RAMAIAH UNIVERSITY OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Structure and Course Details

Of

MD Respiratory Medicine 2022 onwards

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College

Registrar
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Bangalore - 560 054

Principal and Dean
M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences

Dean - Academics
M.S. Ramaiah University of Applied Sciences

RAMAIAH UNIVERSITY OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Specifications

MD Respiratory Medicine Programme 2022

onwards

Programme Code: MD143

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University's Vision, Mission and Objectives

The M. S. Ramaiah University of Applied Sciences (MSRUAS) will focus on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy and society through their imaginative, creative and innovative pursuits. Hence, the University has articulated the following vision and objectives.

Vision

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment

Mission

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation and excellence in our teaching and research. We value integrity, quality and teamworkin all our endeavors. We inspire critical thinking, personal development and a passion for lifelonglearning. We serve the technical, scientific and economic needs of our Society.

Objectives

1. To disseminate knowledge and skills through instructions, teaching, training, seminars,workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business and society
3. To promote health, human well-being and provide holistic healthcare
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunitiesin the society by incubating and nurturing technology product ideas and supporting technology backed business
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in
7. To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrichthe experiences of faculties and students through research and developmental programme

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Programme Specifications: MD Respiratory Medicine

Faculty	Ramaiah Medical College
Department	Respiratory Medicine
Programme	MD –Respiratory Medicine
Programme Code	MD143
Dean of Faculty	Dr Shalini C Nooyi
Head of the Department	Dr Pragati Rao D

1. **Title of the Award:** MD in Respiratory Medicine
2. **Mode of Study:** Full-Time
3. **Awarding Institution /Body:** M. S. Ramaiah University of Applied Sciences, Bengaluru
4. **Joint Award:** Not Applicable
5. **Teaching Institution:** Ramaiah Medical College
6. **Date of Programme Specifications:** September 2022
7. **7. Date of Programme approval by the academic Council of MSRUAS :** 27th September 2022
8. **Programme Approving Regulating Body and Date of Approval:** National Medical Council of India
9. **Rationale for the Programme**

The purpose of Post Graduate education is to create specialists who would provide high quality health care and advance the cause of science through research & training.
The Post Graduates are trained in the basic principles of Respiratory Medicine. The person shall be abreast with the recent developments in the specialty of Respiratory Medicine. It is expected that the person will develop a spirit of enquiry and get oriented to apply recent advances and medical evidence to the practice of respiratory medicine. He would also grasp the fundamentals of research methodology. Medical Science is dynamic with a continuous enhancement of knowledge. The process of acquiring knowledge and skills continues even after formal education. The syllabus to be covered during post graduate training in Respiratory Medicine is designed to develop a sound and scientific foundation. It is intended to serve as a guide to impart basic knowledge and develop skills and does not impose any limits to expansion beyond the areas listed.

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Programme objectives (PO) for MD Respiratory Medicine Postgraduate students

PO1. Develop the knowledge, skills and attitude to be a competent Pulmonologist. (C, A, P).

PO2. Demonstrate a commitment to excellence and continuous professional development with integrity, compassion and sensitivity to patient care. (A)

PO3. Acquire and develop the knowledge, skills and attitude required to be a competent and ethical researcher and teacher. (A, C, P)

PO4. Be able to independently perform Pulmonology related tests and procedures. With a reasonable degree of professionalism and competence. (C, P)

Programme specific outcome (PSO) for MD Respiratory Medicine Postgraduate students

PSO1 -Demonstrate the ability to diagnose and treat common pulmonary diseases, their clinical manifestations, including emergent situations and investigations to confirm the diagnosis. A comprehensive knowledge of epidemiological aspects of pulmonary diseases should be acquired. With special ability to maintain interdisciplinary coordination. (C, A)

PSO2- Demonstrate the mode of action of commonly used drugs, their doses, side-effects / toxicity, indications, contra-indications and interactions. (C).

PSO3 - Describe commonly used modes of management including medical and surgical procedures available for treatment of various diseases and to offer a comprehensive plan of management inclusive of National Tuberculosis Elimination Programme. (C, A,).

