

MOHI-UD-DIN ISLAMIC MEDICAL COLLEGE MIRPUR

DEPARTMENT OF MEDICAL EDUCATION



Respiratory-I Module

1ST YEAR MBBS (BATCH-18)

BLOCK: C

DURATION: 4 WEEKS

FROM: 31ST AUG TO 25TH SEP 2026

MODULE CODE: MB1-C-RES-I-05

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Disclaimer:

The development of study guides and the associated curriculum is an iterative process of quality enhancement, informed by stakeholder feedback. All elements—including content, delivery modes, scheduled hours, and assessment—are subject to periodic review and potential revision. Students are advised that the provided topics and learning outcomes represent the essential foundation for approximately 70% of examinations. The remainder will be derived from lecture content and directives issued by course instructors.

1. Instructions:

1. Maintain a minimum attendance of 85% in all scheduled academic activities otherwise will not be allowed to sit in annual exam.
2. Adhere strictly to the prescribed college uniform and professional dress code at all times.
3. Demonstrate professionalism and respect toward peers, faculty, staff, and patients.
4. Uphold academic integrity and ethical conduct in all learning and assessment activities.
5. Comply with all institutional policies regarding conduct, use of facilities, and digital etiquette.

2. Module Committee:

s.no	Name	Department	Role
1.	Prof..Dr.Col Shafqat Ali	Anatomy	HOD
2.	Prof. Dr. M. Naqib	Biochemistry	HOD
3.	Prof. Dr. Ayyaz Ahmed	Physiology	HOD
4.	Dr. M Junaid Khan	DME	HOD

OUR VISION STATEMENT

To be a globally recognized center of excellence in medical education, research, innovation, and socially accountable healthcare, producing competent healthcare professionals committed to improving the health and well-being of the people of AJK, Pakistan and beyond.

OUR MISSION STATEMENT

Mohi-ud-Din Islamic Medical College is committed to providing quality competency-based medical education through excellence in teaching, research, innovation, and ethical professional practice to develop competent, compassionate, and socially accountable graduates who address the healthcare needs of AJK, and Pakistan through lifelong learning, leadership, interdisciplinary collaboration, and community engagement.

3. Module Mapping of MBBS Program

Module Mapping (MBBS Program) Tentative

Year	Blocks	Modules			Horizontal Module	
1 st year	A	Foundation-I (5-weeks)	Blood & Immunology -I (5-weeks)		Quran Kareem	
	B	Locomotor/MSK-I (8-weeks)				
	C	CVS – I (4-weeks)	RES – I (4-weeks)			
2 nd year	D	Gastrointestinal, Hepatobiliary and Metabolism Module -I (9-weeks)	Renal-I (3-weeks)			Pak Study/Islamite
	E	Neurosciences 1A (6-weeks)	Neurosciences 1B (5-weeks)			
	F	Endocrine – I (4-weeks)	Repro – I (3-weeks)			
3 rd year	G	Foundation - II	Infection & Inflammation-II		English Expository Writing	
	H	Multisystem-I	Blood & Immunology- II	Locomotor/MSK- II		
	I	CVS - II	RES – II			
4 th year	J	Neurosciences-II			M1=ENT M2=EYE	Arts & Humanities
	K	GIT & Hepatobiliary - II				
	L	Renal-II	Endo & Repro- II			
PRIME Year	N	Foundation-III	Blood & Immunology- III	Locomotor/MSK- III	Clerkship, Electives, /Capstone/Observer ship	
	O	Cardiorespiratory-III				
	P	Renal-III	Endo & Repro-III			
	Q	Neurosciences-III	GIT & Hepatobiliary- III	Multisystem-III		

- 1st Year MBBS: 3 blocks, 5 Modules-27 weeks (945 Hours/AY)
- 2nd Year MBBS: 3 blocks 6 Modules – 30 weeks (1050 Hours/AY)

Per week teaching hours=35

Total weeks/hours are tentative

PRIME Year: Year of Professionals Ready for Innovative Medical Excellence

PRIME: Professionalism, Research, Identity formation, Management & leadership, Ethics.

4. What Is A Study Guide?

The Purpose and Structure of a Study Guide

A study guide serves as the central contract and roadmap between the educational program and the student. Its primary purpose is to demystify the learning process by clearly communicating how a module is organized, managed, and assessed. It empowers students to take ownership of their learning by providing all necessary information to plan their studies, identify appropriate resources and support, and understand precisely how their performance will be evaluated.

Core Components of an Effective Study Guide:

Module Administration & Overview

This section provides the essential framework for the module. It includes:

- **Module Identification:** Code, title, teaching hours, and placement within the curriculum.
- **Personnel & Coordination:** Clear points of contact (Module Coordinator, teaching faculty) with roles and responsibilities defined, enabling students to seek the right help efficiently.
- **Timetable & Schedule:** A structured overview of the teaching sequence, including dates, topics, and formats (e.g., lectures, practicals).
- **Learning Objectives & Instructional Strategy**
This is the academic core of the guide, aligning intent with action.
- **Module & Theme Objectives:** A precise list of what students are expected to know, understand, and be able to do by the module's end, directly mapped to program and PMDC competencies.
- **Teaching-Learning Methods:** A description of the instructional strategies employed (e.g., interactive lectures, small group discussions, lab sessions, case-based learning) and their role in achieving the objectives.
- **Learning Resources & Support**
This component directs students to the tools for successful learning.
- **Curated Resource List:** A categorized list of essential and recommended resources, including core textbooks, key journal articles, vetted online links, and specific software or simulation tools.
- **Assessment Strategy:** A detailed breakdown of all formative (continuous) and summative assessments, including their format, weighting, schedule, and how they contribute to the final grade.
- **Rules and Policies:** Clear statements on examination rules, grading criteria, policy on late submissions, academic integrity, and the appeals process.

In summary, a well-constructed study guide transforms a module from a series of disjointed events into a coherent, transparent, and manageable learning journey. It is a fundamental tool for achieving constructive alignment and enhancing the student learning experience.



