AYUB MEDICAL COLLEGE ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION

RESPIRATORY I MODULE

1ST YEAR MBBS

BLOCK: C. (RESPIRATION I MODULE)

DURATION:4 WEEKS

STUDENT NAME

_____

Contents

1 Module Committee: 2
2 What Is A Study Guide? 3
2.1 The study guide: 3
2.2 Module objectives. 3
2.3 Achievement of objectives. 3
2.4 Integrated curriculum: 3
3 Recommended List Of Icons 4
4 Table Of Specification 5
5 Organization of Module 6
5.1 Introduction To Respiratory Module 6
5.2 Rationale 6
5.3 Teaching And Learning Strategies: 6
6 Learning Objectives 8
6.1 General Learning Outcomes 8
6.1.1 Knowledge 8
6.1.2 Skill 8
6.1.3 Attitude 9
6.2 Specific learning objectives (THEME BASED) 9
7 Examination and Methods of Assessment: 22
7.1 Block Assessment 22
7.2 Attendance Requirement: 22
7.3 UNIVERSITY EXAM: 22
Exam has 90% (210) marks in total 22
7.4 INTERNAL EXAM: 22
7.5 Assessment tools: 22
7.5.1 Multiple Choice Questions (MCQ/SEQs): 22
7.5.2 Short Essay Questions (SEQ) 23
7.5.3 Objective Structured Practical Examination (OSPE) 23
8 Learning Opportunities and Resources 25
8.1 Instruction 25
8.2 Books: 25
8.3 Website: 25
8.3.1 Anatomy: 25
8.3.2 Embryology 26
8.3.3 Histology 26
8.3.4 Physiology: 26
8.3.5 Biochemistry: 26
8.3.6 Pharmacology: 26
8.3.7 Community Medicine: 26
8.3.8 Forensic medicine: 26
8.3.9 Medicine: 27
9 Timetables 28
10 For inquiry and troubleshooting 31
11 Course Feedback Form 32

1 Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Umar Farooq	CEO & Dean	
2.	Prof. Dr. Irfan U. Khattak	DME	Director
3.	Dr. Junaid	DME	Coordinator
		Module Team	
3.	Prof. Dr. Nuzhat Raza	HOD Physiology	Block Coordinator
4.	Dr. Raisa Naz	Asso. Prof. Physiology	Module Coordinator(Resp)
5.	Dr Shazia Tauqeer	Asst. Prof. Physiology	Module Coordinator(CVS)
6.	Dr. Sahar Farhat	Asst. Prof. Physiology	Module Developer
7.	Dr. Sumera Zia	Asst. Prof. Anatomy	Member
8.	Dr. Rizwana Iqbal	Lecturer	Member
9.	Dr. Ayesha Awan	Asso. Prof. Biochemistry	Member
10.	Dr. Naureen Sultan	Professor Biochemistry	Member
11.	Dr.Nasreen Gul	Asso. Prof. Pathology	Member
12.	Dr.Adeel Alam	Asst.Prof. Pharmacology	Member
13.	Dr. Adnan Rasheed	Asst Prof.Community med	Member
14.	Dr. Salma Shazia	Asso. Prof.Forensic Med	Member
15.	Dr.Syed Yasir Gillani	Asso. Prof.General Med	Member
16.	Dr.Shwana Asad	Asst.Prof General Surgery	Member

2 What Is A Study Guide?

It is an aid to Inform students how student learning program of the module has been organized, to help students organize and manage their studies throughout the module and guide students on assessment methods, rules and regulations.

2.1 The study guide:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings.

2.2 Module objectives.

- Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's performance.

2.3 Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

5.3: curriculum framework:

- Students will experience integrated curriculum.

2.4 Integrated curriculum:

An integrated curriculum is all about making connections, whether to real life or across the disciplines, about skills or aboutknowledge. An integrated curriculum fuses subject areas, experiences, and real-life knowledge together to make a more fulfilling and tangible learning environment for students. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples. Case based discussions, computer-based assignments, early exposure to clinics, wards, and skills acquisition in skills lab are characteristics of integrated teaching program.

3 Recommended List Of Icons

Introduction To Case

For Objectives

Critical Questions

Assessment

Resource Material

4 Table Of Specification

S. No.	Discipline RESP	Lectures (No. of hours)	LGD (No. of hours)	SGD/ Demonstration/ Dissection (No. of hours)	Practical (No. of hours)	Tutorials (No. of hours)	%age distribution of hours, subject wise		No. of MCQs	%age for MCQs	No. of OSPE	Viva Stations
1	Gross Anatomy	3	-	23	-	1 x 2	23.9%		12	24%	1	
2	Histology	3	-	-	3 x 2	-	5.1%	31.5%	4	8%	3	1
3	Embryology	3	-	-	-	-	2.5%		3	6%	0	
4	Physiology	12	4	12	6 x 2	1 x 2	36%		20	40%	3	1
5	Biochemistry	8		3	4 x 2	1 x 2	18%		8	16%	0	1
6	Pharmacology	2	-	-	-	-	1.7%		0	-	-	-
7	Pathology	1	-	-	-	-	0.8%		1	2%	-	-
8	Community medicine	1	-	-	-	-	0.8%		1	2%	-	-
9	Forensic medicine	1	-	-	-	-	0.8%		1	2%	-	-
10	General Medicine	1	-	-	-	-	0.8%		0	-	-	-
11	Pediatrics	-	-	-	-	-	-		0	-	-	-
12	Surgery	1	-	-	-	-	0.8%		0	-	-	-
13	Prime	7	-	-	-	-	0.8%		0	-	-	-
	Sub- Total	43	4	38	26	6	-		50	-	7	3
	Total	117 contact hours							50	-	10	
	Percentage distribution	36.7%	3.4%	32.4%	22.22%	5.12%			-	-	-	-

