STUDY GUIDE	
PROGRAM	**MBBS**
MODULE TITLE	**RESPIRATORY SYSTEM- II**
ACADEMIC YEAR	**3rd Year, 2026**
INTRODUCTION	Respiratory diseases like Asthma and Tuberculosis are still common in Pakistan. Along with these, oncological conditions are not unheard of and are a cause of concern. This module builds on Respiratory 1 in which students have learned the normal respiratory structures and functions. This module provides the learners with the abnormal functions and corrective measures that need to be taken in order to restore health and preventillnesses.
RATIONALE	In order to understand the basis of respiratory system related disorders which the students of 3rd year MBBS will come across in their clinical postings, it is imperative that they have a firm grasp on the underlying mechanisms of the diseases and their treatment and prevention aspects.
OUTCOMES	**By the end of the module, students should be able to:** • justify initial plans of management and prevention of common respiratory system-related disorders based on knowledge of Pathology, Pharmacology and Community Medicine. • Discuss medico-legal aspects related to the respiratory system
DEPARTMENTS INVOLVED	1. Community Medicine 2. Forensic Medicine & Toxicology 3. Internal Medicine 4. Pathology & Microbiology 5. Pharmacology 6. Surgery

MODULE OBJECTIVES	By the end of the module, the students will be able to:
LECTURES **COMMUNITY MEDICINE**	**1. Introduction to Occupational health & Diseases** • Describe occupational health • Classify occupational health diseases • Discuss measures for prevention and control of occupational health diseases • Describe Lead poisoning **2. Pneumoconiosis and its prevention** • Define pneumoconiosis • List pneumoconiosis diseases • Discuss the control and prevention of pneumoconiosis **3. Pulmonary tuberculosis and its prevention** • Discuss the causative organism of tuberculosis • Explain why Tuberculosis remains a world-wide problem • List Epidemiological indices of tuberculosis • Explain TB-DOTS Therapy • Discuss Tuberculosis situation in Pakistan • Discuss the control and prevention of tuberculosis **4. Asthma and its prevention** • Describe Asthma • Explain the clinical features & diagnosis criteria of Asthma • Discuss the control and prevention of Asthma **5. Chicken pox and its prevention** • Describe Chickenpoxdisease • Describe the epidemiology, clinical features and diagnosis criteria of Chicken po

6. Discuss the control and prevention of Chicken pox

7. Influenza and its prevention

- Describe influenza
- Discuss the history of Spanish flu pandemic
- Describe the epidemiology, clinical features and diagnosis criteria of influenza
- Discuss the control and prevention of influenza

8. Diphtheria and its prevention

- Discuss the epidemiology of Diphtheria
- Explain the risk factors, consequences & clinical features of Diphtheria
- Discuss the control and prevention of Diphtheria

9. Measles and its prevention

- Describe the etiology, epidemiology and clinical features of measles
- Explain the diagnostic criteria of measles
- Discuss the control and prevention of measles

10. Pertussis and its prevention

- Describe the etiology, epidemiology and clinical features of pertussis
- Explain the diagnostic criteria of pertussis
- Discuss the control and prevention of pertussis

11. Air Pollution

- Discuss the situation of air pollution
- List the sources of air pollution
- Explain the effects of air pollution on health

- Discuss the concept of greenhouse effects
- Describe the concept of global warming and ozone depletion
- Discuss the methods to control air pollution

11. Pneumonia, SARS & COVID-19

- Definepneumonia
- Classify different types of pneumonia
- Explain themode of transmission andpredisposingfactorsof pneumonia
- Describe the measures for control and prevention of Pneumonia and SARS
- Describe COVID-19
- Discuss the epidemiology of COVID-19
- Explain clinical features of COVID-19
- Describe the measures for control and prevention of COVID-19

12. Tobacco Control

- Discuss the health effects of Tobacco
- List the objectives of Tobacco Free Initiative of Pakistan
- Define passive smoking and pack years classification of Smoking
- Describe the model of behavior change for Smoking
- Cessation and MPOWER strategy of tobacco control
- Discuss WHO's " Tobacco- Free Initiative"