5. Recommended List Of Icons



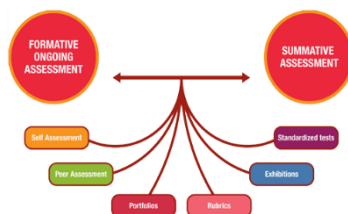
Introduction To Case



For Objectives



Critical Questions



Assessment

6. Organization of Module

Introduction:

By the end of this module the student of MIMC should be able to build adequate knowledge, attitude and skills to understand basic concepts of respiratory system along with different respiratory disorders.

Respiratory system consists of respiratory passageways (nose, larynx, pharynx, trachea, bronchi) and lungs and all these are related to breathing. The function of respiratory system is gaseous exchange, in bringing oxygen to body tissues and to get rid of carbon dioxide which is a waste product.

Rational:

Respiratory module is developed in order to assist students when they come in more frequent and prolonged contact with patients in the 3rd year of the MBBS curriculum. By the end of this module the students are expected to know the main concepts of respiratory system in all domains of learning and the skills gained in this module will help them deal with chest related conditions especially in the fields of Internal **Medicine**, **Community medicine**, **Forensic** aspects, Pharmacology of some important medications related to respiratory disorders, and Surgical Wards in tertiary care hospitals

Themes & duration:

The Respiratory Module is a 4 weeks' theme-based module, the contents of which will be thought in Lectures, SGDs, DSLs and Practical. Respiratory Module consists of the following themes:

Themes	Theme 1	Theme 2	Theme 3
• Respiratory System	• Chest wall injury • 1 week	• Cough and hemoptysis • 1 week	• Breathlessness • 2 weeks

7. Teaching and learning strategies

How You Will Learn: A Message from Your Study Guide

This guide outlines the diverse learning methods you will experience, each carefully chosen to help you grow from a student of science into a capable, independent future clinician. Think of this as your map to not only *what* you will learn, but *how* you will learn most effectively.

Part 1: Learning Together – Facilitated Sessions

These sessions provide the foundation, context, and interactive space to build knowledge with your peers and faculty.

- a. **Interactive Lectures:** These are not passive events. In lecture hall, your teacher will introduce core concepts and clinical principles using slides, animations, and real patient stories. We encourage you to engage—ask questions, respond to polls, and connect the dots live. This is where the roadmap for each topic is drawn.
- b. **Small-Group Sessions:** This is where knowledge becomes skill. In smaller classrooms, you will roll up your sleeves with a facilitator and a group of peers.
 - In **Tutorials**, you'll dissect clinical cases, clarify challenging concepts from lectures, and learn through discussion and debate.
 - In **Problem-Based Learning (PBL)**, your group will encounter a complex, real-world patient problem from the very first day. Your mission is to identify what you need to learn, research it, and come together to solve it—mirroring the very essence of clinical reasoning.
 - **Practical Demonstrations** in labs will bring the textbook to life, allowing you to see, touch, and understand the human body and its functions.
 - **Journal Club** sessions will train you to critically evaluate new medical research, a skill vital for a lifetime of evidence-based practice.

Part 2: Learning on Your Own – The Engine of Mastery

True expertise in medicine requires you to become the director of your own learning. These are your key tools.

- **Directed Self-Learning (DSL):** Consider this structured, independent practice. For specific modules, you will be given clear tasks, objectives, and a list of resources. Your job is to work through them independently. This builds the disciplined study habits and foundational understanding you need. Faculty are there to guide you if you hit a roadblock.
- **Self-Directed Learning (SDL):** This is the ultimate goal of your professional development in which you take full responsibility. You will identify your own learning gaps (“I don’t understand heart murmurs well enough”), set your own goals, seek out your own resources, and assess your progress. The college provides the support—the library, online databases, and faculty office hours—but you drive the process. This is the skill that will sustain your clinical competence for decades.

How It All Fits Together

The lectures give you the map and highlight the landmarks. The small-group sessions are the guided practice tours where you learn to use the compass and navigate terrain with a team. **DSL and SDL are the journeys you take on your own to truly know the land.** One method prepares you for the next, building your confidence and capability step-by-step.

We are here to guide you in this transition from learning what we teach, to learning what you need to know. Embrace each method—the collaborative and the independent—as essential parts of your growth into a physician.



8. Learning Objectives

General Learning Outcomes

By the end of this module the students would be able to;

Knowledge

1. Describe the anatomy and abnormalities of thoracic cage
2. Describe the development and gross anatomy of the diaphragm
3. Describe the contents of mediastinum and their relations
4. Describe the anatomy of pleura and its reflections
5. Describe the gross and microscopic structure, development, nerve supply and blood supply of trachea, bronchi and lungs
6. Describe the epithelia and connective tissues lining the respiratory passageways.
7. Describe pulmonary ventilation
8. Discuss the mechanisms of gaseous exchange between alveoli, and blood and blood and tissues
9. Elaborate the transport of gases in the blood
10. Describe the mechanisms of regulation of respiration
11. Define hypoxia, and cyanosis
12. Describe the effect of aging on respiratory system
13. Describe the biochemical structure and functions of enzymes
14. Describe the mechanisms of O₂ and CO₂ transport in the blood
15. Classify anti-asthmatic and anti-tuberculous drugs
16. Describe the types and signs of asphyxia
17. Enlist the causes and signs of pneumonias, bronchial asthma, tuberculosis, Acute Respiratory Distress Syndrome (ARDS), and pulmonary edema
18. Describe the parameters of Pulmonary Function Tests (PFTs)

Skills

1. Take a focused history of patient with upper respiratory symptoms.
2. Examine the nose and throat of a given subject
3. Examine the lymph nodes of neck on given subject
4. Interpret the ABGs of the patient with chest wall trauma (Respiratory rate and blood pressure).
5. Demonstrate the Grading of pain severity.
6. Examine the respiratory system of patient with chest wall injury with special emphasis on respiratory rate and cyanosis.
7. Draw a normal spirogram, labeling the four lung volumes and four capacities.
8. Examine the chest.
9. Do the spirometry and plot the graph.
10. Demonstrate ABGS and compare the results
11. Demonstrate the use of inhaler to the subject.
12. Calculate the respiratory rate of the subject

