Course specification
Kafrelsheikh University
Faculty of Medicine
اعتماد توصيف مقررات الفرقة الاولي

اعتمادات المجالس الحاكمة:

مجلس إدارة وحدة ضمان الجودة	**جلسة رقم (٦١) بتاريخ ٢٠٢٤/١٠/٧**
مجلس الكلية:	**جلسة رقم (٢) بتاريخ ٢٠٢٤/٩/٣٠**

الإعتمادات:

مدير وحدة ضمان الجودة

عميد الكلية

Course Specifications

MIP107

2025 /2026

1. Basic Information

Course Title	**Principles of microbiology, immunology, and parasitology**			
Course Code	**MIP107**			
Department/s participating in delivery of the course	**Microbiology, Immunology department Medical parasitology department.**			
Number of credit points of the course = 4.5	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	1.8	0.9	1.8	4.5
Number of contact and non-contact hours of the course =135	**54**	**27**	**54**	135
Course Type	Obligatory			
duration	3 weeks			
Academic level at which the course is taught	first year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Mona baz			
Course Specification Approval Date	7/10/2024			
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)				

2. Course Overview (Brief summary of scientific content)

This course introduces the fundamental principles of microbiology, parasitology, and immunology. It covers the morphology, life cycles, transmission, diagnosis, and treatment of common infectious agents, along with the structure and functions of the immune system and its role in disease prevention and control.

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**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Interpret the result of different diagnostic methods as microscopy, immunodiagnostic approaches, and molecular techniques in the diagnosis of some helminthic infection (*H. heterophyes, D. latum, E. vermicularis*)

		1.6.2	Interpret the result of different diagnostic methods as microscopy, immunodiagnostic 1.6.3approaches, and molecular techniques in the diagn1.6.4osis of some protozoal infection (*B. coli*).
		1.6.3	Interpret the result of different diagnostic methods as microscopy, immunodiagnostic approaches, and molecular techniques in the diagnosis of arthropod-borne diseases
		1.6.4	Interpret the result of the antibiotic sensitivity test to reach the proper treatment of bacterial infections
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate	1.15.1	

	life support measures and basic first aid procedures		
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	Identify the common types, modes of transmission, and risk factors of healthcare-associated infections
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating	3.1.1	

	honesty, integrity, commitment, compassion, and respect		
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and	4.5.1	Identify selected helminthic diseases (*H. heterophyes, D. latum, E. vermicularis*)

	traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)		focusing on their life cycle, risk factors, transmission patterns, and control measures.
		4.5.2	Identify arthropod-borne diseases focusing on their life cycle, risk factors, transmission patterns, and control measures
		4.5.3	Explain the pathological mechanisms of some parasitic infections leading to organ dysfunction
		4.5.4	Identify basic information regarding bacterial, viral, fungal, and immunologic causes of human disease within the context of their fundamental pathogenesis.
		4.5.5	Evaluate the role of microbial and immunologic factors in the development of specific diseases, considering the interactions between pathogens and host immune systems.
		4.5.6	Identify *B. coli* infection focusing on its life cycle, risk factors, transmission patterns, and control measures.
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	Describe the altered structure and function of the body and its major organ systems associated with various parasitic diseases and conditions.
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	Describe the actions, therapeutic uses, of drugs used in different mocrobial infections.
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate identification of the morphological characteristics and diagnostic features of selected helminthic disease (*H. heterophyes, D. latum, E. vermicularis*).
		4.8.2	Demonstrate identification of the morphological characteristics and diagnostic features of *B. coli* infection.
		4.8.3	Demonstrate identification of the morphological characteristics and diagnostic features of arthropod-borne infections
		4.8.4	Demonstrate basic microbiological techniques for identifying selected microorganisms and interpreting laboratory results, including culture, staining, and sensitivity testing.
		4.8.5	Demonstrate interpretation of the diagnostic features of medically important

			microorganisms in the context of laboratory assay.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	

6.3	Identify opportunities and use various resources for learning	6.3.1	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	Contribute to group presentations on parasitic diseases to improve evidence-based learning and professional communication.
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

1. Interactive Lectures
2. Tutorial classes
3. Practical classes
4. Directed self learning.
5. Case Discussion

Course Schedule

NO. 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	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	1. General Introduction to parasitology Introduction to Trematodes	**45**	**3**	**1.5**	**18 h (Home study, tasks, assignments)**	
	2. Introduction to Microbiology		**3**	1.5		

	Prokaryotic Cell Structure					
	3. Introduction Cestodes Introduction to Nematodes		**3**	1.5		
	4. Bacterial Growth and Metabolism Classifications of bacteria		**3**	1.5		
	5. Parasitology: Introduction to Cestodes		**3**	1.5		
	6. Microbiology: Classification of Bacteria		**3**	1.5		
2.	7. Introduction to fleas, lice tick, bugs)	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	8. Microbial resistance to antimicrobial drugs Infection control guide lines		**3**	1.5	**18 h (Home study, tasks,**	
	9. Introduction to mites		**3**	1.5		
	10. General Mycology Healthcare-associated infection		**3**	1.5		
	11. Pathogenesis of Parasitic infections		**3**	1.5		
	12. Pathogenesis of bacterial infection General Immunology (Organs and cells of the immune system) Classification of the immune responses Antigens and antibodies		**3**	1.5		
3.	**13.** Laboratory diagnosis of Parasitic diseases part	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	14. Antigens and antibodies Innate immunity Adaptive immunity		**3**	1.5		
	15. Cases discussion parasitology		**3**	1.5		
	16. Healthcare-associated infection Seminar microbiology		**3**	1.5		
	17. Revision		**3**	1.5		

