



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 Specialty 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 ‘sraddha’ 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 Programs

1. Details of Post Graduate Programs:			
Sl. No.	Program	Duration	Eligibility for admission to the course
1	Medical Laboratory Technology (MLT)	2 years	Pass in B.Sc MLT (4 year regular programs only)
2	Neuro-Electro Physiology		B.Sc Neuro-Electro Physiology
3	Deglutology & Swallowing Disorders		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 Emergency Medical Technology		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	Master of Physician Associate – CVTS		B.Sc Physician Assistant
11	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

Semester Scheme

FIRST SEMESTER

Commencement of classes	– August
Sessional exam	– October
Pre-University Examination	- 01 January – 15 January
University exam (with practical)	– 15 January - 30 January

SECOND SEMESTER

Commencement of classes	– February
Sessional exam	– May
Pre-University Exam	- 01 July – 15 July
University exam (with practical)	– 15 July – 30 July

THIRD SEMESTER

Commencement of classes	– August
Sessional exam	– October
Pre-University Examination	- 01 January – 15 January
University exam (with practical)	– 15 January - 30 January

FOURTH SEMESTER

Commencement of classes	– February
Sessional exam	– May
Pre-University Exam	- 01 July – 15 July
University exam (with practical)	– 15 July – 30 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 Pre-University 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.

III.3. University Examinations:

- University Examination shall be conducted at the end of every semester.
- 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 semester will be 6 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%. 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 4 years.
- 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 semester.

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 clauses.

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 University examination will be permitted to attend the next semester classes. However, he / she can appear for the final semester University Examination, only if he / she clear all the subjects in the previous semester 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 next semester of the course even if he/she has failed in the previous semester University Examinations. However, he / she can appear for the final semester University Examination, only if he / she clear all

the subjects in the previous semester (first, second and third semester) 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.

Research Activities:

The candidate must 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

MSc. Respiratory Therapy - Adult Respiratory Care (ARC)

Semester-wise distribution of subjects	
First Semester (Year 1)	
Paper I	Leadership and Management
Paper II	Advanced Biostatistics and Research Methodology
Paper III	Pulmonary Rehabilitation
Paper IV	Health outcomes and Quality Assessment
Paper V	Clinic I
Second Semester (Year 1)	
Paper VI	Teaching and learning in Health Care
Paper VII	Cardiopulmonary Physiology and trauma life support
Paper VIII	Seminars in Respiratory Therapy I
Paper IX	Advanced Mechanical Ventilation
Paper X	Clinic II
Third Semester (Year 2)	
Paper XI	Case Management
Paper XII	Polysomnography
Paper XIII	Critical Care Medicine I
Paper XIV	Advanced Procedures
Paper XV	Clinic III
Fourth Semester (Year 2)	
Paper XVI	Seminars in Respiratory Therapy II
Paper XVII	Critical Care Medicine II
Paper XVIII	Thesis
Paper XIX	Clinic IV

First Semester (Year 1)
Leadership and Management

SL. No.	Topic	Hours
1	Leadership: An Elusive Concept	2 Hours
2	Financial Health, the Taproot of an Organization	4 Hours
3	Cultivating the Leadership Relationship	4 Hours
4	Learning Organization, the Roots of an Organization	4 Hours
5	Building Commitment: Getting Others to Follow	4 Hours
6	Operations, the Trunk of an Organization	4 Hours
7	Communicating with Clarity	4 Hours
8	Strategic Priorities, the Branches of an Organization	4 Hours
9	The Art of Effectively Facilitating Processes	4 Hours
10	Value Creation, the Leaves and Blossoms of an Organization	4 Hours
11	Getting Results	4 Hours
12	Developing Others	4 Hours
13	Conclusion: Leading in the Future	4 Hours

Advanced Biostatistics and Research Methodology

SL. No.	Topic	Hours
1	Fundamentals of research: Research Methodology: An Introduction	2 Hours
2	Defining the Research Problem	2 Hours
3	Research Design Sampling Design	2 Hours
4	Measurement and Scaling Techniques	2 Hours
5	Methods of Data Collection Processing and Analysis of Data	2 Hours
6	Sampling Fundamentals	2 Hours
7	Testing of Hypotheses (Parametric or Standard Tests of Hypotheses and non-parametric test)	2 Hours
8	Interpretation and Report Writing	2 Hours
9	Literature survey and documentation	2 Hours
10	Data collection, analysis and hypothesis	2 Hours
11	Research ethics, plagiarism and impact of research	2 Hours
12	Technical writing and reporting of research	2 Hours
13	Project cost management	2 Hours
14	Measurement and Scaling Techniques	2 Hours
15	Funding agencies and research grants	2 Hours
16	Declaration of Helsinki	2 Hours

