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

Clinical (Pharm-D) program

Course Specification

2025/2026

Third Level

Second Semester

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Faculty of Pharmacy
Kafrelsheikh University

كلية الصيدلة
جامعة كفر الشيخ

Pharmacology-III Course Specification (2025)

1. Basic Information

Course Title (according to the bylaw)	Pharmacology-III			
Course Code (according to the bylaw)	PO 604			
Department/s participating in delivery of the course	Pharmacology & Toxicology 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	Third level, semester (2)			
Academic Program	Bachelor of clinical Pharmacy (Pharm D Clinical)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Dr. Samar El-sebaey Ayoub			
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 integrates pharmacological principles with foundational knowledge of physiology and the pathophysiological processes underlying diseases, focusing on drugs that act on the endocrine system as well as chemotherapeutic agents, including antimicrobials, antineoplastics, and immunosuppressants. Stem cell therapy is also covered. Students will learn to understand the pharmacological effects, mechanisms of action, and contraindications of these drug classes, assess their appropriate use and potential side effects, and integrate this knowledge to recommend optimal therapeutic choices based on individual patient criteria.

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 completion of the course, students will be able to demonstrate a comprehensive understanding of pharmacological principles, relevant physiological and pathophysiological concepts, and the therapeutic applications, mechanisms of action, and contraindications of drugs affecting the endocrine system, as well as chemotherapeutic agents including antimicrobials, antineoplastics, immunosuppressants, and stem cell therapy.**	
1-1-1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Demonstrate understanding of the pharmacological interventions used in the prevention, treatment, and management of infectious and malignant diseases
1-1-4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.1.2	Classify and explain the pharmacological properties, mechanisms of action, and therapeutic roles of drugs affecting the endocrine system, as well as chemotherapeutic agents including antimicrobials, antineoplastics, and immunosuppressants.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
1-1-5	Retrieve information from fundamental sciences to solve therapeutic problems.	1.1.3	Retrieve evidence-based information to guide the pharmacological management of endocrine disorders, infectious diseases, and autoimmune conditions.
1-1-6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	1.1.4	Identify and evaluate emerging therapeutic strategies, including stem cell therapy, using current scientific literature to inform safe and effective clinical decision-making.
Domain 2 (PROFESSIONAL AND ETHICAL PRACTICE) **2-1- Competency**		**Upon completion of the course, students will be able to work collaboratively within inter-professional healthcare teams to design and optimize pharmacological interventions involving endocrine drugs, chemotherapeutic agents, antimicrobials, antineoplastics, immunosuppressants, and stem cell therapies, with a commitment to improving the quality of life of individuals and communities while upholding patients' rights and ethical standards of care.**	
2-1-2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.1.1	Apply professional judgment to identify and address pathological conditions related to cancer, immune dysfunction, and hormonal dysregulation while upholding patient rights and ethical standards.
2-2- Competency		**Upon completion of the course, students will be able to apply professional standards in the selection, formulation, and handling of endocrine, chemotherapeutic, antimicrobial, antineoplastic, immunosuppressant, and stem cell–based pharmaceutical products, ensuring quality, safety, and efficacy throughout the processes of standardization, dispensing, storage, and distribution in compliance with ethical and legal guidelines.**	
2-2-4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their applications in new drug delivery	2.2.1	Apply basic pharmacokinetic principles to adjust drug dosing, evaluate bioavailability, and assess therapeutic effectiveness for endocrine, chemotherapeutic, antimicrobial, and immunosuppressive agents.

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**
	systems, dose modification, bioequivalence studies, and pharmacy practice.		
2-4- Competency		**Upon completion of the course, students will be able to apply pharmacological knowledge to make timely and evidence-based professional decisions in emergency situations, including managing poisoning from endocrine, chemotherapeutic, antimicrobial, antineoplastic, immunosuppressant, and other xenobiotic agents, and to collaborate effectively in forensic investigations while adhering to ethical and legal standards.**	
2-4-3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Apply evidence-based guidelines to ensure the safe and effective use of hormonal drug therapies in diverse patient populations.
		2.4.2	Differentiate between pharmacological classes of anticancer and antimicrobial agents in terms of mechanisms, indications, and clinical applications.
		2.4.3	Select and justify appropriate pharmacological interventions for autoimmune diseases and hormonal disorders based on patient-specific factors.
		2.4.4	Select and justify the most appropriate drug therapy based on pharmacological properties, mechanism of action, and documented toxicity profiles.
		2.4.5	Apply pharmacological knowledge to design and adapt therapeutic interventions for patients with varying clinical conditions and needs.
2-5- Competency		**Upon completion of the course, students will be able to contribute to the design, conduct, and evaluation of pharmaceutical research studies and clinical trials involving endocrine drugs, chemotherapeutic agents, antimicrobials, antineoplastics, immunosuppressants, and stem cell therapies, in accordance with regulatory requirements and ethical guidelines for the authorization 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**
2-5-3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.1	Participate in designing and executing small-scale research projects related to pharmacological interventions, utilizing appropriate scientific methodologies and data analysis tools.
Domain 3 (PHARMACEUTICAL CARE) 3-2- Competency		**Upon completion of the course, students will be able to provide patient-centered counseling and educational services to individuals and communities on the safe, effective, and rational use of endocrine drugs, chemotherapeutic agents, antimicrobials, antineoplastics, immunosuppressants, stem cell–based therapies, and related medical devices, promoting adherence and minimizing risks.**	
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 pharmacological knowledge, including mechanisms of action, therapeutic uses, dosages, contraindications, adverse effects, and drug interactions, to select the most appropriate drug therapy based on patient-specific criteria.
3-2-2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.2	Monitor, assess, and document the therapeutic outcomes and adverse effects of anticancer, immunosuppressant, antimicrobial, and hormonal drug therapies to ensure safe and effective patient care.
		3.2.3	Develop and implement individualized pharmaceutical care plans that optimize therapeutic outcomes, promote patient adherence, and minimize risks.
3-2-4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.4	Identify and describe the toxic profiles of anticancer, immunosuppressant, antimicrobial, and hormonal drugs, including their sources, clinical manifestations of toxicity, and evidence-based management strategies.
Domain 4 (PERSONAL PRACTICE) 4-2- Competency		**Upon completion of the course, students will be able to: Effectively communicate pharmacological information, therapeutic recommendations, and safety considerations regarding endocrine, chemotherapeutic, antimicrobial, antineoplastic, immunosuppressant agents, and stem cell therapies to patients, healthcare professionals, and the wider community using**	

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**
		appropriate verbal, non-verbal, and written formats.	
4-2-2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.1	Utilize contemporary technologies and media to prepare and deliver effective presentations on pharmacological topics to diverse audiences.

4. Teaching and Learning Methods

1- Lectures
2- Practical
3- E learning.
4- discussion
5- Brain storming
6- Assignment
7- Presentation.
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	Pharmacological actions of Anticancer drugs	**4**	**2**	**2**		
2	Pharmacological actions of Anticancer drugs (cont.)	**4**	**2**	**2**		
3	Pharmacological actions of Anticancer drugs (cont.)	**4**	**2**	**2**		
4	Pharmacological actions of Anticancer drugs (cont.)	**4**	**2**	**2**		
5	Pharmacological actions of Anticancer drugs (cont.)	**4**	**2**	**2**		
6	Immunosupressant drugs	**4**	**2**	**2**		
7	**Semester work**					
8	Antimicrobials and stem cell therapy	**4**	**2**	**2**		
9	Pharmacological actions of drugs acting on endocrine systems	**4**	**2**	**2**		
10	Pharmacological actions of drugs acting on endocrine systems (cont.)	**4**	**2**	**2**		
11	Pharmacological actions of drugs acting on endocrine systems (cont.)	**4**	**2**	**2**		
12	Pharmacological actions of drugs acting on endocrine systems (cont.)	**4**	**2**	**2**		
13	Pharmacological actions of drugs acting on endocrine systems (cont.)	**4**	**2**	**Revision**		
14	Pharmacological actions of drugs acting on endocrine systems (cont.)	**2**	**2**	Practical exam		
15	Revision	**2**	**2**	Practical exam		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Formative exam	4	5	5%
2	Periodic exam written (Semester work)	7	10	10%
3	Final Practical/Clinical/… Exam	14,15	25	25%
4	Final Written Exam	16,17	50	50%
5	Final Oral Exam	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)	The Pharmacological Basis of Therapeutics (2008). Goodman & Gilman's. 12 th edition. The McGraw-Hill Companies
	Other References	-Basic & Clinical Pharmacology (2003). G. Katzung.9th ed. Lavoisier S.A.S. -Pharmacology (2007). Rang H.P.& Dale M. 7th Edition. Churchill Livingston London -Lippincott Modern Pharmacology (2019). C. Champe, A. Harvey and Denise R. (illustrated pharmacology Review). South Asian Edition. Lippincott Williams & Wilkins
	Electronic Sources (Links must be added)	-www.biomedcentral.com -www.Pubmed.com -www.medscape.com
	Learning Platforms (Links must be added)	**https://lms3.kfs.edu.eg/pharm/login/index.php**
	Other (to be mentioned)	
Supportive facilities & equipment	**Devices/Instruments**	- Data show - Computers. – Internet.

for teaching and learning *	**Supplies**	--------
	Electronic Programs	--------
	Skill Labs/ Simulators	--------
	Virtual Labs	--------
	Other (to be mentioned)	- Class rooms. - Library.