5 Organization of Module

5.1 Introduction To Respiratory Module

By the end of this module the student of Ayub Medical College Abbottabad should be able to **build** adequiate knowledge,attitude and skills to manage (Diagnose, Investigate, Treat, Refer, Prevent and Counsel) common respiratory diseases. The **Aim** of respiratory Module is to define the scope of Knowledge/ Skills/ Attitudes of a first year medical student of the Basic Medical Sciences i.e. Anatomy, Physiology and Biochemistry with the introduction to the Clinical Sciences and an **emphasis** on understanding of pulmonary functions and their abnormalities. Respiratory module is a 4 weeks' theme based module, followed by a block assessment. The contents of which will be taught in lectures, SGDs, DSLs and practical work. This module consists of the following themes:

1- Chest wall injury- 1 week
2- Cough and hemoptysis- 1 week
3- Breathlessness- 2 weeks
4- Chest wall injury- 1 week
5- Cough and hemoptysis- 1 week
6- Breathlessness- 2 weeks

5.2 Rationale

Respiratory module is combined with CVS and Respiration module (Total 9 weeks' duration) as defined by KMU and four weeks given to the Respiration module). 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

5.3 Teaching And Learning Strategies:

The following teaching / learning methods are used to promote better understanding:

1. Interactive Lectures
2. Hospital / Clinic visits
3. Small Group Discussion
4. Skills session
5. Self-Directed Study

- **Interactive lectures:**

An interactive lecture is an easy way for instructors to intellectually engage and involve students as active participants in a lecture - based class of any size.

- **Hospital / Clinic visits:**

In small groups, students observe patients with signs and symptoms in hospital or clinical settings. This helps students to relate knowledge of basic and clinical sciences of the relevant module.

- **Small group discussion (SGD):**

Students learn from each other. Everyone gets more practice at expressing their ideas. A two way discussion is almost always more creative than individual thoughts. Social skills are practiced in a 'safe' environment e.g. tolerance, cooperation.

- **Skills/Practical session:**

Skills relevant to respective module are observed and practiced where applicable in skills laboratory or Laboratories of various departments.

- **Self-Directed learning (SDL):**

Self-directed learning, which involves studying without direct supervision in a classroom/Library, is a valuable way to learn and is quickly growing in popularity among parents and students. Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Centre, teachers and resource persons wi thin and outside the college. Students can utilize the time within the college scheduled hours of self-study.

6 Learning Objectives

6.1 General Learning Outcomes

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

6.1.1 Knowledge

By the end of four weeks module AMC FIRST YEAR MBBS student should be able to;

1. Utilize the basic knowledge of the gross and microscopic anatomy, the physiology and the relevant biochemical processes of respiration in order to comprehend how this system works and what happens in disease process .
2. Diagnose common respiratory disorders based on knowledge of basic sciences and clinical data 3. Preventive strategies of different problems related to respiratory system
3. Describe the anatomy and abnormalities of thoracic cage
4. Describe the development and gross anatomy of the diaphragm
5. Describe the contents of mediastinum and their relations
6. Describe the anatomy of pleura and its reflections
7. Describe the gross and microscopic structure, development, nerve supply and blood supply of trachea, bronchi and lungs
8. Describe the epithelia and connective tissues lining the respiratory passageways.
9. Describe pulmonary ventilation
10. Discuss the mechanisms of gaseous exchange between alveoli, and blood and blood and tissues
11. Elaborate the transport of gases in the blood
12. Describe the mechanisms of regulation of respiration
13. Define hypoxia, and cyanosis
14. Describe the effect of aging on respiratory system
15. Describe the biochemical structure and functions of enzymes
16. Describe the mechanisms of O2 and CO2 transport in the blood
17. Classify anti-asthmatic and anti-tuberculous drugs
18. Describe the types and signs of asphyxia
19. Enlist the causes and signs of pneumonias, bronchial asthma, tuberculosis, Acute Respiratory Distress Syndrome (ARDS), and pulmonary edema
20. Describe the parameters of Pulmonary Function Tests (PFTs)
21. Understand what medications are available for treatment.
22. Describe issues related to Forensic Medicine
23. Enumerate the various symptoms of respiratory disorders

6.1.2 Skill

By the end of Four weeks respiration module the AMC student should be able to;

1. Draw a normal spirogram, labeling the four lung volumes and four capacities.
2. List the volumes that comprise each of the four capacities.
3. Identify which volume and capacities cannot be measured by spirometry.

