

**THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY,
No.69, Anna Salai, Guindy, Chennai – 600 032.**

**D.M/ M.Ch
SUPER SPECIALTY DEGREE COURSE**



SYLLABUS AND CURRICULUM

2017-2018

D.M. - PULMONARY MEDICINE

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI
Syllabus - D.M - PULMONARY MEDICINE

1. AIMS:

The Aim of medical education for the award of DM (Pulmonary Medicine) shall be to produce competent specialists and/or Medical teachers in the field of Pulmonary Medicine

- i. Who shall recognize the health needs of the community, and carry out professional obligations, ethically and in keeping with the objectives of the national health policy;
- ii. Who shall have mastered the competencies, pertaining to Pulmonary Medicine that are required to be practiced at the secondary and the tertiary levels of the health care delivery system;
- iii. Who shall be aware of the contemporary advances and developments in the discipline concerned;
- iv. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research and epidemiology; and
- v. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

Specific AIMS:

As a result of the training under this program, at the end of 3 years of postgraduate training, a resident must acquire the following knowledge, skills and competencies:

1. A thorough knowledge of pathological abnormalities, clinical manifestations, and principles of management of a large variety of medical conditions affecting respiratory system.
2. Skill and competence to choose and interpret correctly the results of the various routine investigations necessary for proper management of the patient. While ordering these investigations, a resident must be able to understand the sensitivity, specificity and the predictive value of the proposed investigation, as well as its cost-effectiveness in the management of the patient.

3. Skill and competence in interventions like endotracheal intubation, needle lung biopsy, bronchoscopy, needle thoracocentesis, Intercostal drain placement, pericardiocentesis, thoracoscopy, and various endobronchial procedures.
4. Skills and competence to perform commonly used diagnostic procedures, namely, pleural aspiration, pleural biopsy, lung biopsy, allergy testing, fine needle aspiration, polysomnography, ultrasonography and cardiopulmonary exercise testing.
5. Skill and competence to choose and interpret correctly the results of specialized investigations including radiologic, ultra-sonographic, biochemical, hemodynamic, electrocardio graphic, electrophysiological, pulmonary functional, haematological, immunological, nuclear isotope scanning, arterial blood gas analysis results, polysomnographic and bronchoscopic results.
6. Skill and competence to provide consultation to other medical and surgical specialties and sub-specialties, whenever needed.
7. Skill and competence to function effectively in varied clinical settings, namely emergency/critical care, ambulatory care, out-patient clinic, in-patient wards.
8. Skill and competence to take sound decisions regarding hospitalization, or timely referral to other consultants of various medical sub specialties recognizing his limitations in knowledge and skills in these areas.
9. Proficiency in selecting correct drug combinations for different clinical problems with thorough knowledge of their pharmacological effects, side-effects, interactions with the other drugs, alteration of their metabolism in different clinical situations, including that in the elderly.
10. Skill and competence to advise on the preventive, restorative and rehabilitative aspects including those in the elderly, so as to be able to counsel the patient correctly after recovery from an acute or chronic illness.
11. Skill and competence to understand research methodology in Pulmonary Medicine and to undertake a critical appraisal of the literature published in various medical journals and be able to apply the same in the setting in which the resident is working.

12. Skill and competence to work cohesively in Resuscitation team along with paramedical personnel and maintain discipline and healthy interaction with the colleagues.

13. Skill and competence to communicate clearly and consciously, and teach other junior residents, medical students, nurses and other paramedical staff, the theory as well as the practical clinical skills required for the practice of Pulmonary Medicine.

2. OBJECTIVES:

End of the training the candidate should be able to act as a consultant in pulmonary and critical care.

1. He/She should be able to diagnose and manage independently:

- i. Tuberculosis
- ii. Non-tuberculous lung diseases
- iii. Common medical and systemic lung diseases esp. those involving the respiratory system
- iv. Pulmonary problems of specialized nature related to industry, environment, high altitudes, aviation, under water conditions and drowning.

2. In critical care, he/she should be able to:

- i. Resuscitate the critically ill and provide entire spectrum of respiratory support starting from oxygen therapy to ECMO.
- ii. Diagnose and manage independently medical emergencies especially those involving the respiratory system.
- iii. Provide assisted respiratory support in the hospital and on long term basis including home ventilation.