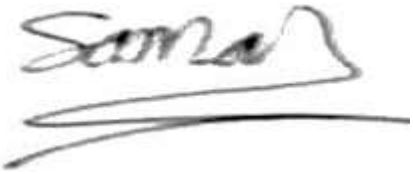
Course Plan

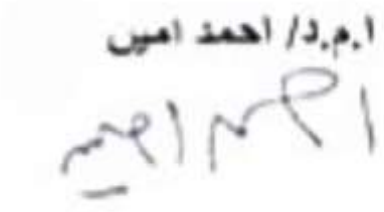
Course Contents		Key Elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Pharmacological actions of Anticancer drugs	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training	Written, practical and oral exams
Week # 2	Pharmacological actions of Anticancer drugs (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, discussion	Written, practical and oral exams
Week # 3	Pharmacological actions of Anticancer drugs (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training	Written, practical and oral exams
Week # 4	Pharmacological actions of Anticancer drugs (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1	Lectures and practical training, discussion	Written, practical and oral exams

		3.2.1,3.2.2,3.2.3,3.2.4 4.2.1		
Week # 5	Pharmacological actions of Anticancer drugs (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training	Written, practical and oral exams
Week # 6	Immunosupressant drugs	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, e-learning, discussion	Written, practical and oral exams
Week # 7	**Semester work**			
Week # 8	Antimicrobials and stem cell therapy	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, e-learning, case study	Written, practical and oral exams
Week # 9	Pharmacological actions of drugs acting on endocrine systems	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, brain storming	Written, practical and oral exams
Week # 10	Pharmacological actions of drugs acting on endocrine systems (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, case study, brain storming	Written, practical and oral exams

Week # 11	Pharmacological actions of drugs acting on endocrine systems (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, case study, brain storming	Written, practical and oral exams
Week # 12	Pharmacological actions of drugs acting on endocrine systems (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, case study	Written, practical and oral exams
Week # 13	Pharmacological actions of drugs acting on endocrine systems (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures and practical training, case study	Written, practical and oral exams
Week # 14	Pharmacological actions of drugs acting on endocrine systems (cont.)	1.1.1,1.1.2,1.1.3,1.1.4 2.1.1 2.2.1 2.4.1,2.4.2,2.4.3,2.4.4,2.4.5 2.5.1 3.2.1,3.2.2,3.2.3,3.2.4 4.2.1	Lectures, brain storming , case study	Written and oral exams
Week # 15	**Revision**		Lectures, discussion and brain storming	Written and oral exams

Name and Signature Course Coordinator Dr. Samar El-sebaey Ayoub	Name and Signature Program Coordinator Ass. Prof. Ahmed Amin





Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	Phytochemistry -II			
Course Code (according to the bylaw)	PG 605			
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 -1			
Academic level at which the course is taught	Third level, semester 2			
Academic Program	Bachelor of Pharmacy (Pharm D.) (clinical pharmacy)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Assistant. Prof. Dr Mai El Naggar			
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 Phytochemistry–II course aims to equip students with the knowledge and skills necessary to understand, describe, and apply the chemistry of alkaloids, tannins, and antioxidants of plant, fungal, or animal origin. The course covers techniques for the isolation, identification, and quantification of these compounds from their natural sources. Additionally, it emphasizes the study of structure–activity relationships (SAR) and pharmacophoric features of natural product–derived compounds.

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 build a strong scientific foundation in phytochemistry and integrate the acquired knowledge to identify, validate and authenticate natural products.**	
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.1.1	Identify the main classes of medicinal plants containing alkaloids, tannins, antioxidants, and other bioactive compounds.
		1.1.2	Describe the structural, chemical, and biosynthetic features of key phytochemicals.
		1.1.3	Explain the pharmacological roles of plant-derived compounds in health and disease contexts.
1.1.3	Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare,	1.1.4	Adress appropriate extraction and purification techniques for plant-derived active compounds.

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.	1.1.5	Identify chromatographic and spectroscopic tools to characterize and quantify phytochemicals under study.
		1.1.6	Evaluate the quality and purity of natural pharmaceutical materials under study according to pharmacopeial standards.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.1.7	Explain the mechanisms of action of alkaloids, tannins, antioxidants, and other natural products.
		1.1.8	Assess the safety and therapeutic efficacy of phytochemicals under study in various clinical scenarios
		1.1.9	Compare the pharmacological profiles of plant-derived agents under study to determine their suitability for specific patient groups.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	1.1.10	Search and select credible scientific sources to address clinical or pharmaceutical challenges involving natural products.
		1.1.11	Analyze phytochemical data to propose evidence-based therapeutic solutions.
		1.1.12	Recommend plant-based interventions for selected health conditions based on validated research.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decision.	1.1.13	Retrieve and summarize research findings related to medicinal plants and natural products.
		1.1.14	Interpret laboratory results to guide selection and formulation of herbal medicines.

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**
		1.1.15	Integrate literature evidence into decision-making for pharmaceutical development and patient care.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care	1.1.16	Identify recent advances and challenges in the use of natural products under study in pharmaceutical industries.
		1.1.17	Critically evaluate safety alerts, regulatory changes, and new scientific discoveries affecting natural product under study.
		1.1.18	Discuss the impact of emerging trends related to phytochemicals under study on both public health and pharmaceutical practice.
DOMAIN 2. PROFESSIONAL AND ETHICAL PRACTICE: **2.2. Competency**		**Upon finishing this course, students will be able to handle synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.**	
2.2.1	Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/natural pharmaceutical materials.	2.2.1	Perform isolation, purification, and standardization procedures for plant-derived pharmaceutical under study using validated methods.
		2.2.2	Apply spectroscopic, chromatographic, and microscopic techniques to identify bioactive compounds under study.
2.2.2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and	2.2.4	Implement good manufacturing practices (GMP) and good laboratory practices (GLP) in the preparation and storage of phytochemicals under study.

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**
	distributing pharmaceutical materials/ products considering various incompatibilities.	2.2.5	Document quality control results and corrective actions in accordance with national and international regulations related to phytochemical under study.
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.	2.2.7	Select appropriate analytical instruments for the identification and quantification of natural substances under study.
		2.2.8	Operate laboratory equipment safely and effectively.
		2.2.9	Interpret data obtained from instrumental analysis to ensure accuracy and reliability of results.
2.2.4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and bio-pharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.	2.2.10	Apply pharmaceutical calculations and statistical tools for quantification and bio evaluation of phytochemicals.
2.3. Competency		**Upon finishing this course, students will be able to contribute to pharmaceutical research studies needed to authorize medicinal products containing alkaloids, antioxidants and tannins**.	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based	2.3.1	Demonstrate safe handling techniques for crude drugs, herbal extracts, and laboratory chemicals used in pharmacognosy.

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 radio-labeled products, and other materials/products used in pharmaceutical field.	2.3.2	Identify hazards and risk factors associated with biological, natural, synthetic, and biotechnology-based materials.
		2.3.3	Apply proper disposal procedures for different pharmaceutical materials in compliance with institutional and environmental regulation
2.3.2	Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	2.3.4	Identify the physicochemical properties and hazard categories of alkaloids and anticancer agents from plant or animal sources.
		2.3.5	Manipulate chemical, pharmaceutical, and biological materials following ethical, legal, and safety protocols.
		2.3.6	Follow approved Material Safety Data Sheet (MSDS) guidelines for handling, storage, and disposal of pharmaceutical substance
2-5- Competency		**Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.**	
2.5.1	Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements.	2.5.1	Explain the national and international regulatory requirements for approving medicinal products, including quality, safety, and efficacy criteria.
		2.5.2	Evaluate pharmaceutical dossiers to ensure compliance with regulatory standards before market authorization.
		2.5.3	Apply quality, safety, and efficacy guidelines in the preparation of documentation for medicinal product registration from phytochemicals.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	2.5.4	Design a research study related to natural product development using valid and ethical methodologies.
		2.5.5	Implement appropriate data collection and analysis techniques to investigate research questions in phytochemistry
		2.5.6	Interpret research findings and formulate evidence-based conclusions to address identified problems or hypotheses related to phytochemicals under study.
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.**	
3.2.3	Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals	3.2.1	Retrieve and critically appraise scientific literature to support the safe use of alkaloids and natural anti-cancer agents.
		3.2.2	Explain the pharmacological basis, therapeutic benefits, and potential risks of selected alkaloids and natural anti-cancer agents.
		3.2.3	Develop patient-centered educational materials promoting the safe and effective use of alkaloids and natural anti-cancer agents.
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.4	Identify toxic agents, including plant-derived poisons and other xenobiotics, and describe their chemical and biological properties.

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	Interpret clinical signs and symptoms of toxicity to aid in accurate diagnosis and timely intervention.
		3.2.6	Recommend evidence-based management strategies and antidotes for the treatment of poisoning caused by alkaloids and natural anti-cancer agents.
DOMAIN 4: PERSONAL PRACTICE **4.2. Competency**		**Upon finishing this course, students will be able to effectively communicate verbally, non-verbally and in writing with patient and health care team.**	
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.1	Design and structure professional presentations on phytochemistry topics using advanced digital tools and multimedia resources.
		4.2.2	Deliver oral and visual presentations effectively, employing recent technologies to engage the audience and convey complex information clearly.
		4.2.3	Evaluate personal presentation performance and integrate constructive feedback to improve delivery, content organization, and use of media.

4. Teaching and Learning Methods

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

Course Schedule						
			Expected number of the Learning Hours			
Number of the Week	**Scientific content of the course (Course Topic)**	**Total Weekly Hours**	**Theoretical teaching (lectures/discussion groups/ .....)**	**Training (Practical /Clinical/ .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
1	Introduction to alkaloid, identification, isolation & purification	**4**	2	2		
2	Atypical/non-heterocyclic alkaloids: (Capsaicin, mescaline, Ephedra, Khat, and tropolone alkaloids)	**4**	2	2		
3	Pseudoalkaloids: steroidal (solanum and veratrum alkaloids), terpenoid (paclitaxel and aconitine) and purine alkaloids	**4**	2	2		
4	Typical/heterocyclic pyridine and piperidine alkaloids (trigonelline, tobacco alkaloid, Areca, lobelia, pomegranate alkaloids, coniine and ricinine)	**4**	2	2		
5	Typical/heterocyclic	**4**	2	2		

	Tropane alkaloids of family Solanaceae and Coca leaves, imidazole, pyrrolizidine, and quinolizidine alkaloids					
6	Typical/heterocyclic Indole and quinoline alkaloids	**4**	2	2		
7	**Mid-term exam**					
8	- Isoquinoline group and opium alkaloids - Drugs acting on the CNS and abused drugs. - Anti-Cancer drugs	**4**	2	2		
9	Revision on alkaloids	**4**	2	2		
10	Tannins (hydrolysable and condensed tannins)	**4**	2	2		
11	Chemistry of natural antioxidants	**4**	2	2		
12	Chromatographic techniques for the isolation and identification of natural products	**4**	2	2		
13	Cont. Chromatographic techniques for the isolation and identification of natural products	**4**	2	**2**		
14	Cont. Chromatographic techniques for the isolation and identification of natural products	**2**	2	Practical exam		
15	Revision	**2**	2	Practical exam		

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	7	15	15%
2	Final Written Exam	16,17	50	50%
3	Final Practical/Clinical/... Exam	14, 15	15	15%
4	Final Oral Exam	16, 17	10	10%
5	Assignments / Project /Portfolio/ Logbook	14, 15	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)	• Aniszewski, T. (2021). *Alkaloids: Chemistry, biology, ecology, and applications* (3rd ed.). Elsevier. • Badal McCreath, S., & Clement, Y. N. (Eds.). (2023). *Pharmacognosy: Fundamentals, applications and strategies* (2nd ed.). Academic Press. https://doi.org/10.1016/C2020-0-01935-8 • Ganora, L. (2021). *Herbal constituents: Foundations of phytochemistry* (2nd ed.). Herbalchem Press. • Rajendran, J. L., & Raman, D. (2022). *Experimental pharmacognosy-I: Pharmacognosy and phytochemistry*. Pharma Publications. • Singh, S. B., & Pelaez, F. (Eds.). (2021). *Bioactive natural products in drug discovery*. Springer. https://doi.org/10.1007/978-981-15-1394-7
	Other References	• Fattorusso, E., & Taglialatela-Scafati, O. (2008). *Modern alkaloids: Structure, isolation, synthesis, and biology*. Wiley-VCH.