4. Define the factors that determine total lung capacity, functional residual capacity, and residual volume.
5. Describe the mechanisms responsible for the changes in those volumes that occur in patients with emphysema and pulmonary fibrosis.
6. Differentiate between the two broad categories of restrictive and obstructive lung disease, including the spirometric abnormalities associated with each category.]
7. Examine the chest of the subject.
8. Calculate the respiratory rate of the subject.
9. Determine the peak expiratory flow (PEF) by peak flow meter.
10. Describe the use of inhaler
11. Demonstrate the use of inhaler to the subject.
12. Identify the various microscopic tissue types in the mRespiratory system

- Epithelium of the respiratory system
- Trachea
- Bronchi
- Bronchioles
- Alveoli

6.1.3 Attitude

By the end of four weeks respiratory module the AMC student should be able to

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 task
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
8. Demonstrate ethical self-management
9. Display compassion with patient and colleagues

6.2 Specific learning objectives (THEME BASED)

7- Chest wall injury- 1 week				
SUBJECT:				
ANATOMY			**Hours TOTAL**	**MIT**
TOPICS	**S. No**	**Learning Outcomes**	**12**	
1. GROSS ANATOMY OF	**1.**	Gross anatomy of thorax		Lecture

THORAX				
	2.	Describe the location and shape of the sternum		Lectures
	3.	Describe the parts of the sternum		Lectures
	4.	Describe the articulations and muscle attachments		Lectures
	5.	Describe the gross features of the thoracic vertebrae a. Vertebral body b. Intervertebral disc c. Laminae d. Pedicles e. Intervertebral foramina f. Processes g. Ligaments		Lectures
	6.	Differentiate between typical and atypical ribs.		Lectures
	7.	Describe different joints of thorax		Lectures
	8.	Discuss Intercostal muscles		Lectures
	9.	Discuss the contents of intercostal spaces		Lectures
	10.	Describe the origin of intercostal arteries		Lectures
	11.	Describe the origin, course and distribution of intercostal nerves		Lectures
	12.	Discuss branches and course of internal thoracic artery		Lectures
2.ABNORMALITIES OF THORACIC WALL	*13.*	Describe thoracic wall abnormalities and its clinical correlation		Lectures
DIAPHRAGM	*14*	Describe the origin and insertion of the diaphragm		Lectures
	15	Describe the openings of the diaphragm		Lectures
	16	Describe the nerve supply of diaphragm and its clinical significance		Lectures
MEDIASTINUM	*17*	Describe the contents of the superior mediastinum		Lectures
	18.	Describe the contents of the Anterior & Posterior Mediastinum		Lectures

	19	Describe the relations of different contents in mediastinum		Lectures
	20	Identify various anatomical landmarks on chest X-Rays, CT and MRI		Lectures
EMBRYOLOGY			**03**	
1.DEVELOPMENT OF DIAPHRAGM	*21.*	Describe development of diaphragm		Lectures
	22.	Describe diaphragmatic hernias and clinical significance		Lectures
2.DEVELOPMENT OF RIBS	*23*	Describe the development of ribs from costal elements of primitive vertebrae		Lectures
PHYSIOLOGY			**20**	
1.MECHANICS OF RESPIRATION	*24*	Describe the mechanics of respiration		Lectures
	25.	Describe the pressures that cause the movements of the air in and out of the lungs		Lectures
2.LUNG COMPLIANCE	*26.*	Define compliance of the lung and elastic recoil		Lectures
	27.	Identify two common clinical conditions in which lung compliance is higher or lower than normal.		Lectures
3.LUNG VOLUMES AND CAPACITIES	*28.*	Describe changes in the lung volume, alveolar pressure, pleural pressure, and trans-pulmonary pressure during normal breathing		Lectures
	29.	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. Explain the cause and significance of the hysteresis in the curves.		Lectures
	30.	Draw the pressure-volume (compliance) curves for the lungs, chest wall, and respiratory system on the same set of axes. Show and explain the significance of the resting positions for each of these three structures.		Lectures
SURGERY	*31*	Describe pneumothorax	***01***	Lectures
	32	Define Hydro pneumothorax		Lectures

THEME II: Cough and hemoptysis- 1 week

SUBJECT/TOPICS	**S.NO**	**LEARNING OUTCOMES**	**HOURS**	**MIT**
ANATOMY				
1 INTRODUCTION	33.	Describe the major components of the (upper and lower) respiratory system and describe their functions		Lectures
2. TRACHEA, BRONCHI AND LUNGS	34.	Describe trachea and bronchi with relations plus subdivisions		Lectures
	35.	Describe the neurovascular supply of trachea and bronchi		Lectures
	36.	Describe the surfaces anatomy of trachea and bronchi		Lectures
	37.	Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and compare between right and left lungs.		Lectures
	38.	Describe Broncho-pulmonary segments and their clinical importance		Lectures
	39.	Describe innervations, blood supply and lymphatic drainage of the lungs.		Lectures
EMBRYOLOGY				
DEVELOPMENT OF RESPIRATORY SYSTEM	40.	Describe development of trachea, bronchial tree, pleura, lungs		Lectures
	41.	Recognize the cephalo-caudal and transverse folding of embryonic disc		Lectures
	42.	Describe the extent of intra embryonic coelom after folding and its divisions into three serous cavities		Lectures
	43.	State the derivatives of visceral and parietal layers of mesoderm		Lectures
	44.	State the pericardio-peritoneal canals and their final fate		Lectures
	45.	Discuss the formation of Lung Bud		Lectures
HISTOLOGY				
RESPIRATORY EPITHELIUM AND CONNECTIVE TISSUES	46.	Classify the types of epithelia lining the various parts of respiratory system		Lectures
	47.	Differentiate between the histological differences among various parts of		Lectures

