



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

PhD CET Syllabus

Paper II - Subject Specific Test Anesthesiology

Course Content:

1. **Anatomy:** Diaphragm, larynx, upper and lower airway; cranial nerves; relevant anatomy for regional anesthesia, arterial and venous. Special anatomical area of interest to the anesthesiologist e.g., Orbit of the eyes, Base of Skull, Vertebral Column, Spinal Cord and meninges, Axilla, 1st rib, Intercostals Space, Nerves, Plexus e.g., Brachial, Coeliac, Sup. Hypogastric etc.
2. **Physiology:** Theories of mechanism of production of Anesthesia. Respiratory, Cardiovascular, Central Nervous System, Hepatobiliary, renal and endocrine System, Pediatric and Geriatric Physiology, Pregnancy, Blood Groups and Blood Transfusion, Muscle and N M Junction, ECG, Regulation of temperature & Metabolism, Stress response, Cerebral blood flow, CSF physiology and ICP, Acid-Base Homeostasis, Fluid and Electrolytes, Shock, Pulmonary function tests.
3. **Biochemistry:** Interpretation of blood gases, electrolytes and other relevant biochemical values. Various function tests related to systems e.g. LFT, KFT and basics of measurement techniques.
4. **Pharmacology:** Concepts of pharmacokinetics and pharmacodynamics, Uptake and distribution of inhaled anesthetics agents, Drug interaction in Anesthesiology, Drugs used in Anesthesia and treatment of common medical disorder like DM, HT and IHD, Emergency drugs, e.g., Adrenaline; Atropine, Inotropes, Diuretics, prokinetics etc., drugs used in General Anaesthesia (Intravenous, Inhalational, Endotracheal etc., using spontaneous and controlled mode of ventilation), Regional Anaesthesia (Spinal, epidural, CSE and local), MAC (Monitored Anesthesia Care)
5. **Medicine:** Cardiovascular System, Respiratory System, Hepatobiliary System, Genitourinary System, Endocrine system, Pregnancy.
6. **Equipment and Anaesthesia Machine:**
 - i. Anesthesia machine – checking the machine and assembly of necessary items.
 - ii. Airway equipment including Tracheostomy / Equipments for airway management mask, LMA, fiberoptic laryngoscopes; other devices like Combitube etc.
 - iii. Breathing system continuous flow systems, draw over system - Assembly and checking, vaporizers (characteristics and functional specifications), Gas laws.
 - iv. Working principles of ventilators.
 - v. Monitoring in Anesthesia with concepts of minimal monitoring.

- vi. Safety in Anesthesia equipments.
- vii. Special anesthesia techniques as relevant to outpatient anesthesia, hypotensive anesthesia, anesthesia in abnormal environments and calamitous situations.
- viii. Medical gases – storage and central pipeline system.
- ix. Sterilization of equipment.
- x. Documentation and medico –legal aspects of anesthesia.

7. **Cardiopulmonary Resuscitation:** Both BLS & ACLS, theories of cardiac pump, thoracic pump, Recent Advances, Defibrillation, Preoperative assessments and medication –general principles, Oxygen therapy, Shock – pathophysiology, clinical diagnosis and management, Pulmonary function tests – Principles and application.

8. **Anesthetic management in special situations:** Emergency, Ophthalmology, Obstetric, Obstetrics analgesia, Plastic, Dental, Radio-diagnosis and Radio therapeutic procedures.

- i. Principles of pediatric anesthesia. Management of neonatal surgical emergencies, RA in infants. Pediatrics – Prematurity, Physiology, anatomy of neonate in comparison with adult.
- ii. Basics of orthopedic anesthesia.
- iii. Day care anesthesia.
- iv. Anesthesia for otorhinolaryngology with special emphasis on difficult airway management.
- v. Blood and blood component therapy. Anesthetic implications on coagulation disorders. Monitored anesthesia care (MAC).
- vi. Anesthetic implications in diabetes mellitus, thyroid and parathyroid disorders. Pheochromocytoma, cushings disease etc., other systemic diseases.
- vii. Management of acid base disorders.
- viii. Principles of geriatric anesthesia.
- ix. Principles of management in Trauma and mass casualties.
- x. Anesthesia for patients with cardiac, respiratory, renal and hepatobiliary disorders posted for unrelated surgery.
- xi. Management of patients in shock, renal failure, critically ill and / or on ventilator.
- xii. Management of patients for cardiac surgery / CPB beating heart surgery.
- xiii. Chronic pain therapy and therapeutic nerve blocks.
- xiv. Principles of anesthetic management of neuro / cardiac / thoracic / vascular / transplantation / burn and plastic surgery.
- xv. Principles of neonatal ventilation and critical care.
- xvi. Principle of one lung anesthesia.