	Electronic Sources (Links must be added)	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ https://go.drugbank.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**	Water baths Microscopes Uv –lamp Spectrophotometers
	Supplies	Class rooms Computers Library Internet Data show
	Electronic Programs	
	Skill Labs/ Simulators	Interactive boards and distant learning unit
	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)	Pharmaceutical Technology			
Course Code (according to the bylaw)	PT 606			
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
	2	1	----	3
Course Type	Compulsory			
Academic level at which the course is taught	Third level, Semester (2)			
Academic Program	Bachelor of Pharmacy (Pharm D, Clinical Pharmacy)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelsheikh University			
Name of Course Coordinator	Prof. Abd El-aziz EL-said 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)

The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization, extraction, size reduction, size separation, size analysis and size enlargement. It focuses on the application of these unit operations in pharmaceutical industry with emphasis on the equipment and machines used during the production of different dosage forms.

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 completing this course, students will be able to integrate knowledge from basic and applied pharmaceutical sciences to formulate and manufacture conventional and new drug products.** **This competency will be developed through 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 mechanisms of various unit operations including heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization, extraction, size reduction, size separation, size analysis and size enlargement
		1.1.2	List all factors affecting the abovementioned unit operations.
1.1.3	Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products.	**1.1.3**	Describe the construction of the most recent industrial equipment used in pharmaceutical manufacturing, their working principle and applications.

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**
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.4**	Classify all equipment used in the abovementioned unit operations.
		1.1.5	Identify the applications of the abovementioned unit operations during the production of different dosage forms.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE 2-2- COMPETENCY		**Upon completing this course, students will be able to apply the working principles of these major industrial unit operations in pharmaceutical product development and design.** **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**	Construct methods of isolation, purification, and crystallization of different raw materials.
2.2.4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.	**2.2.2**	Operate pharmaceutical equipment in industrial production lines
		2.2.3	Apply different pharmaceutical technologies in recent drug delivery systems.

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**
2-3- COMPETENCY		**Upon finishing this course, students will be able to Apply appropriate procedures for the handling and disposal of biological and pharmaceutical materials—both synthetic and natural—ensuring compliance with current Good Manufacturing Practices (cGMP), environmental regulations, and biosafety standards.** **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 to pharmaceutical research and clinical development activities essential for the regulatory approval and market authorization of 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**	Achieve regulatory approval for a medicinal product by presenting validated data supporting its manufacturing quality, non-clinical and clinical safety, and therapeutic effectiveness.
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	**4.1.1**	Contribute to team success by being accountable for group performance, offering constructive feedback to peers, and

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
	other team members, and express time management skills.		effectively managing time to meet project goals.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4.1.2**	Source and critically evaluate relevant data, identify and implement systematic solutions, and operate autonomously with strong collaboration in cross-functional teams
4.1.3	Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	**4.1.3**	Demonstrate strategic thinking and creative problem-solving within a simulated pharmaceutical commercialization or start-up scenario.
4-2- Competency		**Graduates will be able to effectively communicate verbally, non-verbally and in writing.** **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**	Utilize current technologies and media channels to communicate complex scientific or business information effectively through professional presentations
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**	Apply structured self-reflection to identify growth areas and enhance professional capabilities and personal performance

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.3.2	Practice independent learning is needed for continuous professional development.	**4.3.2**	Engage in self-directed learning to support ongoing professional development and maintain industry relevance

4. Teaching and Learning Methods

1- Lectures **(√)**

2- E-learning **(√)**

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

4- discussion **(√)**

5- Brainstorming **(√)**

6- Co-operative learning **(√)**

7- posters **(√)**

8- Field visit **(√)**

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	**4**	**2**	**2**	**---------**	**---------**
2	Size Reduction	**4**	**2**	**2**	**---------**	**---------**
3	Size reduction	**4**	**2**	**2**	**---------**	**---------**
4	Granulation	**4**	**2**	**2**	**---------**	**---------**
5	Heat Transfer	**4**	**2**	**2**	**---------**	**---------**
6	Evaporation	**4**	**2**	**2**	**---------**	**---------**
7	Semester works					
8	Drying	**4**	**2**	**2**	**---------**	**---------**
9	Distillation	**4**	**2**	**2**	**---------**	**---------**
10	Extraction	**4**	**2**	**2**	**---------**	**---------**
11	Filtration	**4**	**2**	**2**	**---------**	**---------**
12	Filtration	**4**	**2**	**2**	**---------**	**---------**
13	Centrifugation	**4**	**2**	**2**	**---------**	**---------**
14	Crystallization	**4**	**2**	**Practical exam**	**---------**	**---------**
15	Crystallization	**4**	**2**	**Practical exam**	**---------**	**---------**

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodical exam	7	15	15%
2	Final Practical/Clinical/… Exam	14,15	15	15%

3	Final Written Exam	16,17	50	50%
4	Final Oral Exam	16,17	10	10%
5	Assignments / Project /Portfolio/ Logbook	All semester long	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)	Notes on Pharmaceutical Technology prepared by the department staff.
	Other References	Essentials of Industrial Pharmacy. Basics of Pharmaceutical Manufacturing and Quality Operations.
	Electronic Sources (Links must be added)	https://www.fda.gov/ https://www.ich.org/
	Learning Platforms (Links must be added)	
	Other (to be mentioned)	Pharmaceutical Manufacturing Handbook: Production and Processes.
Supportive facilities & equipment for teaching and learning	**Devices/Instruments**	Laboratory facilities (Equipment of factory).
	Supplies	Water bath, digital balances and other lab instruments
	Electronic Programs	----
	Skill Labs/ Simulators	----
	Virtual Labs	----
	Other (to be mentioned)	Data show, smart boards, Unit for distance learning, Computers, Internet and Library.

Course Plan

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

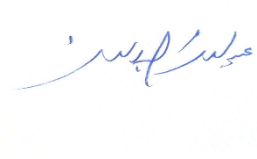
Course title: Pharmaceutical Technology **Course code:** PT 606

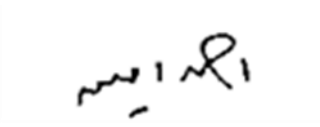
Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Introduction	1.1.1,1.1.3,1.1.5,2.2.1, 2.2.3,4.3.1	Lectures and discussion	Written, practical and oral exams
Week # 2	Size Reduction	1.1.1, 1.1.3, 2.2.1, 2.2.2.,2.3.1	Lectures and practical training	Written, practical and oral exams
Week # 3	Size reduction	1.1.1, 1.1.2, 1.1.3, 2.2.1, 2.2.2, 2.2.3, 2.3.1,4.1.1,.	Lectures and practical training	Written, practical and oral exams
Week # 4	Granulation	1.1.2, 1.1.3,1.1.4 1.1.5, 2.2.1, 2.2.2, 2.2.3, 2.5.1,4.3.2	Lectures, practical training and discussion.	Written, practical and oral exams
Week # 5	Heat Transfer	1.1.1, 1.1.2, 1.1.3, 1.1.5, 2.2.1, 2.2.2, 2.2.3, 4.1.3,4.2.1	Lectures and discussion.	Written, practical and oral exams
Week # 6	Evaporation	1.1.4, 1.1.5, 2.2.2, 2.3.1,2.5.1,4.1.2,4.3.2	Lectures and brain storming.	Written, practical and oral exams
Week # 7	Semester works			
Week # 8	Drying	1.1.4, 1.1.5, 2.2.2, 2.3.1,4.1.3,4.2.1	Lectures and practical training	Written, practical and oral exams
Week # 9	Distillation	1.1.1,1.1.3,1.1.5, 2.2.1, 2.2.2, , 2.3.1, 4.3.1,4.3.2	Lectures and discussion.	Written, practical and oral exams

Week # 10	Extraction	1.1.2,1.1.3,1.1.4, 1.1.5, 2.2.1, 2.2.2, 2.2.3, 2.5.1,4.1.1,4.1.2	Lectures	Written, practical and oral exams
Week # 11	Filtration	1.1.1,1.1.2,1.1.4, 2.2.3, 2.5.1,4.1.1,4.2.1	Lectures and class activity.	Written, practical and oral exams
Week # 12	Filtration	1.1.1,1.1.3,1.1.4, 2.2.1,2.2.3, 4.1.3,4.3.1	Lectures and class activity.	Written, practical and oral exams
Week # 13	Centrifugation	1.1.2,1.1.3,1.1.4, 1.1.5, 2.2.1,2..2.3,2.5.1,4.1.3,4.2.1	Lectures and class activity.	Written, practical and oral exams
Week # 14	Crystallization	1.1.2,1.1.3,1.1.4, 1.1.5, 2.2.1, 2.2.2, 2.2.3, 2.5.1,4.1.1,4.1.2	Lectures and brainstorming	Written and oral exams
Week # 15	Crystallization	1.1.2,1.1.3,1.1.4, 1.1.5, 2.2.1, 2.2.2, 2.2.3, 2.5.1,4.1.1,4.1.2	Lectures and discussion	Written and oral exams