	18. Revision		**3**	1.5		
		135	**54**	**27**	**54**	

5. Methods of Students' Assessment

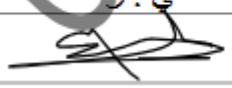
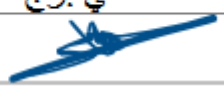
No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	Second week	-	0
2	End Module exam	Third Week	**14**	**20%**
3	Final Written Exam	16-20 Week	**28**	**40%**
4	Final practical Exam	Third Week	**20**	**30%**
5	Assignments/Portfolio	Throughout the Module	**6**	**10%**
	Total		**68**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Cowan ST, Steel KJ. Manual for the Identification of Medical Bacteria. 3rd ed. Cambridge: Cambridge University Press; 2003. ISBN: 978-0-521-49680-0. • Tortora, G. J., Funke, B. R., & Case, C. L. (2021). Microbiology: An Introduction (14th ed.). Pearson Education.
	Other References	• Garcia LS. Diagnostic Medical Parasitology. 7th ed. Washington, DC: ASM Press; 2021. ISBN: 978-1-55581-393-1
	Electronic Sources (Links must be added)	• **Centers for Disease Control and Prevention (CDC) – Parasites & Microbiology Resources:** https://www.cdc.gov/parasites • **PubMed – Parasitology and Microbiology Search Portal:** https://pubmed.ncbi.nlm.nih.gov/?term=parasitology+OR+microbiology • **World Health Organization (WHO) – Neglected Tropical Diseases & Microbiology:** https://www.who.int/teams/control-of-neglected-tropical-diseases **Microbiology Society – Educational Resources:** https://microbiologysociety.org/education
	Learning Platforms (Links must be added)	• **https://www.thinci.com** • https://www.ekb.eg/ar/web/researchers/home • https://www.khanacademy.org/science/health-and-medicine • https://www.coursera.org/courses?query
	Other (to be mentioned)	

Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscopes (light and compound) for histopathology and hematology exercises • Desktop or laptop computers with stable internet access Projector and screen (for lectures, group discussions, and data presentations)
	Supplies	• library facilities & online access with updated textbooks and journals • Glass slides, cover slips, and staining racks for specimen preparation • Sample jars and containers for tissue or fluid specimens • Disposable lab materials (gloves, pipettes, slides, staining reagents) •
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

Name and Signature Course Coordinator	Name and Signature Program Coordinator

منسق المقرر	مدير البرنامج
مني باز	هاني برج
	

Course Specifications

PHP108

2025 /2026

1. Basic Information

Course Title	Pharmacology and pathology			
Course Code	PHP108			
Department/s participating in delivery of the course	Pharmacology department pathology department			
Number of credit points of the course = 9	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	3.6	1.8	3.6	9
Number of contact and non-contact hours of the course =270	**108**	54	**108**	270
Course Type	Obligatory			
Duration	6 weeks			
Academic level at which the course is taught	first year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Basma salah			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

At the end of the course, students will be able to identify and explain the basic concepts and terminology of pathology and pharmacology. They will understand the mechanisms and pathological changes associated with infections, inflammation, cell injury, tissue repair, hemodynamic disorders, and neoplasia. Additionally, students will comprehend the pharmacological principles of drug action, including pharmacokinetics and pharmacodynamics, and will be able to recognize the mechanisms, therapeutic uses, adverse effects, and contraindications of major drug groups.

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**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	

1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply integrated knowledge of pathology and pharmacology to interpret mechanisms of cellular injury, inflammation, hemodynamic disorders, neoplasia, and infection, and correlate them with pharmacologic principles in drug therapy.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
1.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	

2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	

3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	
		4.2.6	
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	Explain the cellular and molecular mechanisms underlying reversible and irreversible cell injury, inflammation, thrombosis, ischemia, infarction, and neoplasia.
		4.5.2	Correlate the etiological factors and pathogenesis of common diseases with their morphological and clinical manifestations.
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and	4.7.1	Describe fundamental pharmacological principles including drug nomenclature, sources, dosage forms, routes of administration, and drug targets.

