2013). - UV-VIS Spectroscopy and its Applications. Springer Science & Business Media.
	Other References	- Moore, David S., ed. Handbook of Spectroscopy. Vol. 1. John Wiley & Sons, 2014.
	Electronic Sources (Links must be added)	www.pubmed.com www.sciencedirect.com
	Learning Platforms (Links must be added)	https://lms3.kfs.edu.eg/pharm/login/index.php
	Other (to be mentioned)	-
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	Laboratory facilities like UV/Vis spectrophotometer
	Supplies	
	Electronic Programs	--
	Skill Labs/ Simulators	--
	Virtual Labs	--
	Other (to be mentioned)	Data show, 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

Week	Topic	Key elements	Teaching and Learning Methods	Student Assessment Methods
1	Spectrophotometry -Introduction to spectrophotometry -Electromagnetic Radiation, Light as energy, types of shift, Effect of pH on absorption spectra	1.1.1, 1.1.3, 1.1.7, 4.3.1	Lectures, class activity, and brain storming	Written, practical and oral exams
2	-Colorimetry, General requirements of the colored product, General requirement of an ideal chromogen	1.1.1, 1.1.3, 2.2.1, 2.2. 3	Lectures, practical training, and class activity	Written, practical and oral exams
3	-Spectrophotometer, Light sources, Monochromators, Sample compartment, Types of detectors, Signal processor (meter or recorder)	1.1.1, 1.1.3,1.1.7, 2.2.1, 2.2. 3	Lectures, practical training, and class activity	Written, practical and oral exams
4	-Factors affecting absorption spectrum	1.1.3, 1.1.7, 2.21, 2.2. 3, 2.3.1, 2.3.2,	Lectures, practical training, and class activity	Written, practical and oral exams
5	-Applications of UV-Visible spectrophotometry	1.1.1, 2.2.1, 2.2. 3, 4.3.1	Lectures, practical training, and class activity	Written, practical and oral exams
6	-Advantages of spectrophotometry	1.1.3, 1.1.7, 2.2.1, 2.2. 3, 2.3.1, 2.3.2,	Lectures, practical training, and class activity	Written, practical and oral exams
7	**Periodical exam**			
8	Spectroflorimetry -Introduction to Spectroflorimetry -Luminescence, molecular emission, theory of fluorescence and phosphorescence	1.1.3, 1.1.7, 2.2.1, 2.2. 3, 2.3.1, 2.3.2,	Lectures, practical training, and class activity	Written, practical and oral exams

9	-Fluorescence spectra - Instrumentation	1.1.1, 2.2.1, 2.3.1, 2.3.2, 4.3.1, 4.3.2	Lectures, practical training, and class activity	Written, practical and oral exams
10	-Factors affecting fluorescence intensity	1.1.1, 2.2.1, 2.3.1, 2.3.2, ,4.3.1, 4.3.2	Lectures, practical training, and class activity	Written, practical and oral exams
11	-Applications of spectroflorimetry	1.1.1, 2.2.3, 2.3.1, 2.3.2, ,4.1.1, 4.1.2,	Lectures, practical training, and class activity	Written, practical and oral exams
12	-Advantages of spectroflorimetry	1.1.1, 2.2.1, 2.3.1, 2.3.2, 4.1.1, 4.1.2,	Lectures, practical training, and class activity	Written, practical and oral exams
13	-Atomic Absorption spectroscopy -Introduction to atomic absorption spectroscopy Instrumentation	1.1.3, 1.1.7, 2.2.1, 2.2.3, 2.3.1, 2.3.2	Lectures, practical training, and class activity	Written, practical and oral exams
14	-Applications of atomic absorption spectroscopy	1.1.3, 1.1.7, 2.2.1, 2.2. 3, 2.3.1, 2.3.2,	Lectures, practical training, and class activity	Written and oral exams
15	-Advantages of atomic absorption spectroscopy	1.1.1, 2.2.1, 2.3.1, 2.3.2, ,4.1.1, 4.1.2,	Lectures, practical training, and class activity	Written and oral exams

Name and Signature
Course Coordinator

Dr .Galal Magdy

Name and Signature
Program Coordinator

Prof. Dr. Abdelaziz Elashmawy