PSO4- Manage common pulmonary emergencies and understand the basic of intensive care in patients with pulmonary diseases. (C, A, P)

PSO5 - Perform simple, routine investigative and office procedures required for making the bedside diagnosis like sputum collection and examination for etiologic organisms especially Acid Fast Bacilli (AFB), interpretation of the chest x-rays and lung function tests. Interpret and manage various blood gases abnormalities in various pulmonary diseases. (C, A, P)

PSO6 - Assist in the performance of common procedures, like bronchoscopic examination, pleural aspiration and biopsy, intercostal tube insertion and drainage, pleurodesis,central lines, , endotracheal intubation and chest physiotherapy. (C, A, P)

PSO7 - Develop ability to search medical literature and develop basic concept for medical research.(C)

Note: A- Affective Domain, C- Cognitive Domain & P- Psychomotor Domain:

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Course-PO-PSO Mapping

Course Code and name	Program Outcomes				Program Specific Outcomes						
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDC565A General Pulmonary Medicine and Basic Sciences	3	3	1	1	1	3	1	1	1	1	1
MDC566A Clinical Pulmonary Medicine including Medical Emergencies	3	3	2	3	3	3	3	3	3	3	2
MDC567A Clinical Pulmonary Medicine Including Critical Care Medicine	3	3	2	3	3	3	3	3	3	3	2
MDC568A Recent advances in Pulmonary Medicine, and Research Methodology	3	1	3	3	3	3	3	3	3	3	3
MDP517A Thesis- Respiratory Medicine	1	1	3	1	1	1	1	1	1	1	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											

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10. Regulations: (A) Attendance, Progress and Conduct

1. A candidate pursuing degree course should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run or work in clinic/laboratory/nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of study.

2. Each term shall be taken as a unit for the purpose of calculating attendance. Attendance of 80% every term is mandatory for appearing in the final university examination.

3. Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

4. Every candidate is required to attend a minimum of 80% of the training during each academic term of the post graduate course. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every term.

5. Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

(B) Monitoring of progress of Studies

1. Log Book - Every candidate shall maintain a record of his/her participation in the training programmes conducted by the department such as journal reviews, seminars,procedures etc. as per the model checklists and logbook specimen copy.

2. Special mention may be made of the presentations by the candidate as well as details of clinical or planning procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the university practical/clinical examination.

3. Procedure for defaulters: There will be a committee constituted by all teachers to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default, the departmental committee may recommend that defaulting candidate will be withheld from appearing the examination, if she/he fails to fulfil the requirements in spite of being given adequate chances to set himself or herself right.

12. Teaching Learning Methods:

This being a highly dedicated PG specialty introducing several new concepts/subjects in the course, it is recommended to divide the entire course into two components consisting of First Year of BASIC CONCEPTS OF THE SPECIALTY and the next two years of INTENSIVE CLINICAL TRAINING WHICH INCLUDES THEORITICAL AND PROCEDURAL ASPECTS IN THE SPECIALTY.

Seminars, journal clubs, symposia, reviews, and guest lectures should get priority for acquiring theoretical knowledge. Bedside teaching, grand rounds, interactive group discussions and clinical demonstrations will be the hallmark of clinical/practical learning. Students should have hands-on training in performing various procedures and ability to interpret results of various tests/investigations.

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Exposure to newer specialized diagnostic/therapeutic procedures will be given Importance. It is particularly necessary to attend sub-specialty and symptom specific clinics. The development of independent skills is an important facet of postgraduate training. Interdisciplinary meetings with Oncology , Radiology , Pathology and ICU will be part of the training.

The training techniques and approach should be based on principles of adult learning. It should provide opportunities initially for practicing skills in controlled or simulated situations. Repetitions would be necessary to become competent or proficient in a particular skill. The more realistic the learning situation, the more effective will be the learning.