	non-prescribed medication; and effects on the population		
		4.7.2	Describe pharmacokinetic processes—absorption, distribution, metabolism, and excretion—and factors modifying each step.
		4.7.3	Describe dose–response relationships, receptor affinity, efficacy, potency, agonism, antagonism, and therapeutic index.
		4.7.4	Explain the mechanisms of drug tolerance, dependence, and tachyphylaxis and their clinical implications.
		4.7.5	Describe pharmacokinetic principles to calculate bioavailability, clearance, half-life, volume of distribution, and steady-state concentration.
		4.7.6	Discuss the rational use of drugs, patient compliance, and public-health implications of antimicrobial resistance and self-medication
		4.7.7	Describe mechanisms, clinical uses, adverse effects, and contraindications of cholinergic agonists, anticholinesterases, and antimuscarinic drugs.
		4.7.8	Describe and manage drug–drug and drug–disease interactions, especially in polypharmacy and chronic illness.
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate identification of histopathological features of reversible and irreversible cell injury, inflammation, and neoplasia using microscope or digital slides.
		4.8.2	Demonstrate interpretation of laboratory results including CBC, ESR, CRP, coagulation profile, and tumor markers in relation to disease mechanisms.
		4.8.3	Demonstrate interpretation of antibiotic sensitivity tests and principles of selecting appropriate antimicrobial therapy.
		4.8.4	Calculate loading and maintenance doses using pharmacokinetic equations for drugs with narrow therapeutic indices.
		4.8.5	Interpret plasma drug concentration curves and apply them to dose-adjustment decisions.
		4.8.6	Simulate preparation of standard drug dilutions and safe administration techniques.
		4.8.7	Demonstrate correct referencing of pharmacological data using trusted databases and formularies.

		4.8.8	Apply biosafety and ethical principles in handling biological specimens and pharmacological agents.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	Use health informatics tools and digital databases to collect, analyze, and apply patient data for improving diagnostic accuracy, monitoring drug therapy, and enhancing the overall quality of patient care
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	

6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	
		6.3.2	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	Apply scientific and evidence-based reasoning to analyze experimental data on drug actions, toxicity, and pathological processes.
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	Evaluate literature on pathogenesis and pharmacologic interventions using evidence-based medicine principles.
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

6. Interactive Lectures
7. Tutorial classes
8. practical classes
9. Directed self learning.
10. Case Discussion

Course Schedule

NO. 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	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	**1.** Introduction to Pathology, Cellular responses to injury	**45**	**3**	1.5	**18 h (Home study, tasks,**	

	2. Introduction to pharmacology and pharmacokinetics		**3**	1.5	**assignments)**	
	3. Cellular adaptations		**3**	1.5		
	4. Pharmacokinetics		**3**	1.5		
	5. Reversible cell injury and cellular accumulations		**3**	1.5		
	6. Pharmacodynamics		**3**	1.5		
2.	**7.** Irreversible cell injury and cell death (necrosis and apoptosis)	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	8. Pharmacodynamics		**3**	1.5		
	9. Acute inflammation: Definition, causes, types, inflammatory cells, Signs and symptoms, vascular and cellular changes, fate, complications		**3**	1.5	**18 h (Home study, tasks,**	
	10. Adrenergic pharmacology		**3**	1.5		
	11. Chronic inflammation		**3**	1.5		
	12. Adrenergic pharmacology		**3**	1.5		
3.	**13.** Tissue repair (Regeneration, healing by connective tissue, wound healing)	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	14. Cholinergic pharmacology		**3**	1.5		
	15. Types of hemodynamic disorders: Thrombosis and embolism		**3**	1.5		
	16. Cholinergic pharmacology		**3**	1.5		
	17. Ischemia, Infarction & gangrene		**3**	1.5		
	18. Autacoids		**3**	1.5		
4.	**19.** Hyperemia, hemorrhage, shock, oedema	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	20. Non steroidal anti-inflammatory drugs and acetaminophen		**3**	1.5		

	21. General characters and classification of neoplasms		**3**	1.5		
	22. Chemotherapy Introduction and classification		**3**	1.5		
	23. Methods of spread, grading and staging of malignant tumors		**3**	1.5		
	24. Cell wall inhibitors		**3**	1.5		
5.	25. Paraneoplastic conditions, carcinogenesis and carcinogenic agents	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	26. Protein synthesis inhibitors		**3**	1.5		
	27. Pathological features of neoplasms of different tissue origins, prognostic factors of malignant tumours and tumour markers		**3**	1.5		
	28. Protein synthesis inhibitors		**3**	1.5		
	29. General aspects of infection		**3**	1.5		
	30. Nucleic acid inhibitors and antimetabolites		**3**	1.5		
6	31. Revision	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	32. Revision		**3**	1.5		
	33. Revision		**3**	1.5		
	34. Revision		**3**	1.5		
	35. Revision		**3**	1.5		
	36. Revision		**3**	1.5		
		270	**108**	**54**	**108**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	fourth week	-	**0**

2	End Module exam	Sixth Week	**27**	**20%**
3	Final Written Exam	16-20 Week	**54**	**40%**
4	Final practical Exam	Sixth Week	**40.5**	**30%**
5	Assignments/Portfolio	Throughout the Module	**13.5**	**10%**
	Total		**135**	