Pulmonary Rehabilitation

SL. No.	Topic	Hours
1	Overview of Pulmonary Rehabilitation	2 Hours

2	Selecting and assessing pulmonary rehabilitation candidate	4 Hours
3	Exercise assessment and training	4 Hours
4	Collaborative self-management and patient education	4 Hours
5	Psychological assessment and intervention	4 Hours
6	Nutritional assessment and intervention	4 Hours
7	Patient Centered evidence-based outcome	4 Hours
8	Disease-specific approaches in pulmonary rehabilitation	4 Hours

Health Outcomes and Quality Assessment

SL. No.	Topic	Hours
1	Measurements the quality of health care	4 Hours
2	Quality of care: Definition	4 Hours
3	Quality and resource constraints	4 Hours
4	Approaches to Quality measurement	4 Hours
5	Advances in quality measurement	4 Hours
6	Structure, process, and outcome measures of care quality;	4 Hours
7	Approaches to developing or selecting measures of care quality for a research project	4 Hours

8	Health-related quality of life in different disease conditions COPD, Asthma,	4 Hours
9	Quality-of-Life for Respiratory Illness Questionnaire (QOL-RIQ) ‘: a disease-specific quality-of-life questionnaire for patients with mild to moderate chronic non-specific lung disease	4 Hours
10	Quality of life: Assessment analysis and interpretation	8 Hours

Second Semester (Year 1)

Teaching and learning in Health Care

SL. No.	Topic	Hours
1	The teacher is important	2 Hours
2	The different faces of a good teacher	2 Hours
3	Understanding basic educational principles	2 Hours
4	Being an enthusiastic and passionate teacher Knowing what works best	2 Hours
5	Collaborating and working as a team	2 Hours
6	Checking your performance as a teacher and keeping up to date	2 Hours
7	The move to an outcome/competency-based approach	2 Hours
8	Specifying the learning outcomes and competencies	2 Hours
9	Describing and communicating the learning outcomes and competencies	2 Hours
10	Implementing an outcome-based approach in practice	2 Hours
11	The ‘authentic’ curriculum	2 Hours
12	Ten questions to ask when planning a curriculum	2 Hours
13	Sequencing curriculum content and the spiral curriculum	2 Hours
14	Student engagement and a student-centred approach	2 Hours
15	Building learning around clinical problems and presentations	2 Hours
16	Interprofessional education (IPE) The apprenticeship, community-based education, longitudinal clinical clerkships and work-based learning Responding to information overload and building	2 Hours
17	Recognising the importance of the educational environment Mapping the curriculum	2 Hours
18	Styles of Teaching	2 Hours
19	Assessment	2 Hours

Cardiopulmonary Physiology and Trauma Life Support

SL. No.	Topic	Hours
1	Respiratory Physiology: Ventilation	1 Hour
2	Pulmonary function measurements	1 Hour
3	The diffusion of pulmonary gases	1 Hour
4	Oxygen and carbon dioxide transport	3 Hour
5	Acid-base balance and regulation	3 Hour
6	Ventilation-perfusion relationships	1 Hour
7	Control of ventilation	1 Hour
8	Aging and the cardiopulmonary system	1 Hour
9	Electric conduction of the heart	1 Hour
10	ECG and interpretation	1 Hour
11	Exercise and its effect on the cardiopulmonary system	1 Hour
12	High altitude and its effect on cardiopulmonary system	1 Hour
13	High pressure environment and its effect on Cardiopulmonary system	1 Hour
14	ITLS: Initial assessment and management	2 Hours
15	Airway and ventilatory management	2 Hours
16	SHOCK	2 Hours
17	THORACIC TRAUMA	2 Hours
18	ABDOMINAL AND PELVIC TRAUMA	2 Hours
19	HEAD TRAUMA	2 Hours
20	SPINE AND SPINAL CORD TRAUMA	2 Hours
21	MUSCULOSKELETAL TRAUMA	2 Hours
22	THERMAL INJURIES	2 Hours
23	PEDIATRIC TRAUMA	2 Hours

