



AMRITA

VISHVA VIDYAPEETHAM

A Multi Campus University with 'A' Grade Accreditation by NAAC

AMRITA SCHOOL OF MEDICINE

Amrita Centre for Allied Health Sciences

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CURRICULUM

M.Sc Respiratory Therapy



A Super Speciality Tertiary Care Hospital Accredited by ISO 9001-2008, NABL & NABH

Our Chancellor



SPIRITUAL PRINCIPLES IN EDUCATION

“In the gurukulas of ancient rishis, when the master spoke it was love that spoke; and at the receiving end disciple absorbed of nothing but love. Because of their love for their Master, the disciples’ hearts were like a fertile field, ready to receive the knowledge imparted by the Master. Love given and love received. Love made them open to each other. True giving and receiving take place where love is present. Real listening and ‘srad-dha’ is possible only where there is love, otherwise the listener will be closed. If you are closed you will be easily dominated by anger and resentment, and nothing can enter into you”.

“Satguru Mata Amritanandamayi Devi”

Introducing AIMS

India is the second most populous nation on earth. This means that India's health problems are the world's health problems. And by the numbers, these problems are staggering 41 million cases of diabetes, nearly half the world's blind population, and 60% of the world's incidences of heart disease. But behind the numbers are human beings, and we believe that every human being has a right to high-quality healthcare.

Since opening its doors in 1998, AIMS, our 1,200 bed tertiary care hospital in Kochi, Kerala, has provided more than 4 billion rupees worth of charitable medical care; more than 3 million patients received completely free treatment. AIMS offers sophisticated and compassionate care in a serene and beautiful atmosphere, and is recognized as one of the premier hospitals in South Asia. Our commitment to serving the poor has attracted a dedicated team of highly qualified medical professionals from around the world.

The Amrita Institute of Medical Sciences is the adjunct to the term "New Universalism" coined by the World Health Organization. This massive healthcare infrastructure with over 3,330,000 sq. ft. of built-up area spread over 125 acres of land, supports a daily patient volume of about 3000 outpatients with 95 percent inpatient occupancy. Annual patient turnover touches an incredible figure of almost 800,000 outpatients and nearly 50,000 inpatients. There are 12 super specialty departments, 45 other departments, 4500 support staff and 670 faculty members.

With extensive facilities comprising 28 modern operating theatres, 230 equipped intensive-care beds, a fully computerized and networked Hospital Information System (HIS), a fully digital radiology department, 17 NABL accredited clinical laboratories and a 24/7 telemedicine service, AIMS offers a total and comprehensive healthcare solution comparable to the best hospitals in the world. The AIMS team comprises physicians, surgeons and other healthcare professionals of the highest caliber and experience.

AIMS features one of the most advanced hospital computer networks in India. The network supports more than 2000 computers and has computerized nearly every aspect of patient care including all patient information, lab testing and radiological imaging. A PET (Positron Emitting Tomography) CT scanner, the first of its kind in the state of Kerala and which is extremely useful for early detection of cancer, has been installed in AIMS and was inaugurated in July 2009 by Dr. A. P. J. Abdul Kalam, former President of India. The most recent addition is a 3 Tesla Silent MRI.

The educational institutions of Amrita Vishwa Vidya Peetham, a University established under section 3 of UGC Act 1956, has at its Health Sciences Campus in Kochi, the Amrita School of Medicine, the Amrita Centre for Nanosciences, the Amrita School of Dentistry, the Amrita College of Nursing, and the Amrita School of Pharmacy, committed to being centres of excellence providing value-based medical education, where the highest human qualities of compassion, dedication, purity and service are instilled in the youth. Amrita School of Ayurveda is located at Amritapuri, in the district of Kollam. Amrita University strives to help all students attain the competence and character to humbly serve humanity in accordance with the highest principles and standards of the healthcare profession.

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Part I

Rules and Regulations

I. Post Graduate Programmes (Master of Sciences)

1. Details of Post Graduate Courses :			
Sl. No.	Course	Duration	Eligibility for admission to the course
1	Medical Laboratory Technology (MLT)	2 years	Pass in B.Sc MLT (4 year regular courses only)
2	Neuro-Electro Physiology		B.Sc Neuro-Electro Physiology
3	Swallowing Disorders and Therapy		BASLP
4	Biostatistics		Graduates in Statistics/Mathematics with paper in Statistics
5	Respiratory Therapy		B.Sc Respiratory Therapy
6	M.Sc Diabetes Sciences		B.Sc Diabetes Sciences
7	M.Sc Cardiovascular Technology		B.Sc Cardiovascular Technology
8	M.Sc Trauma and Critical Care		B.Sc Emergency Medical Technology, B.Sc Respiratory Therapy, B.Sc Physician Assistant, B.Sc Anaesthesia Technology
9	M.Sc Physician Assistant – Medical Oncology		B.Sc Physician Assistant
10	M.Sc Dialysis Therapy		B.Sc Dialysis Therapy

I.2. Medium of Instruction:

English shall be the medium of instruction for all subjects of study and for examinations.

