



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

AMRITA SCHOOL OF MEDICINE

Amrita Centre for Allied Health Sciences

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PROGRAM

MSc Trauma and Critical Care (Emergency Medical Technology)

(Revised with effect from 2017-2018 onwards)



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 1,300 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 25 modern operating theatres, 210 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, 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.

Table of Contents
Part I – Rules and Regulations

SI No	Contents	Page No.
I	Post Graduate Programs 1. Details of Post Graduate Courses 2. Medium of Instruction 3. Eligibility	6 7 7
II	General Rules 1. Duration of the course 2. Discontinuation of Studies 3. Educational Methodology 4. Academic Calendar	7 7 8 8
III	Examination Regulations 1. Attendance 2. Internal Assessment 3. University Examination 4. Eligibility to appear University Examination 5. Valuation of Theory – Written Paper 6. Supplementary Examination 7. Rules regarding Carryover subjects	8 8 9 10 10 11 11
IV	Criteria for Pass in University Examination – Regulations 1. Eligibility criteria for pass in University Examinations 2. Evaluation and Grade	11 12
V	Internship 1. Eligibility for Internship – Regulations 2. Attendance and leave details during Internship	13 13
VI	General considerations and Teaching Approach	13
VII	Training in outside centres	13
VIII	Thesis	13
IX	Maintenance of Log Book	13

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	Clinical Research		MBBS.BDS/BAMS/BHMS/B.Pharm/B.Sc Allied Health Sciences/B.Sc Biotechnology/B.Sc Nursing/B.Sc in any Life Sciences
5	Biostatistics		Graduates in Statistics/Mathematics with paper in Statistics
6	Respiratory Therapy		B.Sc Respiratory Therapy
7	M.Sc Diabetes Sciences		B.Sc Diabetes Sciences
8	M.Sc Cardiovascular Technology		B.Sc Cardiovascular Technology
9	M.Sc Trauma and Critical Care		B.Sc Emergency Medical Technology, B.Sc Respiratory Therapy, B.Sc Physician Assistant, B.Sc Anaesthesia Technology
10	M.Sc Physician Assistant – Medical Oncology		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
Vacation / holidays	: 5 weeks (2 weeks vacation + 3 weeks calendar holidays)
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: 80% 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 35% 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 35% and for the University Examination is 45%. 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 35% 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 35% for Internal Assessment

- 45% in Theory & 35% 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. For the courses where the number of students are more than 15 rank will be calculated as under :

- Topmost score will be declared as First Rank
- Second to the topmost will be declared as Second Rank
- Third to the topmost will be declared as Third Rank

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 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

INTRODUCTION

M.Sc Trauma and Critical Care program is aimed to improve the quality of health care professional working in the field of trauma and critical care. This programs aims to provide all the major essential things that a health care provider needed to know in the management of trauma and critically ill patients. Program mainly focuses on hands on training in variety of clinical area and also making these candidates to learn the art of teaching by training the undergraduate students in the field of critical care.

Program Outcomes (PO)

1. PO1: Through knowledge on the subject.
2. PO2: Effective communication skills.
3. PO3: Knowledge in professional ethics.
4. P04: Leadership qualities and team work.
5. PO5: Problem Analysis and solving skills.
6. PO6: Detailed knowledge on research methodology.
7. PO7: Higher Technical skills and competencies.
8. PO8: Specilization in the subject
9. PO9: Employability in various sectors.
10. PO10: Employability in higher positions

Program Specific Outcomes (PSO)

1. PSO1: Advanced knowledge in emergency medical technology and critical care
2. POS3: Advanced Technical expertise in all procedures in emergency room
3. POS4: knowledge in the management of trauma
4. PSO5: Detailed knowledge in critical care
5. PSO6: Teaching expertise in emergecnry medical technology and critical care

ELECTIVE COURSE AND COURSE OUTCOMES

MTCC 40 Soft Skills

CO1: Attitude to continue lifelong learning.

CO2: Knowledge of gender issues and the attitude to handle such issues.

CO3: Knowledge of environmental issues and the attitude to work towards a sustainable future.

CO4: Competency to take decisions applying ethical values and knowledge of proper etiquette.

CO5: Competency to conduct research.

CO6: Communication skills including teaching skills.