Seminars in Respiratory Therapy I

SL. No	Topic	Hours
1	Journal article from Critical Care	4 hours
2	Journal article from Respiratory Therapy	4 hours
3	Journal article from Respiratory Therapy	4 hours
4	Journal article from Trauma and emergency	4 hours
5	Journal article from IJRC	4 hours

Advanced Mechanical Ventilation

SL. No.	Topic	Hours
1	Historical perspective on the development of mechanical ventilation	2 Hours
2	Conventional methods of ventilatory support	4 Hours
3	Alternative methods of ventilatory support: Volume assured pressure support ventilation, Proportional assist ventilation (PAV) ,Neurally adjusted ventilatory assist (NAVA), Adaptive support ventilation (ASV)	4 Hours
4	Noninvasive methods of ventilator support	4 Hours
5	Unconventional methods of ventilator support	4 Hours
6	Ventilator support in special settings	4 Hours
7	Physiological effect of mechanical ventilation	4 Hours
8	Artificial airways and management	4 Hours
9	Complications in ventilator supported patients	4 Hours
10	Monitoring in ventilator support patients	4 Hours
11	Management of ventilator support patients	4 Hours
12	Adjunctive Therapy	4 Hours

Semester Three - Year 2

Case Management

SL. No.	Topic	Hours
1	The Evolution of Case Management Practice	4 hours
2	Overview of Case Management Practice	4 hours
3	The Roles of a Case Manager	4 hours
4	An Example of Case Management	4 hours
5	CASE MANAGEMENT SKILLS Interpersonal, Connecting, and Information-Gathering Skills	4 hours
6	Specialized Practice Skills	4 hours
7	Additional Components of Case Management Intervention and Evaluation	4 hours
8	RT Case Management	4 hours
9	Case Management Issues with Special Populations	4 hours
10	Challenges and Visions	4 hours

Polysomnography

SL. No.	Topic	Hours
1	Sleep across life cycle	2 Hours
2	Anatomy and physiology pertaining to sleep	2 Hours
3	Patient care and education	2 Hours
4	Sleep Questionnaires	2 Hours
5	Sleep disorders	2 Hours
6	Polysomnography instrumentation	2 Hours
7	Home sleep studies	2 Hours
8	Scoring of sleep studies adult and paediatric	2 Hours
9	Treatment of sleep disorders	2 Hours
10	PAP therapy	2 Hours
11	Report generation	2 Hours
12	Cognitive behavioural therapy in insomnia	2 Hours
13	Psychiatric disorders of sleep and treatment	2 Hours

Critical Care Medicine I

SL. No.	Topic	Hours
1	Design and organization of intensive care units	2 Hours
2	Transport of the critically ill	2 Hours
3	Shock – an overview	2 Hours
4	Hemodynamic monitoring	2 Hours
5	Multiple organ dysfunction syndrome	2 Hours
6	Monitoring oxygenation	2 Hours
7	Lactic acidosis	2 Hours
8	Acute cardiac syndromes, investigations and interventions	2 Hours
9	Cardiovascular monitoring	2 Hours
10	Adult cardiopulmonary resuscitation	2 Hours
11	Cardiac pacing and implantable cardioverter/defibrillators	2 Hours
12	Acute heart failure	2 Hours
13	Valvular and congenital heart disease	2 Hours
14	Respiratory monitoring	2 Hours
15	Upper airway obstruction, Airway access, Acute respiratory failure	2 Hours
16	Acute respiratory distress syndrome	2 Hours
17	Airflow limitation, Pneumonia, Atelectasis and Pleural cavity problems	2 Hours

Advanced Procedures

Sl. No	Topic	Hours
1	Arterial Puncture for ABG	2 Hours
2	Arterial cannulation	2 Hours
3	Venous cannulation	2 Hours
4	Chest tube insertion, aspiration, repositioning, and removal	4 Hours
5	Bronchoscopic tissue sample for the purpose of bronchoalveolar lavage and endobronchial brushing.	4 Hours
6	Chest X Ray	4 Hours
7	Lung Ultrasound	6 Hours
8	CT Chest	4 Hours
9	PFT basic and Advanced	5 Hours
10	Polysomnography	5 Hours
11	Airway management techniques	5 hours
12	Basic Life Support	5 hours
13	Advanced cardiac Life support	5 hours
14	Extra Corporeal Membrane Oxygenation	5 hours