II.3. Eligibility:

Essential qualifications for eligibility are mentioned under clause No. I.

II. General Rules:

Admissions to the courses will be governed by the conditions laid down by the University from time to time and as published in the Regulations for admissions each year.

I.1. Duration of the Course

Duration details are mentioned under clause No.I of this booklet.

Duration of the course	: Mentioned under clause No. I
Weeks available per year	: 52 weeks
Holidays	: 5 weeks
Examination (including preparatory)	: 6 weeks
Extra curricular activities	: 2 weeks
Weeks available	: 39 weeks
Hours per week	: 40 hours
Hours available per academic year	: 1560 (39 weeks x 40 hours)

Internship wherever specified are integral part of the course and needs to be done in Amrita Institute of Medical Sciences, Centre for Allied Health Sciences, Kochi itself.

II.2. Discontinuation of studies

Rules for discontinuation of studies during the course period will be those decided by the Chairman / Admissions, and is published in the "Terms and Conditions" every year.

II.3. Educational Methodology

Learning occurs by attending didactic lectures, as part of regular work, from co-workers and senior faculty, through training offered in the workplace, through reading or other forms of self-study, using materials available through work, using materials obtained through a professional association or union, using materials obtained on students own initiative, during working hours at no cost to the student.

II.4. Academic Calendar

Annual Scheme

FIRST YEAR

Commencement of classes	– August
Sessional exam	– March
University exam (with practical)	– 15 June - 15 July

SECOND YEAR

Commencement of classes	– August
Sessional exam	– March
University exam (with practical)	– 15 June - 15 July

III. Examination Regulations:

III.1. Attendance: **75% of attendance (physical presence) is mandatory.** Medical leave or other types of sanctioned leaves will not be counted as physical presence. Attendance will be counted from the date of commencement of the session to the last day of the final examination in each subject.

III.2. Internal Assessment:

1. Regular periodic assessment shall be conducted throughout the course. At least one sessional examination in theory and preferably one practical examination should be conducted in each subject. The model examination should be of the same pattern of the University Examination. The marks obtained in assignments / oral / viva / practical shall be taken to calculate the internal assessment.
2. A candidate should secure a minimum of 50% marks in the internal assessment in each subject (separately in theory and practical) to be eligible to appear for the University examination.

3. The internal assessment will be done by the department once during the course and final model exam which will be the same pattern of University Examination.
4. Each student should maintain a logbook and record the procedures they do and the work patterns they are undergoing. It shall be based on periodical assessment, evaluation of student assignment, preparation for seminar, clinical case presentation, assessment of candidate's performance in the sessional examinations, routine clinical works, logbook and record keeping etc.
5. Day to day assessment will be given importance during internal assessment and weightage for internal assessment shall be 20% of the total marks in each subject.
6. Sessional examination as mentioned above and the marks secured by the students along with their attendance details shall be forwarded to the Principal. Model examination shall be held three to four weeks prior to the University Examination and the report shall be made available to the Principal ten days prior to the commencement of the University Examination.

III.3. University Examinations:

- University Examination shall be conducted at the end of every academic year.
- A candidate who satisfies the requirement of attendance and internal assessment marks, as stipulated by the University shall be eligible to appear for the University Examination.
- One academic year will be twelve months including the days of the University Examination. Year will be counted from the date of commencement of classes which will include the inauguration day.
- The minimum pass for internal assessment is 50% and for the University Examination is 50%. However the student should score a total of 50% (adding the internal and external examination) to pass in each subject (separately for theory and practical)
- If a candidate fails in either theory or practical paper, he/she has to re-appear for both the papers (theory and practical)

- Maximum number of attempts permitted for each paper is five (5) including the first attempt.
- The maximum period to complete the course shall not exceed 6 years.
- All practical examinations will be conducted in the respective clinical areas.
- Number of candidates for practical examination should be maximum 12 to 15 per day
- One internal and external examiner should jointly conduct the theory evaluation and practical examination for each student during the final year.

III.4. Eligibility to appear university Examination:

A student who has secured 50% marks for Internal Assessment is qualified to appear for University Examination provided he/she satisfies percentage of attendance requirement as already mentioned at the III (1) of the clause.