Name and Signature
Course Coordinator
Prof. Abd El-aziz EL-said
Lecturer. Ahmed Adel

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





Course Specification
(2025)

Course Title (according to the bylaw)	**Hospital Pharmacy**				
Course Code (according to the bylaw)	**PP602**				
Department/s participating in delivery of the course	**Clinical Pharmacy department**				
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (specify)**	**Total**	
	2	**1**	**--------**	**3**	
Course Type	**Obligatory**				
Academic level at which the course is taught	**Third Level, second Semester**				
Academic Program	**BSc in pharmacy (pharm-D clinical)**				
Faculty/Institute	**Faculty of Pharmacy**				
University/Academy	**Kafrelshiekh University**				
Name of Course Coordinator	**Prof. Ahmed Amin**				
Course Specification Approval Date	**31/8/2025**				
Course Specification Approval	**Department Counsil**				

2. Course Overview (Brief summary of scientific content)

Organization and structure of a hospital pharmacy, hospital pharmacy facilities and services (inpatient and outpatient services), transfer of care, patient's medication record, and rational medication use, hospital formulary, pharmacy and therapeutic committee, I.V. admixtures and

incompatibilities, parenteral nutrition, handling of cytotoxic drugs, therapeutic drug monitoring, patient counselling and safety, and risk management.

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 completing this course, students will be able to define the structure of hospitals and hospital pharmacy departments, describe the roles of I.V. admixtures, therapeutic committees, hospital formulary, and radiopharmaceuticals, and identify manufacturing units. They will recognize how to receive and classify medication requests, recall techniques to obtain patient information, and list the needs of various patient groups in prescription filling and counseling. Students will also name surgical dressings, sutures, plasma substitutes, and outline the management of the central sterile supply unit, including the steps to prepare sterile and non-sterile 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	Define the concept and structure of hospital pharmacy in various hospital types.
		1.1.2	Explain the organization of pharmacy services in inpatient, outpatient, and emergency units..
		1.1.3	Distinguish between sterile and non-sterile preparation principles.
		1.1.4	Explain the pharmaceutical supply chain in hospitals.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their	1.1.5	Evaluate the rationale for drug selection based on patient condition and hospital formulary.

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**	Describe the role of IV admixtures and parenteral nutrition in patient care.
		1.1.7	Recognize medication safety practices including high-alert medications and LASA drugs.
		1.1.8	Explain the principles of rational drug use in various hospital departments.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic problems.	**1.1.9**	Identify therapeutic alternatives using hospital formulary and evidence-based guidelines.
		1.1.10	Apply pharmacokinetics and pharmacodynamics knowledge to dose .adjustment in special populations.
		1.1.11	Solve case scenarios involving drug selection or IV admixture preparation.
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.12**	Search and interpret current clinical guidelines for hospital-based pharmacotherapy.
		1.1.13	Retrieve drug information to answer inquiries from healthcare professionals.
		1.1.14	Use clinical databases and formularies for decision-making in patient care.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.15**	Discuss new technologies in sterile preparation and IV compounding (e.g., automated IV workflow).
		1.1.16	Recognize the impact of antimicrobial stewardship programs on hospital practice.
		1.1.17	Analyze current trends in hospital pharmacy practice, including pharmacoeconomics and clinical audits.

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**
		1.1.13	Analyze regulatory updates on drug safety in dermatologic, reproductive or musculoskeletal care.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE **2-1- COMPETENCY**		**Upon finishing this course, students will be able Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities and respect patients' rights.** **This competency will be developed via the following key elements:**	
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2.1.1**	Apply ethical principles in patient care and pharmacy services.
		2.1.2	Respect patient autonomy, confidentiality, and rights in all interactions.
		2.1.3	Value cultural, social, and individual diversity in healthcare delivery.
		2.1.4	Respect patient autonomy in decisions about cosmetic and hormone therapies
		2.1.5	Acknowledge personal and professional limitations in clinical practice.
		2.1.6	Accept the need for referral and collaboration for optimal patient care
		2.1.7	Seek guidance or consultation when situations exceed personal competence.
2-2- COMPETENCY		**In the Hospital Pharmacy course,** **students gain the ability to apply scientific and professional principles to ensure the quality, safety, and effective use of medicines in hospital settings. They learn:** **• How to evaluate and standardize raw materials and pharmaceutical products according to hospital quality standards and regulatory guidelines.** **• How to compound and prepare individualized formulations (e.g., pediatric doses, parenteral nutrition, IV admixtures) tailored to patient-specific needs.**	

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**
			• How to ensure proper storage conditions for high-alert or temperature-sensitive medications (e.g., insulin, chemotherapy agents, vaccines). **• How to participate in hospital dispensing systems including unit-dose distribution, automated systems, and patient counseling..** **This competence will be developed via the following key elements:**
2.2.4	Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.	2.2.1	Apply pharmaceutical calculations to design appropriate dosage regimens and adjust doses for special populations.
		2.2.2	Interpret pharmacokinetic and biopharmaceutical data to assess drug absorption, distribution, metabolism, and excretion in the context of clinical practice and new drug delivery systems.
		2.2.3	Utilize biostatistics and bioinformatics tools to analyze drug-related data and evaluate bioequivalence and therapeutic efficacy.
2-4- COMPETENCY		**In the hospital pharmacy course, students are trained to take prompt and responsible actions in emergency situations such as poisoning and drug-related complications. They develop the ability to manage antidotes, handle cytotoxic and hazardous drugs safely, and participate in clinical decision-making to ensure patient safety. The course also prepares students to collaborate effectively with healthcare teams in critical and forensic scenarios, supporting life-saving interventions and contributing to accurate medication-related assessments.**	

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:	
2.4.1	Ensure safe handling/use of poisons to avoid their harm to individuals and communities.	**2.4.1**	Apply appropriate safety protocols in the handling and disposal of toxic substances.
		2.4.2	Demonstrate the correct use of personal protective equipment (PPE) during exposure scenarios
		2.4.3	Implement standard operating procedures (SOPs) to prevent accidental poisoning or contamination.
2.4.2	Demonstrate understanding of the first aid measures needed to save patient's life.	**2.4.4**	Identify clinical signs and symptoms of acute poisoning.
		2.4.5	Describe the steps of first aid management for common poisoning cases.
		2.4.6	Apply first aid procedures in simulated emergency scenarios to manage poison exposure.
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems .	**2.4.7**	Evaluate patient medication profiles to identify potential toxic drug interactions.
		2.4.2	Collaborate with healthcare professionals to resolve pharmaceutical care issues related to poisoning.
		2.4.3	Address nonadherence in long-term regimens.
2-5- COMPETENCY		**The hospital pharmacy course enables students to retrieve and critically appraise evidence-based information to support clinical decisions and optimize patient care. It also equips them with the skills to contribute effectively to planning and conducting research using appropriate methodologies relevant to hospital and toxicology 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**
		This competency will be developed via the following key elements:	
2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession	**2.5.1**	Retrieve up-to-date, evidence-based clinical guidelines related to hospital pharmacy practices.
		2.5.2	Interpret clinical data to support therapeutic decisions
		2.5.3	Critically evaluate research studies and drug information to ensure optimal patient care.
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies.	**2.5.4**	Formulate research questions addressing challenges in hospital pharmacy or toxicology practice
		2.5.5	Select and apply appropriate research methodologies and statistical tools.
		2.5.6	Participate in the design, implementation, and interpretation of hospital-based clinical or observational studies.
DOMAIN 3: Pharmaceutical Care **3-1- COMPETENCY**		In the hospital pharmacy course, students gain the ability to apply scientific and professional principles to ensure the quality, safety, and effective use of medicines in hospital settings. They learn: • How to evaluate and standardize raw materials and pharmaceutical products according to hospital quality standards and regulatory guidelines. • How to compound and prepare individualized formulations (e.g., pediatric doses, parenteral nutrition, IV admixtures) tailored to patient-specific needs. • How to ensure proper storage conditions for high-alert or temperature-sensitive medications (e.g., insulin, chemotherapy agents, vaccines). • How to participate in hospital dispensing systems including	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		unit-dose distribution, automated systems, and patient counseling. This competency will be developed via the following key elements:	
3.1.1	Apply the principles of body function and the basis of genomics in health and disease states to manage different diseases.	3.1.1	Explain the physiological mechanisms of major body systems and their relevance to disease progression in hospitalized patients.
		3.1.2	Interpret genomic data to predict patient susceptibility to certain diseases or drug responses.
		3.1.3	Integrate pathophysiology and genetic factors to develop patient-specific therapeutic plans in a hospital setting.
		3.1.4	Evaluate the impact of genetic polymorphisms on drug metabolism and efficacy.
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.1.5	Perform standard microbiological techniques to identify pathogens in clinical specimens..
		3.1.6	Interpret antimicrobial susceptibility testing results to guide therapy.
		3.1.7	Monitor microbial growth patterns and evaluate antimicrobial stewardship strategies.
		3.1.8	Collaborate with clinical teams to adjust therapy based on microbiological findings.
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches	3.1.9	Correlate clinical symptoms with laboratory diagnostic results to confirm infection type.
		3.1.10	Relate disease pathogenesis with drug regimen selection and monitoring.
		3.1.11	Select appropriate antimicrobial or antiviral therapy based on disease etiology and patient-specific factors.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		3.1.12	Educate healthcare staff and patients on prevention and treatment strategies for infectious diseases in hospitals.
		3.1.13	Monitor patient progress and adjust pharmacotherapy according to clinical and laboratory outcomes.
3-2- COMPETENCY		**Upon finishing this course, students will be able to Provide counselling and education services to patients and communities about safe and rational use of medicines and medical devices. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions	3.2.1	Correlate the pharmacological properties of drugs—including mechanisms of action, therapeutic uses, dosages, contraindications, adverse reactions, and interactions—with patient-specific factors in hospital settings.
		3.2.2	Apply this integration in medication chart review, prescription verification, and multidisciplinary clinical rounds.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.2.3	Implement principles of clinical pharmacology to ensure rational and individualized drug therapy.
		3.2.4	Monitor, detect, and report adverse drug reactions and medication errors according to hospital pharmacovigilance protocols.
		3.2.5	Evaluate and adjust therapy based on therapeutic drug monitoring and patient outcomes.
3.2.3	Provide evidence-based information about safe use of complementary	3.2.6	Critically appraise and communicate evidence on the safe and effective use of