		respiratory system		
	48.	Describe the structure of trachea and its layer		Lectures
	49.	Discuss the microscopic picture of respiratory bronchiole, alveolar ducts, alveolar sacs and alveoli.		Lectures
	50.	Describe the different types of cells found in alveoli		Lectures
PHYSIOLOGY.				
1. FUNCTIONS OF RESPIRATORY PASSAGEWAYS	51.	Describe the respiratory and non-respiratory functions of the respiratory passageways		Lectures
	52.	Identify the mechanism by which particles are cleared from the airways.		Lectures
PHARMACOLOGY				
1. ANTI-ASTHMATIC DRUGS	53.	Enlist Anti-asthmatic drugs		Lectures
2. ANTI-TUBERCULOUS	54.	Classify Anti-tuberculous drugs		Lectures
PATHOLOGY				
1.PNEUMONIAS	55.	Define pneumonia and enlist the causative pathogens of pneumonia		Lectures
2. PULMONARY TUBERCULOSIS	56.	Define primary and secondary Tuberculosis and state its etiology		Lectures
3.BRONCHIAL ASTHMA	57.	Describe the etiology, pathogenesis and clinical features of asthma		Lectures
4.PULMONARY EDEMA	58.	Define pulmonary edema and classify it according to underlying causes		Lectures
COMMUNITY MEDICINE	59.	Discuss preventive strategies of different problems related to respiratory system		Lectures
1. PREVENTION OF RESPIRATORY DISORDERS	60.	Discuss the relationship of smoking with lung Diseases		Lectures
	61.	Describe preventive strategies for smoking		Lectures

MIT:mode of information transfer. E.g. lecture, SGD, DSL, Practical, skill lab etc etc

THEME–III: BREATHLESSNESS (2 week)

SUBJECT/TOPICS	S.NO	LEARNING OUTCOMES	HOURS	MIT
ANATOMY				
1.MECHANICS OF RESPIRATION	62.	Describe briefly mechanics of respiration		Lectures
2.PLEURA	63.	Describe the gross features of pleura		Lectures
	64.	Describe the pleural cavity and the pleural reflections		Lectures
	65.	Describe the surface anatomy related to pleural reflections		Lectures
EMBRYOLOGY				
1.DEVELOPMENT OF PLEURAL CAVITY	66.	Describe the development of pleural cavity		Lectures
HISTOLOGY				
	67.	Discuss surfactant, alveolar septum, alveolar pores and alveolar macrophages		Lectures
PHYSIOLOGY				
1.PULMONARY VENTILATION	68.	Define Pulmonary ventilation/Respiration		Lectures
	69.	Compare between the internal and external respiration		Lectures
	70.	Enlist the steps of external respiration accomplished by the respiratory system and those carried out by the circulatory system		Lectures
	71.	State the functions of Type I alveolar cells, Type II alveolar cells, and alveolar macrophages		Lectures
	72.	Describe the forces that keep the alveoli open and those that promote alveolar collapse.		Lectures
	73.	Define the following terms: anatomic dead space, physiologic dead space, wasted (dead space) ventilation, total minute ventilation and alveolar minute ventilation		Lectures
	74.	Compare anatomic and physiologic dead space		Lectures
	75.	Describe the basic concept of measurement of dead space		Lectures
	76.	Enlist the factors that changes the		Lectures

		dead space		
	77.	Define the following terms: hypoventilation, hyperventilation, hypercapnea, eupnea, hypopnea, and hyperpnea		Lectures
	78.	Define surface tension, surfactants, atelectasis		Lectures
	79.	Describe the role of surfactants on the lung compliance		Lectures
	80.	Describe the composition of the pulmonary surfactants and its role		Lectures
	81.	Describe the pathophysiology of respiratory distress syndrome of the newborn		Lectures
	82.	Discuss the work of breathing		Lectures
2.PULMONARY CIRCULATION	83.	Explain the physiologic anatomy of the pulmonary circulatory system		Lectures
	84.	Describe the pressures in the pulmonary circulatory system		Lectures
	85.	Describe blood volume of the lungs		Lectures
	86.	Describe blood flow through the lungs and its distribution		Lectures
	87.	Compare the systemic and pulmonary circulations with respect to pressures, resistance to blood flow, and response to hypoxia		Lectures
	88.	Describe the regional differences in pulmonary blood flow in an erect position		Lectures
	89.	Describe the consequence of hypoxic pulmonary vasoconstriction on the distribution of pulmonary blood flow		Lectures
	90.	Describe the pulmonary capillary dynamics		Lectures
	91.	Describe the development of pulmonary edema		Lectures
GAS EXCHANGE	92.	List the normal airway, alveolar, arterial, and mixed venous PO_2 and PCO_2 values.		Lectures
	93.	List the normal arterial and mixed venous values for O_2 saturation, $[HCO_3^-]$		Lectures
	94.	List the factors that affect diffusive		Lectures

		transport of a gas between alveolar gas and pulmonary capillary blood.		
	95.	Describe respiratory unit		Lectures
	96.	Describe the physiologic anatomy of the respiratory membrane and its significance		Lectures
	97.	Describe the factors that affect the rate of gaseous diffusion through the respiratory membrane		Lectures
	98.	Describe the diffusing capacity of respiratory membrane for O_2 and CO_2 at rest and exercise.		Lectures
	99.	Describe the effect of ventilation/perfusion (V/Q) ratio on alveolar gas concentrations.		Lectures
	100.	Identify the average V/Q ratio in a normal lung.		Lectures
	101.	Explain the concept of physiologic shunt and physiologic dead space		Lectures
	102.	Describe the abnormalities of ventilation perfusion ratio in normal lung and chronic obstructive lung disease		Lectures
	103.	Enlist common causes of hypoxemia		Lectures
TRANSPORT OF O_2 AND CO_2 IN THE BLOOD	104.	Define oxygen partial pressure (tension) oxygen content, and percent hemoglobin saturation as they pertain to blood.		Lectures
	105.	Describe Oxyhemoglobin dissociation curve (hemoglobin oxygen equilibrium curve) showing the relationships between oxygen partial pressure, hemoglobin saturation, and blood oxygen content.		Lectures
	106.	Describe the relative amounts of O2 carried bound to hemoglobin with that carried in the dissolved form		Lectures
	107.	State Henry's Law (the relationship between PO2 and dissolved plasma O2 content)		Lectures
	108.	Describe how the shape of the oxyhemoglobin dissociation curve influences the uptake and delivery of		Lectures