Semester Four: Year 2

Critical Care Medicine II

Sl. No	Topic	Hours
1	Acute and chronic renal failure	4 Hours
2	Neurological monitoring, Neuromuscular syndromes	4 Hours
3	Stroke, Meningitis and encephalitis	4 Hours
4	Obstetric Intensive care	4 Hours
5	Electrolyte disturbances, DIC	4 Hours
6	Drowning, Sedation	4 Hours
7	Sepsis and shock, Poisoning	4 Hours
8	Trauma: Multiple trauma, Traumatic brain injury	4 Hours
9	Fluid management	2 Hours
10	Acid base abnormalities	2 Hours
11	Haemoptysis, Pulmonary embolism	2 Hours
12	Pericardial Tamponade, Pulmonary Hypertension	8 Hours
13	Pancreatitis, acute hepatic failure, Nutrition in ICU	2 Hours

M.Sc Respiratory Therapy - Neonatal and Paediatric Respiratory Care (NPRC)

First Semester (Year 1)	
Paper I	Leadership and Management
Paper II	Advanced Biostatistics and Research Methodology
Paper III	Pulmonary rehabilitation
Paper IV	Health outcomes and Quality Assessment
Paper V	Clinic I
Second Semester (YEAR 1)	
Paper VI	Teaching and learning in Health Care
Paper VII	Cardiopulmonary Physiology and trauma life support
Paper VIII	Seminars in Respiratory Therapy I
Paper IX	Advanced Mechanical Ventilation
Paper X	Clinic II
Third Semester (YEAR 2)	
Paper XI	Case Management
Paper XII	Polysomnography
Paper XIII	Advanced Neonatal Respiratory Care including PALS and NALS
Paper XIV	Advanced Procedures
Paper XV	Clinic III
Fourth Semester (YEAR 2)	
Paper XVI	Seminars in Respiratory Therapy II
Paper XVII	Advanced Pediatric Respiratory Care including pulmonology
Paper XVIII	Thesis
Paper XIX	Clinic IV

First Semester (Year 1)

Leadership and Management

No	Topic	Hours
1.	Leadership: An Elusive Concept	2 Hours
2.	Financial Health, the Taproot of an Organization	4 Hours
3.	Cultivating the Leadership Relationship	4 Hours
4.	Learning Organization, the Roots of an Organization	4 Hours
5.	Building Commitment: Getting Others to Follow	4 Hours
6.	Operations, the Trunk of an Organization	4 Hours
7.	Communicating with Clarity	4 Hours
8.	Strategic Priorities, the Branches of an Organization	4 Hours
9.	The Art of Effectively Facilitating Processes	4 Hours
10.	Value Creation, the Leaves and Blossoms of an Organization	4 Hours
11.	Getting Results	4 Hours
12.	Developing Others	4 Hours
13.	Conclusion: Leading in the Future	4 Hours

Advanced Biostatistics and Research Methodology

No.	Topic	Hours of study
1.	Fundamentals of research: Research Methodology: An Introduction	2
2.	Defining the Research Problem	2
3.	Research Design Sampling Design	2
4.	Measurement and Scaling Techniques	2

5.	Methods of Data Collection Processing and Analysis of Data	2
6.	Sampling Fundamentals	2
7.	Testing of Hypotheses (Parametric or Standard Tests of Hypotheses and non parametric test)	2
8.	Interpretation and Report Writing	2
9.	Literature survey and documentation	2
10.	Data collection, analysis and hypothesis	2
11.	Research ethics, plagiarism and impact of research	2
12.	Technical writing and reporting of research	2
13.	Project cost management	2
14.	Measurement and Scaling Techniques	2
15.	Funding agencies and research grants	2
16.	Declaration of Helsinki	2

Pulmonary rehabilitation

Sl. No.	Topic	Hours
1.	Overview of Pulmonary Rehabilitation	2 hrs
2.	Selecting and assessing pulmonary rehabilitation candidate	4 hrs
3.	Exercise assessment and training	4hrs
4.	Collaborative self-management and patient education	4hrs
5.	Psychological assessment and intervention	4 hrs
6.	Nutritional assessment and intervention	4 hrs
7.	Patient Centred evidence-based outcome	4 hrs
8.	Disease-specific approaches in pulmonary rehabilitation	4 hrs