3. Of practical procedures, he/she should be able to perform:

- i. Various bedside procedures required in medical management of patients.
- ii. Specialized procedures for diagnosis and management of lung diseases such as fiberoptic bronchoendoscopy, bronchography, lung and pleural biopsies, thoracocentesis and thoracostomy, thoracoscopy and interventional procedure in the airway and pleural cavity.
- iii. Comprehensive lung function studies including Spirometry, diffusion-studies, airway resistance and compliance, body plethysmography and blood gas analysis and cardiopulmonary exercise testing.
- iv. Allergy and bronchoprovocation tests

- v. Interpretation of polysomnography
- 4. He/she should be able to interpret other laboratory tests such as:
 - i. Radiographic and scanning images and perform intervention radiographic procedures of thorax.
 - ii. Specialized investigations of allied nature such as cardiac catheterization, other organ endoscopies, body scans and angiographic procedures.
 - iii. Histological and cytological specimens of lung diseases
 - iv. Other medical investigations
- 5. He should be able to set up independent pulmonary unit, or in hospitals and medical colleges.
- 6. Skill and competence to provide consultation to other medical and surgical specialties and sub-specialties, whenever needed.
- 7. Skill and competence to function effectively in varied clinical settings, namely emergency/critical care, ambulatory care, out-patient clinic, in-patient wards.
- 8. Skill and competence to advise on the preventive, restorative and rehabilitative aspects including those in the elderly, so as to be able to counsel the patient correctly after recovery from an acute or chronic illness.
- 9. He/She should be able to:
 - i. Carry out and help in conduct of research in pulmonary and medical sciences, communicate the results of such research at medical meetings and report in medical journals.
 - ii. Guide research projects of students and critically evaluate the results of other investigators.

3. THEORY SYLLABUS(INCLUDING BIO-ETHICS):

Each DM student is required to possess a comprehensive knowledge of the basic and clinical sciences related to pulmonary medicine and critical care, and clinical skills in diagnosing respiratory vis a vis other medical disorders. He/She should have personally performed a sufficient number of both invasive and non-invasive procedures for diagnosis and treatment such as bronchoendoscopic examinations and assisted ventilation; and manage acute respiratory emergencies. He/She should also possess sufficient knowledge and experience in research methodology and development.

I.Theory of Pulmonary Medicine

i. Basic Sciences

A. Anatomy of Respiratory system

1. Anatomy and histology of Respiratory System including airways, pleura, chest wall, lungs and mediastinum
2. Applied Embryology of lungs, mediastinum and diaphragm
3. Developmental anomalies

B. Physiology and Biochemistry

1. Assessment of pulmonary functions
2. Control of ventilation
3. Pulmonary mechanics
4. Ventilation, pulmonary blood flow, gas exchange and gas transport, Respiratory reflexes including cough reflex, lung defence including respiratory surfactant
5. Exercise physiology and testing
6. Non-respiratory functions of lung
7. Inhalation kinetics and its implication in aerosol therapy, sputum induction etc.
8. Acid-base and electrolytic balance
9. Physiology of sleep and their disorders
10. Pathophysiology of respiratory disorders

C. Microbiology

1. Mycobacterium tuberculosis and other mycobacteria
2. Laboratory diagnosis of tuberculosis (including staining, culture and immunological techniques)
3. Virulence and pathogenecity of mycobacteria
4. Bacteria causing respiratory diseases
5. Mycoplasma and respiratory tract infection
6. Anaerobes in pleuropulmonary infections
7. Laboratory diagnosis of nontubercular infections of respiratory tract
8. Respiratory viruses
9. Human Immunodeficiency virus

10. Respiratory fungi: i. Classification of fungal diseases of lung, candidiasis, Actinomycosis, Nocardiosis, Aspergillosis, Blastomycosis etc. ii. Laboratory diagnostic procedures in respiratory mycosis caused by yeast like and Filamentous fungi
11. Opportunistic infections in immunosuppressed host
12. Respiratory parasitic infections