FORENSIC MEDICINE	**1. Asphyxia I** • Define asphyxia • Summarize the etiology, pathophysiology and classic signs of asphyxia • Enumerate the different types of asphyxia and violent asphyxia deaths • Classify tissue anoxia according to Gordon's classification • List the different types of hanging • Explain the autopsy findings and medico legal importance of hanging • Differentiate between ante-mortem and post-mortem hanging **2. Asphyxia II** • Diagnose strangulation, throttling, suffocation, smothering, gagging and choking based on scenarios • Discuss the mechanism, diagnostic features, and autopsy findings of traumatic asphyxia **3. Asphyxia III** • Define the types, mechanism and postmortem findings of drowning • Describe the causes of death due to drowning • Highlight the importance of diatoms in deaths by drowning • Define Sexual asphyxia (auto-erotic hanging) **4. Toxicology– Organophosphate insecticides poisoning** • Listcommonly used insecticides • Classify organophosphate compounds • Describe the mode of action, signs and symptoms, treatment,

	postmortem findings and medico legal importance of organophosphate and Carbamate poisoning **5. Toxicology- Chloro group of insecticides (D.D.T.)** • Describe the mode of action, signs, symptoms, treatment and postmortem findings of DDT Poisoning **6. Spinal Poisons** • Describe the mode of action, signs and symptoms, treatment, postmortem findings and medico legal aspects of poisoning by Strychnine and other spinal poisons **7. Therapeutic Poisons-I (Barbiturates, Diazepam and Tranquilizers)** • Describe the mode of action, signs and symptoms depending upon concentration in blood, treatment and postmortem findings of poisoning by Barbiturates, Diazepam and tranquilizers (therapeutic poisons).

INTERNAL MEDICINE	**1. Asthma** • Describe the clinical features, differential diagnosis, complications, grading and investigations for Asthma • Discuss the emergency and long-term treatment of Asthma **2. Chronic Obstructive Pulmonary Diseases** • Describe the etiology, clinical features, investigations for Chronic Bronchitis and Emphysema • Discuss the treatment plan for each of these conditions **3. Pneumonia** • Classify Pneumonia • Explain the etiology, clinical features, investigations for the
	various types of pneumonia • Discuss the treatment plan for each of these conditions **4. Tuberculosis** • Classify Tuberculosis • Describe the etiology, clinical features and investigations for T

PATHOLOGY &MICROBIOLOGY	**1. Congenital Anomalies of respiratory system, Atelectasis, Pulmonary edema** • Define Atelectasis and Pulmonary edema • List the types of congenital anomalies, Atelectasis and Pulmonary edema • Describe the embryologic pathology, microscopic and clinical features of Congenital anomalies of Respiratory system • Discuss the classification, pathogenesis, morphology, causes and clinical features of Atelectasis and Pulmonary edema • Differentiate between pathogenesis of hemodynamic and microvascular alveolar injury **2. Acute Lung Injury (ALI) and Acute Respiratory Distress Syndrome (ARDS)** • Define ARDS and ALI • List the conditions associated with development of ARDS Discuss pathogenesis, morphological and clinical features of ARDS/ ALI **3. Obstructive Lung Diseases I (Emphysema, Chronic Bronchitis)** • Define emphysema and chronic bronchitis • Classify emphysema • Describe the various clinical forms of emphysema. • Discuss the etiology, pathogenesis, morphology and clinical features of emphysema and chronic bronchitis

	4. Obstructive Lung Diseases II (Asthma, Bronchiectasis) • Define asthma and bronchiectasis • Classify asthma • List the causes of asthma and bronchiectasis • Discuss the etiology, pathogenesis, morphology and clinical features of asthma and bronchiectasis **5. Chronic Interstitial Restrictive Lung Diseases** • Define restrictive diseases of lung (idiopathic pulmonary fibrosis, Nonspecific Interstitial Pneumonia, Cryptogenic Organizing Pneumonia, pneumoconiosis and Pulmonary Involvement in Autoimmune Diseases) • Classify restrictive diseases of lung • Discuss the etio-pathogenesis, morphology and clinical features of Chronic Interstitial restrictive lung diseases (idiopathic pulmonary fibrosis, Nonspecific Interstitial Pneumonia, Cryptogenic Organizing Pneumonia, pneumoconiosis and Pulmonary Involvement in Autoimmune Diseases) **6. Pneumoconiosis** • Define Pneumoconiosis • List the causative agents of Pneumoconiosis • Discuss the pathogenesis, morphology and clinical features of Pneumoconiosis **Granulomatous diseases (Sarcoidosis, hypersensitivity pneumonitis, pulmonary eosinophilia, Smoking related interstitial diseases)**

- Define granulomatous diseases (Sarcoidosis)
- Classify granulomatous diseases (Sarcoidosis)
- Discuss the pathogenesis, morphology and clinical features of Granulomatous diseases

8. Pulmonary Infections (Pneumonia)

- Define pneumonia
- Classify pneumonia. (community acquired pneumonia, hospital acquired pneumonia, healthcare associated pneumonia, aspiration pneumonia, chronic pneumonia, necrotizing pneumonia and pneumonia in the immunocompromised host)
- Discuss the morphology, pathogenesis, clinical features and diagnosis of Pulmonary infections (Pneumonia)
- Briefly discuss aspiration pneumonia and lung abscess

9. Pulmonary tuberculosis

- Define Pulmonary tuberculosis
- Discuss the morphology, pathogenesis, clinical features (primary, secondary latent and military) laboratory investigations of pulmonary tuberculosis.