Health outcomes and Quality Assessment

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7	Approaches to developing or selecting measures of care quality for a research project	4 Hours
8	Health-related quality of life in different disease conditions COPD, Asthma,	4 Hours
9	Quality-of-Life for Respiratory Illness Questionnaire (QOL-RIQ): a disease-specific quality-of-life questionnaire for patients with mild to moderate chronic non-specific lung disease	4 Hours
10	Quality of life: Assessment analysis and interpretation	8 Hours

Second Semester (Year 1)
Teaching and learning in Health Care

SL. No.	Topic	Hours
1	The teacher is important	2 Hours
2	The different faces of a good teacher	2 Hours
3	Understanding basic educational principles	2 Hours
4	Being an enthusiastic and passionate teacher Knowing what works best	2 Hours
5	Collaborating and working as a team	2 Hours
6	Checking your performance as a teacher and keeping up to date	2 Hours
7	The move to an outcome/competency-based approach	2 Hours
8	Specifying the learning outcomes and competencies	2 Hours
9	Describing and communicating the learning outcomes and competencies	2 Hours
10	Implementing an outcome-based approach in practice	2 Hours
11	The 'authentic' curriculum	2 Hours
12	Ten questions to ask when planning a curriculum	2 Hours
13	Sequencing curriculum content and the spiral curriculum	2 Hours
14	Student engagement and a student-centered approach	2 Hours
15	Building learning around clinical problems and presentations	2 Hours
16	Interprofessional education (IPE) The apprenticeship, community-based education, longitudinal clinical clerkships, and work-based learning Responding to information overload and building	2 Hours
17	Recognizing the importance of the educational environment Mapping the curriculum	2 Hours
18	Styles of Teaching	2 Hours
19	Assessment	2 Hours

Cardiopulmonary Physiology and Trauma Life Support

Sl. No.	Topic	Hours
1	Developmental anatomy and Physiology	4 Hours
2	Neonatal Respiratory Physiology	4 Hours
3	Respiratory Physiology: Ventilation	1 Hour
4	Pulmonary function measurements	1 Hour
5	The diffusion of pulmonary gases	1 Hour
6	Oxygen and carbon dioxide transport	3 Hours
7	Acid-base balance and regulation	3 Hours
8	Ventilation-perfusion relationships	1 Hour
9	Control of ventilation	1 Hour
10	Aging and the cardiopulmonary system	1 Hour
11	Electric conduction of the heart	1 Hour
12	ECG and interpretation	1 Hour
13	Exercise and its effect on the cardiopulmonary system	1 Hour
14	High altitude and its effect on cardiopulmonary system	1 Hour
15	High pressure environment and its effect on Cardiopulmonary system	1 Hour
16	ITLS: Initial assessment and management	2 Hours
17	Airway and ventilatory management	2 Hours
18	Shock	2 Hours
19	Thoracic trauma	2 Hours
20	Abdominal and pelvic trauma	2 Hours
21	Head trauma	2 Hours
22	Spine and spinal cord trauma	2 Hours
23	Musculoskeletal trauma	2 Hours
24	Thermal injuries	2 Hours
25	Pediatric trauma	2 Hours

Seminars in Respiratory Therapy I

SL. No.	Topic	Hours
1	Journal article from Critical Care	4 Hours
2	Journal article from Respiratory Therapy	4 Hours
3	Journal article from Respiratory Therapy	4 Hours
4	Journal article from Trauma and emergency	4 Hours
5	Journal article from IJRC	4 Hours
6	Journal article from Neonatal Respiratory Care	4 Hours

Advanced Mechanical Ventilation

SL. No.	Topic	Hours
1	Historical perspective on the development of mechanical ventilation	2 hours
2	Conventional methods of ventilatory support	4 hours
3	Alternative methods of ventilatory support: Volume assured pressure support ventilation, Proportional assist ventilation (PAV) ,Neurally adjusted ventilatory assist (NAVA), Adaptative support ventilation (ASV)	4 hours
4	Noninvasive methods of ventilator support	4 hours
5	Unconventional methods of ventilator support	4 hours
6	Ventilator support in special settings	4 hours
7	Physiological effect of mechanical ventilation	4 hours
8	Artificial airways and management	4 hours
9	Complications in ventilator supported patients	4 hours
10	Monitoring in ventilator support patients	4 hours
11	Management of ventilator support patients	4 hours
12	Adjunctive Therapy	4 hours
13	Neonatal Ventilation	5 Hours