D. Pathology

1. Acute and chronic inflammation
2. Tuberculosis
3. Pneumonias and bronchopulmonary suppuration
4. Chronic bronchitis and emphysema, asthma
5. Occupational lung diseases and pneumoconioses
6. Interstitial Lung Diseases
7. Tumours of the lung, mediastinum and pleura
8. Various mechanisms of hypersensitivity reactions seen in respiratory diseases
9. Diagnostic tests in Allergic diseases of lung – in vitro and in vivo tests, bronchial provocation test
10. Immunology of Tuberculosis

E. Epidemiology

1. Epidemiological terms and their definitions
2. Epidemiological techniques - tuberculin test, surveys
3. Epidemiology of Tuberculosis, pneumoconioses, asthma, COPD and lung cancer
4. National Tuberculosis Control Programme and RNTCP
5. BCG and prevention of TB
6. Research methods and study designs

F. Pharmacology

1. Antimicrobial drugs
2. Antitubercular drugs
3. Antineoplastic drugs
4. Corticosteroids
5. Anti-asthma drugs

6. Drugs used in microbial viral, fungal and parasitic infections
7. Pharmacokinetics and drugs interaction for commonly used drugs in respiratory diseases

ii. Clinical Sciences

A. Infections

a. Tuberculosis

1. Etiopathogenesis
2. Diagnostic methods
3. Differential diagnosis
4. Management of pulmonary tuberculosis including drug resistant TB
5. Complications in Tuberculosis
6. Tuberculosis in children
7. Geriatric tuberculosis
8. Pleural and pericardial effusion and Empyema
9. Mycobacterial other than mycobacterial infections
10. Extrapulmonary tuberculosis
11. HIV and tuberculosis

b. Non-Tuberculous infections of the lungs

- Upper respiratory tract infections
- Approach to the patient with pulmonary infections
- Community Acquired pneumonia
- Nosocomial pneumonias
- Unusual and atypical pneumonias including bacterial, viral, fungal and parasitic rickellial
- Bronchiectasis and lung abscess
- Acquired immunodeficiency syndrome and opportunistic infections in immuno-compromised host
- Bronchitis and bronchiolitis

B. Non-infectious Lung Diseases

1. Interstitial Lung Disorders
 - a. Immune defense mechanisms of the lung
 - b. Sarcoidosis
 - c. Hypersensitivity pneumonias
 - d. Lung involvement in collagen-vascular diseases

- e. Eosinophilic pneumonias and tropical eosinophilia
- f. Pulmonary vasculitides
- g. Reactions of the interstitial space to injury
- h. Pulmonary fibrosis
- i. Occupational pulmonary diseases
- j. Interstitial diseases of other aetiologies
- k. Drug induced pulmonary diseases
- l. Aspiration and inhalational (non-occupational) diseases of the lung

2. Pulmonary Circulatory disorders

- Pulmonary edema
- Pulmonary Hypertension and cor pulmonale
- Pulmonary Thromboembolic Diseases
- Cardiac problems in Pulmonary patient and pulmonary diseases produced by cardiac diseases

3. Obstructive Diseases of the Lungs

- Asthma
- Chronic obstructive lung disease
- Pulmonary rehabilitation

4. Cancer of the Lungs

- Epidemiology, pathology, natural history and clinical picture and staging of the carcinoma of lungs and other tumour
- Approach to diagnosis of pulmonary nodule, cell lungs cancer
- Medical management and surgical treatment of lung cancer and paraneoplastic syndrome
- Radiation therapy in the management of the carcinoma of the lungs
- Paraneoplastic syndromes

5. Diseases of the Mediastinum

- Benign and malignant tumours
- Non-neoplastic disorders

6. Disorders of the pleura

- Pleural dynamics and effusions
- Non-neoplastic and neoplastic pleural diseases
- Pneumothorax
- Pyothorax and broncho-pleural fistula and its complications

7. Sleep related breathing disorders

8. Obesity hypoventilation disease

9. High altitude

10. Drug induced

11. Disorders of diaphragm

12. Respiratory failure

- Acute Respiratory Distress Syndrome: Pathology, pathogenesis diagnosis and management
- Respiratory failure in the patient with obstructive airway disease
- Respiratory muscle fatigue
- Respiratory and haemodynamic monitoring in acute respiratory failure
- Mechanical ventilation (indications, modes, complications and weaning)
- Principles of critical care