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**
	medicine including phytotherapy, aromatherapy, and nutraceuticals		complementary medicine, including phytotherapy, aromatherapy, and nutraceuticals, in hospital inpatients and outpatients.
		3.2.7	Identify potential interactions between complementary products and prescribed medications.
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.8	Identify sources and toxicological profiles of drugs and other xenobiotics encountered in clinical practice.
		3.2.9	Recognize clinical signs and symptoms of toxicity.
		3.2.10	Implement evidence-based management and control strategies, including antidote administration and supportive care in emergency and critical care units.
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	3.2.11	Demonstrate patient counseling techniques for safe and effective use of prescribed, OTC medications, and medical devices in hospital settings.
		3.2.12	Communicate evidence-based drug information to healthcare teams to optimize patient therapy and prevent medication errors.
		3.2.13	Educate patients and caregivers on correct medication administration, storage, and adherence strategies to improve therapeutic outcomes.
3.2.6	Maintain public awareness on social health hazards of drug misuse and .abuse	3.2.14	Explain the risks and consequences of prescription drug misuse, OTC medication overuse, and illicit substance abuse in hospital and community contexts.

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**
		3.2.15	Develop patient education plans to prevent drug misuse and promote safe medication practices during hospital discharge counseling.
		3.2.16	Participate in awareness campaigns within hospital and community settings to reduce the incidence of drug abuse.
DOMAIN 4: Personal Practice **4-1- COMPETENCY**		**Upon finishing this course, students will be able to express leadership, time management, critical thinking, problem solving, independent and teamwork, creativity and entrepreneurial skills.** **This competency will be developed via the following key elements:**	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.1.1	Participate in interdisciplinary teams managing dermatological, reproductive or MSK care and prioritize patient cases with urgent concerns.
		4.1.2	Manage tasks in collaborative projects on chronic disease monitoring and evaluate peer contributions during group assignments.
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.3	Research treatment guidelines for rare disorders and independently assess medication plans.
		4.1.4	Solve therapeutic dilemmas in conflicting comorbidities and demonstrate initiative in tackling nonadherence issues.
4-2- COMPETENCY		**Upon finishing this course, students will be able to Effectively communicate verbally, non-verbally and in writing with individuals and communities.** **This competency will be developed via the following key elements:**	

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care teams, patients, and communities	4.2.1	Apply appropriate verbal and non-verbal communication techniques during patient interviews, ward rounds, and interdisciplinary meetings.
		4.2.2	Document patient information accurately and concisely in medical records, progress notes, and discharge summaries.
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.2.3	Utilize hospital information systems and digital tools to prepare and deliver case presentations.
		4.2.4	Present patient cases and clinical findings effectively to healthcare teams using visual aids and structured formats.
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	Evaluate personal strengths and weaknesses in relation to professional practice.
		4.3.2	Identify improvement areas after peer evaluation and plan steps to improve therapeutic counseling skills.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.3	Seek new research on emerging therapies and track the continuous updates with respect to new regulations and guidelines.
		4.3.4	Apply self-directed learning methods to achieve targeted professional growth.

4. Teaching and Learning Methods

.1- **Lectures** (√)

2- **E-learning** (√)

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

4- **Discussion** (√)

5- **Brainstorming** (√)

6- **Assignments** (√)

7- **Case study** (√)

8- **Seminars** (√)

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/.....)	Training (Practical/Clinical/.....)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Responsibilities of hospital staff	**4**	**2**	**2**	---	---
2	Hospital and its organization	**4**	**2**	**2**	---	---
3	Pharmacy and therapeutic committee	**4**	**2**	**2**	---	---
4	Hospital formulary	**4**	**2**	**2**	---	---
5	In-patient pharmacy	**4**	**2**	**2**	---	---
6	Out-patient pharmacy	**4**	**2**	**2**	---	---
7	**Periodical exam**					
8	IV admixture	**4**	**2**	**2**	---	---
9	Handling of Cytotoxic Drugs	**4**	**2**	**2**	---	---
10	Handling of Cytotoxic Drugs	**4**	**2**	**2**	---	---
11	Pharmacist and radioisotopes	**4**	**2**	**2**	---	---
12	Drug incompatibility	**4**	**2**	**2**	---	---
13	Bed round of the clinical pharmacist	**4**	**2**	**2**	---	---
14	Responsibilities of hospital staff	**4**	**2**	**Practical exam**		
15	Hospital and its organization	**4**	**2**	**Practical exam**		

5. Methods of students' assessment

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

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	Ansen KN, McCartney RR. Handbook of Institutional Pharmacy Practice. 6th ed. Bethesda: American Society of Health-System Pharmacists; 2024
	Other References	Tatro DS. Drug Interaction Facts 2024: The Authority on Drug Interactions. 2024 ed. Bethesda: Wolters Kluwer Health. Polovich M (ed). Safe Handling of Hazardous Drugs. 4th ed. Pittsburgh: Oncology Nursing Society; 2023. Whaley AB. Compounding Sterile Preparations. 5th ed. Bethesda: American Society of Health-System Pharmacists; 2023.
	Electronic Sources	www.biomedcentral.com www.medscape.com http://www.sciencedirect.com/ http://www.ncbi.nlm.nih.gov/ http://www.FDA.gov
	Learning Platforms	https://lms3.kfs.edu.eg/pharm/login/index.php

	Other	Applied Therapeutics, The clinical Use of Drugs(2009) Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 9th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 11th 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	**/https://www.mdcalc.com**
	Skill Labs/ Simulators	-Educational pharmacy **- IV Admixture unit**

Course Plan

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

Course title: Hospital Pharmacy **Course code: PP602**

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	Responsibilities of hospital staff	1.1.1 , 1.1.2 , 1.1.3, 2.1.1 , 2.1.2 , 2.1.3	Lectures, E-learning	Written, practical and oral exams
Week # 2	Hospital and its organization	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6 , 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9,3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1.4, 4.2.2.2.2.4, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 3	Pharmacy and therapeutic committee	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 4	Hospital formulary	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

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

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

		4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 9	Handling of Cytotoxic Drugs	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.134.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	Handling of Cytotoxic Drugs	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

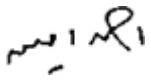
		3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 11	Pharmacist and radioisotopes	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.134.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 12	Drug incompatibility	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		3.1.2, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 13	Bed round of the clinical pharmacist	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11. 1.1.12, 1.1.13 , 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.4.1, 2.4.2, 2.4.3, 2.5.1, 25.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4	Lectures and E-learning	Written, practical and oral exams
Week # 14	Responsibilities of hospital staff	1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11.	Lectures and E-learning	Written and oral exams

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

		3.2.14 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		

Name and Signature **Course Coordinator** **Prof. Ahmed Amin**	**Name and Signature** **Program Coordinator** **Prof. Ahmed Amin**



Course Specification
(2025)

1. Basic Information

Course Title (according to the bylaw)	**Clinical pharmacy practice**			
Course Code (according to the bylaw)	**PP 603**			
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 اجباري**			
Academic level at which the course is taught	**Third level, second semester**			
Academic Program	**BSc in pharmacy (pharm-D clinical)**			
Faculty/Institute	**Faculty of Pharmacy**			
University/Academy	**Kafrelshiekh University**			
Name of Course Coordinator	**Associate. Prof. Ahmed Amin Ali**			
Course Specification Approval Date	**31/8/2025**			
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	**Department Counsil**			

2. Course Overview (Brief summary of scientific content)

This course includes the definition and concepts of clinical pharmacy and pharmaceutical care, case history and case presentation, medication history taking, clinical problem solving, and therapeutic planning, clinical rounding and assessment of patient compliance. Principles of special care populations (geriatric, pediatric, pregnancy, and lactation). Drug-related problems and drug interactions . Interpretation of clinical laboratory data and physical examination.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NA RS/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 explain the pharmacological actions of drugs using knowledge from fundamental biomedical, pharmaceutical, and clinical sciences, describe the underlying mechanisms of adverse drug reactions, including hypersensitivity and drug-drug interactions, evaluate the appropriateness, effectiveness, and safety of drug therapy in special populations such as pregnant or breastfeeding women, pediatric patients, and older adults.** **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	Illustrate understanding of biomedical and clinical sciences to identify, prioritize, and document patient problems systematically.
		1.1.2	Demonstrate pharmaceutical, social, and behavioral sciences to collect accurate and complete medication-related information.