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)	• Kumar V, Abbas AK, Aster JC. Robbins and Cotran Pathologic Basis of Disease. 10th ed. Philadelphia: Elsevier; 2021. ISBN: 978-0323531139. • Rang HP, Ritter JM, Flower RJ, Henderson G. Rang & Dale's Pharmacology. 9th ed. London: Elsevier; 2020. ISBN: 978-0702074483.
	Other References	● Harsh Mohan Textbook of Pathology. Harsh Mohan. Published by Jaypee Brothers Medical Publishers (P) Ltd. Eighth edition 2019.
	Electronic Sources (Links must be added)	• Pathology – OpenStax Medical Physiology & Pathology Resources: https://openstax.org/subjects/science • **PubMed – Pathology and Pharmacology Search Portal:** https://pubmed.ncbi.nlm.nih.gov/?term=pathology+OR+pharmacology • **National Center for Biotechnology Information (NCBI) Bookshelf – Pharmacology & Pathology Texts:** https://www.ncbi.nlm.nih.gov/books/ • **American Society for Pharmacology and Experimental Therapeutics (ASPET) – Education Resources:** https://www.aspet.org/education
	Learning Platforms (Links must be added)	• **Interactive e-learning platforms (ThinCi)** – general interactive learning: https://www.thinci.com • **Osmosis – Pathology & Pharmacology Section:** https://www.osmosis.org/learn/Pathology ; https://www.osmosis.org/learn/Pharmacology • **Egyptian Knowledge Bank (EKB) – Research Resources:** https://www.ekb.eg/ar/web/researchers/home • **Khan Academy – Health & Medicine (Statistics, Pharmacology, and Pathology):** https://www.khanacademy.org/science/health-and-medicine • **Coursera – Medical Research, Pharmacology & Pathology Courses:** https://www.coursera.org/courses?query=medical%20research • **edX – Clinical Research, Epidemiology, Pharmacology, and Pathology Programs:** https://www.edx.org/learn/clinical-research • **BMJ Learning – Evidence-Based Medicine & Research Skills:** https://new-learning.bmj.com

	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscopes (light and compound) for histopathology and hematology exercises • Desktop or laptop computers with stable internet access • Projector and screen (for lectures, group discussions, and data presentations)
	Supplies	• library facilities & online access with updated textbooks and journals • Glass slides, cover slips, and staining racks for specimen preparation • Sample jars and containers for tissue or fluid specimens • Disposable lab materials (gloves, pipettes, slides, staining reagents) • Lab simulation software • online pharmacology platforms
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital eye clinics for hands-on clinical exposure

Name and Signature Course Coordinator	Name and Signature Program Coordinator

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Course Specifications

CVS109

2025 /2026

1. Basic Information

Course Title	**Cardiovascular system**			
Course Code	**CVS109**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Human Anatomy and embryology Department** **Histology & cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 6	**Theoretical**	**Clinical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	2.4	1.2	2.4	6
Number of contact and non-contact hours of the course	**72**	**36**	**72**	180
Course Type	Obligatory			
Duration	4 weeks			
Academic level at which the course is taught	first year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Amal yonis			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

By the end of the course, students will be able to demonstrate a comprehensive understanding of the structure and function of the cardiovascular system, including the heart, blood vessels, and regulatory mechanisms that maintain circulatory homeostasis. The course also aims to develop students' abilities to apply integrated anatomical, physiological, histological, and biochemical knowledge to analyze cardiovascular function and interpret related clinical problems, while fostering lifelong learning, self-directed inquiry, and continuous professional development.

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**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	

1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply knowledge anatomical, physiological, histological, and biochemical concepts to explain the function of the cardiovascular system in health.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	

2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	

3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the normal structure, relations, and coverings of the heart, pericardium, and major blood vessels.
		4.1.2	Identify the anatomy of heart chambers, valves, and major vessels on models, diagrams, and cadaveric specimens.
		4.1.3	Explain the developmental stages of the heart and great vessels and relate them to congenital anomalies.
		4.1.4	Describe the surface anatomy of the heart and major vessels for clinical application such as auscultation and vascular access.
		4.1.5	Describe the anatomical development of the heart with major congenital cardiac anomalies.
		4.1.6	Identify the anatomical landmarks used in clinical cardiac procedures (e.g., pericardiocentesis, auscultation sites).
		4.1.7	
		4.1.8	
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain the functional principles of cardiac muscle, cardiac cycle, electrical activity, and regulation of heart rate and blood pressure.
		4.2.2	Describe mechanisms of blood flow regulation, cardiac output, and control of vascular resistance during rest and exercise.
		4.2.3	Illustrate the role of the autonomic nervous system in cardiovascular homeostasis.

		4.2.4	Correlate microstructural changes in cardiac and vascular tissues with functional responses such as contraction and elasticity.
		4.2.5	Explain the biochemical basis of cardiac metabolism, including energy production, lipid metabolism, and oxidative stress.
		4.2.6	Discuss the role of lipoproteins, cholesterol synthesis, and antioxidants in maintaining cardiovascular health.
		4.2.7	Explain the physiological basis of heart sounds and murmurs and their diagnostic implications.
		4.2.8	Describe physiological data obtained from ECG, blood pressure, and heart rate recordings in laboratory exercise
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate Identification of the microscopic structure of the heart, cardiac muscle, and different types of blood vessels and relate structure to function.