13. Respiratory Care

- Oxygen therapy
- Inhalational therapy
- Bronchial hygiene

C. Surgical aspects of Chest Medicine

- Pre and post-operative evaluation and management of thoracic surgical patient
- Post operative pulmonary complication
- Chest Trauma/trauma related lung dysfunction

D. Investigative/Therapeutic procedures

- Pulmonary function test and its interpretations in determining the disability

- Spirometry, compliance, resistance, lung volume, diffusions
- Bronchoscopy, thoracoscopy and other endoscopic procedures
- Chest Imaging - x-ray chest, ultrasound, CT, Bronchography
- Pulmonary parasitic disease
- Environmental pollution - Indoor/outdoor; Tobacco smoking
- Blood gas analysis
- Cardiopulmonary exercise testing
- Bronchoprovocation tests
- Pulmonary angiography
- ECG and ECHO

E. Research and Clinical Epidemiology

- Research Methodology, study designs (cohort, case control, randomized clinical trials, observational and cross sectional studies)
- Common statistical methods for analysis of research
- Sources of bias

F. Critical Care and Assisted Ventilation

1. Respiratory Failure: Pathogenesis, causes, diagnosis and management
2. Resuscitation of the critically ill including multiple organ failure
3. Cardiopulmonary mechanics
4. Ventilatory principles, application, assessment and monitoring
5. Ventilatory care and support: Nutritional support; Infection control; complications
6. Weaning
7. Comprehensive care of the comatose
8. ICU designing

G. Lung Transplantation :

1. Pretransplantation workup
2. Intraoperative Procedures
3. Post Transplant Care
4. Post Transplantation Complications

5. Post Transplant follow up

H. Paediatric pulmonology

1. Respiratory problems in children
2. Infective pneumonias
3. Childhood tuberculosis
4. Respiratory distress syndrome of the newborn
5. Bronchopulmonary dysplasias
6. Congenital malformations
7. Bronchial asthma
8. Cystic fibrosis
9. Special management problems in children

I. Pulmonary Radiology and Imaging

1. Interpretation of plain radiography, contrast studies, CT scan, M.R.I. and ultrasound examination.
2. Interpretation of ventilation/perfusion scans

J. Respiratory rehabilitation

K. Ethical, legal, economic and other related issues involved in respiratory and critical care

1. Prioritization
2. Withholding and withdrawing mechanical ventilation
3. Legal consent
4. Brain death - certification
5. Palliative care

Bioethics:

1. Respect human life and the dignity of every individual.
2. Refrain from supporting or committing crimes against humanity and condemn all such acts.
3. Treat the sick and injured with competence and compassion and without prejudice and apply the knowledge and skills when needed.

4. Protect the privacy and confidentiality of those for whom we care and breach that confidence only when keeping it would seriously threaten their health and safety or that of others.
5. Work freely with colleagues to discover, develop, and promote advances in medicine and public health that ameliorate suffering and contribute to human well being.
6. Educate the public about present and future threats to the health of humanity.
7. Advocate for social, economic, educational and political changes that ameliorate suffering and contribute to human well being.
8. Teach and mentor those who follow us, for they are the future of our Caring profession.

4. CLINICAL TRAINING:

Duration of Clinical Training Programme - 3 years

YEAR I

Introduction and preliminary posting in the Pulmonary Medicine	6 months
Respiratory Intensive Care Unit	1 month
General Medicine & Allied Specialities	
Paediatric	1 month
Anaesthesiology	1 month
Rheumatology	15 days
Nephrology	15 days
Cardiology	15 days
Gastroenterology	15 days
Neurology	15 days
IMCU	15 days

YEAR II

Pulmonary Medicine	6 months
Intensive Respiratory Care Unit	2 month
Anesthesiology	1 month
Cardiothoracic surgery	1 month
Sleep lab.	1 month
Pulmonary Function Laboratory	1 month

YEAR III

Pulmonary Medicine	6 months
Intensive Respiratory Care Unit	2 month
Interventional Radiology	1 month
Anesthesiology	1 month
Medical Oncology & Radiotherapy	1 month
Lung Transplantation & follow-up	1 month

During II year, students are encouraged to undergo special postings for learning new advanced techniques / Procedure / Skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