Attitude

1. Demonstrate ability to give and receive feedback, respect for self and peers.
2. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals
3. Organize& distribute tasks
4. Exchange opinion & knowledge
5. Develop communication skills and etiquette with sense of responsibility.
6. To equip themselves for teamwork
7. Regularly attend the classes

9. Specific learning objectives

THEME–I: (Chest Wall Injuries)

This theme is one week long mostly emphasizing on the physiological and anatomical aspects of thoracic wall, mediastinum, lungs and diaphragm. It also includes the development of diaphragm & rib, physiological & biochemical aspects of mechanism of respiration and a brief account of developmental and surgical abnormalities related to it.

This theme consists of lectures, Practicals, SGDs, DSLs and SDLs.

THEME-1 (Chest Wall Injuries)					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
GROSS ANATOMY					
1.	Gross anatomy of thorax	- Describe main features of thoracic wall - Describe the location and shape of the sternum - Describe the parts of the sternum - Describe the articulations and muscle attachments - Describe the gross features of the thoracic vertebrae - Vertebral body - Intervertebral disc - Laminae - Pedicles - Intervertebral foramina - Processes - Ligaments - Differentiate between typical and atypical ribs. - Describe different joints of thorax - Discuss Intercostal muscles - Discuss the contents of intercostal spaces - Describe the origin of intercostal arteries - Describe the origin, course and distribution of intercostal nerves - Discuss branches and course of internal thoracic artery	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE

2.	Abnormalities of thoracic wall	1. Describe thoracic wall abnormalities and its clinical correlation	LGIS-2	1	MCQs/ SAQs/ VIVA/ OSPE
3.	Gross & Developmental Anatomy of Diaphragm	1. Describe the origin, insertion, openings and nerve supply of the diaphragm and its clinical significance. 2. Describe development of diaphragm 3. Describe diaphragmatic hernias and clinical significance	LGIS-3	1	MCQs/ SAQs/ VIVA/ OSPE
4.	Mediastinum	1. Describe the contents of the Superior, Anterior & Posterior Mediastinum. 2. Describe the relations of different contents in Mediastinum. 3. Identify various anatomical landmarks on chest X-Rays, CT and MRI	LGIS-4	1	MCQs/ SAQs/ VIVA/ OSPE
EMBRYOLOGY					
5.	Development of Ribs	1. Describe the development of ribs from costal elements of primitive vertebrae	LGIS-5	1	MCQs/ SAQs/ VIVA/ OSPE
PHYSIOLOGY					
6.	Mechanics of Respiration	1. Describe the mechanics of respiration 2. Describe the pressures that cause the movements of the air in and out of the lungs 3. Compare between the internal and external respiration 4. Enlist the steps of external respiration accomplished by the respiratory system and those carried out by the circulatory system 5. State the functions of Type I alveolar cells, Type II alveolar cells, and alveolar macrophages 6. Describe the forces that keep the alveoli open and those that promote alveolar collapse.	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE

7.	Lung compliance	1. Define compliance of the lung and elastic recoil 2. Identify two common clinical conditions in which lung compliance is higher or lower than normal. 3. Define the following terms: hypoventilation, hyperventilation, hypercapnia, eupnea, hypopnea, and hyperpnea. 4. Define surface tension, surfactants, atelectasis 5. Describe the role of surfactants on the lung compliance. 6. Describe the composition of the pulmonary surfactants and its role 7. Describe the pathophysiology of respiratory distress syndrome of the newborn 8. Discuss the work of breathing	LGIS-2	1	MCQs/ SAQs/ VIVA/ OSPE
8.	Lung volumes and capacities	1. Describe changes in the lung volume, alveolar pressure, pleural pressure, and trans-pulmonary pressure during normal breathing 2. Draw a normal pulmonary pressure-volume (compliance) curve (starting from residual volume to total lung capacity and back to residual volume), labeling the inflation and deflation limbs. 3. Explain the cause and significance of the hysteresis in the curves. 4. Draw the pressure-volume (compliance) curves for the lungs, chest wall, and respiratory system on the same set of axes. 5. Show and explain the significance of the resting positions for each of these three structures.	LGIS-3	1	MCQs/ SAQs/ VIVA/ OSPE

		6. Define the following terms: anatomic dead space, physiologic dead space, wasted (dead space) ventilation, total minute ventilation and alveolar minute ventilation. 7. Compare anatomic and physiologic dead space 8. Describe the basic concept of measurement of dead space 9. Enlist the factors that changes the dead space			
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SURGERY

9.	Pneumothorax	1. Describe pneumothorax 2. Define Hydro pneumothorax	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
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FORENSIC MEDICINE

10.	Medico-legal aspect of injuries to thoracic cage	1. Identify the different causative agents producing thoracic injuries. 2. Differentiate between internal and external forces producing rib fracture 3. Identify & differentiate between forces producing injuries to thoracic vertebrae	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
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DIRECTED SELF LEARNING

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
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ANATOMY

1.	Abnormalities of the thoracic wall	1. Describe thoracic wall abnormalities and its clinical correlation	DSL	1	MCQs/ SAQs
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PHYSIOLOGY

2.	Mechanics of Respiration & Lung compliance	1. Briefly describe the mechanics of respiration. 2. Describe the pressures that cause the movements of the air in and out of the lungs 3. Define lung compliance. 4. Analyze the roles of elastin, collagen, and alveolar surface	DSL	1	MCQs/ SAQs
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		tension (surfactant) in determining lung elasticity. 5. Contrast the physiological changes and curve shifts in high-compliance (emphysema) versus low-compliance (fibrosis) states. 6. Describe how compliance alters the total work of breathing during normal ventilation.			
BIOCHEMISTRY					
3.	Transport of Oxygen	1. Explain the transport of oxygen in the blood	DSL	1	MCQs/SAQs