Third Semester (Year 2)

Case Management

SL. No.	Topic	Hours
1	The Evolution of Case Management Practice	
2	Overview of Case Management Practice	
3	The Roles of a Case Manager	
4	An Example of Case Management	
5	CASE MANAGEMENT SKILLS Interpersonal, Connecting, and Information-Gathering Skills	
6	Specialized Practice Skills	
7	Additional Components of Case Management Intervention and Evaluation	
8	RT Case Management	
9	Case Management Issues with Special Populations	
10	Challenges and Visions	

Polysomnography

SL. No.	Topic	Hours
1	Sleep across life cycle	2 Hours
2	Anatomy and physiology pertaining to sleep	2 Hours
3	Patient care and education	2 Hours
4	Sleep Questionnaires	2 Hours
5	Sleep disorders	2 Hours
6	Polysomnography instrumentation	2 Hours
7	Home sleep studies	2 Hours

8	Scoring of sleep studies adult and paediatric	2 Hours
9	Treatment of sleep disorders	2 Hours
10	PAP therapy	2 Hours
11	Sleep Hygiene	2 Hours
12	Cognitive Behavioural Therapy	2 Hours
13	Report generation	2 Hours
14	Cognitive behavioural therapy in insomnia	2 Hours
15	Psychiatric disorders of sleep and treatment	2 Hours

Advanced Neonatal Respiratory Care including PALS and NALS

Sl. No.	Topic	Hours
Part I - Lung Development and Maldevelopment		
1	Development of the respiratory system	2 hours
2	Developmental lung anomalies	2 hours
Part II- Principles of mechanical ventilation		
3	Spontaneous breathing	2 hours
4	Pulmonary gas exchange	2 hours
5	Oxygen therapy	2 hours
6	Oxygen toxicity	2 hours
7	Pulmonary mechanics	2 hours
8	Basic principles of mechanical ventilation	2 hours
9	Classification of mechanical ventilation	2 hours
10	Ventilator parameters	2 hours
11	Respiratory gas conditioning and humidification	2 hours
Part III -Procedures and techniques		
12	Clinical examination	2 hours
13	Neonatal resuscitation	2 hours
14	Laryngoscopy and endotracheal intubation	2 hours
15	Vascular access	2 hours
16	Tracheostomy	2 hours
Part IV - Monitoring the ventilated patient		
17	Continuous monitoring techniques	2 hours

18	Pulse oximetry	2 hours
19	Interpretation of blood gases	2 hours
20	Neonatal pulmonary graphics	2 hours
21	Radiography	2 hours
22	Transillumination	2 hours
23	Echocardiography	2 hours
24	Bronchoscopy	2 hours
Part V - Non-invasive ventilatory techniques		
25	Nasal cannula therapy	2 hours
26	Continuous positive airway pressure	2 hours
27	Non-invasive ventilation	2 hours
Part VI - Ventilatory modes and modalities		
28	Positive end-expiratory pressure ,Intermittent mandatory ventilation Synchronized intermittent mandatory, Assist/Control ventilation, Volume-targeted ventilation, pressure control ventilation, pressure support ventilation, Proportional assist ventilation	2 hours
Part VII -High-frequency ventilation		
36	High-frequency ventilation: General concepts	2 hours
37	High-frequency jet ventilation	2 hours
Part VIII -Commonly used neonatal ventilators		
39	VIP bird gold ventilator	2 hours
40	AVEA ventilator	2 hours
41	Bear cub 750	2 hours
42	Newport wave	2 hours
43	Newport e360	2 hours
44	Drager babylog VN500 infant and pediatric ventilator	2 hours
45	SERVO-I ventilator and neurally adjusted ventilatory assist (NAVA)	2 hours
46	SLE5000 and SLE4000 infant ventilators	2 hours
47	Bunnell life pulse high frequency jet ventilator	2 hours
48	Sensormedics 3100A high frequency oscillatory ventilator	2 hours
Part IX -Adjunctive therapies		
49	Hemodynamic support	2 hours
50	Nutritional support of the ventilated infant	2 hours
51	Surfactant replacement therapy	2 hours
52	Pharmacologic agents	2 hours
53	automatic control of oxygen delivery	2 hours
54	Sedation and analgesia	2 hours
55	Inhaled nitric oxide therapy	2 hours
56	Extracorporeal membrane oxygenation	2 hours
57	Liquid ventilation for neonatal respiratory failure	2 hours
Part X -Management of common neonatal respiratory diseases		
58	Mechanisms of respiratory failure	
59	Tissue hypoxia	2 hours
60	Indications for mechanical ventilation	2 hours
61	Respiratory distress syndrome	2 hours
62	Pneumonia	2 hours