SYLLABUS

Preparatory

- EMS systems, Roles and Responsibilities of the Paramedic
The Basics
- Illness and injury prevention
- Medical and legal issues
- Ethical Issues
- Pathophysiology
- Pharmacology
- Vascular Access and Medication Administration
- Human Development
- Patient Communication

Airway

- Airway Management and ventilation

Patient Assessment

- Patient History
- Physical Examination
- Patient Assessment
- Critical Thinking and Clinical Decision Making
- Communications and Documentation

Trauma

- Trauma Systems and Mechanism of Injury
- Bleeding and shock
- Soft-Tissue Injury
- Burns
- Head and Face Injuries
- Spine Injuries
- Thoracic Injuries
- Abdomen Injuries
- Musculoskeletal Injuries
- Injuries to the Abdomen and Genitourinary Tract
- Fractures, Dislocations, and Sprains
- Multiple Injuries: Summary of Advanced Trauma Life Support

- The Multicasualty Incident

Medical Emergencies

- Respiratory Emergencies
- Cardiovascular Emergencies
- Unconscious States
- Neurologic Emergencies
- Endocrine Emergencies
- Allergic reactions
- Gastrointestinal Emergencies
- Renal and Urologic Emergencies
- Toxicology: Substance Abuse and poisoning
- Poisons, Drugs, and Alcohol
- Hematological Emergencies
- Acute Abdomen
- Anaphylaxis
- Infections and Communicable Diseases
- Behavioral emergencies
- Emergencies in the Elderly
- Pediatric Emergencies

Environmental Emergencies

- Heat Exposure
- Cold Exposure
- Radiation Exposure
- Hazardous Materials

Special Considerations

- Obstetrics
- Neonatal Care
- Gynecology
- Obstetrics and Emergency Childbirth
- Neonatal Care and Transport
- Gynecologic Emergencies
- Geriatric patients
- Abuse, Neglect and Assault
- Patients with special needs
- Acute Interventions for the Chronic Care patient

Responding to the call

- Communications and dispatching
- Rescue and extrication

Non – Emergency patients

- Non-emergency journey
- Outpatients
- Amputees and artificial limb patients

Moving and Lifting Patients

- General principles
- Patient positioning
- Lifting aids
- Blankets

Examinations and Assessment

Pre-Hospital Special Procedures

- Major incidents
- Civil disturbances
- Hazardous substances
- Managing violence
- Assisting the Paramedic

Operations

- Ambulance Operations
- Medical Incident Command
- Terrorism and Weapons of Mass Destruction
- Rescue Awareness and Operations
- Hazardous Materials Incidents
- Crime Scene Awareness

Glucose Metabolism

- ❖ Diabetes Mellitus
 - DKA
 - Hyper osmolar coma
 - Hypoglycemic syndrome

Environmental Disorders

- ❖ Submersion Incidence
 - cold water immersion
 - near drowning
- ❖ Electrical Injury
 - electrical injury
 - lightning injury
 - AC/DC injury
 - High voltage
- ❖ High altitude illness
 - Acute mountain sickness
 - High altitude cerebral edema
 - High - altitude pulmonary edema
- ❖ Poisonous plants
- ❖ Smoke inhalation
- ❖ Temperature related illness
- ❖ Bites and sting

Transfusions:

- Blood transfusion

- Autotransfusion
- Complications

Systemic infectious disorders

Nervous system disorders

- Cerebral blood flow to include the circle of Willis.
- Observation and Assessment
- Treatment and management of disorders of the nervous system.
- Transient ischemic attack
- Sub arachnoids hemorrhage
- Meningitis.

Mechanisms of the respiratory system

- Nervous and chemical control of respiration including hypoxic drive and the role of CO₂
- Significant of volumetric lung capacities in relation to pulmonary volumes.
- Treatment and management of conditions of the respiratory system.

Cardiovascular system

- Mechanisms of the cardiovascular system
- Location, structure and function of the electrical conduction systems of the heart.
- Electrical conductive pathway of the heart In relation to the normal sinus ECG
- Cardiac cycle
- Normal Sinus Rhythm
- Chemical and nervous control of the cardiovascular system.
- Shock
- Arrhythmias

- Left ventricular failure
- Angina

Pediatrics Care

- Anatomical and physiological differences between adults and children
- Pediatrics assessment and examination and recognition of the seriously ill or deteriorating child.
- Management of the sick child and parents.

- Management of cardiac arrest in neonates, Infants and Children.

General and local organization of obstetrics and gynecology services.

- Anatomical and physiological changes during pregnancy.
- Assessment and examination of the pregnant woman
- Normal Labour
- Abnormalities in pregnancy and Labour
- Resuscitation in pregnancy

Haemodialysis

- Purpose of Haemodialysis
- Removal of patients of Haemodialysis

Respiratory Procedures

- Tracheal Intubation
- Cricothyrotomy and Translaryngeal Jet Ventilation
- Tracheostomy Care and Tracheal Suctioning
- Noninvasive Assessment and Support of Oxygenation and Ventilation
- Mechanical Ventilation
- Thoracentesis

Cardiac Procedures

- Cardio sinus Massage/Cardio version
- Defibrillation
- Emergency Transcutaneous Cardiac Pacing
- Pericardiocentesis and Intracardiac Injections