		oxygen.		
	109.	Define P50.		Lectures
	110.	Describe how the oxyhemoglobin dissociation curve is affected by changes in blood temperature, pH, PCO2, and 2,3-DPG.		Lectures
	111.	Describe how anemia and carbon monoxide poisoning affect the shape of the oxyhemoglobin dissociation curve, PaO2, and SaO2.		Lectures
	112.	List the forms in which carbon dioxide is carried in the blood		Lectures
	113.	Describe the percentage of total CO2 transported as each form		Lectures
	114.	Describe the chloride shift and its importance in the transport of CO2 by the blood.		Lectures
	115.	Describe the enzyme that is essential to normal carbon dioxide transport by the blood and its location		**L**ectures
	116.	Describe the carbon dioxide dissociation curves for oxy- and deoxyhemoglobin		Lectures
	117.	Describe the interplay between CO2 and O2 binding on hemoglobin that causes the Haldane effect.		Lectures
REGULATION OF RESPIRATION	118.	Describe the regions in the central nervous system that play important roles in the generation and control of cyclic breathing		Lectures
	119.	Give three examples of reflexes involving pulmonary receptors that influence breathing frequency and tidal volume. Describe the receptors and neural pathways involved.		Lectures
	120.	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		Lectures
	121.	Describe how changes in arterial PO2 and PCO2 alter alveolar ventilation, including the synergistic effects when		

		PO2 and PCO2 both change.		
	122.	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.		Lectures
	123.	Describe voluntary control of respiration		Lectures
	124.	Describe the effect of irritant receptors, J-receptors, brain edema and anesthesia on breathing.		Lectures
COMMON RESPIRATORY ABNORMALITIES	125.	Describe periodic breathing and basic mechanism of Cheyne-Stokes breathing		Lectures
	126.	Define sleep apnea		Lectures
	127.	Describe the pathophysiology of Obstructive sleep apnea and central sleep apnea		Lectures
	128.	Describe the pathophysiology of specific pulmonary abnormalities		Lectures
	129.	Describe hypoxia.		Lectures
	130.	Describe cyanosis		Lectures
	131.	Describe the effect of aging on lung volumes, lung and chest wall compliance, blood gases, and respiratory control		Lectures
BIOCHEMISTRY				
ENZYMES	132.	Define Enzymes		Lectures
	133.	Define activation energy		Lectures
	134.	Define Gibbs Free energy		Lectures
	135.	Explain the general structure of enzymes		Lectures
	136.	Define co-factors		Lectures
	137.	Explain the function of co-factors		Lectures
	138.	Enlist different types of co-factors		Lectures
	139.	Define different parts and forms of enzymes		Lectures
	140.	Describe the factors involved in structure of enzymes		Lectures
	141.	Describe the mechanism of Enzyme activity		Lectures

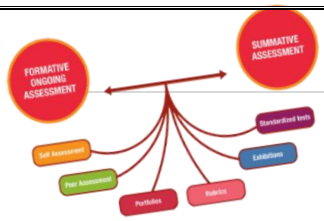
	142.	Define catalysis		Lectures
	143.	Explain different mechanism of catalysis		Lectures
	144.	Explain the Principals for Nomenclature of enzymes		Lectures
	145.	Classify Enzymes on the basis of functions		Lectures
	146.	Enlist the factors affecting the activity of enzymes		Lectures
	147.	Describe roles of factors affecting enzyme activity		Lectures
	148.	Define enzyme kinetics		Lectures
	149.	Explain different areas of enzyme kinetics		Lectures
	150.	Describe the role of Km in Enzyme kinetics		Lectures
	151.	Define Isoenzymes (Isozymes)		Lectures
	152.	Explain Factors affecting the properties of isozymes		Lectures
	153.	Application of enzymes in clinical diagnostics and therapeutics Profiles • Cardiac • Hepatic • Bone • GIT • Muscle • Tumours		Lectures
FORENSIC MEDICINES				
ASPHYXIA	154.	Define Asphyxia		Lectures
	155.	Describe different types of Asphyxia		Lectures
	156.	Identify classical signs of asphyxia		Lectures
MEDICINE				
1.2INTRODUCTION TO RESPIRATORY SYMPTOMATOLOGY	157.	Enumerate the various symptoms of respiratory disorders		Lectures

2. PFT`S	158.	Interpret the Pulmonary Function Tests		Lectures
	159.	Discuss acute lung injury and its correlation Acute Respiratory Distress Syndrome		Lectures
	160.	Describe the causes of Acute Respiratory Distress Syndrome		Lectures
	161.	Discuss the morphology of Acute Respiratory Distress Syndrome		Lectures

MIT:mode of information transfer. E.g. lecture, SGD, DSL, Practical, skill lab etc etc