Clinical training should include measures for assessing competence in skills being taught and providing feedback on progress towards a satisfactory standard of performance. Time must be available for academic work and audit. The following is a rough guideline to various teaching/learning activities that may be employed:

1. Intradepartmental and interdepartmental conferences related to case discussions.
2. Ward rounds along with emergency admissions.
3. Attendance at Tumor Board, Clinic-Radiology Meeting, Clinico-Pathological Meeting and ICU Classes.
4. External rotation postings in departments like Cardiology, Cardio-thoracic Surgery , Radiology , ICU , General Medicine and District Residential Programme (DRP).
5. Skills training
6. Conferences, Seminars, Continuing Medical Education (CME) Programmes.
7. Journal Club
8. Research Presentation and review of research work.
9. A postgraduate student of a postgraduate degree course in broad 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.
10. Participation in workshops, conferences and presentation of papers etc.
11. Maintenance of records. Log books should be maintained to record the work done which shall be checked and assessed periodically by the faculty members imparting the training.
12. Postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

14 Department should encourage e-learning activities.

13. Innovative teaching learning practices

1. Theme based teaching learning activities Eg: Asthma Month
2. ALC Training for bronchoscopy, EBUS , Lung sounds on Simulators.
3. Focused discussion during journal club inculcates culture in the areas of research and publication

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14. Assessment:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching/learning activities.

1. Formative assessment during 4th week of every month to include methods MCQs, Open book exams, OSCE will be done. Impact: SWOC analysis can be done and timely counselling can be done.
2. Theory paper covering General Pulmonary Medicine and Basic Sciences at the end of 1st year. FA at the end of second year will be on TB and Non -TB , Recent advances , Critical Care . Mock SA will be conducted in the same pattern as university exams one month before the final exams.
3. Teaching skills: Candidates are encouraged to teach undergraduate medical students and paramedical students, if any. In addition, the second year student acts as a mentor for the immediate junior in all aspects of the course.

Scheme of Examination:

A. Theory (Written Paper) 400 marks

There shall be four question papers, each of three hours' duration. Each paper shall consist of 10 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows.

Name of the course	Course Code	Topics	Marks
General Pulmonary Medicine and Basic Sciences	MDC565A	Anatomy and Histology of Respiratory System , Physiology and Biochemistry , Microbiology , Pathology , Epidemiology , Allergy and Immunology , Pharmacology	100
Clinical Pulmonary Medicine including Medical Emergencies	MDC566A	Non-tuberculous infections of the lungs, Immunological disorders, ,Pulmonary Circulatory disorders, Sleep-related pulmonary diseases, Preventive Pulmonology	100
Clinical Pulmonary Medicine including Tuberculosis and Critical Care Medicine	MDC567A	Tuberculosis (PTB and EPTB) , Critical Care Pulmonary Medicine	100
Recent advances in Pulmonary Medicine, and Research Methodology.	MDC568A	Recent Developments in pulmonary Medicine and Interventions and Research methodologies	100
Thesis – Respiratory Medicine	MDP517A	Approval 6 months before examination.	

B. Clinical:200marks

One long case of 80 and two short cases of 50 each.

C. VivaVoice: 100 marks

1) Viva-Voce Examination:(80Marks)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition, candidates may be also be given case reports, charts, gross specimens, pathology slide, Instruments, X-rays, CT scan images for interpretation. It includes discussion on dissertation also.

2) Pedagogy Exercise:(20Marks)

A topic be given to each candidate in the beginning of clinical examination.He/she is asked to make a presentation on the topic for 8-10 minutes.

D. Total Marks Distribution:

Maximum marks for	Theory	Practical	Viva	Grand Total
M.D degree course	400	200	100	700

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Annexures

Annexure 1_Overall course plan year-wise
Annexure 2_Sample of monthly schedules
Annexure 3_PG outside posting policy
Annexure 4_Logbook entry
Annexure 5_Students appraisal form