5. SKILL TRAINING REQUIREMENTS:**I. CLINICAL SKILLS**

1. Clinical history taking and examination; ability to analyse different clinical symptoms and signs; interpret their significance and reach a diagnosis
2. Interpretation of laboratory data
3. Interpretation of pulmonary function tests, ECG, ECHO and other investigations
4. Interpretation of chest roentgenography
5. Pulmonary histopathology and cytology
6. Oxygen therapy

7. Nebulization therapy
8. Mechanical ventilation - indications and applications
9. Lung Transplantation medicine : - Recipient selection / Immunosuppression / Post OP follow-up

II. Practical skills

A. Microbiological

1. Sputum smear staining: Gram's AFB staining ; Rapid identification of mycobacterium and culture sensitive
2. Mantoux testing
3. BCG vaccination
4. Skin sensitivity tests

B. Pulmonary Function Tests

1. Spirometry
2. Bronchial provocation tests
3. Body plethysmography
4. Respiratory Sleep monitoring
5. Exercise testing (Cardiopulmonary exercise testing)

III. Diagnostic procedures

1. Fine needle biopsy of lymph nodes, lung and mediastinal masses
2. Biopsy of pleural and lung masses
3. Fiberoptic bronchoendoscopic examination and related procedures including bronchial and transbronchial lung biopsy, bronchoalveolar lavage and fine needle aspiration (At least 50 procedures)
4. Medical thoracoscopy
5. Endobronchial ultrasound
6. Rigid bronchoscopy and related procedures

IV. Therapeutic

1. Aspiration of pleural and pericardial effusion
2. Tube thoracostomy
3. Respiratory muscle exercising
4. Medical Emergency management
 - i. Cardiopulmonary resuscitation
 - ii. Management of acute emergencies
 - . Acute respiratory failure
 - . Acute asthma

- . Pneumothorax
- . Haemoptysis
- . Pulmonary thromboembolism
- . Multiple organ failure
- 5. Mechanical Ventilation: On hand training in providing both short and long term mechanical ventilatory support
 - i. Invasive
 - . Endotracheal intubation
 - . Ventilatory settings
 - . Care and maintenance
 - . Monitoring - Invasive & Non Invasive
 - . Weaning
 - ii. Non-invasive ventilation including domiciliary respiratory support
 - iii. Newer modes of ventilation
 - iv. Home ventilation
- 6. ECMO - Extracorporeal membrane oxygenation
 - . Indication
 - . Management of vv ECMO
- 7. Endobronchial procedures
 - . Electrocautery of airway lesions
 - . Deobstruction
 - . Balloon bronchoplasty
 - . Stenting

E. Managerial Skills

- a. Policies/procedures (NHS, Hospital, Departmental)
- b. Staff management (planning, recruitment, appraisal)
- c. Equipment (choosing to ordering, medical physics)
- d. Resource management/clinical budgeting
- e. Contracting/ setting standards, quality monitoring
- f. Information technology/Health informatics
- g. Clinical governance/audit, risk management
- h. Compliments/complaints
- i. Medico-legal statements
- j. Committee Work

- k. Liaising with other agencies (e.g. police, coroner)
- l. Public Relations/media
- m. Major Incident planning/exercises

F. Teaching Skills

- a. Lecture preparation
- b. Small Group techniques
- c. Presentation techniques
- d. Teaching critique
- e. Departmental teaching programme
- f. Professional Development (self-directed learning)
- g. Teaching certificate expected

G. Professional Attributes

- a. Leadership
- b. Reliability
- c. Teamwork
- d. Self-motivation (prioritisation, project completion)

6. TEACHING METHODOLOGY:

It consists of outpatient and inpatient bedside discussions, ward rounds and case demonstrations, journal clubs, seminars and symposia, clinical meetings and joint conferences with other departments. An average program is given below:

- a. Joint program with other departments
 - i. Students' clinicopathological conferences (CPC) 1 per week
 - ii. Students' clinical meeting 1 per week
 - iii. Staff CPC 1 per week
 - iv. Staff clinical meeting 1 per week
 - v. Death review meeting 1 per week
 - vi. Radiology round 1 per week
 - vii. Pulmonary Histocytopathology round Once in 2 weeks
- b. Departmental
 - viii. Teaching rounds 2 per week

- | | |
|--------------------------------|------------|
| ix. DM Journal Club | 1 per week |
| x. DM Seminar (Basic Sciences) | 1 per week |
| xi. DM bedside | 1 per week |

7. RESEARCH WORK:

The candidate is introduced to the field of research in Pulmonary Medicine (including Tuberculosis) both at clinical and laboratory level.