III.5. Valuation of Theory – Revaluation Papers:

1. Valuation work will be undertaken by the examiners in the premises of the Examination Control Division in the Health Sciences Campus.
2. There will be **Re-Valuation** for all the University examinations. Fees for re-valuation will be decided by the Principal from time to time.
3. Application for revaluation should be submitted within 10 days from date of result of examination declared and it should be submitted to the office with payment of fees as decided by the Principal.

III.6. Supplementary Examinations:

Every regular University examination will be followed by a supplementary examination which will normally be held within four to six months from the date of completion of the regular examination.

As stipulated under clause No. 2 under Internal Assessment, HOD will hold an internal examination three to four weeks prior to the date of the University Examination. Marks secured in the said examination or the ones secured in the internal examination held prior to the earlier University Examination whichever is more only will

be taken for the purpose of internal assessment. HODs will send such details to the Principal ten days prior to the date of commencement of University examination.

Students who have not passed / cleared all or any subjects in the first University examination will be permitted to attend the second year classes. However, he / she can appear for the final year University Examination, only if he / she clear all the subjects in the first year University examinations.

Same attendance and internal marks of the regular examination will be considered for the supplementary examination, unless the HOD furnishes fresh internal marks and attendance after conducting fresh examination.

Students of supplementary batches are expected to prepare themselves for the University Examinations. No extra coaching is expected to be provided by the Institution. In case at any time the Institution has to provide extra coaching, students will be required to pay fees as fixed by the Principal for the said coaching.

III.7. Rules regarding carryover subjects:

A candidate will be permitted to continue the second of the course even if he/she has failed in the first year University Examinations.

IV. Criteria for Pass in University Examination - Regulations:

IV.1. Eligibility criteria for pass in University Examination:

In each of the subjects, a candidate must obtain 50% in aggregate for a pass and the details are as follows:

- A separate minimum of 50% for Internal Assessment
- 50% in Theory & 50% in Oral / Viva
- A separate minimum of 50% in aggregate for Practical / Clinics (University Examinations)
- Overall 50% is the minimum pass in subject aggregate (University Theory + Viva / Oral + Practical + Internal Assessment)

IV.2. Evaluation and Grade:

1. Minimum mark for pass shall be 50% in each of the theory and practical papers separately (including internal assessment) in all subjects.

2. A candidate who passes the examination in all subjects within aggregate of 50% marks and above and less than 65% shall be declared to have passed the examination in the second class.
3. A candidate who passes the examination in all subjects in the first attempt obtaining not less than 65% of the aggregate marks for all the three years shall be declared to have passed the examination with First Class.
4. A candidate who secures an aggregate of 75% or above marks is awarded distinction. A candidate who secures not less than 75% marks in any subject will be deemed to have passed the subject with distinction in that subject provided he / she passes the whole examination in the first attempt.
5. A candidate who takes more than one attempt in any subject and pass subsequently shall be ranked only in pass class.
6. A Candidate passing the entire course is placed in Second class / First class / Distinction based on the cumulative percentage of the aggregate marks of all the subjects in the I and final University Examinations
7. Rank in the examination: - Aggregate marks of all two year regular examinations will be considered for awarding rank for the M.Sc Graduate Examination.

V. General considerations and teaching / learning approach:

There must be enough experience to be provided for self learning. The methods and techniques that would ensure this must become a part of teaching-learning process. Proper records of the work should be maintained which will form the basis for the students' assessment and should be available to any agency that is required to do statutory inspection of the school of the course.

The students will be posted in Amrita Institute of Medical Sciences, Kochi and Amrita Institute of Medical Sciences, Faridabad, if necessary, during final year period.

Research Activities:

The candidate has to maintain a record of research activities done by him/her and keeps a project record (to be submitted to the Principal before Part II examination).

Part II Syllabus

Paper I
Advanced Respiratory Management – I

SL No	Topic	Hours
1	Emergency and prehospital respiratory care	4
2	Lung assistance	2
3	Radiology in detail	2
	MDCT	4
	Chest radiographs & MRI	4
	Lung scanning	2
	Ventilation perfusion lung scan	2
4	ABG & Capnography	2
5	Advanced cardiopulmonary monitoring	4
6	Advanced Critical Care Monitoring - Includes hemodynamic monitoring, ventilatory waveform analysis and capnography	4
7	Advanced Cardiac Life Support - The Advanced Cardiac Life Support (ACLS) course is designed to develop the participant's proficiency in providing care in a cardio respiratory arrest. This course is offered over a 10-week period to allow for understanding of pathophysiology and the assimilation of the knowledge to carry out skills required in emergent circumstances.	5
8	Non-pharmacological management of respiratory disease	2
9	Palliative care in end stage respiratory disease	2
10	Education, Patients & Peers in Respiratory Practice investigations	1
11	Asthma, COPD & other Obstructive Respiratory Diseases	2
12	Ethical Issues in Respiratory Disease Management	1
13	Respiratory Disease Management – Work Based Learning	4
14	Psychosocial factors of respiratory disease: Impact on patient management	2
15	Rehabilitation and Home Care in Pulmonary Disease	3