		4.8.2	Demonstrate Differentiation between elastic, muscular, and arteriolar blood vessels and describe the structure of capillaries.
		4.8.3	Demonstrate Identification of the histological features of cardiac and skeletal muscles to explain differences in function
		4.8.4	Demonstrate Identification of the biochemical basis of oxidative stress and its role in ischemic heart injury.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	Apply leadership and teamwork skills during group laboratory activities, collaborative discussions, and peer-assisted learning sessions.
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	Communicate effectively using scientific reports, lab records, and digital tools to present findings in physiology, histology, anatomy, and biochemistry.
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Evaluate personal performance and provide constructive feedback to peers during group assignments and practical sessions to promote continuous improvement.
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	

5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	Effectively manage learning time and resources, prioritize study tasks, and utilize available learning materials and laboratory sessions to achieve course objectives efficiently
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

11. Interactive Lectures
12. Tutorial classes
13. Practical classes
14. Directed self learning.
15. Case Discussion

Course Schedule

NO. 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	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	**37.** Anatomy: Pericardium and External Features of the Heart	**45**	**3**	**1.5**	**18 h (Home study, tasks,**	

	38. Histology: Microscopic Structure of the Heart		**3**	1.5	**assignments)**	
	39. Physiology: Electrical Activity and Cardiac Action Potentials		**3**	1.5		
	40. Anatomy: Internal Anatomy and Chambers of the Heart		**3**	1.5		
	41. Physiology: Cardiac Cycle and Pressure–Volume Relationships		**3**	1.5		
	42. Histology: Histological Structure of Cardiac Valves and Vessels		**3**	1.5		
2.	**43.** Anatomy: Cardiac Valves and Conducting System	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	44. Physiology: Electrocardiography (ECG) and Its Clinical Applications		**3**	1.5	**18 h (Home study, tasks,**	
	45. Anatomy: Blood Supply and Venous Drainage of the Heart		**3**	1.5		
	46. Biochemistry: Cholesterol Structure, Biosynthesis, and Regulation		**3**	1.5		
	47. Physiology: Regulation of Heart Rate and Cardiac Output		**3**	1.5		
	48. Anatomy: Major Blood Vessels of Head, Neck, Trunk, and Limbs		**3**	1.5		
3.	**49.** Histology: Types and Functional Structures of Capillaries	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	50. Physiology: Arterial Blood Pressure and Control of Vascular Resistance		**3**	1.5		
	51. Biochemistry: Lipoproteins, Lipid		**3**	1.5		

	Transport, and Clinical Disorders					
	52. Anatomy: Development of the Heart and Fetal Circulation		**3**	1.5		
	53. Physiology: Special Circulations – Coronary, Cerebral, Pulmonary, and Cutaneous		**3**	1.5		
	54. Biochemistry: Free Radicals, Antioxidants, and Oxidative Stress in Cardiovascular Disease		**3**	1.5		
4.	**55.** Anatomy: Congenital and Structural Anomalies of the Heart	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	56. Physiology: Cardiovascular Adjustments in Exercise, Shock, and Aging		**3**	1.5		
	57. Revision		**3**	1.5		
	58. Revision		**3**	1.5		
	59. Revision		**3**	1.5		
	60. Revision		**3**	1.5		
		180	**72**	**36**	**72**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	second week	-	0
2	End Module exam	Fourth Week	**18**	**20%**
3	Final Written Exam	16-20 Week	**36**	**40%**
4	Final practical Exam	Fourth Week	**27**	**30%**
5	Assignments/Portfolio	Throughout the Module	**9**	**10%**
	Total		**90**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). Gray's Anatomy for Students (5th ed.). Elsevier. • **Hall, J. E., & Hall, M. E. (2020).** *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. • **Junqueira, L. C., & Carneiro, J. (2023).** *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education. •
	Other References	**Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023).** *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education
	Electronic Sources (Links must be added)	Here are **reliable and up-to-date electronic sources** directly supporting the Anatomy, Physiology, Histology, and Biochemistry course content — with **active links** included: 1. **Elsevier – Student Resources (Gray's Anatomy, Guyton & Hall, etc.)** https://www.elsevier.com/en-xm/student-life 2. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 3. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/ 4. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology 5. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 6. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	1. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 2. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/

		3. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 4. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 5. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscope (light and digital) • Spirometer • Sphygmomanometer • ECG machine • Centrifuge •
	Supplies	• Microscope slides and cover slips • Staining reagents (H&E, Gram stain) • Blood pressure cuffs and stethoscopes • Disposable gloves and lancets • Physiological saline, glassware, and pipettes
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

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Course Specifications

RES110

2025 /2026

1. Basic Information

Course Title	**Respiratory system**			
Course Code	**RES110**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Anatomy and embryology Department** **Histology and cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 6	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	2.4	1.2	2.4	6
Number of contact and non-contact hours of the course	**72**	**36**	**72**	180
Course Type	Obligatory			
Academic level at which the course is taught	first year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator				
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

By the end of the course, students will be able to demonstrate a comprehensive understanding of the structure and function of the cardiovascular system, including the heart, blood vessels, and regulatory mechanisms that maintain circulatory homeostasis. The course also aims to develop students' abilities to apply integrated anatomical, physiological, histological, and biochemical knowledge to analyze cardiovascular function and interpret related clinical problems, while fostering lifelong learning, self-directed inquiry, and continuous professional development.