The candidate will be trained in the ability to

- Frame a research question.
- Plan a study to answer the question.
- Collect the relevant information and
- Evaluate appropriately the collected data to draw a conclusion.

The candidate should become conversant with the reporting of these results as a research paper, in journals and as a presentation in conferences.

The activities would consist of:

Planning and organizing relevant studies to be submitted as a Research paper at the end of the course.

Students should compulsorily attend Research Methodology workshop conducted by the University within first six months of DM Course.

8. LOG BOOK:

The Postgraduate student of a Postgraduate Degree Course in Super specialties shall maintain Log Book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently.

The Log Book shall be checked and assessed by the faculty members imparting the training.

Periodical evaluation of Log Book to be done by the Head of the Department as per 52nd SAB.

The Evaluation of the candidates in both theory and practical aspects will help the candidate in the improvement of his/her knowledge skills & attitude.

9. COMPETENCY ASSESSMENT:

Overall:

1. Communication / Commitment / Contribution /		
Compassion towards patients and Innovation	-	10 Marks
2. Implementation of Newly learnt techniques	-	10 Marks
3. Documentation of case sheets / discharge		
Summary / Review	-	10 Marks
4. Number of cases presented in Clinical Meetings/		
Journal Clubs / Seminars / Papers presented in		
Conference.	-	10 Marks
5. No. Of Medals/ Certificates won in the conference		
/ Quiz competitions and other academic meetings		
with details.	-	10 Marks

	Total	50 Marks

Assessment	I	February	-	First Year
	II	August	-	First Year
	III	February	-	Second Year
	IV	August	-	Second Year
	V	February	-	Third Year
	VI	May	-	Third Year

VIVA INCLUDING COMPETENCY ASSESSMENT - 100 Marks (50+50)

10. THEORY EXAMINATION:

Paper I - Basic Sciences applied to Pulmonary Medicine and Critical Care

Paper II - Tuberculosis (Pulmonary & Extra Pulmonary)

Paper III - Non tuberculosis Pulmonary diseases including allied Specialities

Paper IV - Recent advances applied to Pulmonary Medicine and Critical Care

Each paper will contain:

I Essay 2 x 15=30 Marks

II Short notes 10 x 7 =70 Marks

Total 100 Marks

11. CLINICAL EXAMINATION :

Particulars	Time for candidate to examine the cases	Time for examiners to question the candidates	Maximum Marks
Long Case	1 Case X 60 minutes	60 Minutes	100
Short Case	2 Cases X 15 Minutes	30 Minutes	100
Ward Rounds	3 Patients X 10 Minutes	30 Minutes	100
OSCE	5 stations X 3 Minutes	15 Minutes	50
Viva Voce		15 Minutes	100
Log Book			50
Total			500

As per Medical Council of India Post Graduate Medical Education Regulations 2000 (amended upto 10th August 2016) clause 13.9 A Postgraduate student of a Postgraduate degree Course in broad specialties/ Super Specialties would be required to present one poster presentation to read one paper at a National/State conference and to present one Research paper which should be published/accepted for publication/sent for publication during the period of his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination.

Apart from Poster/Oral paper presentation in National/State conferences, the Research paper published by the candidate in the University Journal of Medical Sciences will be considered as equivalent to the Research Paper as mentioned in 13.9. clause. Case Reports can also be published in University Journal of Medical Sciences but case reports will not be considered as Research Paper.

The candidate can also present Research Paper as per Clause 13.9 of Post Graduate Education Regulation 2000, and if the article sent for publication by the candidate as primary author or corresponding author which has not yet been published/accepted for publication, the candidate should submit a letter from the HOD, stating that the article sent for publication is of publishable merit and the proof of the Research Article submitted to the Journal for publication should be sent to the university forwarded through the HOD [as per 53rd SAB]

The student can submit articles for the University journal anytime from the time of registration till 6 months prior to theory examination.