Professional Practice: From Current Trends to Extended Care Analysis of the current professional environment and the role of the respiratory therapist in that atmosphere are discussed. An overview of concepts, procedures, and long-term care and how the respiratory therapist's role is impacted interacting between the acute care facility and self-administered care in the patient's home is emphasized. Topics and emphasis may vary.

Total teaching hours will be 50 including practical

Paper II
Clinical Practice

SL No	Topic	Hours
1	Acute Rhinitis	2
2	Acute Sinusitis	2
3	Multi Organ Failure in ICU (MODS)	2
4	Laryngeal tracheitis & Epiglottitis	2
5	Acute otitis media	2
6	Bronchitis , Pneumonia- Community And Hospital acquired Pneumonia in compromised host	4
7	Pneumonia, lung abscess – Emphysema due to aerobic organisms	4
8	Sepsis and ICU Management	4
9	MRSA & TB in ICU, Lung Cancer	2
10	Virus – influeze – parainfluenze, rhinovirus, enterovirus	4
11	Myobacterial infections	2
12	Pulmonary and extra pulmonary tuberculosis, non-tuberculosis mycobacterial diseases	4
13	Pneumocystic carinnii pneumonia	4
14	Massive Hemoptysis ,Pneumothorax , Pleural Effusion & Emyema	2
15	Acute care or COPD, Bronchodialator therapy, the low concentration O2 therapy	6
16	Acute respiratory failure including pump failure, lung failure, pulmonary pathology leading to respiratory failure	5
17	Acute restrictive pathology, neuromuscular diseases	4
18	Acute lung injury ALI	2
19	Parenchymal response to injury, acute lobar and segmental atelectasis pulmonary embolization, diffuse parenchymal function	4
20	Defining ARDS, Infant RDS	4
21	The NCE/ARDS spectrum, refractory hypoxemia	2
22	Adult Lung Injury, Clinical diagnosis of ALI	2
23	Toxic oxygen radicals and ALI	2
24	Principles of airway pressure therapy in ALI	4
25	PEEP therapy in ALI, Early of prophylactic PEEP therapy	2
26	Fluid therapy of ALI, Specific therapy of ALI	4
27	Toxic Inhalation	2
28	Aspiration pneumonitis	2
29	Definition, assessment, status, Quantity & Acidity of aspirant Clinical pathophysiology, inflammation of the tracheo-bronchial tree	4
30	Blood gas abnormalities, Prevention Treatment including antibiotic and steroid therapy	2

31	Carbon monoxide poisoning, Diagnosis treatment, thermal injury	2
32	Lung Cancer	2
33	Pleural diseases	2
34	Pulmonary Oedema	2
35	Fluid balance in the lung, Permeability of capillary endothelium	2
36	Lung interstitium and lymphatics, Types of PE	2
37	Alveolar PE, Neurogenic PE, Hemodynamic PE, RE Expansion PE, permeability PE	2
38	Cardiogenic PE, Preload afterload reduction	2
39	Fluid therapy and PE, Increasing contractility, post-hemorrhagic shock	2
40	General principles for therapy	2
41	Bronchial asthma - Def, Pathogenesis, management of acute and chronic asthma COPD & other Obstructive Respiratory Diseases	2
42	Ventilatory Support I Course Description: A study of methods of mechanical ventilatory support, including physiology and patient management, as well as equipment. Conventional methods of ventilatory support Unconventional methods of ventilatory support Ventilator support in specific settings Mechanical ventilation in neonatal & paediatric setting Delivery of MV during resuscitation Independent lung ventilation etc	10
	Ventilatory Support II	
43	Physiologic effects of mechanical ventilation Heart lung interactions Effects of mv and control of breathing Effect of MV on gas	10
44	Artificial Airways and management	6
45	Complication in ventilator support patients Complications associated with MV Barotrauma and Bronchopleura fistula VAP and prevention	8
46	Evaluation and monitoring of ventilator supported patients	6
47	Management of the ventilator supported patient Technical aspects of patient ventilator interface Positioning Bronchodilator therapy Neuromuscular blockade sedation and pain control Management on the patient who is fighting with the ventilator Psychological problems of the ventilator depend-	10