Psychomotor and Affective domain				MIT
BREATHLESSNESS	**PHYSIOLOGY**	162.	Draw a normal spirogram, labeling the four lung volumes and four capacities.	Practical, skill lab
		163.	List the volumes that comprise each of the four capacities.	Practical, skill lab
			Identify which volume and capacities cannot be measured by spirometry	Practical, skill lab
			Define the factors that determine total lung capacity, functional residual capacity, and residual volume	Practical, skill lab
			Describe the mechanisms responsible for the changes in those volumes that occur in patients with emphysema and pulmonary fibrosis.	Practical, skill lab
			Differentiate between the two broad categories of restrictive and obstructive lung disease, including the	Practical, skill lab

			spirometric abnormalities associated with each category.	
			Examine the chest of the subject	Practical, skill lab
			Calculate the respiratory rate of the subject	Practical, skill lab
			Determine the peak expiratory flow (PEF) by peak flow meter	Practical, skill lab
			Describe the use of inhaler	Practical, skill lab
			Demonstrate the use of inhaler to the subject	Practical, skill lab
COUGH AND HEMOPTYSIS	**HISTOLOGY**		Identify the various micr in the Respiratory system • Epithelium o system • Trachea • Bronchi • Bronchioles • Alveoli	Practical, skill lab Pract



7 Examination and Methods of Assessment:

7.1 Block Assessment

Block Assessment consists of

- Theory Paper(MCQs, SAQs) and
- Skill assessment (OSPE).
  1. Non-Interactive/ Non-Observed Station:
  2. Interactive/Observed Station

7.2 Attendance Requirement:

More than 75% attendance is mandatory to sit for the examinations.

Table-1: Total marks distribution for papers C of year-1 (MBBS)

Year 1 Professional Exam in System-based Curriculum

Theory paper	Modules	Theory marks	Internal assessment theory (10%)	OSPE/OSCE	Internal assessment OSPE/OSCE (10%)	TOTAL MARKS
Paper C	CVS Respiratory	120	13	90	10	233

7.3 UNIVERSITY EXAM:

Exam has 90% (210) marks in total

7.4 INTERNAL EXAM:

- Students will be assessed comprehensively through multiple methods.
- 10% marks of internal evaluation will be added to the KMU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments.
- It has 10% (23 marks) of total exam.

7.5 Assessment tools:

- Theoretical knowledge is tested by a written examination system constituted by multiple choice questions (MCQ/SEQs).
- The assessment of practical knowledge involves oral, spot, or objective structured practical examinations (OSPE).

7.5.1 Multiple Choice Questions (MCQ/SEQs):

- Multiple choice questions (MCQ/SEQs) are a form of assessment for which students are asked to select the best choice from a list of answers.
- MCQ/SEQ consists of a stem and a set of options. The stem is usually the first part of the assessment that presents the question as a problem to be solved; the question can be an

incomplete statement which requires to be completed and can include a graph, a picture or any other relevant information.

- The block exam will comprise of 120 MCQ/SEQs and will be compiled according to the shared blueprint.

7.5.2 Short Essay Questions (SEQ)

Short answer questions generally ask for brief, text-based responses and may also be referred to as *fill-in-the-blank*; or *completion* questions.

7.5.3 Objective Structured Practical Examination (OSPE)

- The content may assess application of knowledge, or practical skills.
- Student will complete task in define time at one given station.
- All the students are assessed on the same content by the same examiner in the same allocated time.
- A structured examination will have observed, unobserved, interactive and rest stations.
- Observed and interactive stations will be assessed by internal or external examiners.
- Unobserved will be static stations in which students will have to answer the questions related to the given pictures, models or specimens the provided response sheet.
- Rest station is a station where there is no task given, and in this time student can organize his/her thoughts.

The Block OSPE will be comprise of 16 examined station and 6 rest stations. The stations will be assigned according to the shred blueprint.

Table 2. Distribution of 13 Marks for block C paper (internal Assesment)

THEORY PAPER	**INTERNAL ASSESSMAENT THEORY** (10%)		**INTERNAL ASSESSMAENT OSCE/OSPE(10%)**	
Paper c	Anatomy	(06)	Anatomy	03
	Physiology	(05)	Physiology	06
	Biochemistry	(2)	Biochemistry	01
	Total	13	Total	10

Paper-C: Respiratory (internal Assesment)

Table-3: MCQs

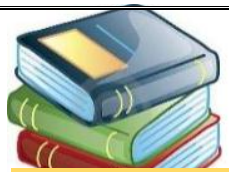
Subject	Respiratory module
Gross Anatomy	12
Histology	4
Embryology	3
Physiology	20
Biochemistry	8
Pharmacology	0

Pathology	1
Community medicine	1
Forensic medicine	1
Total	**50**

Table-4: OSPE External Assesment

Subject	CVS module	Viva stations	Respiratory module	Viva stations	Total OSPE stations (for final exam*)
Gross Anatomy	4	1	1	1	5
Histology	3		3		
Embryology	0		0		
Physiology	7	1	3	1	5
	2	1	0	1	2
Total	16	3	7	3	12+6 (viva)=18

*out of total of 23 OSPE stations, 12 will be allocated for final exam plus 6 viva stations. A minimum of 18 stations will be used in final exams.



8 Learning Opportunities and Resources

8.1 Instruction

Apart from these resource learning ,students can consult books available in library or recommended by the specialty experts.