DISSECTION					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Mediastinum	1. Discuss the contents of superior, anterior & posterior mediastinum. 2. Discuss the relations of different contents in mediastinum	Dissection-1	1	OSPE/VIVA
2.	Osteology of Ribs And Sternum	1. Identify and differentiate between true ribs, false ribs, and floating ribs on a skeleton. 2. Locate the five key bony features of a typical rib: the head, neck, tubercle, body, and costal groove. 3. Distinguish the three main parts of the sternum—the manubrium, body, and xiphoid process—and locate the sternal angle (Angle of Louis).	Dissection-2	1	OSPE/VIVA
3.	Osteology of Vertebrae	1. Identify and orient individual vertebrae, distinguishing cervical, thoracic, lumbar, sacral, and coccygeal types using anatomical landmarks. 2. Describe the structural components of a typical vertebra, including the body,	Dissection-3	1	OSPE/VIVA

		vertebral arch, pedicles, lamina, and seven processes. 3. Demonstrate the unique anatomical features of atypical vertebrae, specifically Atlas (C1), Axis (C2), and Seventh Cervical (C7).			
4.	Joints in thorax	1. Locate and classify the major thoracic joints based on their structural type and functional mobility. 2. Trace and describe the specific bony features that articulate to form the cost vertebral and stern costal joints using a skeleton or prosecuted specimen.	Dissection-4	1	OSPE/VIVA

LAB WORK

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
PHYSIOLOGY					
1.	GPE & Spirometry	1. Demonstrate proper technique for assessing general signs of respiratory distress, including cyanosis, clubbing, pallor, and pursed-lip breathing. 2. Measure and evaluate baseline respiratory rate, rhythm, and depth of a subject at rest. 3. Identify abnormal physical features such as barrel chest, use of accessory muscles, or intercostal retractions & correlate general physical findings with underlying pathophysiology. 4. Draw a normal spirogram, labeling the four lung volumes and four capacities. 5. List the volumes that comprise each of the four capacities.	Demonstration / Practical	1.5	OSPE

		6. Identify which volume and capacities cannot be measured by spirometry.			
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SMALL GROUP DISCUSSIONS

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Diaphragm	1. Describe the origin, insertion, openings & nerve supply of diaphragm and its clinical significance.	SGDs	1.5	MCQs/SAQs
PHYSIOLOGY					
2.	Lung Volumes and Capacities	1. Describe changes in the lung volume, alveolar pressure, pleural pressure, and trans-pulmonary pressure during normal breathing	SGDs	1.5	MCQs/SAQs
BIOCHEMISTRY					
3.	Role of enzymes as a diagnostic tool	1. Explain the role of enzymes as a diagnostic tool	SGDs	1.5	MCQs/SAQs

THEME-II COUGH AND HEMOPTYSIS

This theme is one week long consisting of developmental, gross and microscopic study of lungs and bronchial tree. Physiological and Pathological features along with preventive measures and treatment will also be the part of the module. This module includes lectures on asthma, pneumonia, pulmonary edema and tuberculosis by the department of pathology and anti-asthmatic and anti-tuberculous drugs by the department of pharmacology. Preventive strategies for smoking will be described and the relationship of smoking with lung diseases will be discussed. Preventive strategies of different problems related to respiratory system will also be discussed here. This module consists of lectures, Practicals, SGDs, DSLs and SDLs.

THEME-2 (COUGH AND HEMOPTYSIS)

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
GROSS ANATOMY					

1.	Trachea, bronchi and lungs	1. Describe trachea and bronchi with relations plus subdivisions 2. Describe the neurovascular supply of trachea and bronchi 3. Describe the surfaces anatomy of trachea and bronchi 4. Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and compare between right and left lungs. 5. Describe Broncho-pulmonary segments and their clinical importance 6. Describe innervations, blood supply and lymphatic drainage of the lungs.	LGIS-6	1	MCQs/ SAQs/ VIVA/ OSPE
EMBRYOLOGY					
2.	Development of Respiratory system	1. Describe development of trachea, bronchial tree, pleura, lungs 2. Recognize the cephalo-caudal and transverse folding of embryonic disc 3. Describe the extent of intra embryonic coelom after folding and its divisions into three serous cavities 4. State the derivatives of visceral and parietal layers of mesoderm 5. State the pericardio-peritoneal canals and their final fate 6. Discuss the formation of Lung Bud	LGIS-7	1	MCQs/ SAQs/ VIVA/ OSPE
HISTOLOGY					
3.	Histology of Lungs-I	1. Histology of Lungs 2. Classify the types of epithelia lining the various parts of respiratory system 3. Differentiate between the histological differences among various parts of respiratory system	LGIS-8	1	MCQs/ SAQs/ VIVA/ OSPE
4.	Histology of Lungs-II	1. Describe the structure of trachea and its layer 2. Discuss the microscopic picture of respiratory bronchiole,	LGIS-9	1	MCQs/ SAQs/ VIVA/ OSPE

		alveolar ducts, alveolar sacs and alveoli. 3. Describe the different types of cells found in alveoli 4. Discuss surfactant, alveolar septum, alveolar pores and alveolar macrophages			
PHYSIOLOGY					
5.	Functions of respiratory passageways, Pulmonary Circulation & Respiratory Membrane	1. Describe the respiratory and non-respiratory functions of the respiratory passageways 2. Identify the mechanism by which particles are cleared from the airways. 3. Explain the physiologic anatomy of the pulmonary circulatory system 4. Describe the pressures in the pulmonary circulatory system 5. Describe blood volume of the lungs 6. Describe blood flow through the lungs and its distribution 7. Compare the systemic and pulmonary circulations with respect to pressures, resistance to blood flow, and response to hypoxia. 8. Describe the regional differences in pulmonary blood flow in an erect position. 9. Describe the consequence of hypoxic pulmonary vasoconstriction on the distribution of pulmonary blood flow. 10. Describe the pulmonary capillary dynamics 11. Describe the development of pulmonary edema	LGIS-4	1	MCQs/ SAQs/ VIVA/ OSPE
PHARMACOLOGY					
6.	Anti-Asthmatic drugs	1. Enlist Anti-asthmatic drugs	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
7.	Anti-Tuberculous drugs	1. Classify Anti-tuberculous drugs	LGIS-2	1	MCQs/ SAQs/ VIVA/