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Annexure 1

MONTHWISE TEACHING SCHEDULE FOR POST GRADUATES DEPARTMENT OF RESPIRATORY MEDICINE

MONTH	SITE	Teacher
January	Pulmonary & Extra-pulmonary Tuberculosis	In-Charge
February	Infectious Diseases of the Lungs	In-Charge
March	Interstitial & Inflammatory Lung Diseases	In-Charge
April	Cancer & Other Malignancies of the Lungs.	In-Charge
May	Respiratory Failure & Critical care	In-Charge
June	Sleep related disorders, Disorders of Pulmonary Circulation	In-Charge
July	Disorders of Pleural space & Mediastinum	In-Charge
August	Occupational & Environmental Disorders, Disorders of Chest Wall, Diaphragm, Spine.	In-Charge
September	Respiratory Anatomy, Physiology & Immunology	In-Charge
October	Respiratory Pharmacology & Research Methodology	In-Charge
November	Symptomatology & Investigations in Respiratory diseases	In-Charge
December	Obstructive Lung Diseases	In-Charge

Note:

1. The respective faculty will be in charge of the entire programme planning, implementation and assessment.
2. It is preferable to put the time table latest by 20th of previous month.
3. PGs are expected to keep in touch with the respective teachers well ahead of the class.

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Annexure 2

MAY TEACHING SCHEDULE FOR POST GRADUATES

THEME: RESPIRATORY FAILURE AND CRITICAL CARE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Subject seminar	3 Case presentation	4 Case presentation	5 Subject seminar	6 Clinical society meet	7
8 Sunday	9 Journal club	10 Subject seminar	11 Case presentation	12 Subject seminar	13 Clinical society meet	14
15 Sunday	16 Journal club	17 Subject seminar	18 Subject seminar	19 Case Presentation	20 Clinical society meet	21 Clinico-Radiological Meet
22 Sunday	23 Subject seminar	24 ALC visit	25 Thesis sample collection presentation	26 Clinico Pathalogical Meet	27 Clinical society meet	28
29 Sunday	30 Subject seminar	31 case presentation				

Instructions: -

- All classes will be based on discussion
- PPTS to be used only to show images planning details
- **Study materials are available on Microsoft teams under the folder May 2022 study materials**
- Both students should discuss with each other prior to the class and present
- The team shall discuss with the teacher atleast 3-5days before the date of the class.
- The week's doubts clarifications to be discussed with the faculty on Saturdays.
- All the best

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ANNEXURE – 3
DEPARTMENT OF Respiratory Medicine

POLICY FOR OUTSIDE PG POSTINGS

Post graduates are posted in Other departments in second year.

Department of General Medicine (DRP)	3 Month
Cardiology	1 Month
Radio-Diagnosis	2 Weeks
Cardio- Thoracic Surgery	2 weeks
MICU	1 Month
Emergency Medicine	2 weeks
OT postings	1 Week

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Annexure 4

Logbook entry

Date	
Setting/method	
Presented/attended	
Summary in brief	
Reflection	
Teachers comments	

Student's signature Guide's Signature

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ANNEXURE-5

Postgraduate Students Appraisal Form Name of the PG Student Period of Training Duration:.....to.....

Sl. No	Particulars	Not satisfactory (1,2,3)	Satisfactory (4,5,6)	More than Satisfactory (7,8,9,10)	Remarks
1	Journal based learning				
2	Patient care and rounds				
3.	Bedside teaching, Clinical Seminars				
4.	Communication skills				
5.	Log book				
6.	Thesis work				
7.	CME/Outreach programmes/Conference presentations				
8.	Self-directed learning				
9.	Under-graduate teaching				
10.	Research/Publication				

Sign of the student Sign of the assessor Sign of Head of the Department

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Course Specifications MD Respiratory Medicine

2022 onwards

Course Code: MDC565A

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Course Specifications

Course Title	**General Pulmonary Medicine and Basic Sciences**
Course Code	**MDC565A**
Department	**Respiratory Medicine**
Faculty	**Ramaiah Medical College**

Course summary:

This course is designed in such a way that the student will master the basics of pulmonology, common diseases in respiratory Medicine, pathophysiology , various investigations in pulmonology.