8.2 Books:

Gross Anatomy	1. Netter`s "Atlas of Human Anatomy-6th Edition 2. Gray`s Anatomy-4th Edition 3. Cunningam`s "Textbook of Anatomy'-12th Edition 4. Snell`s Clinical Anatomy by regions-9th Edition 5. Snell`s Clinical Neuroanatomy-7th Edition 6. Last`s Anatomy-10th Edition
Embryology	1. Langman`s Medical Embryology-14th Edition 2. The Developing Human "by Keith L Moore"-10th Edition
Histology	1. Textbook of Histology "by Leslie Gartner-3rd Edition 2. Basic Histology-Text and Atlas- "by Luiz Carlos-11th Edition
Physiology	1. Guyton`s "Textbook of Medical Physiology"-13th edition 2. Ganong`s "Review Of Medical Physiology"-25th Edition 3. "Human Physiology-From cell to system" *by Lauralee Sherwood*-8th Edition
Biochemistry	1. Harper`s Biochemistry-31st Edition 2. Principles of Medical Biochemistry-3rd Edition 3. Lippincot`s Biochemistry-6th Edition
Pharmacology	1. Katzung`s Basic and Clinical Pharmacology-12th Edition
Pathology	1. Robbin`s Basic Pathology-9th Edition
Community Medicine	1. Community medicin by Parikh 2. Community medicine by M Ilyas 3. Basic Statistics for the Health Sciences by Jan W Kuzma
Medicine	1. Davidson`s Principles and Practice of Medicine-22nd Edition
Clinical Examination	1. Talley and O'Connor's Clinical Examination-6th Edition
Forensic Medicine	

8.3 Website:

8.3.1 Anatomy:

1. http://files.readmedbooks.com/anatomy/netter-atlas-7.pdf
2. file:///C:/Users/dell/Desktop/Gray's%20Anatomy-The%20Anatomical%20Basis%20of%20Clinical%20Practice%2041st%20Edition%20-%202015%20[MSCambo].pdf
3. https://worldofmedicalsaviours.com/cunninghams-manual-of-practical-anatomy/
4. https://ia802606.us.archive.org/16/items/pdfy-d-PFUmAhPcw_n7EV/snell%20clinical%20anatomy%20by%20regions%209th%20ed%202012_2.pdf

5. http://med-mu.com/wp-content/uploads/2018/06/Snell-Neuroanatomy-7th-Edition.pdf
6. http://files.readmedbooks.com/anatomy/lasts-anatomy.pdf

8.3.2 Embryology

1. https://bhumikapalrocks.files.wordpress.com/2016/02/langmans-medical-embryology-12th-ed.pdf
2. https://mymedicallibrary.files.wordpress.com/2016/08/the-developing-human-edition-8th.pdf

8.3.3 Histology

1. file:///C:/Users/dell/Desktop/(Lib-Ebooks.com)150320212213%20(4).pdf
2. file:///C:/Users/dell/Desktop/pdfcoffee.com_2002-basic-histology-by-luis-carlos-junqueira-text-amp-atlas-10th-edition-mcgraw-hill-appleton-amp-lange-pdf-free.pdf

8.3.4 Physiology:

1. https://med-mu.com/wp-content/uploads/2018/06/Guyton-and-Hall-Textbook-of-Medical-Physiology-12th-Ed-PDFtahir99-VRG.pdf
2. https://medicostimes.com/guyton-medical-physiology-pdf/
3. https://ia903208.us.archive.org/23/items/GanongsReviewOfMedicalPhysiology25thEdition/Ganongs%20Review%20of%20Medical%20Physiology_%2025th%20Edition.pdf
4. https://worldofmedicalsaviours.com/medical-books/mbbs/physiology/sherwood-human-physiology.pdf

8.3.5 Biochemistry:

1. file:///C:/Users/dell/Desktop/harpers-illustrated-biochemistry-28th-edition.pdf
2. http://repository.stikesrspadgs.ac.id/69/1/Principles%20of%20Medical%20Biochemistry%20Meisenberg%20Simmons-635hlm.pdf
3. https://worldofmedicalsaviours.com/medical-books/mbbs/biochemistry/lippincotts-Illustrated-reviews-series.pdf

8.3.6 Pharmacology:

1. https://pharmacomedicale.org/images/cnpm/CNPM_2016/katzung-pharmacology.pdf

8.3.7 Community Medicine:

1. https://drive.google.com/file/d/1kG_04GUfxSOxsdRaucxJ-jykVgc-BZT0/view
2. https://barlybeltatimen.wixsite.com/charratttisri/post/ilyas-ansari-community-medicine-book-free-46
3. https://psebooks.club/-/reader-roman/#/flow=gHqRV5+cdn.bkfd4.club/q=Basic%20Statistics%20for%20the%20Health%20Sciences/

8.3.8 Forensic medicine:

1. https://www.ojp.gov/ncjrs/virtual-library/abstracts/parikhs-text-book-medical-jurisprudence-and-toxicology-classrooms

8.3.9 Medicine:

1. https://drive.google.com/file/d/0B8VbbFBwhaS8a2ZlaXllMGNwMmc/view?resourcekey=0-cJj3WGul40Avx4G5U1gX2A

Clinical Examination:

1. https://www.docdroid.net/mQ9vDWs/talley-and-oconnors-clinical-examination-8th-edition-pdfdrivecom-pdf