		1.1.3	Understanding of biomedical and pharmaceutical sciences to assess risks and benefits of drug use in pregnant and breastfeeding patients.
		1.1.4	Demonstrate understanding of biomedical and pharmaceutical sciences to determine safe and effective pediatric dosing regimens.
		1.1.5	Demonstrate understanding of biomedical and pharmaceutical sciences to optimize drug therapy in elderly patients and minimize adverse effects
		1.1.6	Recognize, prevent, and manage drug-induced hypersensitivity reactions.
1.1.4	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.1.7	Explain immunological and non-immunological mechanisms of hypersensitivity reactions, and evaluate drug safety, appropriateness, and management in affected individuals and populations.
		1.1.8	Review physiological changes during pregnancy and lactation affecting drug action, and evaluate appropriateness, safety, and effectiveness of therapy in these populations.
		1.1.9	Explain age-related physiological changes
		1.1.10	Discuss developmental pharmacokinetic and pharmacodynamic differences in children and evaluate safe and effective dosing strategies.
1.1.5	Retrieve information from fundamental sciences to solve therapeutic	1.1.11	Collect subjective/objective data; prioritize problemsPathophysiology, pharmacology, lab interpretationIdentify drug-related problems; design evidence-based plan

	problems	**1.1.12**	verify drug name, dose, route, frequency, indication, durationPharmacokinetics/dynamics; drug formulationsDetect dosing errors, duplications, contraindications, gaps
		1.1.13	Recognize signs (hypotension, bronchospasm, rash); identify causative drug Immunology of hypersensitivity (IgE-mediated Type I), adrenergic pharmacologyUse epinephrine as first-line; add antihistamines/corticosteroids
		1.1.14	Identify PK (CYP450, transporters) and PD mechanismsEnzyme systems, receptor pharmacologyPrevent therapeutic failure/toxicity by adjusting regimens
		1.1.15	Consider placental transfer, teratogenicity, milk excretionDevelopmental physiology, teratology, PK changes in pregnancyChoose safest drugs, avoid teratogens, minimize infant exposure
1.1.6	Utilize scientific literature and collect and interpret information to enhance professional decisions.	**1.1.16**	Use clinical guidelines and scientific papers to validate differential diagnoses; interpret lab values and clinical findings using reference literature; enhance decision-making for prioritized therapeutic plans.
		1.1.17	collect medication details and cross-check with formularies/databases; interpret scientific literature on dosing, indications, and ADRs to confirm accuracy; apply evidence to detect errors or gaps

		1.1.18	Retrieve evidence on drug-induced hypersensitivity mechanisms; use literature-supported protocols (e.g., epinephrine as first-line) to guide emergency management; interpret case reports and guideline data to prevent recurrence.
		1.1.19	Consult scientific reviews, interaction databases, and primary research on PK/PD mechanisms; interpret enzyme/transporter data (e.g., CYP450 studies); apply evidence to predict, prevent, and manage interactions.
1.1.7	Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1.1.20**	Recognize emerging diagnostic tools, biomarkers, and electronic health records that impact patient assessment and problem prioritization; analyze literature on AI-assisted clinical decision support.
		1.1.21	Monitor newly identified drug-drug, drug-food, and drug-disease interactions from recent studies; critically analyze literature on novel enzyme inhibitors or transporter modulators affecting therapy.
		1.1.22	Track new drugs and biologics associated with hypersensitivity reactions; review pharmacovigilance data and recent case reports to update emergency protocols.
		1.1.23	Evaluate emerging safety data on recently approved drugs or vaccines; interpret recent studies on teratogenicity and lactation transfer to guide evidence-based prescribing
DOMAIN 2: **PROFESSIONAL AND ETHICAL PRACTICE** *2-1- Competency*		**Upon finishing this course, students will be able to work collaboratively as a member of an interprofessional 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	**2.1.2**	Maintain confidentiality when documenting; ensure honesty and transparency in problem prioritization; respect patient autonomy in shared decision-making.
		2.1.3	Respect privacy when gathering sensitive drug information (e.g., mental health, HIV therapy); avoid bias related to cultural or social background; obtain

	diversity		informed consent when clarifying medication use.
		2.1.4	Provide clear, non-judgmental counseling on lifestyle or OTC/herbal product use; respect cultural practices while explaining risks; uphold duty to warn patients about potential harm.
		2.1.5	Respect maternal autonomy and informed choice while protecting fetal/infant health; provide unbiased, culturally sensitive counseling; avoid discrimination in reproductive decisions.
		2.1.6	Act with beneficence and urgency to save life; respect patient's right to allergy documentation and medical alert identification; provide equal emergency care regardless of background.
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.	2.1.7	Identify when clinical problems exceed your knowledge or scope; refer to physicians or specialists for complex diagnoses; collaborate with team for comprehensive problem list.
		2.1.8	Recognize when uncertain about patient's medication details or unclear history; involve pharmacists, nurses, or family members to verify and clarify; seek guidance for high-risk medications.
		2.1.9	Acknowledge limitations in acute management beyond your training; refer to emergency/critical care providers; follow allergy specialists' guidance for long-term prevention.
		2.1.10	Recognize when interaction significance is unclear; consult clinical pharmacists, drug interaction databases, or prescribers; refer patients for monitoring if risks are high.

		2.1.11	Understand the limits of your knowledge in teratogenic or lactation risks; seek guidance from obstetricians, neonatologists, or lactation consultants; refer for specialized risk–benefit evaluation.
		2.1.12	Identify uncertainty in age/weight-based dosing or off-label use;
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.**	
2.4.3	Take actions to solve any identified medicine-related and pharmaceutical care problems.	2.4.1	Actively resolve identified drug-related problems (dose adjustments, therapy changes, monitoring); collaborate with prescribers to implement problem-oriented therapeutic plans.
		2.4.2	Correct discrepancies between patient-reported and prescribed medicines; reconcile medication lists; stop duplications and optimize adherence
		2.4.3	Administer epinephrine immediately; discontinue offending drug; provide allergy documentation and patient education to prevent recurrence.
		2.4.4	Substitute teratogenic or unsafe drugs with safer alternatives; counsel on risk–benefit; adjust doses according to pregnancy/lactation physiology.
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:**	

2.5.2	Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.	2.5.1	Search clinical guidelines and primary literature to support diagnosis and management. - Interpret lab results and clinical data in light of current evidence. - Critically assess differential diagnoses and .prioritize based on best evidence
		2.5.2	Retrieve accurate medication data from multiple sources (patient, pharmacy records, EHR). - Interpret relevance of each medication to current clinical status using evidence-based guidelines. - Evaluate reliability of patient-reported information.
		2.5.3	-Consult evidence-based protocols for anaphylaxis management. - Interpret case reports or guideline recommendations for alternative drugs in allergic patients. - Critically evaluate reported allergies to distinguish true IgE-mediated reactions from side effects.
		2.5.4	-Retrieve interaction data from trusted databases (Lexicomp, Micromedex). - Interpret clinical significance of interactions using primary literature. - Critically evaluate whether a reported interaction is clinically relevant or theoretical.
		2.5.5	Access LactMed, FDA labeling, and guidelines for safe prescribing. - Interpret teratogenicity and lactation safety data. - Critically evaluate risk–benefit balance based on current evidence.

		2.5.6	Search clinical guidelines and primary literature to support diagnosis and management. - Interpret lab results and clinical data in light of current evidence. - Critically assess differential diagnoses and prioritize based on best evidence. -retrieve pediatric dosing recommendations from trusted references. - Interpret pharmacokinetic/pharmacodynamic differences using clinical studies -Evaluate new evidence for pediatric-specific antimicrobial or therapeutic protocols
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies	**2.5.7**	Design studies on the accuracy of SOAP documentation and problem list prioritization; use observational or interventional methods to assess impact on patient outcomes.
		2.5.8	Plan research evaluating completeness and accuracy of medication reconciliation; apply cross-sectional surveys, chart reviews, or qualitative interviews.
		2.5.9	Design PK/PD interaction studies (in vitro, in vivo, or clinical trials); use systematic reviews and meta-analyses to evaluate prevalence and clinical outcomes
		2.5.10	Plan prospective registries, cohort studies, or systematic reviews to assess safety/teratogenicity of drugs; use LactMed data and follow-up methodologies.
3-1-Competency		**Upon finishing this course, Graduates will be able to apply the principles of body functions to participate to apply the principles of body functions to participate in improving health care services using evidence-based data.**	

3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	**3.1.1**	Include etiology and epidemiology data when documenting infectious cases (e.g., likely pathogens based on travel history or community trends). - Record laboratory findings supporting diagnosis (e.g., culture results, serology, PCR). - Link assessment to pathophysiology and clinical presentation.
		3.1.2	-Document prior antimicrobial exposure that may influence pathogen resistance patterns. - Record any history suggesting specific etiology (e.g., TB exposure, contaminated food). - Gather data on geographic/travel history relevant to epidemiology.
		3.1.3	-Relate allergic reactions to pathophysiology of immune hypersensitivity. - Differentiate between drug allergy and infection-related rash. - Consider alternative pharmacotherapeutic options based on clinical features and etiology.
		3.1.4	-Recognize interactions affecting antimicrobial pharmacotherapy (e.g., reduced efficacy or increased toxicity). - Consider impact of disease pathophysiology on drug metabolism and elimination. - Evaluate lab values to detect interaction consequences (e.g., INR changes).
		3.1.5	-Identify safe and effective antimicrobials based on etiology and disease stage. - Understand epidemiological trends of infections in pregnancy (e.g., UTIs, listeriosis). - Adjust pharmacotherapy based on maternal–fetal pathophysiology.

		3.1.6	-Apply weight- and age-based dosing according to pediatric pathophysiology. - Recognize epidemiology of pediatric infectious diseases (e.g., otitis media, meningitis). - Use lab diagnostics appropriate for age to guide therapy.
		3.1.7	-Adapt pharmacotherapy to age-related pathophysiological changes (renal/hepatic decline). - Recognize epidemiological patterns of infections in elderly (e.g., pneumonia, UTIs). - Use lab diagnosis and clinical features to tailor treatment safely.
3-2- Competency		**Graduates will be able to Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices. This competency will be developed via the following key elements:**	
3.2.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.	**3.2.1**	- Mechanism: Describe how the drug's action leads to the desired clinical effect within the Assessment section (e.g., ACE inhibitors reduce angiotensin II → lower BP). - Therapeutic use: Link each drug to the specific problem in the Plan. - Dosage: Include starting and adjusted doses based on patient-specific factors. - Contraindications / ADRs / Interactions: Document relevant cautions, adverse effects, and monitoring plans (e.g., avoid Drug X with Drug Y due to risk of .toxicity)
		3.2.2	- Gather details on mechanism, indication, and therapeutic goal for each medication. - Compare actual doses with recommended guidelines and identify under/over-dosing. - Identify past contraindications, ADRs, or known drug interactions from patient history.