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**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Select the appropriate respiratory-related laboratory and imaging investigations such as arterial blood gases, pulmonary function tests, and chest radiographs.

1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply knowledge anatomical, physiological, biochemical, and histological concepts of the respiratory system in understanding common respiratory disorders.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	Use evidence-based resources to correlate respiratory physiology and biochemistry with clinical findings in respiratory diseases
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	Correlate patient history and laboratory data (blood gases, pH, CO_2 levels) with respiratory physiology for accurate diagnosis.
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	

2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Discuss the role of nutrition and metabolic status in respiratory efficiency and gas exchange.
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	Identify environmental and occupational factors affecting respiratory health such as smoking and air pollution.
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Exhibit professional conduct, teamwork, and respect when performing or discussing respiratory laboratory and clinical tasks.
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	

3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the anatomy of the nose, pharynx, larynx, trachea, bronchi, lungs, pleura, and mediastinum.
		4.1.2	Identify the histological structure of respiratory tissues including upper and lower airways
		4.1.3	Explain the physiological basis of breathing, lung compliance, and gas diffusion.
		4.1.4	Describe the anatomical structures of the respiratory system through models, dissection, and imaging.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain acid-base balance, buffer systems, and gas transport (O_2 and CO_2) in relation to respiratory homeostasis.
		4.2.3	Analyze buffer systems experimentally and explain their role in maintaining blood pH under different respiratory conditions
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	Describe embryologic development and age-related changes of the respiratory system.
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	Identify genetic and biochemical mechanisms underlying lung diseases and congenital respiratory anomalies.

4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	Describe histological slides of normal respiratory tissues and identify structural changes.
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Apply principles of measurement of lung volumes using spirometry and interpret results in health and disease.
		4.8.2	Demonstrate the surface landmarks of the trachea, lungs, and diaphragm on mannequins or peers.
		4.8.3	interpret cross-sectional anatomy of the thorax using imaging modalities
		4.8.4	Draw with interpretation diagrams of lung lobes, bronchopulmonary segments, and mediastinal divisions for clinical application.
		4.8.5	Perform calculations related to oxygen delivery, alveolar ventilation, and dead space volume.
		4.8.6	Use light microscope to identify the histological features of respiratory epithelium, alveoli, and capillaries.
		4.8.7	Demonstrate the ability to Differentiate between tracheal, bronchial, and alveolar structures under microscope.
		4.8.8	Identify ciliated columnar cells, goblet cells, and alveolar macrophages and explain their functions.
		4.8.9	Correlate histological findings with physiological functions such as gas exchange and filtration.
		4.8.10	Demonstrate the preparation and use of standard buffer solutions and calculate buffer capacity.
		4.8.11	interpret laboratory estimation of blood gases (pH, PCO_2, HCO_3^-) using ABG analyzers.
		4.8.12	Analyze lipid peroxidation assays to study oxidative stress in lung tissues.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	

5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Collaborate effectively during respiratory laboratory sessions and discussions.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	Communicate effectively with peers and instructors in group discussions and practical tasks
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Demonstrate self-evaluation skills by reflecting on practical respiratory physiology and anatomy tasks.
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	Set goals for mastering respiratory topics and monitor progress using digital and traditional resources.
6.3	Identify opportunities and use various resources for learning	6.3.1	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	Participate actively in integrated respiratory team projects linking anatomy, physiology, biochemistry, and histology.

6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	Effectively manage learning time and resources, prioritize study tasks, and utilize available learning materials and laboratory sessions to achieve course objectives efficiently
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

16. Interactive Lectures
17. Tutorial classes
18. Practical classes
19. Directed self learning.
20. Case Discussion

Course Schedule

NO. 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	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	1.Anatomy: Nose, Paranasal Sinuses, and Pharynx – Structural organization and clinical relevance	**45**	**3**	**1.5**	**18 h (Home study, tasks, assignments)**	

	2. Physiology: Mechanics of Breathing and Pulmonary Surfactant		**3**	1.5		
	3. Histology: Microscopic Structure of the Upper Respiratory Tract		**3**	1.5		
	4. Anatomy: Larynx, Trachea, and Bronchial Tree – Structure and Relations		**3**	1.5		
	5. Physiology: Lung Volumes, Capacities, and Compliance		**3**	1.5		
	6. Biochemistry: Physical Chemistry of Acids, Alkalis, pH, and Buffer Systems		**3**	1.5		
2.	7. Anatomy: Development of the Respiratory System and Mediastinal Divisions	**45**	**3**	1.5	**18 h (Home study, tasks, assignments) 18 h (Home study, tasks,**	
	8. Physiology: Central and Peripheral Regulation of Breathing		**3**	1.5		
	9. Histology: Structure of the Lower Respiratory Tract and Alveoli		**3**	1.5		
	10. Anatomy: Pleura, Lungs, and Surface Anatomy of the Thoracic Wall		**3**	1.5		
	11. Physiology: Gas Exchange and Factors Affecting Diffusion		**3**	1.5		
	12. Biochemistry: Oxygen and Carbon Dioxide Transport in Blood		**3**	1.5		
3.	13. Anatomy: Diaphragm, Intercostal Muscles, Nerves, and Blood Supply	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	14. Physiology: Hypoxia, Cyanosis, and Dyspnea – Pathophysiological Basis		**3**	1.5		
	15. Histology: Structural Basis of Pulmonary Function Tests		**3**	1.5		