Course Outcomes:

CO 1: Demonstrate comprehensive knowledge of applied anatomy, classification, histopathology, investigations. (C)

CO 2: Demonstrate the understanding of various drugs used in pulmonology, drugs pharmacokinetics and drugs interaction. (C)

CO 3: Demonstrate the understanding of Pathophysiology (C)

Course Content:

The student should acquire knowledge in the following:

Basic Sciences:

A. Anatomy and Histology of Respiratory System

1. Development and Anatomy of Respiratory System
2. Applied embryology of lungs, mediastinum and diaphragm
3. Developmental anomalies

General pulmonology:

B. Physiology

1. Assessment of pulmonary functions
2. Control of ventilation; pulmonary mechanics
3. Ventilation, pulmonary blood flow, gas exchange and transport
4. Non-respiratory metabolic functions of lung
5. Principles of electrocardiography
6. Inhalation kinetics and its implication in aerosol therapy, and sputum induction etc.
7. Acid-base and electrolyte balance
8. Physiology of sleep and its disorders
9. Pulmonary innervation and reflexes
10. Pulmonary defense mechanisms
11. Principles of exercise physiology and testing
12. Physiological changes in pregnancy, high altitude, aging
13. Physiological basis of pulmonary symptoms

C. Microbiology

1. Mycobacterium tuberculosis and other mycobacteria
2. Bacteria causing pulmonary diseases
3. Atypical organisms and respiratory tract infections

4. Anaerobes in pleuropulmonary infections
5. Laboratory diagnosis of non-tubercular infections of respiratory tract
6. Laboratory diagnosis of TB including staining, culture and drug sensitivity testing
7. Virulence and pathogenicity of mycobacteria
8. Respiratory viruses: Viral diseases of the respiratory system and diagnostic methods
9. Respiratory fungi: (i) Classification of fungal diseases of lung: candidiasis, Actinomycosis, Nocardiosis, Aspergillosis, Blastomycosis etc. (ii) Laboratory diagnostic procedures in pulmonary mycosis
10. Opportunistic infections in the immuno-compromised individuals
11. HIV and AIDS. Virological aspects, immuno-pathogenesis, diagnosis
12. Parasitic lung diseases

D. Pathology

1. Acute and chronic inflammation: Pathogenetic mechanisms in pulmonary diseases
2. Pathology aspects of Tuberculosis
3. Pathology aspects of Pneumonias and bronchopulmonary suppuration
4. Chronic bronchitis and emphysema, asthma, other airway diseases
5. Occupational lung diseases including Pneumoconiosis
6. Interstitial lung diseases including sarcoidosis, connective tissue diseases, pulmonary vasculitis syndromes, pulmonary eosinophilias
7. Tumours of the lung, mediastinum and pleura

E. Epidemiology

1. Epidemiological terms and their definitions
2. Epidemiological methods
3. Epidemiology of tuberculosis, pneumoconiosis, asthma, lung cancer, COPD and other pulmonary diseases
4. National Tuberculosis Control Programme , Epidemiological aspects of BCG
5. Epidemiological aspects of pollution-related pulmonary diseases
6. Research methodology, statistics and study designs

F. Allergy and Immunology

1. Various mechanisms of hypersensitivity reactions seen in pulmonary diseases
2. Diagnostic tests in allergic diseases of lung - in vitro and in vivo tests, bronchial provocation test
3. Immunology of tuberculosis, Sarcoidosis and other diseases with an immunological basis of pathogenesis

G. Pharmacology

1. Pharmacology of antimicrobial drugs
2. Pharmacology of antitubercular drugs
3. Pharmacology of antineoplastic and immunosuppressant drugs
4. Bronchodilator and anti-inflammatory drugs used in pulmonary diseases
5. Drugs used in viral, fungal and parasitic infections
6. Other drugs pharmacokinetics and drugs interaction of commonly used drugs in pulmonary diseases
7. Pharmacovigila

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes						
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDC565A General Pulmonary Medicine and Basic Sciences	CO 1	3	1	1	3	3	1	1	1	1	1	1
	CO 2	2	1	1	3	1	3	1	1	3	1	1
	CO 3	2	1	1	3	1	1	1	1	1	1	1
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution												

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Course Specifications MD Respiratory Medicine

2022 onwards

Course Code: MDC566A

Course Specifications

Course Title	**Clinical Pulmonary Medicine including Medical Emergencies**
Course Code	**MDC566A**
Department	**Respiratory Medicine**
Faculty	**Ramaiah Medical College**

Course Summary:

This course is designed in such a way that the student will understand and manage cases of non TB pulmonary diseases and Medical Emergencies.