		3.2.3	Mechanism: Explain immunologic pathways in - IgE-mediated vs non-IgE-mediated reactions. - Therapeutic alternatives: Choose safe substitutes based on mechanism and contraindications. - Dosage & monitoring: Apply evidence-based emergency dosing (e.g., IM epinephrine) and plan .for follow-up monitoring
		3.2.4	- Identify if PK (e.g., CYP450inhibition) or PD (e.g., additive QT prolongation). - Clinical consequence: Link interaction to reduced efficacy or increased toxicity. - Mitigation: Adjust dose, substitute drug, or implement monitoring parameters (e.g., INR for warfarin interactions).
		3.2.5	- Explain how the drug's action may cause fetal or neonatal harm. - Select safe therapy and adjust dosing for trimester or lactation stage. Identify absolute contraindications and outline monitoring for mother and infant.
		3.2.6	- Relate PK/PD changes in children to drug mechanism (e.g., larger volume of distribution for water-soluble drugs). -Apply mg/kg dosing while respecting maximum safe limits.
		3.2.7	Explain how aging alters drug action (e.g., - reduced clearance increases drug exposure). -Tailor therapy based on organ function and benefit–risk balance. -Apply Beers/STOPP criteria and monitor for high-risk drug effects.
3.2.2	Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and	3.2.8	Apply clinical pharmacology knowledge to link symptoms with drug therapy problems; use pharmacovigilance reports to identify ADR-related .issues in problem lists
		3.2.9	Detect potential adverse drug reactions (ADRs), medication errors, and past pharmacovigilance

	medical devices.		reports; apply principles of drug kinetics/dynamics to assess appropriateness of current therapy.
		3.2.10	Apply immunopharmacology principles; report drug-induced hypersensitivity reactions to pharmacovigilance systems; evaluate benefit–risk before re-exposure or cross-reactive drugs
		3.2.11	Apply age-related PK/PD changes; monitor for polypharmacy-related ADRs; utilize pharmacovigilance databases (e.g., Beers Criteria reports) for rational prescribing and deprescribing.
3.2.3	Provide evidence-based information aboutsafe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	3.2.12	Identify active plant constituents and mechanisms. - Retrieve and critically appraise clinical trial/systematic review data. - Evaluate herb–drug interactions (e.g., St John's wort, ginkgo, garlic). - Assess safety issues (toxicity, adulteration, quality control). - Apply benefit–risk analysis for clinical recommendations.
		3.2.13	Summarize evidence for therapeutic uses (e.g., lavender for anxiety, peppermint for IBS). - Differentiate safe routes (inhalation, diluted topical) vs unsafe (oral ingestion of concentrated oils). - Recognize adverse effects (dermatitis, bronchospasm, systemic toxicity). - Apply clinical judgment in high-risk groups (children, asthma, pregnancy)
		3.2.14	Define nutraceutical categories and pharmacological basis. in 3- Evaluate evidence for efficacy (e.g., omega-hypertriglyceridemia, probiotics in AAD). - Identify potential risks (hypervitaminosis, contamination, quality issues). - Assess drug–nutrient interactions (e.g., vitamin K with warfarin). - Recommend evidence-based dosing and monitoring.
		3.2.15	Use trusted sources (Natural Medicines, Cochrane, ODS, NCCIH). - Critically analyze strength and quality of available evidence. - Apply pharmacovigilance principles by reporting

			adverse
3.2.4	Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.2.16	Identify common sources of drug toxicity: prescription drugs (e.g., opioids, acetaminophen, digoxin), OTC drugs (NSAIDs, antihistamines), herbal and nutraceutical products, household chemicals (cleaning agents, alcohols), industrial/environmental toxins (pesticides, heavy metals, solvents). - Differentiate intentional (overdose, abuse) vs unintentional (accidental, pediatric exposure, drug–drug interaction).
		3.2.17	Gather exposure history (substance, dose, timing, route).
		3.2.18	- Recognize toxidromes (opioid: CNS depression, miosis, respiratory depression; anticholinergic: dry skin, dilated pupils, delirium; cholinergic: SLUDGE syndrome).
		3.2.19	- Use diagnostic tools: toxicology screens, specific assays (acetaminophen, salicylate, digoxin levels), biomarkers (LFTs, renal function).
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.	3.2.20	identify medication-related problems and provide counseling tailored to individual needs.
		3.2.21	Educate patients on identifying allergic reactions, avoiding triggers, and emergency response (e.g., epinephrine use).
		3.2.22	Counsel patients on potential interactions, how to avoid them, and monitoring for adverse effects.
		3.2.23	Advise on safe medication choices, risks, and benefits during pregnancy and breastfeeding.

		3.2.24	Educate caregivers on correct pediatric dosing, administration techniques, and safety precautions.
		3.2.25	Counsel on polypharmacy risks, adherence strategies, and avoiding high-risk medications.
3.2.6	Maintain public awareness on social health hazards of drug misuse and abuse	3.2.26	Identify and document potential signs of drug misuse or abuse during patient assessment, and address them in the care plan.
		3.2.27	Detect patterns of overuse, duplicate therapy, or use of high-risk substances, and counsel patients on safe practices.
		3.2.28	Educate patients about the risks of self-medicating without guidance, particularly with high-risk or allergenic drugs.
		3.2.29	Warn patients about the dangers of combining drugs with alcohol, illicit substances, or other medications that can lead to misuse-related harm.
		3.2.30	Raise awareness about the harmful impact of substance misuse on fetal and infant health.
		3.2.31	Counsel caregivers on preventing accidental overdose or inappropriate medication use in children.
		3.2.32	Address the risks of polypharmacy and potential misuse of sedatives, opioids, or other dependency-prone drugs in elderly populations

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.	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	4.1.1	Collaborate with team members to compile-comprehensive patient assessments within agreed .timelines, ensuring accuracy and clarity
		4.1.2	Coordinate roles in the team to gather complete patient histories efficiently, avoiding duplication of effort.
		4.1.3	Assign tasks during emergencies (e.g., one team member administers epinephrine, another calls for help) to maximize patient safety.
		4.1.4	Share responsibilities for drug interaction screening, review findings as a team, and provide timely patient counseling.
		4.1.5	Work together to research safe medication options, delegate literature review, and compile results within deadlines.
		4.1.6	Distribute calculation and verification tasks among team members to ensure accurate pediatric dosing.
		4.1.7	Plan and execute polypharmacy reviews as a group, assigning patient cases to team members and completing assessments on schedule

4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.1.8	independently gather and critically review patient data to identify problems, propose evidence-based solutions, and share findings with the team.
		4.1.9	Use interviewing skills to collect complete histories, cross-check with references, and identify discrepancies or risks.
		4.1.10	Retrieve guidelines for anaphylaxis management, analyze case details, and decide rapid interventions individually or as a team.
		4.1.11	Search authoritative databases for potential interactions, assess clinical relevance, and propose prevention strategies.
		4.1.12	Evaluate literature and guidelines on safe drug use in these populations, then collaboratively recommend options.
		4.1.13	Calculate doses using references, verify with independent checks, and solve dosing issues as a team
		4.1.14	Identify polypharmacy risks through literature review and patient data analysis, then create joint action plans for optimization.
4-2- Competency		**Upon finishing this 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	Document findings clearly in writing for the healthcare team, and verbally present patient problems in multidisciplinary meetings.
		4.2.2	Use active listening, appropriate questioning, and empathetic non-verbal cues to build trust and gather accurate information
		4.2.3	Clearly explain emergency plans to patients and caregivers, using both verbal instructions and visual aids for clarity.
		4.2.4	Communicate potential interaction risks to patients in plain language and prepare concise written notes for the care team.
		4.2.5	Provide sensitive, clear verbal counseling and written educational materials tailored to patient needs.
		4.2.6	Use verbal explanations and demonstration (e.g., measuring syringes) with caregivers to ensure correct dosing.
		4.2.7	Apply clear verbal and written communication to simplify complex regimens and support adherence in elderly patients.

4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	**4.2.8**	- Subjective: patient's symptoms and history - Objective: measurable data (vitals, labs) - Assessment: identify problems/diagnoses - Plan: treatment and follow-up - Prioritize and list problems clearly
		4.2.9	- Collect full list of meds (prescribed, OTC, herbal) - Note dose, frequency, route, duration - Identify allergies and ADRs - Check adherence and understanding - Clarify discrepancies
		4.2.10	- Recognize signs/symptoms of anaphylaxis - Document allergies clearly - Educate on avoidance and emergency plans - Know cross-reactivity and safe alternatives
		4.2.11	Identify pharmacokinetic and pharmacodynamic interactions - Use interaction checking tools - Assess clinical significance - Adjust therapy accordingly - Monitor for adverse effects
		4.2.12	- Understand pregnancy risk categories - Balance maternal benefit vs fetal/neonatal risk - Assess drug transfer to breast milk - Recommend safest drugs
		4.2.13	- Calculate dose by weight or body surface area - Adjust for age-related changes - Use pediatric formulations - Monitor effects and toxicity - Educate caregivers on dosing

		4.2.14	- Recognize altered pharmacokinetics/dynamics - Assess polypharmacy and interactions - Evaluate organ function before prescribing - Simplify regimens to improve adherence - Monitor effects and educate appropriately
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.**	
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.3.1	- Evaluate accuracy and completeness of documentation - Reflect on ability to collect relevant subjective and objective data - Assess problem identification and planning skills
		4.3.2	- Review thoroughness in gathering medication info (dose, adherence, allergies) - Reflect on communication skills during history taking - Identify gaps in knowledge or patient interaction
		4.3.3	- Assess ability to recognize symptoms and respond appropriately - Reflect on documentation and patient education skills - Identify understanding of cross-reactivity and emergency protocols
		4.3.4	- Evaluate knowledge of interaction mechanisms and clinical significance - Reflect on use of tools/resources for checking interactions - Assess ability to communicate risks and adjust therapy

		4.3.5	- Reflect on understanding of drug safety and risk assessment - Assess counseling skills for pregnant/lactating patients - Identify gaps in knowledge of category classifications
		4.3.6	- Review accuracy of dose calculations and adjustments - Assess communication with caregivers for dosing instructions
		4.3.7	- understanding of age-related changes and polypharmacy risks - simplify regimens and monitor effects - Assess knowledge of geriatric-specific safety concerns.
4.3.2	Practice independent learning is needed for continuous professional development.	4.3.8	- Self-study clinical documentation standards and best practices - Practice writing and reviewing SOAP notes regularly
		4.3.9	- Research medication information and updates independently - Develop skills in effective patient interviewing
		4.3.10	- Keep updated on emergency protocols and allergy management guidelines - Review case studies for practical understanding
		4.3.11	- Independently use drug interaction databases and literature - Continuously learn about new interactions and mechanisms
		4.3.12	Study evidence-based guidelines on drug safety in pregnancy/lactation - Review new research and recommendations