OSPE					
PATHOLOGY					
8.	Pneumonias & Pulmonary Edema	1. Define pneumonia and enlist the causative pathogens of pneumonia 2. Define pulmonary edema. 3. Classify pulmonary edema according to underlying causes	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
9.	Pulmonary Tuberculosis	1. Define primary and secondary Tuberculosis and state its etiology	LGIS-2	1	MCQs/ SAQs/ VIVA/ OSPE
10.	Bronchial Asthma	1. Describe the etiology, pathogenesis and clinical features of asthma	LGIS-3	1	MCQs/ SAQs/ VIVA/ OSPE
COMMUNITY MEDICINE					
11.	Prevention of Respiratory disorders	1. Discuss preventive strategies of different problems related to respiratory system 2. Discuss the relationship of smoking with lung Diseases 3. Describe preventive strategies for smoking	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
GENERAL MEDICINE					
12.	Cough	1. Define & Classify cough 2. Identify causes of acute & chronic cough 3. Formulate differential diagnosis in a patient presenting with cough 4. Interpret appropriate initial investigation	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE
13.	Hemoptysis	1. Define & Classify hemoptysis 2. Explain pathophysiology & describe causes 3. Formulate differential diagnosis 4. Select appropriate investigation	LGIS-2	1	MCQs/ SAQs/ VIVA/ OSPE

DIRECTED SELF LEARNING					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Lungs	1. Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and	DSL	1	MCQs/ SAQs

		compare between right and left lungs. 2. Describe innervations, blood supply and lymphatic drainage of the lungs.			
PHYSIOLOGY					
2.	Oxygen and Carbon dioxide disorder curves	1. Describe the normal shapes of the oxygen-hemoglobin and carbon dioxide dissociation curves 2. Analyze the concepts of P_{50} and oxygen carrying capacity, calculating how changes in hemoglobin concentration (e.g., anemia, polycythemia) impact total oxygen 3. Differentiate between the Bohr Effect and the Haldane effect. 4. Correlate shifts in the gas dissociation curves with clinical conditions, explaining how altered gas transport mechanisms cause hypoxia in states like carbon monoxide poisoning, fetal-maternal gas exchange, and respiratory acidosis.	DSL	1	MCQs/SAQs

DISSECTION					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Thorax, components of thoracic cavity and their relations	1. Describe the boundaries, components of thorax and their relations.	Dissection-1	1	OSPE/VIVA

LAB WORK					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Histology of Lungs	1. Identify the various microscopic tissue types in the Trachea	Demonstration / Practical	1.5	OSPE

		2. Discuss the histology of respiratory epithelium. 3. Identify the various microscopic tissue types in the Respiratory system			
PHYSIOLOGY					
2.	PFM, FEV ₁ /FVC Ratio	1. Determine the peak expiratory flow (PEF) by peak flow meter 2. Define and calculate Forced Vital Capacity (FVC), Forced Expiratory Volume in the first second (FEV ₁), the FEV ₁ /FVC ratio 3. Analyze peak flow measurements to differentiate between normal and abnormal lung function.	Demonstration / Practical	1.5	OSPE

SMALL GROUP DISCUSSIONS					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Components of Respiratory System	1. Describe the major components of the upper and lower respiratory system and describe their functions	SGDs	1.5	MCQs/SAQs
PHYSIOLOGY					
2.	Functions of respiratory passageways	1. Describe the respiratory functions of the respiratory passageways. 2. Describe the non-respiratory functions of the respiratory passageways. 3. Identify the mechanism by which particles are cleared from the airways.	SGDs	1.5	MCQs/SAQs
BIOCHEMISTRY					
3.	Clinical Enzymology	1. Explain the diagnostic value of measuring plasma or serum enzyme levels in disease states. 2. Define the concept of tissue-specific isozymes (such as CK-MB or LDH isoenzymes) and	SGDs	1.5	MCQs/SAQs

		their role in differential diagnosis.			
		3. Identify key diagnostic enzymes used to detect specific organ damage (e.g., troponins and creatine kinase for myocardial infarction, or transaminases for liver disease). .			

THEME-III BREATHLESSNESS

In this theme of the Respiratory Module-I, the anatomical features of pleura and pleural cavity will be discussed. Mechanics of respiration and development of pleural cavity will be described.

Histology of the respiratory tract will be discussed.

The physiological aspects of the module will include pulmonary ventilation, pulmonary circulation, gaseous exchange, and transport of oxygen & carbon dioxide in the blood. Regulation of respiration and common respiratory abnormalities will also be discussed.

The chemistry of enzymes will be discussed in detail in biochemistry. Forensic medicine department will explain asphyxia and the department of general medicine will give an account of respiratory symptomatology and discuss acute respiratory distress syndrome. Interpretation of the Pulmonary function tests is also part of this theme.

The contents of this theme will be taught in lectures, Practicals, SGDs, DSLs and SDL.