Course Outcomes:

CO 1: Demonstrate approach to Pulmonary Infections , Airway diseases , Lung cancers . (C,A,P)
CO 2: Demonstrate approach ILD , Pulmonary vascular diseases , Environmental and occupational lung diseases. (C,A,P)
CO 3: Demonstrate approach to pleural diseases and preventive Pulmonology. (C,A,P)
CO4 : Demonstrate management of medical emergencies.(C,A,P)

Course Content:

Group A:

Approach to Pulmonary infection Lung microbiome, Virulence factors in Pulmonary infections, Antibiotics in Pulmonary infection, Pathogens in Pulmonary infections, Common syndromes in Pulmonary infectious diseases.

GROUP B:

Chronic Obstructive Pulmonary Diseases, alpha- 1 antitrypsin deficiency, Smoking cessation, Cystic fibrosis, Bullous lung diseases, Bronchial Asthma, Allergic bronchopulmonary aspergillosis, GOLD & GINA guidelines, Bronchiectasis, Asbestos related lung diseases, Coal workers lung diseases, Silicosis, Chronic Beryllium Disease, Occupational Asthma,

GROUP C:

Genetic and molecular changes in lung cancer, Epidemiology & pathology of lung cancer, lung cancer screening, Pulmonary nodules, Diagnosis and staging of lung cancer, Treatment of Small cdell & Non small cell lung cancer, Lymphoproliferative diseases involving the lung, Pulmonary AV malformations, Eosinophilic Lung diseases, Pulmonary Arterial Hypertension

GROUP D:

Medical Emergencies: Tension Pneumothorax, Hydropneumothorax, Massive pleural effusion, Pulmonary Thromboembolic diseases,AEOD , Sepsiis , Shock , Cardiac Emergencies , Diabetic Ketoacidosis.

GROUP E:

Sleep-related pulmonary diseases(Polysomnography,Sleep apneas ,Other sleep-disordered breathing syndromes),Diseases of the diaphragm,Disorders of chest wall,Obesity-related pulmonary disorders,Oxygen therapy,End-of-life care,Aerospace Medicine,Pulmonary problems related to special environments (high altitude, diving, miners),Assessment of quality of life using questionnaires,Health impacts of global warming,Principles of smoking cessation and smoking

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cessation strategies,Cardiopulmonary rehabilitation,Preventive aspects of pulmonary diseases,Vaccination in pulmonary diseases

Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes						
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDC566A Clinical Pulmonary Medicine including Medical Emergencies	CO1	3	3	2	3	3	3		3	3	3	1
	CO 2	3	3	2	3	1	1		3	2	3	1
	CO 3	3	3	2	3		3		3	2	3	1
	CO4	3	3	2	3		3		3	2	3	1
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution												

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Course Specifications MD Respiratory Medicine

2022 onwards

Course Code: MDC567A

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Course Specifications

Course Title	Clinical Pulmonary Medicine Including Critical care Medicine
Course Code	MDC567A
Department	Respiratory Medicine
Faculty	Ramaiah Medical College

Course Summary:

The course is designed in such a way that the student will master in tuberculosis and up to date on National health program (NTEP). In addition the student will acquire comprehensive knowledge and skills to manage critical care.

Course Outcomes:

CO1: Demonstrate the understanding of etiopathogenesis of TB and EPTB(C,A)
CO 2: Demonstrate the application of principles of TB treatment . (A,C,P)
CO3: Demonstrate the application of TB treatment in special situations(C, A)
CO 3: Demonstrate comprehensive knowledge of pulmonary and critical care.(A,C,P)

Course Content:

1. Tuberculosis

1. Aetiopathogenesis
2. Diagnostic methods
3. Differential diagnosis
4. Management of pulmonary tuberculosis; NTEP, DOTS, and DOTS-Plus; International Standards of TB Care
5. Complications in tuberculosis
6. Tuberculosis in children
7. Geriatric tuberculosis
8. Pleural and pericardial effusion and empyema
9. Mycobacteria other than tuberculosis
10. Extrapulmonary tuberculosis
11. HIV and TB; interactions of antitubercular drugs with antiretrovirals
12. Diabetes mellitus and tuberculosis
13. Management of MDR and XDR tuberculosis