	4.3.13	- Learn pediatric pharmacokinetics and dosing calculations independently - Practice dosage adjustments using case scenarios
	4.3.14	- Research geriatric pharmacotherapy updates and challenges - Study polypharmacy management and deprescribing strategies

4. Teaching and Learning Methods

1- **Lectures** (√)

2- **E-learning** (√)

3- **Practical training** (√)

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	**SOAP note and problem list**	**4**	**2**	**2**	**---**	**---**
2	**SOAP note and problem list**	**4**	**2**	**2**	**---**	**---**
3	**Taking Medication Histories**	**4**	**2**	**2**	**---**	**---**
4	**Anaphylaxis and Drug Allergies**	**4**	**2**	**2**	**---**	**---**
5	**Anaphylaxis and Drug Allergies (CONT.)**	**4**	**2**	**2**	**---**	**---**
6	**DRUG INTERACTIONS**	**4**	**2**	**2**	**---**	**---**
7	**Periodical exam**					
8	**DRUG INTERACTIONS (CONT.)**	**4**	**2**	**2**	**---**	**---**
9	**Drug use during pregnancy**				**---**	**---**
10	**Drug use during pregnancy**	**4**	**2**	**2**		

	(CONT.)				---	---
11	**Drug use during lactation**	**4**	**2**	**2**	---	---
12	**Drug use during lactation (CONT.)**	**4**	**2**	**2**	---	---
13	**Drug dosing in pediatric patients**	**4**	**2**	**2**	---	---
14	**Drug dosing in pediatric patients (CONT.)**	**4**	**2**	**Practical exam**		
15	**Final revision**	**4**	**2**	**Practical exam**		

5. Methods of students' assessment

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

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course** (must be written in full according to the scientific documentation method)	DiPiro, J. T., Yee, G. C., Haines, S. T., Nolin, T. D., Ellingrod, V., & Posey, L. M. (Eds.). (2023). Pharmacotherapy: A pathophysiologic approach (12th .ed.). McGraw-Hill Education "Handbook of Nonprescription Drugs" (for OTC medication guidance)
	Other References	Applied Therapeutics: The Clinical Use of Drugs – Koda-Kimble et al. clinical Pharmacy and Therapeutics – Roger Walker & Cate Whittlesea. Notes in Clinical pharmacy practice. Practical notes in Clinical pharmacy practice.
	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 (2024) Koda-Kimble MA(Ed). Lippincott Williams and Wilkins, 12th Edition. Pharmacotherapy. DiPiro JT et al (Ed). McGraw Hill, 11th Edition (2023).
Supportive facilities & equipment for teaching	**Devices/Instruments**	- Data show. - Computers.

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
	Virtual Labs	Textbook of therapeutics, drugs and disease management. Helms R, Quan DJ, Herfindal ET(Ed), Williams and Wilkins, 8th Edition.
	Other (to be mentioned)	Clinical practice guidelines from professional bodies (e.g., ASHP, ACCP, NICE)

Course Plan

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

Course Contents		Key elements	Teaching and Learning Methods	Student Assessment Methods
Week # 1	SOAP note and problem list	1.1.1 , 1.1.6 , 2.1.1 ,2.4.1,2.5.1 ,2.5.10 ,3.1.1,3.2 .1,3.2.14,4.1.1,4. 1.8,4.2.1,4.2.8,4. 3.1,4.3.8	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 2	SOAP note and problem list	1.1.1 , 1.1.6 , 2.1.1 ,2.4.1,2.5.1 ,2.5.10 ,3.1.1,3.2 .1,3.2.14,4.1.1,4. 1.8,4.2.1,4.2.8,4. 3.1,4.3.8	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 3	Taking Medication Histories	1.1.2 , 1.1.7 , 2.1.2 ,2.4.2,2.5.2 ,2.5.11 ,3.1.3,3.2 .2,3.2.15,4.1.2,4. 1.9,4.2.2,4.2.9,4. 3.2,4.3.9	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 4	Anaphylaxis and Drug Allergies	1.1.3 , 1.1.8 , 2.1.3 , 2.4.3,2.5.3,2.5.1 2,3.1.4,3.1.3,3.1. 9,3.2.3,3.2.10,3. 2.16,4.1.3,4.1.10 ,4.2.3,4.2.10,4.3. 3,4.3.10	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 5	Anaphylaxis and Drug Allergies (CONT,)	1.1.3 , 1.1.8 , 2.1.3 , 2.4.3,2.5.3,2.5.1 2,3.1.4,3.1.3,3.1. 9,3.2.3,3.2.10,3. 2.16,4.1.3,4.1.10 ,4.2.3,4.2.10,4.3. 3,4.3.10	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

Week # 6	**DRUG INTERACTIONS**	1.1.4 , 1.1.9 , 2.1.4 , 2.4.4,2.5.4,2.5.13,3.1.5,3.1.10,3.2.4,3.2.11,3.2.17,4.1.4,4.1.11,4.2.4,4.2.11,4.3.4,4.3.11	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 7	**Periodical exam**			
Week # 8	**DRUG INTERACTIONS (CONT,)**	1.1.4 , 1.1.9 , 2.1.4 , 2.4.4,2.5.4,2.5.13,3.1.5,3.1.10,3.2.4,3.2.11,3.2.17,4.1.4,4.1.11,4.2.4,4.2.11,4.3.4,4.3.11	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 9	**Drug use during pregnancy**	1.1.5 , 1.1.10 , 2.1.5 , 2.4.5,2.5.5,3.1.5,3.1.11,3.2.5,3.2.12,3.2.18,4.1.5,4.1.12,4.2.5,4.2.12,4.3.5,4.3.12	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 10	**Drug use during pregnancy(CONT,)**	1.1.5 , 1.1.10 , 2.1.5 , 2.4.5,2.5.5,3.1.5,3.1.11,3.2.5,3.2.12,3.2.18,4.1.5,4.1.12,4.2.5,4.2.12,4.3.5,4.3.12	Lectures, E-learning, practical training and class activities	Written, practical and oral exams
Week # 11	**Drug use during lactation**	1.1.6 , 1.1.11 , 2.1.6 , 2.4.6,2.5.6,3.1.6,3.1.12,3.2.6,3.2.13,3.2.19,4.1.6,4.1.13,4.2.6,4.2.13,4.3.6,4.3.13	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

Week # 12	**Drug use during lactation(CONT,)**	1.1.6 , 1.1.11 , 2.1.6 , 2.4.6,2.5.6,3.1.6, 3.1.12,3.2.6,3.2. 13,3.2.19,4.1.6,4 .1.13,4.2.6,4.2.1 3,4.3.6,4.3.13	Lectures, E-learning, practical training, seminars and class activities	Written, practical and oral exams
Week # 13	**Drug dosing in pediatric patients**	1.1.7 , 1.1.12 , 2.1.7 , 2.4.7,2.5.7,3.1.7, 3.1.13,3.2.7,3.2. 14,3.2.20,4.1.7,4 .1.14,4.2.7,4.2.1 4,4.3.7,4.3.14	Lectures, E-learning, seminars and practical training	Written, practical and oral exams
Week # 14	**Drug dosing in pediatric patients (CONT,)**	1.1.7 , 1.1.12 , 2.1.7 , 2.4.7,2.5.7,3.1.7, 3.1.13,3.2.7,3.2. 14,3.2.20,4.1.7,4 .1.14,4.2.7,4.2.1 4,4.3.7,4.3.14	Lectures and E-learning	Written, practical and oral exams
Week # 15	**Revision**	1.1.7 , 1.1.12 , 2.1.7 , 2.4.7,2.5.7,3.1.7, 3.1.13,3.2.7,3.2. 14,3.2.20,4.1.7,4 .1.14,4.2.7,4.2.1 4,4.3.7,4.3.14	Lectures and E-learning	Written and oral exams

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

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

Kafrelsheikh University

Faculty of Pharmacy

جامعة كفر الشيخ

كلية الصيدلة

Course Specification
(2025)

Course Title (according to the bylaw)	First Aid and Basic Life Support (BLS)			
Course Code (according to the bylaw)	MD 607			
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	1	----	2
Course Type	Compulsory			
Academic level at which the course is taught	Level 3			
Academic Program	BSc in pharmacy (pharm-D clinical)			
Faculty/Institute	Faculty of Pharmacy			
University/Academy	Kafrelshiekh University			
Name of Course Coordinator	Associate.Prof: Fatma Abouelala Associate.Prof: Eman Abdelaziz			
Course Specification Approval Date	31/8/2025			
Course Specification Approval	Department Council			

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,	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.

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**
	abbreviations and symbols in pharmacy practice	1.1.6	Use universally recognized symbols for hazardous materials in emergency settings.
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.

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 4: Personal Practice **4-1- COMPETENCY**		Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills	
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	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.

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. 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. 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 (√)

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

Course Schedule

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	25 marks	25%
4	Final Oral Exam	Week 16,17	10 marks	10%

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. Practical notes 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 and Basic Life Support (BLS) **Course code: MD 607**

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, practical and oral 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, practical training and class activities	Written, practical and oral 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, practical training and class activities	Written, practical and oral 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,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		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		
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, practical training and class activities	Written, practical and oral 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,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

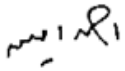
		2.4.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 3.2.6, 3.2.7, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6 4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 7	**Periodical exam**			
Week # 8	**First aid for bone and joint injuries**	1.1.7, 1.1.8, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.4.1, 2.4.2, 2.4.3, 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, practical training and class activities	Written, practical and oral 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, practical training and class activities	Written, practical and oral 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,	Lectures, E-learning, practical training and class activities	Written, practical and oral exams

		4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4		
Week # 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, practical training, seminars and class activities	Written, practical and oral 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,	Lectures, E-learning, seminars and practical training	Written, practical and oral exams

		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		
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, 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 E-learning	Written, practical and oral exams
Week # 14	**Poisoning**	1.1.7, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5,	Lectures and E-learning	Written and oral exams

		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		
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 and E-learning	Written and oral exams

Name and Signature Course Coordinator Associate.Prof: Fatma Abouelala		Name and Signature Program Coordinator Associate. Prof. Ahmed Amin Ali