	16. Anatomy: Chest Wall Joints and Movements in Respiration		3	1.5		
	17. Physiology: Respiratory Acidosis, Alkalosis, and Acid–Base Regulation		3	1.5		
	18. Biochemistry: Acid–Base Balance: Buffer Systems and Blood Gas Interpretation		3	1.5		
4.	19. Physiology: Effects of Exercise, High Altitude, and Deep-Sea Respiration	45	3	1.5	18 h (Home study, tasks, assignments)	
	20. Biochemistry: Immunological and Genetic Aspects of Lung Diseases		3	1.5		
	21.Revision		3	1.5		
	22.Revision		3	1.5		
	23.Revision		3	1.5		
	24.Revision		3	1.5		
		180	72	36	72	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	Second week	-	0
2	End Module exam	Fourth Week	18	20%
3	Final Written Exam	16-20 Week	36	40%
4	Final practical Exam	Fourth Week	27	30%
5	Assignments/Portfolio	Throughout the Module	9	10%
	Total		90	100%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). Gray's Anatomy for Students (5th ed.). Elsevier. • **Hall, J. E., & Hall, M. E. (2020).** *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. • **Junqueira, L. C., & Carneiro, J. (2023).** *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education. •
	Other References	**Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023).** *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education
	Electronic Sources (Links must be added)	Here are **reliable and up-to-date electronic sources** directly supporting the Anatomy, Physiology, Histology, and Biochemistry course content — with **active links** included: 7. **Elsevier – Student Resources (Gray's Anatomy, Guyton & Hall, etc.)** https://www.elsevier.com/en-xm/student-life 8. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 9. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/ 10. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology 11. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 12. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	6. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 7. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/

		8. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 9. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 10. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscope (light and digital) • Spirometer • Sphygmomanometer • ECG machine • Centrifuge •
	Supplies	• Microscope slides and cover slips • Staining reagents (H&E, Gram stain) • Blood pressure cuffs and stethoscopes • Disposable gloves and lancets • Physiological saline, glassware, and pipettes
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

منسق المقرر	مدير البرنامج
Aliaa	هاني برج

Course Specifications

SKL 111

2025 /2026

1. Basic Information

Course Title	**Skill lab I**			
Course Code	SKL 111			
Department/s participating in delivery of the course	• **Chest department** • **Cardiology department**			
Number of credit points of the course = 3	**Theoretical**	**Clinical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
		2.8	1.2	3
Number of contact and non-contact hours of the course	-	54	**36**	90
Course Type	Obligatory			
Duration	2 weeks			
Academic level at which the course is taught	First year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Manr anany			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

This course provides first-year medical students with foundational practical skills essential for safe and effective clinical practice. It integrates basic biomedical knowledge of cardiovascular and respiratory systems with hands-on training in fundamental physical examination and diagnostic interpretation. Students learn to measure vital signs, perform general and system-based examinations, observe and interpret basic diagnostic modalities such as ECG and spirometry, and apply principles of patient safety and basic life support. Emphasis is placed on developing accuracy, teamwork, communication, empathy, and professionalism during patient interaction and skill performance.

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**	
1.1	Take and record a structured, patient centered history	1.1.1	Demonstrate ability to take a brief focused history relevant to cardiovascular and respiratory symptoms (e.g., chest pain, dyspnea, cough).
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	Demonstrate the correct sequence of general, cardiovascular, and respiratory system examinations.
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	Identify main presenting problems (e.g., breathlessness, chest pain) and suggest possible system involvement.
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Apply the principle of basic diagnostic tests such as ECG, blood pressure readings, and spirometry results in health and disease.
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply knowledge of physiological and anatomical concepts of the cardiovascular and respiratory systems.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	

1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	Integrate basic clinical findings (inspection, palpation, auscultation) to differentiate between normal and abnormal cardiorespiratory states
1.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	Demonstrate correct performance or simulation of basic cardiorespiratory procedures.
		1.11.2	perform accurate measurement of body temperature using appropriate equipment and technique
		1.11.3	Perform assessment of pulse rate, rhythm, and amplitude using proper technique
		1.11.4	perform accurate measurement of respiratory rate and pattern while maintaining patient comfort
		1.11.5	perform accurate measurement of blood pressure using manual or digital methods, ensuring accuracy and patient safety
		1.11.6	perform accurate examination of the jugular veins to assess venous pressure and pulsations
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	Apply infection control and patient safety measures during physical examination and simple clinical procedures.
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	Perform steps of basic life support (BLS) on a manikin according to standard guidelines.
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	