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Critical Care Pulmonary Medicine

1. Management of emergencies in pulmonary diseases
2. Adult respiratory distress syndrome
3. Respiratory failure in the patient with obstructive airway disease
4. Respiratory failure in other pulmonary diseases
5. Nutrition and pain management in Pulmonary diseases.
6. Management of sepsis
7. Respiratory and hemodynamic monitoring in acute respiratory failure
8. Non-invasive and Mechanical ventilation
9. Principles of critical care, diagnosis and management of complications; severity of illness scoring systems
10. ECMO
11. Oxygen Therapy and Toxicity.
12. Ethical and end-of-life issues in critical care.

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes						
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDC567A Clinical Pulmonary Medicine Including Tuberculosis and Critical care Medicine	CO 1	3	3	2	3	3	3	3	3	3	3	2
	CO 2	3	3	1	3	3	3	3	2	3	3	2
	CO 3	3	3	1	3	3	3	3	2	3	3	2
	CO 4	3	3	1	3	3	3	3	3	3	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution												

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Course Specifications MD Respiratory Medicine

2022 onwards

Course Code: MDC568A

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Course Specifications

Course Title	**Recent advances in Pulmonary Medicine, and Research Methodology.**
Course Code	**MDC568A**
Department	**Respiratory Medicine**
Faculty	**Ramaiah Medical College**

Course Summary:

The course is designed in such a way that the student will master newer advances in Pulmonary Medicine and Interventional Pulmonology and also participate in active research.

Course Outcomes:

CO 1: Demonstrate comprehensive knowledge of newer advances in respiratory care, its application in creating awareness, early diagnosis and therapeutic interventions. (C,A,P)

CO 2: Demonstrate the knowledge of biomedical research and publication.(C,A)

Course Content:

Interventional Pulmonology

1. Diagnostic and therapeutic bronchoscopy (flexible and rigid bronchoscopy)
2. Virtual Bronchoscopy simulation
3. Bronchoalveolar lavage(BAL)
4. Trans bronchial lung biopsy (TBLB) with fluoroscopy guidance
5. Endobronchial biopsy (EBB)
6. Endobronchial needle aspiration (EBNA) & brush cytology
7. Endobronchial ultrasound guided trans bronchial needle aspiration of mediastinal lymph nodes and tumors (EBUS-TBNA) including Elastography
8. Debulking procedures including coring with rigid bronchoscopy, cryoablation and cryorecanalization, electrocoagulation therapy and argon plasma coagulation
9. Placements of metallic and silicon stents for central airway obstruction, spigots and blockers for hemoptysis
10. Localization of alveolopleural and bronchopleural fistulae
11. Foreign body removal
12. Trans bronchial Cryo lung biopsy
13. Radial endobronchial ultrasound and fluoroscopic guided biopsy of lung nodules.
14. Diagnostic and therapeutic thoracocentesis.
15. Tube thoracostomy and medical pleurodesis.
16. Pleural indwelling catheter insertion.
17. Medical thoracoscopy with pleural biopsy and Adhesiolysis (including rigid and fl exible thoracoscopy).

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Thoracic Oncology

1. Principles of cancer chemotherapy and treatment.
2. Tissue Diagnosis of lung and thoracic malignancies.
3. Evaluation of Solitary Pulmonary Nodule and pulmonary nodules.

General Pulmonology:

1. Interpretation of pulmonary function tests (including spirometry, forced oscillometry, DLCO, cardiopulmonary exercise testing, arterial blood gas analysis)
2. Interpretation of thoracic radiology (HRCT Thorax) in management of pulmonary diseases
3. Multi-disciplinary discussion meeting for diagnosis of interstitial lung diseases
4. Evaluation and management of sleep related breathing disorders (OSA, CSA, OHS). PAP devices , CPAP, BIPAP and strategies in pulmonary applications.
5. Lung Transplantation.