Vascular Techniques and Volume Support

- Pediatric Vascular Access and Blood Sampling Techniques
- Peripheral Intravenous Access
- Central Venous Catheterization and Central Venous Pressure Monitoring
- Intraosseous Infusion
- Endotracheal Drug Administration
- Pneumatic Antishock Garment

Soft Tissue Procedures

- Principles of wound Management
- Methods of wound Closure
- Skin Grafting in the Outpatient
- Burn care Procedures

Gastrointestinal Procedures

- Esophageal Foreign Bodies
- Nasogastric and Feeding Tube Placement
- Decontamination of the Poisoned Patient

Musculoskeletal Procedures

- Out of Hospital Splinting
- Management of Amputations
- Splinting Techniques
- Compartment Syndrome Evaluation

Neurologic Procedures

- Management of Increased Intracranial Pressure

Vital Sign Measurement

Special Procedures

- ❖ Procedures Pertaining to Hypothermia
 - Hyperthermia Procedures
- ❖ Universal Precautions

Stroke Algorithm

Cardiac Algorithm

Pediatric Scoring and Fluid Management

Recommended Books:

1. ABC of Major Trauma – *David Skinner, Peter Driscoll
Richard Earlam.*
2. Ambulance Services – *IHCD*
3. Emergency Care in the Streets – *Nancy L. Caroline, M.D.,*
4. *ATLS – American college of surgeons*
5. *ACLS- AHA*
6. ICU book by Paul Marino
7. Hand book of Critical care by Irwin rippe
8. Washington Manual of Critical care
9. Oh's Intensive care Manual
10. Introduction to critical care nursing by Mary Lou Sole, Published by Elseiver

List of Journals

1. Emergency medical journal BMJ
2. Canadian journal of emergency medicine
3. Annals of Emergency Medicine
4. Pediatric Emergency Medicine journals

5. Journal of Accident and Emergency Medicine
6. The American journal of Emergency Medicine

DETAILS OF TRAINING

FIRST YEAR

Emergency Department/EMS	6 months
Medical ICU	1 month
Surgical ICU	1 month
Cardiac ICU	2 months
Neuro Ortho ICU	1 month
Pediatric/Neonatal ICU	1 month

SECOND YEAR

Emergency Department/EMS	6 months
Cardiac ICU/CVTS	1 month
Neurology – Stroke ICU/ ward	1 month
Pediatrics ICU	1 month
Neonatal ICU	1 month
Medical ICU	1 month
Surgical ICU	1 month

***Viva-voce/Skill assessment:**

1. Basic ECG
2. Instruments handling
3. Basic Ventilatory Settings
4. BLS
5. Airway and breathing skills(Intubation, LMA, Bag Mask Ventilation, Oral Airway, Needle Thoracocentesis, Upper Airway Obstruction, Choking Management)
6. Skills related to circulation(Peripheral Venous Access, Central Venous Excess, Intraosseous Excess)
7. Arrhythmia recognition and management (Defibrillation, Cardio Version)
8. Basic ABG
9. Pre hospital trauma care
10. Hands on demonstration related to trauma and critical care
11. OSCEs(Objective structured clinical examination)

QUESTION PAPER DISTRIBUTION M.Sc TRAUMA AND CRITICAL CARE

PAPER I

BASIC SCIENCES APPLIED TO TRAUMA AND CRITICAL CARE(MTCC 1)

1. CO1: Knowledge in patient assessment
2. CO2: Knowledge in trauma
3. CO3: Knowledge in medical emergencies
4. CO4: knowledge in environmental emergencies
5. CO5: Knowledge in special consideration in emergency

Anatomy & Physiology related to the following

1. Respiratory system
2. Cardiovascular system
3. Nervous system
4. Gastrointestinal system
5. Urology
6. Musculoskeletal system
7. Endocrinology
8. Fluid and Electrolytes

Biochemistry and Pharmacology

1. **General Pharmacological principles**
2. **Respiratory system drugs and Cardiovascular drugs**
3. **Drugs used in Anesthesia**
4. Analgesics
5. Antimicrobial drugs
6. Drugs acting on the kidney ,Corticosteroids, Insulin

Microbiological aspects related to Critical care Medicine

Pathophysiology of Critical Care diseases

Research and Biostatistics

Obstetrics & Pediatrics

Anatomical and Physiological Variations

Drugs contraindicated

Paper II
GENERAL ASPECTS OF TRAUMA AND CRITICAL CARE(MTCC 2)

1. CO1: Knowledge in responding to call
2. CO2: Knowledge in non-emergency patients
3. CO3: knowledge in moving and lifting patients
4. CO4: Knowledge in environmental disorders
5. CO5: Knowledge in transfusion