THEME-3 (BREATHLESSNESS)					
S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
GROSS ANATOMY					
1.	Mechanics of respiration	1. Describe briefly mechanics of respiration	LGIS-10	1	MCQs/ SAQs/ VIVA/ OSPE
2.	Pleura	1. Describe the gross features of pleura 2. Describe the pleural cavity and the pleural reflections 3. Describe the surface anatomy related to pleural reflections	LGIS-11	1	MCQs/ SAQs/ VIVA/ OSPE
EMBRYOLOGY					
3.	Development of Pleural Cavity	1. Describe the development of pleural cavity	LGIS-12	1	MCQs/ SAQs/

					VIVA/ OSPE
PHYSIOLOGY					
4.	Respiratory membrane and Va/Q Ratio	1. Describe respiratory unit 2. Describe the physiologic anatomy of the respiratory membrane and its significance 3. Describe the factors that affect the rate of gaseous diffusion through the respiratory membrane 4. Describe the diffusing capacity of respiratory membrane for O₂ and CO₂ at rest and exercise. 5. Describe the effect of ventilation/perfusion (V/Q) ratio on alveolar gas concentrations. 6. Identify the average V/Q ratio in a normal lung. 7. Explain the concept of physiologic shunt and physiologic dead space 8. Describe the abnormalities of ventilation perfusion ratio in normal lung and chronic obstructive lung disease.	LGIS-5	1	MCQs/ SAQs/ VIVA/ OSPE
5.	Transport of O ₂ & CO ₂	1. Define oxygen partial pressure (tension), oxygen content, and percent hemoglobin saturation as they pertain to blood. 2. List the forms in which carbon dioxide is carried in the blood. 3. Describe the percentage of total CO₂ transported as each form. 4. Describe the chloride shift and its importance in the transport of CO₂ by the blood. 5. Describe the enzyme that is essential to normal carbon dioxide transport by the blood and its location.	LGIS-6	1	MCQs/ SAQs/ VIVA/ OSPE
6.	Oxygen-HB dissociation curve	1. Describe Oxyhemoglobin dissociation curve (hemoglobin oxygen equilibrium curve) showing the relationships between oxygen partial pressure, hemoglobin saturation, and blood oxygen content.	LGIS-7	1	MCQs/ SAQs/ VIVA/ OSPE

		- Describe the relative amounts of O₂ carried bound to hemoglobin with that carried in the dissolved form. - State Henry's Law (the relationship between PO₂ and dissolved plasma O₂ content) - Describe how the shape of the oxyhemoglobin dissociation curve influences the uptake and delivery of oxygen - Define P₅₀. - Describe how the oxyhemoglobin dissociation curve is affected by changes in blood temperature, pH, PCO₂, and 2,3-DPG. - Describe how anemia and carbon monoxide poisoning affect the shape of the oxyhemoglobin dissociation curve, PaO₂, and SaO₂.			
7.	CO ₂ dissociation curve	- Describe the carbon dioxide dissociation curves for oxy- and deoxyhemoglobin. - Describe the interplay between CO₂ and O₂ binding on hemoglobin that causes the Haldane effect.	LGIS-8	1	MCQs/ SAQs/ VIVA/ OSPE
8.	Regulation of Respiration (central mechanism)	- Describe the regions in the central nervous system that play important roles in the generation and control of cyclic breathing. - Give three examples of reflexes involving pulmonary receptors that influence breathing frequency and tidal volume. - Describe the receptors and neural pathways involved. - List the anatomical locations of chemoreceptors sensitive to changes in arterial PO₂, PCO₂, and pH that participate in the control of ventilation. - Identify the relative importance of each in sensing alterations in blood gases.	LGIS-9	1	MCQs/ SAQs/ VIVA/ OSPE

9.	Regulation of Respiration	1. Describe how changes in arterial PO₂ and PCO₂ alter alveolar ventilation, including the synergistic effects when PO₂ and PCO₂ both changes. 2. Describe the significance of the feedforward control of ventilation (central command) during exercise, and the effects of exercise on arterial and mixed venous PCO₂, PO₂, and pH. 3. Describe voluntary control of respiration 6. Describe the effect of irritant receptors, J-receptors, brain edema and anesthesia on breathing.	LGIS-10	1	MCQs/ SAQs/ VIVA/ OSPE
10.	Hypoxia, its types & applied Physiology	1. Define hypoxia and differentiate it from hypoxemia. 2. Classify types of hypoxia 3. Explain the compensatory respiratory, cardiovascular, and hematopoietic responses triggered by acute and chronic hypoxia. 4. List the normal airway, alveolar, arterial, and mixed venous PO₂ and PCO₂ values. 5. List the normal arterial and mixed venous values for O₂ saturation. 6. Enlist common causes of hypoxemia.	LGIS-11	1	MCQs/ SAQs/ VIVA/ OSPE
11.	High Altitude Physiology	1. Discuss the effects of 2. Acceleratory forces on the body 3. Weightlessness in space	LGIS-12	1	MCQs/ SAQs/ VIVA/ OSPE
12.	Deep Sea Diving Physiology	1. Discuss the effects of high partial pressure of individual gasses on body 2. Mechanism of Hyperbaric oxygen therapy	LGIS-13	1	MCQs/ SAQs/ VIVA/ OSPE
BIOCHEMISTRY					
13.	Enzymes	1. Define Enzymes 2. Explain the Principals for Nomenclature of enzymes	LGIS-1	1	MCQs/ SAQs/ VIVA/ OSPE

		3. Classify Enzymes on the basis of functions			
14.	Structure of Enzymes	1. Explain the general structure of enzymes 2. Define different parts and forms of enzymes 3. Describe the factors involved in structure of enzymes 4. Enlist the factors affecting the activity of enzymes	LGIS-2	1	MCQs/ SAQs/ VIVA/ OSPE
15.	Co-Factors, Catalysis & Isozymes	1. Define co-factors 2. Explain the function of co-factors 3. Enlist different types of co-factors 4. Define catalysis 5. Explain different mechanism of catalysis 6. Define Isoenzymes (Isozymes) 7. Explain Factors affecting the properties Explain the role of enzymes as a diagnostic tool	LGIS-3	1	MCQs/ SAQs/ VIVA/ OSPE
16.	Enzyme Kinetics	1. Explain the basic principles of enzyme catalyzed reactions and the formation of enzyme substrate complex 2. Define key kinetic parameters {V-max}, {K-max} and turnover number {k-cat} 3. State the assumptions and significance of the Michaelis-Menten equation. 4. Calculate enzyme activity, reaction velocity, or substrate concentration using kinetic formulas. 5. Describe how environmental factors like temperature and pH affect enzyme reaction rates.	LGIS-4	1	MCQs/ SAQs/ VIVA/ OSPE
17.	Transport of O ₂ and CO ₂ in the blood	1. Explain how the structure of hemoglobin enables its function as an efficient oxygen transporter 2. Describe Oxygen Binding Kinetics	LGIS-5	1	MCQs/ SAQs/ VIVA/ OSPE