12. OSCE (5 Stations):

1. Microscope-slides / culture specimens
2. Interpretation of charts/Graphs
3. Gross Pathology specimens
4. Instruments
5. Radiology-X-ray / CT-chest

13. REFERENCE BOOKS:

RECOMMENDED LIST OF BOOKS FOR TUBERCULOSIS

1. Tuberculosis - Surendra k. Sharma
2. Toman's Tuberculosis
3. Tuberculosis & Nontuberculous Mycobacterial Infections -David Schlossberg
4. TB Handbook- WHO
5. Tuberculosis: A Comprehensive Clinical Reference by Schaaf et al
6. Tuberculosis Of The Skeletal System by Tuli Sm
7. Clinical Tuberculosis, Fifth Edition by Peter D.O. Davies and Stephen B Gordon
8. Clinical Tuberculosis: A Practical Handbook by Peter D.O. Davies and Ajit Lalvani
9. Tuberculosis 2003, by William N. Rom and Stuart M. Garay
10. A Clinician's Guide To Tuberculosis, 2000, by Iseman

RECOMMENDED LIST OF BOOKS:

Text books for Pulmonary medicine

1. Fishman's Pulmonary Diseases and Disorders - 2 volume, McGraw Hill, Fifth Edition.
2. Murray and Nadel - Textbook of respiratory medicine - 2 volume, Saunders.
3. Crofton & Douglas - Respiratory Diseases - 2 volume Blackwell.
4. Gibson - Textbook of Respiratory Medicine - Lippincott.
5. Synopsis of Diseases of the Chest - Fraser & Spiro, Elsevier
6. Nunn's applied respiratory physiology, Andrew B. Lumb
7. Egan's Fundamentals of Respiratory Care. Lippincott.
8. Respiratory Physiology JB West - LANGE McGraw Hill.
9. Harrison's - Principles of Internal Medicine - Fauci et al. McGraw Hill.
10. Clinical respiratory Medicine - Albert & Spiro - Elsevier Mosby.

Textbooks for airways disorders

1. Chronic Obstructive Pulmonary Disease: A Systemic Inflammatory Disease by Hiroyuki Nakamura and Kazutetsu Aoshima
2. Chronic Obstructive Pulmonary Disease: Co-Morbidities and Systemic Consequences by Linda Nici and Richard ZuWallack
3. Asthma and COPD: Basic Mechanisms and Clinical Management by Peter J. Barnes DM FRS FMedSci and Jeffrey M. Drazen
4. Pharmacology and Therapeutics of Asthma and COPD by Clive P. Page and Peter J. Barnes
5. New Drugs and Targets for Asthma and COPD (Progress in Respiratory Research)
6. COPD: A Guide to Diagnosis and Clinical Management (Respiratory Medicine) 2010 by Nicola A. Hanania and Amir Sharafkhan

Text book for Sleep disorders

1. Principles and Practice of Sleep Medicine, 5th Edition by Meir H. Kryger MD. FRCPC (Author), Thomas Roth PhD (Author), William C. Dement MD PhD (Author)

Textbook for Pulmonary Vascular disorders

1. Diagnosis and Management of Pulmonary Hypertension (Respiratory Medicine) 2015 by James R. Klinger and Robert P. Frantz
2. Pulmonary Hypertension: Basic Science to Clinical Medicine, 2015 by Bradley A. Maron and Roham Zamanian
3. Pulmonary Hypertension, 2011 by Voelkel, Norbert, F

Textbook for Lung malignancies

1. Abelloff's Clinical Oncology, 2013 by John E. Niederhuber MD and James O. Armitage MD
2. DeVita, Hellman, and Rosenberg's Cancer, Principles and Practice of Oncology: Review Fourth Edition, by Ramaswamy Govindan MD (Editor), Daniel Morgensztern (Editor)
3. Pulmonary Involvement in Patients with Hematological Malignancies, 2011 by Elie Azoulay
4. Tumors and Tumor-like Conditions of the Lung and Pleura: Expert Consult: 2010, by Cesar A. Moran MD and Saul Suster MD