63	Meconium aspiration syndrome	2 hours
64	Persistent pulmonary hypertension of the newborn	2 hours
65	Congenital diaphragmatic hernia	2 hours
66	Pulmonary hypoplasia	2 hours
67	Apnea Syndromes	2 hours
68	Weaning and extubation	2 hours
Part XI - Bronchopulmonary dysplasia		
69	Etiology and pathogenesis	2 hours
71	Long-Term outcome of new borns with bronchopulmonary dysplasia	2 hours
Part XII - Complications associated with mechanical ventilation		
72	Thoracic air leaks	2 hours
73	Patent ductus arteriosus	2 hours
74	Neonatal pulmonary hemorrhage	2 hours
75	Retinopathy of prematurity	2 hours
76	Neurologic complications of mechanical ventilation	2 hours

Pediatric Advanced Life Support		
SL. No.	Topic	Hours
1	Basic Life Support in Infants & Children	2 Hours
2	Systematic Approach to a seriously ill or injured Child	2 Hours
3	Recognizing and Managing Cardiac Arrest	2 Hours
4	Recognition and Management of Respiratory Distress and Failure	4 Hours
5	Recognition and Management of Shock	3 Hours
6	Recognition and Management of Arrhythmias	2 Hours
7	Post Cardiac Arrest Care	1 Hours
8	Neonatal Advanced Life Support (NALS), NRP	8 Hours

Advanced Procedures

SL. No.	Topic	Hours
1	Arterial Puncture for ABG	2 Hours
2	Arterial cannulation	2 Hours
3	Venous cannulation	2 Hours
4	Chest tube insertion, aspiration, repositioning, and removal	4 Hours
5	Bronchoscopic tissue sample for the purpose of bronchoalveolar lavage and endobronchial brushing.	4 Hours
6	Chest X Ray	4 Hours
7	Lung Ultrasound	6 Hours
8	CT Chest	4 Hours
9	PFT basic and Advanced	5 Hours
10	Polysomnography	5 Hours
11	Airway management techniques	5 hours
12	Basic Life Support	5 hours
13	Advanced cardiac Life support	5 hours

14	Extra Corporeal Membrane Oxygenation	5 hours
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Fourth Semester (Year 2)

Advanced Pediatric Respiratory Care including Pulmonology

SL. No.	Name of the Topic	Hours
1	Pediatric Airway Anatomy & Physiology	1
2	Diagnostic Techniques in Children: Chest X Ray Arterial Blood Gas Lung Ultrasonography Flexible Bronchoscopy	6
3	Pediatric Airway Management	2
4	Pulmonary Function Testing in Children	2
5	Pediatric Sleep Disorders	1
6	Pediatric Polysomnography	1
7	PARDS	2
8	NIPPV in pediatric patients	2
9	Pediatric Airway Disorders: Diseases causing supralaryngeal obstruction, Croup, Epiglottitis, Bacterial Tracheitis, Tracheomalacia, Tracheal & Bronchial Stenosis, Bronchiectasis, Acute Bronchiolitis etc.	3
10	Parenchymal Lung diseases: Pneumonia, Tuberculosis, Sickle cell disease, Recurrent aspiration syndrome	2
11	Pediatric Asthma	2
12	Cystic Fibrosis	1
13	Pediatric Trauma	2
14	Neurological & Neuromuscular disorders	3
15	Airway Clearance & Hyperinflation Therapy in Pediatrics	2
16	Diseases of Pleura	2
17	Pediatric Cardiorespiratory Care: <i>Pre Operative Management in Congenital Heart Diseases:</i> (Left to Right Shunt lesions, Obstructive Lesions, CCHD) <i>Post op management in cardiac lesions:</i> , PA Banding, Bidirectional Glenn, ALCAPA repair, Fontan	4
	ASD Closure	1
	VSD Closure	1