	ant patients Discontinuation of mechanical ventilated patients - Implementing Therapist Driven Protocols.	
48	New Technologies and computer application in respiratory care	4
49	Lung Recruitment	4
50	Simulation in respiratory care	4
51	Pressure Monitoring with PA catheter & Catheter complications	3
52	Effects of mechanical ventilation on hemodynamic monitoring	3
53	Advanced steps in Blood gas evaluation Changes in Ventilation & Oxygenation Changes in pH caused by changes in PaCO ₂ Changes in plasma Bicarbonate and pH Metabolic Changes in Bicarbonate and pH	3
54	Oxygen consumption & Metabolic assessment	4
55	Fluid and electrolytes management	4
56	Nutrition of the critically ill patients	4
57	NO therapy	4
58	Special problems in respiratory care	4
59	Rapid Sequence Intubation steps of RSI	5
60	Pharmacological management of respiratory disease Aerosol Therapy Antibiotics in respiratory care Sedation v/s analgesia Presedation & post sedation assessment Anti anxiety and paralytic agents	25

Paper III Pulmonary Diagnostics

SL No	Topic	Hours
1	PFT detailed study	5
2	Lung volume test	4
3	Pulmonary mechanics using Spiro meter	3
4	Exercise testing	5
5	Specialized test – non invasive monitoring	5
6	Before and after bronchodialator studies	5
7	PFT for disability & PFT for children	3
8	Equipments – Volume displacement Spiro meter, blood gas electrodes, oxymeters related devices, record and dated devices	4
9	Bronchoscopy	4
10	Rapid bronchoscope	3
11	Flexible Fibreoptic bronchoscope	3
12	Equipment maintenance	1

13	Procedures	5
14	Pediatric bronchoscope	4
15	Sleep Disorders and Sleep Study	6
16	Pulmonary angiography	5
17	Bronchial provocation test	5

Paper IV
Adult & Pediatric Respiratory Care

Adult Respiratory Care

SL No	Topic	Hours
1	Respiratory care in surgery in Adults	140
2	Resection of lung	3
3	Segmental resection of lung	3
4	Pulmonary lobectomy	3
5	Pneumonectomy	3
6	Video assisted thoracoscopic pneumonectomy	3
7	Laryngoscopy	2
8	Laryngectomy	2
9	Tracheostomy	4
10	Endotracheal intubation	4
11	Pulmonary angiography	2
12	Management of tension pneumothorax Pneumothorax	4
13	Chest Tube Insertion, Procedures & Methods	4
14	Oncology in respiratory care	3
15	Neurology and Neurosurgery Neurological examination in ICU Head injuries and intensive care management Management of Cerebral edema and raised ICP, Neuro ICU patient Stroke Epilepsy Meningitis and ICU management Neuromuscular Respiratory Failure-Guillain Barre Syndrome (GBS) -Poliomyelitis -Myaesthesia Gravis Hypoxic Encephalopathy and Coma Brain Death and Evaluation of Brain Death Traumatic Spinal Cord Injury	10

Pediatric Respiratory Care

SL No	Topic	Hours
1	Introduces concepts of pediatric diseases and ventilatory management	5
2	Clinical manifestations common with newborn and early child	5

	hood respiratory disorders	
3	Clinical manifestations associated with increased negative intrapleural pressure during Inspiration	5
4	Respiratory care in surgery in pediatrics	6
5	Infant Respiratory Distress Syndrome	4
6	Muconium aspiration syndrome	2
7	Transient tachypnea of the newborn	3
8	Idiopathic respiratory distress syndrome	4
9	Assessment of the newborn	5
10	Neonatal CPAP bedside application	4
11	Neonatal ventilation bedside application	7

SCHEME OF EXAMINATION

M.Sc Respiratory Therapy Degree Examination Distribution of Marks for each subject

Paper Code	Subject Name	University	Internal	Oral	Subject Total	Total	Aggregate
FIRST YEAR							1000
I	Paper I – Advanced Respiratory Management	100	20	30	150	300	
II	Paper II – Clinical Practice	100	20	30	150		
SECOND YEAR							
III	Paper III – Pulmonary Diagnostics	100	20	30	150	700	
IV	Paper IV – Adult and Pediatric Respiratory care	100	20	30	150		
V	Project	100	50	50	200		
VI	Practical +Viva (150 + 50)	100	50	50	200		

IMPORTANT TELEPHONE NUMBERS

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