Textbook for Interstitial lung diseases

1. Interstitial Lung Disease 2017 by Harold R. Collard
2. Interstitial Lung Disease 6 March 2003 by Marvin Schwarz and Talmadge King Jr. MD
3. Diffuse Lung Diseases: Clinical Features, Pathology, HRCT 2011 by R. Polverosi and M. Zompatori

Textbook for clinical examination

1. Chamberlain's Symptom and sign in clinical medicine-Ogilvie.
2. Macleods - Clinical Examination- Churchill Livingstone.
3. Hutchison's Clinical Methods: An Integrated Approach to Clinical Practice 23rd Edition

Textbook for Pleural disorders

1. Pleural Diseases by Light. Lippincott.

Textbook of Allergy and Clinical Immunology

1. Allergens and Allergen Immunotherapy, Fourth by Richard F. Lockey and F. Lockey Richard
2. Clinical Allergy, Immunology and Transplant 2014 by C. G. Weber M.D.
3. Roitt's Essential Immunology (Essentials) January 2017 by Peter J. Delves and Seamus J. Martin
4. Allergy 2011 by Holgate

Critical care:

1. Paul Marino - The ICU book - Lippincott.
2. Chang - Clinical Applications of Mechanical Ventilation. 3rd Edition Thomson.
3. George and Light - Essentials of Pulmonary and Critical Care Medicine - Lippincott, Williams & Wilkins.
4. Principles And Practice Of Mechanical Ventilation 2012 by Martin J. Tobin

5. Non-Invasive Respiratory Support Techniques: Oxygen Therapy, Non-Invasive Ventilation and CPAP by Glenda Esmond and Christine Mikelsons

Textbook for Interventional Procedures

1. Bronchoscopy and Central Airway Disorders, 2012, by Henri Colt and Septimiu Murg
2. Atlas of Flexible Bronchoscopy, 2011 by Pallav Shah
3. Flexible Bronchoscopy, 2012, by Ko-Pen Wang and Atul C. Mehta
4. Introduction to Bronchoscopy, 2009, by Armin Ernst
5. Interventional Bronchoscopy: A Clinical Guide, 2013, by Atul Mehta and Prasoon Jain

RADIOLOGY:

1. Thoracic imaging - Webb & Higgins Lippincott.
2. Diagnostic Thoracic imaging - Miller, McGraw Hill.
3. Principles of Chest X-ray Diagnosis - Simon. JayPee Bros.
4. Imaging of diseases of the chest David M. Hamsell
5. Felson's Principle of chest Roentgenology
6. Fraser & Pare's Diagnosis of the Diseases of the Chest - Elsevier.
7. High-Resolution CT of the Lung, 2014, by W. Richard Webb (Author), Nestor L. Muller (Author), David P. Naidich (Author)
8. Imaging of Pulmonary Infections: A Fundamental and Clinical Text by Nestor Luiz Muller and Tomas Franquet

SURGERY:

1. Surgery of the chest - Gibbson
2. Procedures in respiratory medicine - Warren m gold
3. General Thoracic Surgery - TW Shields

****Note:** The editions are as applicable and the latest editions shall be the part of the syllabi.

14. JOURNALS:

RECOMMENDED LIST OF JOURNALS FOR TUBERCULOSIS :

1. Indian Journal of Tuberculosis
2. International Journal of Tuberculosis and Lung Disease (IJTLD)
3. RNTCP guidelines - TB India
4. Tubercle
5. Tuberculosis
6. Journal of Tuberculosis research
7. British journal of Tuberculosis

Recommended List of Journals

1. Lung India
2. Indian Journal of Chest diseases and allied sciences
3. Current opinion in pulmonary medicine
4. Thorax
5. International Journal of TB and Lung Diseases
6. Chest
7. American Journal of Respiratory and Critical care medicine
8. European Respiratory journal
9. European Respiratory review
10. The Lancet Respiratory Medicine
11. Journals of Indian medical association
12. New England Journal of Medicine
13. Journal of association of physicians of India
14. Clinics in chest medicine
15. American journal of roentgenology
16. Cancer
17. Cancer research
18. Journal of thoracic and cardiovascular surgery
19. Respiration
20. Journal of Clinical Oncology
21. International journal of Oncology
22. Journal of Bronchology & Interventional Pulmonology