	CoA Repair	1
	TAPVC repair	1
	ASO	1
	BT Shunt	1
	PA Banding	1
	Bidirectional Glenn	1
	ALCAPA repair	1
	Fontan	1
18	Meningitis	1
19	Transport of Infants & Children	1
20	Home Care	1
21	Pediatric ECMO	2

SCHEME OF EXAMINATION
M.S c Respiratory Therapy – Adult Respiratory Care Degree Examination

Distribution of Marks for each subject

Paper No.	Subject/Course Name	Univer- sity	Inter- nal	Oral	Subject Total	To- tal
First Semester (Year 1)						
Paper I	Leadership and Management	40	5	5	50	350
Paper II	Advanced Biostatistics and Research Methodology	70	10	20	100	
Paper III	Pulmonary Rehabilitation	70	10	20	100	
Paper IV	Health outcomes and Quality Assess- ment	40	5	5	50	
Paper V	Clinic I	--	25	25	50	
Second Semester (Year 1)						
Paper VI	Teaching and learning in Health Care	40	5	5	50	350
Paper VII	Cardiopulmonary Physiology and trauma life support	70	10	20	100	
Paper VIII	Seminars in Respiratory Therapy I	40	5	5	50	
Paper IX	Advanced Mechanical Ventilation	70	10	20	100	
Paper X	Clinic II	--	25	25	50	
Third Semester (Year 2)						
Paper XI	Case Management	40	5	5	50	400
Paper XII	Polysomnography	70	10	20	100	
Paper XIII	Critical Care Medicine I	70	10	20	100	
Paper XIV	Advanced Procedures	70	10	20	100	
Paper XV	Clinic III	40	5	5	50	
Fourth Semester (Year 2)						
Paper XVI	Seminars in Respiratory Therapy II	70	10	20	100	350
Paper XVII	Critical Care Medicine II	70	10	20	100	
Paper XVIII	Thesis	70	10	20	100	
Paper XIX	Clinic IV	40	5	5	50	
Total						1450

SCHEME OF EXAMINATION
M.S c Respiratory Therapy – Neonatal and Paediatric Respiratory Care (NPRC)
Degree Examination

Distribution of Marks for each subject

Paper No.	Subject/Course Name	Univer- sity	Inter- nal	Oral	Subject Total	To- tal
First Semester (Year 1)						
Paper I	Leadership and Management	40	5	5	50	350
Paper II	Advanced Biostatistics and Research Methodology	70	10	20	100	
Paper III	Pulmonary Rehabilitation	70	10	20	100	
Paper IV	Health outcomes and Quality Assess- ment	40	5	5	50	
Paper V	Clinic I	--	25	25	50	
Second Semester (Year 1)						
Paper VI	Teaching and learning in Health Care	40	5	5	50	350
Paper VII	Cardiopulmonary Physiology and trauma life support	70	10	20	100	
Paper VIII	Seminars in Respiratory Therapy I	40	5	5	50	
Paper IX	Advanced Mechanical Ventilation	70	10	20	100	
Paper X	Clinic II	--	25	25	50	
Third Semester (Year 2)						
Paper XI	Case Management	40	5	5	50	400
Paper XII	Polysomnography	70	10	20	100	
Paper XIII	Advanced Neonatal Respiratory Care including PALS and NALS	70	10	20	100	
Paper XIV	Advanced Procedures	70	10	20	100	
Paper XV	Clinic III	40	5	5	50	
Fourth Semester (Year 2)						
Paper XVI	Seminars in Respiratory Therapy II	70	10	20	100	350
Paper XVII	Advanced Pediatric Respiratory Care including pulmonology	70	10	20	100	
Paper XVIII	Thesis	70	10	20	100	
Paper XIX	Clinic IV	40	5	5	50	
Total						1450

PATTERN OF QUESTION PAPERS

Pattern of Question Paper – 70 Marks (3 Hours)

Structured Essay (2 out of 3)	- 30 marks (2 x 15 marks)
Short Notes (5 out of 6)	- 25 marks (5 x 5 marks)
Short answer question (5 out of 7)	- 15 marks (5 x 3 marks)

Total Marks	- 70 marks
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Pattern of Question Paper – 40 Marks (2 Hours)

Structured Essay (1 out of 2)	- 10 marks (1 x 10 marks)
Short Notes (3 out of 5)	- 15 marks (3 x 5 marks)
Short answer question (5 out of 7)	- 15 marks (5 x 3 marks)

Total Marks	- 40 marks
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