Biomedical Research:

1. Sampling – Random sampling, purposive sampling, advantages of sampling, Various methods of sampling (Simple random, systematic, stratified, cluster, Multistage & multiphase), sampling error, non-sampling error.
2. Descriptive statistics – Arithmetic mean, Median, Mode, and Standard error, coefficient of variation.
3. Graphics presentation of date – Bar diagram, histogram frequency curve, line graph, pie chart.
4. Normal distribution – Definition and properties/Confidence interval, Basic concept of testing of hypothesis, p-value, power of the test.
5. Test of significance –t-test, test of proportion, chi-square test, concept of analysis of variance.
6. Study design – Descriptive studies, analytical studies. Observational studies, experimental studies, prospective studies, retrospective studies, odds ration, relative risk, attributable risk percent, population attributable risk percent.
7. Correlation and regression – Simple correlation, linear regression, concept of multiple regression.
8. Survival analysis – Life table, Survival analysis, K – M Method, Cox regression, log ran k test.
9. Sample size determination – Basic concept, sample size determination of estimating proportion and mean.
10. Clinical trials in pulmonology – Basic concept.

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes						
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDC568A Recent advances in Pulmonary Medicine, and Research Methodology.	CO 1	3	3	3	3	3	3	3	3	3	3	3
	CO 2	3	3	3	3	3	3	3	3	3	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution												

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Course Specifications MD Respiratory Medicine

2022 onwards

Course Code: MDP517A

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Course Specifications

Course Title	**Thesis-Respiratory Medicine**
Course Code	**MDP517A**
Department	**Respiratory Medicine**
Faculty	**Ramaiah Medical College**

Course Summary:

The course is designed in such a way that the student will master the science of research in terms of designing, conducting and interpreting the results.

Course Outcome:

CO1-Describe the techniques of research, identify available literature and critically analyse the same. (C)

Course details:

Every candidate pursuing MD Medicine degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation. The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Every candidate shall submit to the Registrar (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

The dissertation should be written under the following headings:

1. Introduction
2. Aims or Objectives of study
3. Review of Literature
4. Material and Methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References (Vancouver style)
10. Tables
11. Annexures

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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes						
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
MDP517A Thesis-Respiratory Medicine	CO1	1	1	3	1	1	1	1	1	1	1	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution												

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Approved by the Academic Council at its 27th meeting held on 27 September 2022

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Course Materials:

Books

Harrison's Principles of Internal Medicine ed. Petersdorf (McGraw Hill)
Crofton & Douglas Respiratory diseases ed. Seaton et al (Oxford)
Pulmonary diseases & disorders by Fishman (McGraw Hill)
Textbook on Pulmonary disease by Fraser & Pare
Textbook of Respiratory Medicine by Murray and nadel's(Elsevier)
Textbook of pulmonary medicine by Behera(JP)
Egan's Fundamentals of respiratory Medicine by Robert
Clinical Application of mechanical Ventilation by Chang David
Bronchoscopy by Straddling
Tuberculosis by SK Sharma
Toman's Tuberculosis-WHO
Lung diseases in the Tropics ed. OP Sharma (Marcel Dekker)
The Normal Lung by Murray (Saunders)
Pulmonary Function Testing by Clausen (Academic Press)
Respiratory Physiology by J.B. West (Williams & Wilkins)
Physiology of Respiration by J.H. Comroe (Yearbook Med Pub.)
Respiratory Function in disease by Bates et al (Saunders)
Chest Roentgenology Felson (W .B. Saunders company)
High resolution CT of the lung by WEBB
Pleural Diseases by light
A Textbook of symptoms and physical signs Physical diagnosis by Golwalla
Macleod's Clinical Examination

Journals: 03-05 international Journals and 02 national (all indexed) journals

CHEST
THORAX
CLINICS IN CHEST MEDICINE
LUNG INDIA
INDIAN JOURNAL OF TUBERCULOSIS
LANCET
BMJ CASE REPORTS
NEW ENGLAND JOURNAL OF MEDICINE

Additional Reading:

GINA Guidelines

GOLD Guidelines

ATS Recommendations

NTEP Guidelines

ERS Guidelines

IDSA Guidelines

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