		3. How shifts in the oxygen dissociation curve affect tissue oxygenation 4. Explain the biochemical basis of carbon monoxide poisoning and why it shifts the oxygen binding curve to the left			
18.	Enzyme Inhibition-I	1. Define enzyme inhibition and distinguish between reversible and irreversible inhibitors. 2. Compare competitive, non-competitive, and uncompetitive reversible inhibitors based on their binding sites.	LGIS-6	1	MCQs/ SAQs/ VIVA/ OSPE
19.	Enzyme Inhibition-II	1. Analyze how each type of reversible inhibitor affects the {K-max} (Michaelis constant) and / {V-max} (maximum velocity) of an enzyme. 2. Interpret Michaelis-Menten and Lineweaver-Burk plots in the presence and absence of different inhibitors. 3. Identify examples of clinical or pharmacological applications of enzyme inhibitors (such as drugs or poisons).	LGIS-7	1	MCQs/ SAQs/ VIVA/ OSPE

GENERAL MEDICINE

20.	Dyspnea	1. Define & characterize Dyspnea 2. Explain underline mechanism 3. Identify common causes 4. Elicit focused history & interpret appropriate investigation.	LGIS-3	1	MCQs/ SAQs/ VIVA/ OSPE
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DIRECTED SELF LEARNING

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
ANATOMY					
1.	Histology of respiratory system	1. Identify the various microscopic tissue types in the Respiratory system including epithelium of the respiratory system, trachea, bronchi, bronchioles and alveoli	DSL	1	MCQs/ SAQs
PHYSIOLOGY					
2.	Composition of pulmonary	1. Define surface tension, surfactants, atelectasis	DSL	1	MCQs/ SAQs

	surfactants and its role & Respiratory changes during exercise	- Describe the role of surfactants on the lung compliance. - Describe the composition of the pulmonary surfactants and its role - Describe the pathophysiology of respiratory distress syndrome of the newborn - Describe the acute changes in pulmonary ventilation, including the specific increases in respiratory rate and tidal volume from rest to maximal exercise. - Analyze the shifts in the oxygen-hemoglobin dissociation curve during physical exertion, detailing how localized changes in temperature, pH, and PCO₂ facilitate oxygen unloading at exercising tissues.			
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BIOCHEMISTRY

3.	Isozymes	- Define Isozymes - Explain Factors affecting the properties of isozymes - Explain the role of enzymes as a diagnostic tool.	DSL	1	MCQs/SAQs
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LAB WORK

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
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GENERAL MEDICINE

1.	Interpretation of PFT's	1. Interpret the Pulmonary Function Tests	Demonstration / Practical	1.5	OSPE
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PHYSIOLOGY

2.	Chest Examination	- Examine the chest of the subject - Calculate the respiratory rate of the subject	Demonstration / Practical	1.5	OSPE
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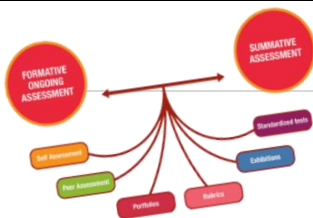
SMALL GROUP DISCUSSIONS

S.No	Topic	Learning objectives	Teaching strategies	Hours	Assessment
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ANATOMY

1.	Mechanics of respiration	1. Describe briefly mechanics of respiration	SGDs	1.5	MCQs/SAQs
PHYSIOLOGY					
2.	Regulation of Respiration	1. Describe the regions in the central nervous system that play important roles in the generation and control of cyclic breathing. 2. Give three examples of reflexes involving pulmonary receptors that influence breathing frequency and tidal volume. 3. Describe the receptors and neural pathways involved.	SGDs	1.5	MCQs/SAQs
BIOCHEMISTRY					
3.	Factors affecting enzyme activity	1. Enlist the factors affecting the activity of enzymes 2. Describe roles of factors affecting enzyme activity	SGDs	1.5	MCQs/SAQs
4.	ABGs/ Enzyme Inhibition		SGDs	1.5	MCQs/SAQs

Subject	LGIS	Practical/Demo	SGD	DSL	Dissection	Total Hours
ANATOMY (Histology, Embryology)	12	1.5	4.5	3	5	26
PHYSIOLOGY	13	4.5	4.5	3	-	25
BIOCHEMISTRY	7	-	6	2	-	15
PATHOLOGY	3	-	-	-	-	3
PHARMACOLOGY	2	-	-	-	-	2
GENERAL MEDICINE	3	1.5	-	-	-	4.5
SURGERY	1	-	-	-	-	1
FORENSIC MEDICINE	1	-	-	-	-	1
COMMUNITY MEDICINE	1	-	-	-	-	1
PRIME (Leadership)	1	-	-	-	-	1
PRIME (Research/JC)	3	-	-	-	-	3
Islamiat	10	-	-	-	-	10
TOTAL	57	7.5	15	8	5	92.5



10. Examination and Methods of Assessment:

Assessments within the MBBS program at the MIMC consist of both formative and summative evaluations. These assessments are crucial for monitoring student progress and academic performance.

1.1 Formative Assessment:

Formative assessments, accounting for 20% of the total marks assigned to each block, serve as ongoing evaluations designed to provide feedback and promote learning. Formative assessments are conducted after the completion of each module, ensuring students receive timely feedback to enhance their understanding and performance.