10. Lung Tumors I

- Classify broadly the lung tumors
- Describe the histological classification of malignant epithelial lung tumors
- Discuss the precursor(pre-invasive) lesions of lung carcinoma
- Discuss the risk factors, pathogenesis, molecular profile and morphology of lung carcinoma.

11. Lung Tumors II

- Discuss the international staging (TNM) for lung cancer.
- Discuss the local effects (Secondary Pathology) and clinical course of lung tumor spread.
- Discuss the pathogenesis, morphology and clinical features of neuroendocrine neoplasm of lung (Carcinoid tumor).
- List the Mesenchymal tumors of lung.
- Briefly discuss hamartoma of lung and metastatic tumors of lung.

12. Pleural pathology (pleural effusion, Pneumothorax, pleural tumors)

- Briefly discuss pleural effusion and pneumothorax
- Discuss the pathogenesis, morphology and clinical course of pleural tumors

13. Pulmonary vascular diseases

- Define pulmonary vascular diseases (pulmonary embolisms, hemorrhage, infarction, hypertension and diffuse pulmonary hemorrhage syndrome)
- List the risk factors of pulmonary vascular disease
- Discuss the pathogenesis, morphology and clinical features of pulmonary vascular disease

MICROBIOLOGY

14. Bacteria and Fungi causing pneumonia

- List the bacteria causing pneumonia
- Discuss the important properties, transmission, epidemiology & pathogenesis of Streptococcus pneumonia, Aspergillus, Histoplasma, Blastomyces, Mucor and Rhizopus
  Describe clinical findings and laboratory diagnosis of these organisms

15. Mycobacterium Tuberculosis

- Discuss the important properties, transmission, epidemiology, & pathogenesis of Mycobacterium Tuberculosis
- Describe clinical findings and laboratory diagnosis of M. Tuberculosis

16. Mycobacterium Leprae and Atypical Mycobacteria

- Discuss the important properties, transmission, epidemiology, & pathogenesis of Mycobacterium Leprae
- Describe clinical findings and laboratory diagnosis of M. Leprae
- Brieflydescribe Atypical Mycobacteria

17. Gram positive and negative rods

- Discuss the important properties, transmission, epidemiology, & pathogenesis of Corynebacterium diphtheria, Hemophilic, Bordet Ella, Legionella
- Describe the clinical findings and laboratory diagnosis of infections caused by these bacteria

18. Respiratory viruses I

- Discuss the important properties, transmission, epidemiology, & pathogenesis of Influenza and Parainfluenza, Respiratory Syncytial virus.
- Describe replication cycle, clinical findings and laboratory diagnosis of respiratory virus

19. Respiratory viruses II

- Discuss the important properties, transmission, epidemiology, & pathogenesis of Adenovirus, Coronavirus, Rhinovirus

  Describe replication cycle, clinical findings and laboratory

  Diagnosis of these respiratory viruses.

	20. Childhood viruses • Discuss the important properties, transmission, epidemiology, & pathogenesis of Measles, Mumps, Rubella viruses, Varicella Zoster Virus • Describe replication cycle, clinical findings and laboratory diagnosis of childhood viruses **21. Bacteria causing atypical pneumonia** • Define atypical pneumonia • Discuss the important properties, pathogenesis of No cardia, Actinomycetes and Mycoplasma • Describe clinical findings and laboratory diagnosis of No cardia, Actinomycetes and Mycoplasma
PHARMACOLOGY	**1. Drugs used in the treatment of Bronchial Asthma & COPD I & II** • Classify drugs used in the treatment and prevention of bronchial asthma and COPD • Discuss their basic and clinical pharmacology **2. Drug used in the treatment of Tuberculosis** • Classify anti-tuberculosis drugs • Discuss the therapeutic classification of Anti-Tuberculosis Therapy (ATT) according to WHO • Describe mode of action, toxicity and contraindications of ATT • Describe the drugs used in multi-drug resistant tuberculosis Explain the drug management of extensive multi- drug resistant tuberculosis

