**LECTURE SYLLABUS**

**(General medicine)**

**Pathophysiology of the respiratory system**

1. **INTRODUCTION AND BASIC CHARACTERISTICS OF RESPIRATION** Specifics of the system, characteristics and importance of the respiratory diseases.

Possibilities of influencing them

Definition of respiration

Classification of respiration (external, internal); characteristics of respiratory diseases

Correct breathing, subjective and objective factors, smoking

Further roles of lungs except respiration

1. **BASIC MECHANISMS OF RESPIRATION**

Ventilation (principle, ventilatory disorders)

Diffusion (principle)

Perfusion (principle and specifics)

Control of breathing;

Composition of air

Right breathing, subjective and objective factors, smoking

Basic lung volumes and capacities (static, dynamic)

Defensive respiratory reflexes

1. **PATHOPHYSIOLOGY OF RESPIRATORY DISEASES SYMPTOMS**

Cough – mechanism, types (productive; nonproductive); complications (syncope, cough fractures; pneumothorax).

Chest pain – pleural pain; pain in some respiratory disorders (pulmonary embolism, pneumothorax; pulmonary hypertension, pneumonia; tbc; malignancy), clubbing of fingers

Dyspnea – definition; types (paroxysmal nocturnal; sleep apnea sy; orthopnea; platypnea; inspiratory; expiratory).

1. A**BNORMALITIES OF THE VENTILATION, DIFFUSION, PERFUSION AND CONTROL OF BREATHING**

Restrictive ventilatory disorders – mechanisms, examples, impact on spirometric values

Obstructive ventilatory disorders – mechanisms, examples, impact on spirometric values

Diffusion – diffusion capacity; alveolar – capillary block sy.; Capillary blood volume – key factor of decreased or increased DC

Perfusion - mechanisms and examples of disturbances, adequacy of ventilation and perfusion, distribution of pulmonary blood flow (DPBF), pulmonary hypertension, stasis, edema

Control of breathing disturbances –examples mechanisms, types, (hyperventilation, hypoventilation, hyperpnoea and some pathological forms in pulmonary disorders

Cooperation of receptors system (airways and lungs, peripheral, central chemoreceptors)

1. **HYPOXEMIA, HYPOXIA**

Definition; types, mechanisms (hypoxic, anemic, circulatory or stagnated, histotoxic);cyanosis

Arterial hypoxia **-** mechanisms; types (hypoventilation, decreased diffusion, ventilation – perfusion imbalance; right to left shunting of blood, breathing air with a low PO2)

1. **SOME OTHER RESPIRATORY PATHOLOGIES**

Bronchial asthma – typical chronic obstructive respiratory disease; mechanism; characterization; consequences

Chronic Airways Diseases – definition; types (bronchitis; emphysema), chronic obstructive pulmonary disease (COPD) – mechanisms and consequences

Respiratory distress syndrome - types, mechanisms

Pneumokoniosis, influence of high and low air pressure (Caisson´s disease, barotrauma, altitude sickness, hyperoxia, hyperbaric oxygen therapy

Pathophysiology of pleural cavity (exudates, haemothorax, pneumothorax)

1. **RESPIRATORY INSUFFICIENCY**

Pathophysiology, types (pulmonary, extrapulmonary)

Measurement of arterial blood gases. Importance for exact diagnosis of RI