1.2 Summative Assessment:

Summative assessments, comprising 80% of the total assessment weighting, are conducted and overseen by constitute university as part of the annual examination process. This summative assessment evaluates students' comprehensive understanding of the curriculum and constitutes a significant portion of their final scores.

1.3 Assessment Tools:

Various assessment tools are employed to measure students' knowledge and competencies. These tools include:

1. **Written Examinations:** These include Multiple Choice Questions (MCQs) and Short Answer Questions (SAQs) that assess students' theoretical knowledge.
2. **Performance Assessments:** Objective Structured Practical Examinations (OSPE) and Objective Structured Clinical Examinations (OSCE) are used to evaluate practical skills and clinical competence.



11. Learning Opportunities and Resources

1. Anatomy

Books:

- *Clinical Anatomy by Regions* by Richard S. Snell (Latest Edition)
- *Gray's Anatomy for Students* (Latest Edition)
- *Clinically Oriented Anatomy* by K.L. Moore (Latest Edition)
- *Netter's Atlas of Human Anatomy* (Latest Edition)
- *Last's Anatomy* (Latest Edition)

Online Resources:

- [TeachMeAnatomy](#) – Comprehensive anatomy resource with diagrams and explanations.
- [AnatomyZone YouTube Channel](#) – 3D anatomy tutorials.

2. Histology

Books:

- *Textbook of Histology* by Junqueira (Latest Edition)
- *diFiore's Atlas of Histology with Functional Correlations* (Latest Edition)
- *Atlas of Human Histology* by Wheater's (Latest Edition)
- *Textbook of Histology* by Laiq Hussain (Latest Edition)

Online Resources:

- [Histology Guide](#) – A virtual histology lab with slides and explanations.
- [Armando Hasudungan YouTube Channel](#) – Educational videos on histology and related topics.

3. Embryology

Books:

- *Langman's Medical Embryology* (Latest Edition)
- *The Developing Human* by Keith L. Moore (Latest Edition)

Online Resources:

- Embryology at UNSW – Detailed embryology resource from the University of New South Wales.
- [Dr. Najeeb Lectures YouTube Channel](#) – In-depth video lectures on embryology and other basic medical sciences.

4. Physiology

Books:

- *Textbook of Medical Physiology* by Guyton and Hall (Latest Edition)
- *Ganong's Review of Medical Physiology* (Latest Edition)

Online Resources:

- Vivo Interactive Physiology – Interactive tutorials on physiology topics.

- [PhysioPathoPharmaco YouTube Channel](#) – Physiology explanations and tutorials.

5. Biochemistry

Books:

- *Harper's Illustrated Biochemistry* (Latest Edition)
- *Lippincott's Illustrated Review: Biochemistry* (Latest Edition)

Online Resources:

- MedlinePlus Biochemistry – Basic biochemistry concepts with clinical correlations.
- [Osmosis YouTube Channel](#) – Visual and concise videos on biochemistry and other medical topics.

6. Pharmacology

Books:

- *Katzung's Basic and Clinical Pharmacology* (Latest Edition)

Online Resources:

- [Pharmacology YouTube Channel by Ninja Nerd](#) – Detailed pharmacology lectures and notes.
- [GoodRx Pharmacology Resources](#) – Practical applications of pharmacology in medicine.

7. Pathology

Books:

- *Robbins Basic Pathology* (Latest Edition)

Online Resources:

- [PathologyOutlines.com](#) – An online pathology resource with a focus on differential diagnosis.
- [Dr. John Minarcik YouTube Channel](#) – Free pathology lectures and tutorials.

8. Community Medicine

Books:

- *Essential Community Medicine* (Latest Edition)
- *K. Park's Textbook of Preventive and Social Medicine* (Latest Edition)

Online Resources:

- [CDC Public Health](#) – Extensive resources on public health and community medicine.
- [Public Health England YouTube Channel](#) – Videos on various community health topics.

9. Forensic Medicine

Books:

- *Parikh's Textbook of Medical Jurisprudence, Forensic Medicine, and Toxicology* (Latest Edition)

Online Resources:

- [Forensic Medicine Online](#) – Detailed forensic medicine resources for students.
- [Forensic Pathology Lectures YouTube Channel](#) – Educational videos on forensic pathology.

10. General Medicine

Books:

- *Davidson's Principles and Practice of Medicine* (Latest Edition)

Online Resources:

- [Medscape](#) – Comprehensive resource for clinical medicine and continuing medical education.
- [Geeky Medics YouTube Channel](#) – Clinical skills and general medicine tutorials.

12. For inquiry and troubleshooting



Please contact
D.M.E

13. Course Feedback Form

Course Title: _____

Semester/Module _____ Dates: _____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

- | | | |
|--|---|--------------------------|
| A. Were objectives of the course clear to you? | Y ☐ N ☐ | |
| B. The course contents met with your expectations | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| C. The lecture sequence was well-planned | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| D. The contents were illustrated with | | ☐ |
| 1. Too few examples | 5. Adequate examples | |
| E. The level of the course was | | ☐ |
| 1. Too low | 5. Too high | |
| F. The course contents compared with your expectations | | ☐ |
| 1. Too theoretical | 5. Too empirical | |
| G. The course exposed you to new knowledge and practices | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| H. Will you recommend this course to your colleagues? | | ☐ |
| 1. Not at all | 5. Very strongly | |

THE CONDUCT OF THE MODLUE

- | | | |
|--|---|--------------------------|
| A. The lectures were clear and easy to understand | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| B. The teaching aids were effectively used | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| C. The course material handed out was adequate | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| D. The instructors encouraged interaction and were helpful | | ☐ |
| 1. Strongly disagree | 5. Strongly agree | |
| E. Were objectives of the course realized? | Y ☐ N ☐ | |

F. Please give overall rating of the course

90% - 100% ()

60% - 70% ()

80% - 90% ()

50% - 60% ()

70% - 80% ()

below 50% ()

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!

14. Students Diary/Notes

[illegible]

PROGRESS: _____

ACHIEVMENT: _____