	3. Drug used in the treatment of Leprosy • Classify anti-leprosy drugs. • Describe the pharmacokinetics, and pharmacodynamics of anti-leprosy drugs **4. Histamine & Anti-Histamines** • Discuss the properties and role of histamine • Classify anti-histamines • Discuss their basic & clinical pharmacology **5. Anti-Tussives & Mucolytic (Expectorants)** • Describe the anti-tussives & mucolytic drugs • Discuss their basic and clinical pharmacology.
SURGERY	**1. Acid Base Balance** • Diagnose common acid-base disturbances in the surgical context • Discuss the underlying pathophysiology of each type of disturbance • Develop outline of management plan for each disturbance **2. Benign Diseases of Lungs** • Classifybenignlungdiseases in thesurgical context • Discuss the pathophysiology of the conditions • Develop outline of management plan for each **3. Benign Tumors of Thorax** • Classify benign tumors of thorax • Discuss the pathophysiology of the conditions
	• Develop outline of management plan for each • Discuss the prognosis of each condition

TUTORIALS **Community Medicine**	**Pneumoconiosis** • Define pneumoconiosis and explain its classification • Recognize the characteristic clinical presentations and symptoms of different types of pneumoconiosis • Outline the principles of management and prevention of pneumoconiosis progression. • Design basic workplace intervention strategies for pneumoconiosis Prevention.
FORENSC MEDICINE	**1. Toxicology- Irrespirable /Asphyxiants gases I (CO_2& Sewer gas poisoning)** • Describe the mode of action, signs and symptoms, treatment, postmortem findings and medico legal aspects of CO_2 & sewer gas poisoning **2. Toxicology- Irrespirable/Asphyxiants gases II (Carbon monoxide, Hydrogen sulphide and War gases poisoning)** • List the sources of Carbon monoxide • Describe the mode of action, signs and symptoms, treatment, postmortem findings and medico legal aspects of Carbon monoxide and hydrogen Sulphide poisoning • Classify war gases • Describe lacrimators and their treatment **3. Toxicology-Aluminum Phosphide & Paraquat poisoning** • List the sources of Aluminum phosphide and Paraquat • Describe the mode of action, signs, symptoms, treatment, postmortem findings and medico legal aspects of Aluminum phosphide and Paraquat poisoning

	4. Toxicology Naphthalene Poisoning • Describe the mode of action, signs, symptoms, treatment, postmortem findings and medico legal aspects of Naphthalene poisoning
PHARMACOLOGY	**1. Drugs used in the treatment of Bronchial Asthma & COPD (I& II)** • Discuss the treatment of bronchial asthma and COPD. • Discuss the basic and clinical pharmacology of drugs used in the treatment of bronchial asthma and COPD **2. Anti-Tuberculosis & Anti-Leprosy Drugs** • Discuss anti-tuberculosis and anti-leprosy drugs with regards to their basic and clinical pharmacology. **3. Anti-Tussives & Mucolytic (Expectorants)** • Discuss anti-tussives and mucolytic drugs. • Explain the role of anti-tussives and mucolytic drugs in respiratory tract diseases. • Discuss the basic and clinical pharmacology of anti-tussives and mucolytic drugs
PATHOLOGY & MICROBIOLOGY	**2. Histopathology of Chronic Obstructive Pulmonary Disease (COPD)** • Discuss the histopathology of Chronic Obstructive Pulmonary Disease **3. Histopathology of pneumonia** • Discuss the etiology and morphology of pneumonia. **4. Histopathology of Pulmonary Tuberculosis** • Discuss detailed morphology and pathogenesis of Pulmonary Tuberculosis

	4. Pathology of lung tumors • Discuss the etiology, morphology and manifestations of lung tumors. **5. Laboratory Diagnosis of Tuberculosis** • Discuss the principle, procedure and result of acid fast staining • Discuss PPD, IGRA and NAAT.
PHARMACOLOGY	**1. Methods of Administration of drugs in treatment of bronchial Asthma** • Demonstrate the different methods of administration of drugs used in the treatment of bronchial asthma • Discuss their clinical importance **2. Effects of Histamine and Anti-histamine/Salbutamol on isolated trachea of a rabbit** • Demonstrate the pharmacological action of histamine and anti-histamine drugs on isolated trachea of Rabbit • Compare these actions with Salbutamol by using Power Lab System
SKILLS LAB	**1. Respiratory System Examination** • Auscultation of lungs & abnormal sound
INTERNAL ASSESSMENT	• The details of internal assessment will be determined by the respective institutions • Internal assessment carries 20% weightage in the final, end-of-year examination.
ANNUAL EXAMINATION	• MCQs and OSPE (unobserved and Observed)
MODULE EVALUATION	• The module will be evaluated according to HEC & JSMU policies.