CRITICAL CARE MEDICINE

1. MONITORING

Vitals and Physical Examination

Hemodynamic-Arterial, Central Venous, PAC

Ventilation -Invasive and Non Invasive

Arterial Blood Gas analysis in detail

ECG, Cardiac Rhythm and Arrhythmias

Intracranial Pressure Monitoring & Basics of EEG

2. PROCEDURES

Oxygen delivery devices

Non Invasive Ventilation

Endotracheal Intubation

Percutaneous Tracheostomy

Chest tube insertion

Paracentesis- diagnostic and therapeutic

Pericardiocentesis & Pacemaker Insertions

Bronchoscopy

Cardioversion and Defibrillation

Lumbar Puncture

3. Nutrition in the ICU – aspects of Total Parenteral Nutrition (TPN), Ryles Tube insertion and feeding

4. Imaging in relation to Critical care – X-ray, Ultrasound, ECHO, CT, MRI

5. End of life care, Ethics, Palliative care in the ICU

6. Patient Safety in the ICU, Bed Utilisation and staffing models.

TRAUMA

Epidemiology

Trauma in special populations

Mechanisms of Trauma and Anatomy of related injuries

Triage in trauma

Rehabilitation and Trauma

Quality indicators in trauma

Imaging in relation to Trauma

X-ray, Ultrasound including FAST, CT, MRI

Paper III

ADVANCED CRITICAL CARE MANAGEMENT(MTCC 3)

1. CO1: Knowledge in cardiovascular system and respiratory system emergencies
2. CO2: Knowledge in neurological emergencies
3. CO3: Knowledge in pediatric emergencies

Cardiac arrest Management

Post cardiac arrest care

Management of Shock in the ICU

Management of Respiratory disorders

Mechanical Ventilation

Weaning protocols

Emergency aspects of Myocardial infarction

Management of other Cardiovascular disorders

Venous thromboembolism

Management of Electrolyte disturbances

Acid Base disorders

Management of Endocrine Disorders

Management of Oncological Emergencies

Toxicology in the ICU

Infectious diseases

Management of Renal Disorders

Renal Replacement Therapy

Gastrointestinal and Hepatic diseases

Management of Neurological disorders

Management of Hematological and Oncological disorders

Transfusion practices in the ICU

Management of transfusion reactions

Transplant patient care in the ICU

Pregnancy and Critical care-Issues and Management

Pediatrics and Critical care

Psychologic and psychiatric aspects of emergency medical management

Recent advances in respect to Critical care

Paper IV
ADVANCED TRAUMA CARE & MANAGEMENT(MTCC 4)

1. CO1: knowledge in advanced trauma management
2. CO2: Knowledge in procedures in emergency room
3. CO3: Recent advances in emergency medical technology and critical care

Pre-hospital trauma management

ABCDE of Trauma

Thoracotomy

Head and Neck trauma

Spinal Trauma

Thoracic Trauma

Abdominal Trauma

Pelvic trauma

Extremity Trauma

Ocular trauma

ENT bleeds and other emergencies

Post Trauma care

Paediatrics and Trauma

Geriatrics and Trauma

Trauma in Pregnancy

Delivery en-route to hospital and non-institutional deliveries

Transfusion Protocols

Disaster management

Burns

Military and Humanitarian Trauma

Surgery after trauma including preparation of the patient

Crush Injury

Trauma patient in the ICU

Advanced treatment options after trauma

Medico-legal aspects of trauma

Recent advances in respect to trauma

PALS (Pediatric advanced Life support)

ATLS (Advanced Trauma Life support)

ACLS (Advanced cardiac Life support)

PHTLS (Pre-hospital trauma life support)

Emergency Medical response

Disaster management

Wilderness Emergency Medicine

SCHEME of EXAMINATION

M.Sc Trauma and Critical Care DEGREE EXAMINATION Distribution of Marks for each subject

Paper Code	Subject Name	University	Internal	Oral	Subject Total	Total	Aggregate	
FIRST YEAR								
I	Paper I - Basic Sciences Applied To Trauma And Critical Care	100	20	30	150	300	1000	
II	Paper II - General Aspects Of Trauma And Critical Care	100	20	30	150			
SECOND YEAR								
III	Paper III – Advanced Critical Care Management	100	20	30	150	700		
IV	Paper IV - Advanced Trauma Care & Management	100	20	30	150			
V	Project	100	50	50	200			
VI	Practical +Viva (150 + 50)	100	50	50	200			

PATTERN OF QUESTION PAPERS

All the question paper shall be of standard type. Each theory paper will be of 3 hours duration and shall consist of ten questions carry equal mark with a maximum of 100 marks. Theory paper in all subjects will consist of ten questions of 10 marks each or two sub questions in a ten mark main question.

IMPORTANT TELEPHONE NUMBERS

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