2.3	Discuss the role of nutrition and physical activity in health	2.3.1	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself,	3.9.1	

	colleagues or any other person that might jeopardize patients' safety		
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe surface anatomy landmarks of the heart, lungs, and major vessels during physical examination.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain physiological basis of pulse, blood pressure, heart sounds, and respiratory movements observed during examination.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	Compare normal versus abnormal findings in common cardiovascular and respiratory disorders (e.g., heart failure, asthma, COPD).
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate interpretation of basic ECG and spirometry results and relate them to underlying physiological mechanisms.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	Identify the roles of nurses, respiratory therapists, and technicians in performing and interpreting cardiopulmonary procedures.
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Demonstrate teamwork and communication skills during group skill sessions and simulations.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	

5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	Record vital signs and clinical findings clearly and systematically in a skill-lab record sheet.
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	Reflect on personal performance in physical examination and identify areas for improvement using instructor feedback.
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	Utilize videos, simulation tools, and case discussions to enhance understanding of cardiorespiratory examination techniques.
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them.	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the	6.10.1	

	findings of relevant research and scholarly inquiry		

4. Teaching and Learning Methods

21. Clinical rounds
22. Tutorial classes
23. **Patient simulated classes**
24. Role play classes
25. Directed self learning.

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Training Simulated patient/ role play Case discussion	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	**1.** Measurement of Vital Signs	45	4.5	**18 h (Home study, tasks, assignments)**	
	2. General Examination		4.5		
	3. Chest (Respiratory) Examination		4.5		
	4. Heart Examination		4.5		
	5. Electrocardiography (ECG) Principles		4.5		
	6. Basic Respiratory Function Tests		4.5		
2.	**7.** Oxygen Therapy and Nebulization	45	4.5	**18 h (Home study, tasks, assignments)**	
	8. Basic Life Support (BLS)		4.5		
	9. Blood Sampling and Hematology Basics		4.5	**18 h (Home study, tasks,**	
	10. Peripheral Circulation and Capillary Refill Assessment		4.5		
	11. Assessment of Edema and Jugular Venous Pressure (JVP)		4.5		
	12. Integrated Clinical Case: Chest Pain and Dyspnea		4.5		
		90	**54**	**36**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1.	Continuous assessment	Throughout the Module	**13.5**	**30%**
3.	Final Clinical Exam	Second Week	**31.5**	**70%**
	Total		**45**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Bickley, L. S., & Szilagyi, P. G. (2021). Bates' Guide to Physical Examination and History Taking (13th ed.). Wolters Kluwer Health.
	Other References	Talley, N. J., & O□Connor, S. (2022). Clinical Examination: A Systematic Guide to Physical Diagnosis (9th ed.). Elsevier.
	Electronic Sources (Links must be added)	1. **Clinical Skills Online – University of Glasgow.** (n.d.). *Clinical Skills Tutorials.* Retrieved from https://clinicalskills.net → Step-by-step video demonstrations of fundamental examination and procedural skills. 2. **MedEdPORTAL – Association of American Medical Colleges (AAMC).** (n.d.). *Peer-reviewed teaching resources for health professions education.* Retrieved from https://www.mededportal.org 3. **Geeky Medics.** (n.d.). *Clinical Examination Guides and OSCE Scenarios.* Retrieved from https://geekymedics.com → Interactive OSCE-style guides and practical examination videos. 4. **TeachMePhysiology.** (n.d.). *Cardiovascular and Respiratory Physiology.* Retrieved from https://teachmephysiology.com 5. **Incision Academy.** (n.d.). *Interactive surgical and procedural skill training platform.* Retrieved from https://www.incision.care/academy → Offers validated e-learning modules and high-quality 3D videos for clinical and procedural skill acquisition. 6. **YouTube – Osmosis & Armando Hasudungan Channels.** (n.d.). *Visual explanations of cardiovascular and respiratory function and pathology.*

		Retrieved from https://www.youtube.com/user/armandohasudungan
	Learning Platforms (Links must be added)	1. **Moodle Learning Management System (LMS)** – Used for uploading lecture materials, skill videos, assignments, and assessments. https://moodle.org 2. **Microsoft Teams** – Used for virtual tutorials, communication, and feedback sessions. https://www.microsoft.com/en/microsoft-teams 3. **University E-Library Portal** – Provides access to e-books, online journals, and licensed databases (Elsevier ClinicalKey, AccessMedicine). https://www.clinicalkey.com https://accessmedicine.mhmedical.com 4. **Incision Academy** – Offers guided e-learning modules and interactive videos for procedural and examination skill training. https://www.incision.care/academy
	Other (to be mentioned)	• Case studies and ethical dilemma scenarios prepared by the department. • Role-play scripts.
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• desktop or laptop computers with stable internet access • projector and screen (for group teaching, case discussions, and presentations) Student handouts, case sheets, feedback forms, and reflection logs. •
	Supplies	• library facilities & online access with updated textbooks and journals • Whiteboard and markers for discussion summaries. printers / scanners
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	

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