9 Timetables

AYUB MEDICAL COLLEGE ABBOTTABAD
TIME TABLE OF 1ST YEAR MBBS CLASS
CVS & RESPIRATION MODULE (Week-01)

Days	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 to 12:00	12:00 – 12:45	12:45 – 1:15	1: 15 – 3:00
	DISSECTION						**PRACTICAL**
Monday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Shazia Heart (LH-1)	Biochemistry Dr. Ayesha Awan (LH-1)	PRIME Surgery Dr. Amjad Farooq (LH-1)	PRAYER BREAK	Batch A: Anatomy Batch B: Physiology Batch C: Biochemistry Batch D: Tutorial
Tuesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Raisa Respiration (LH-1)	Pharmacology Dr. Nauman Iqbal (LH-1)	Physiology Dr. Sahar CVS (LH-1)		Batch A: Tutorial Batch B: Anatomy Batch C: Physiology Batch D: Biochemistry
Wednesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Sahar CVS (LH-1)	Embryology Dr. Robina (LH-1)	Pakistan Studies (LH-1)		Batch A: Biochemistry Batch B: Tutorial Batch C: Anatomy Batch D: Physiology
Thursday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Sahar CVS (LH-1)	Biochemistry Dr. Noreen (LH-1)	Gross Anatomy Dr. Humaira (LH-1)		Batch A: Physiology Batch B: Biochemistry Batch C: Tutorial Batch D: Anatomy
Friday	Histology Dr. Sumera (LH-1)	Physiology Dr. Sahar CVS (LH-1)	Physiology Dr. Raisa Respiration (LH-1)	Physiology Dr. Shazia Heart (LH-1)	Islamiat (LH-1)		HALF DAY

This time table is tentative and subject to changes needed according to the situation at the commencement of module

Dr. Shazia Tauqeer
Assistant Professor
Department of Physiology
Ayub Medical College Abbottabad

Associate Dean (UG)
Ayub Medical College
Abbottabad

AYUB MEDICAL COLLEGE ABBOTTABAD
TIME TABLE OF 1ST YEAR MBBS CLASS
CVS & RESPIRATION MODULE (Week-02)

Days	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 to 12:00	12:00 – 12:45	12:45 – 1:15	1: 15 – 3:00
	DISSECTION						**PRACTICAL**
Monday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Shazia Heart	Physiology Dr. Sahar CVS	PRIME Community Medicine Dr. Junaid	PRAYER BREAK	Batch A: Anatomy Batch B: Physiology Batch C: Biochemistry Batch D: Tutorial
Tuesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Sahar CVS	Pharmacology Dr. Mehwish Gul	Physiology LGD		Batch A: Tutorial Batch B: Anatomy Batch C: Physiology Batch D: Biochemistry
Wednesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Sahar CVS	Embryology Dr. Robina	Pakistan Studies		Batch A: Biochemistry Batch B: Tutorial Batch C: Anatomy Batch D: Physiology
Thursday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Raisa Respiration	Biochemistry Dr. Noreen	Gross Anatomy Dr. Humaira		Batch A: Physiology Batch B: Biochemistry Batch C: Tutorial Batch D: Anatomy
Friday	Histology Dr. Sumera	Physiology Dr. Sahar CVS	Physiology Dr. Raisa Respiration	Physiology Dr. Shazia Heart	Islamiat		HALF DAY

Dr. Shazia Tauqeer
Assistant Professor
Department of Physiology
Ayub Medical College Abbottabad

Associate Dean (UG)
Ayub Medical College
Abbottabad

This time table is tentative and subject to changes needed according to the situation at the commencement of module

AYUB MEDICAL COLLEGE ABBOTTABAD
TIME TABLE OF 1ST YEAR MBBS CLASS FOR THE SESSION 2020
CVS & RESPIRATION MODULE (Week-03)

Days	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 to 12:00	12:00 – 12:45	12:45 – 1:15	1: 15 – 3:00
	DISSECTION						**PRACTICAL**
Monday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Shazia Heart	Physiology Dr. Sahar CVS	PRIME Community Medicine Dr. Junaid	PRAYER BREAK	Batch A: Anatomy Batch B: Physiology Batch C: Biochemistry Batch D: Tutorial
Tuesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Raisa Respiration	Pharmacology Dr. Maha Aziz	Physiology LGD		Batch A: Tutorial Batch B: Anatomy Batch C: Physiology Batch D: Biochemistry
Wednesday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Sahar CVS	Embryology Dr. Robina	Pakistan Studies		Batch A: Biochemistry Batch B: Tutorial Batch C: Anatomy Batch D: Physiology
Thursday	Batch A: Batch B: Batch C: Batch D:		Physiology Dr. Raisa Respiration	Biochemistry Dr. Noreen	Gross Anatomy Dr. Humaira		Batch A: Physiology Batch B: Biochemistry Batch C: Tutorial Batch D: Anatomy
Friday							HALF DAY

This time table is tentative and subject to changes needed according to the situation at the commencement of module

Dr. Shazia Tauqeer
Assistant Professor
Department of Physiology
Ayub Medical College Abbottabad

Associate Dean (UG)
Ayub Medical College
Abbottabad

The timetables for the module will be shared via Edmodo and the notice boards in advance.

10 For inquiry and troubleshooting

Please contact
Dr Shazia Tauqeer, Assistant Professor, Department of Physiology, Ayub Medical College, Abbottabad, Pakistan.

Cell: +92-3335286502

Email: shazia_tauqeer@hotmail.com

11 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% - l00%	( )	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!!