



**VELAMMAL MEDICAL COLLEGE**  
**HOSPITAL AND RESEARCH INSTITUTE**  
**MADURAI - 625009**

2.6.3

**Program Specific Learning Outcomes**

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**MBBS**

**Anatomy**

- Identify and locate all the structures of the body and mark the topography of the living Anatomy.
- Identify the organs and tissues under the Microscope.
- Understand the principles of karyotyping and identify the gross congenital anomalies.
- Understand the principle of newer imaging techniques like Ultra sound, Computerized Tomography scan, Interpretation of plain and contrast X – rays.
- Understand the clinical basis of some common clinical procedures i.e., intramuscular and intravenous injection, lumbar puncture, kidney biopsy etc.

*T. Thirunavukkarasu*

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**Physiology**

- Conduct experiments designed for study of physiological phenomena:
- Interpret experimental/ investigative data.
- Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory

  
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**Biochemistry**

- Make use of conventional techniques / instruments to perform biochemical analysis relevant to clinical screening and diagnosis.
- Analyze and interpret investigative data.
- Demonstrate the skills of solving scientific and clinical problems and decision making.

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**Pharmacology**

- To understand the actions, its effects along with principles
- To identify the different factors affecting the effect of drugs
- Different routes of drug administration along with its advantages and disadvantages
- Calculation of dose, selection of the right drug for the right patient.  
Determining the right dose for vulnerable patients like liver impairment, geriatric population, pediatric population
- Use and importance of drug utilization.
- Importance of essential drugs
- To identify, treat and manage adverse drug reactions along with reporting.
- Experimental pharmacology methods, its principles for bioassay along with its correlation to drug effects, action, and its receptors
- Identify Commonly used drugs, its dose, and dosage.
- Mechanism of drug action Select appropriate drugs.



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## Pathology

At the end of the course, the student should be able to :-

- To understand the concepts of cell injury and cell death; thereby changes produced in different tissues and organs and also cell repair [the body's capacity for healing].
- Also, to know the normal homeostatic mechanisms, derangements of these mechanism and their effects on humansystem.
- Understand the etiopathogenesis, the pathological changes in organs and the clinico-pathological correlation of commoninfectious and non-infectious' diseases.
- To understand the concept of neoplasia with reference to the etiology, oncogenesis, morphological features, diagnostic criterias, staging and prognosis related to different tissues andorgans of the body and molecular aspect of tumour.
- Also, to correlate normal and abnormal morphology (grossand microscopic) of different organ systems in various diseases to the extent needed for understanding of diseaseprocesses and their clinical significance:
- To know the common immunological disorders and their effects on the human body.
- Have an understanding of the common hematological disorders and the investigations necessary to diagnose themand determine their prognosis.
- Perform and interpret in a proper manner the basic clinico-pathological procedures.
- Know the principles of collection, handling and dispatching of clinical samples from patients in a proper manner.
- To have knowledge about exfoliative cytology, basics in cytopathology and clinical pathology.
- Understand different types of biomedical waste, and their potential risks of management.

  
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**Microbiology**

A post graduate student upon successfully qualifying in the MD (Microbiology) examination should be able to:

1. Demonstrate competence as a clinical microbiologist.
2. Interact effectively with the allied departments by rendering services in basic as well as advanced laboratory investigations.
3. Demonstrate application of microbiology in a variety of clinical settings to solve diagnostic and therapeutic problems along with preventive measures.
4. Play a pivotal role in hospital infection control, including formulation of antibiotic policy and management of biomedical waste.
5. Acquire skills in conducting collaborative research in the field of Microbiology and allied sciences.
6. Conducting such clinical/experimental research would have significant bearing on human health and patient care.
7. Demonstrate effective communication skills required for the practice of clinical microbiology while teaching undergraduate students.
8. Establish good clinical microbiological services in a hospital and in the
9. community in the fields of bacteriology, virology, parasitology, immunology and mycology.
10. Plan, execute and evaluate teaching assignments in Medical Microbiology.
11. Plan, execute, analyze and present the research work in medical microbiology.
12. To acquire various skills for collaborative research.
13. To participate in various workshops/seminars/journal clubs/demonstration in the allied departments.
14. Uphold the prestige of discipline amongst the fraternity of doctors.

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**Forensic Medicine**

The Goal of MD Forensic Medicine is to train a doctor to become a competent medico-legal.

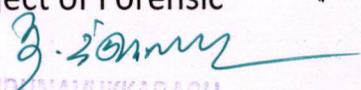
expert, teacher and researcher in the subject who:

1. is aware of medico legal aspects in various settings.
2. is aware of contemporary advances and developments in the field of Forensic Medicine.
3. has acquired the competencies pertaining to the subject of Forensic Medicine that are required to be practiced at all levels of the health system.
4. is oriented to the principles of research methodology.
5. has acquired skills in educating and imparting training to medical, paramedical and allied professionals.

A post graduate student, upon successfully qualifying in the M.D (Forensic Medicine) examination, should be able to:

1. Become an expert in Forensic Medicine.
2. Identify and define medico-legal problems as they emerge in the community and work to resolve such problems by planning, implementing, evaluating and modulating Medico- legal services.
3. Undertake medico-legal responsibilities and discharge medico-legal duties in required settings.
4. Keep abreast with all recent developments and emerging trends in Forensic Medicine, Medical Ethics and the law.
5. Deal with general principles and practical problems related to forensic, clinical, emergency, environmental, medico-legal and occupational aspects of toxicology.
6. Dealing with medico-legal aspects of Psychiatry, mental health and drug addiction.
7. Impart education in Forensic Medicine and Toxicology to undergraduate and post- graduate students with the help of modern teaching aids.
8. Assess the students' knowledge and skills in the subject of Forensic Medicine

**Community Medicine**

  
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- Describe the health care delivery system, inclusive of Public & Private Health System, including rehabilitation of the disabled in the country.
- Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare, planning and population control, inclusive of the Role of Public Private Partnership.
- List epidemiology methods and describe the application to communicable and non-communicable diseases. Prevention & Control in the community or hospital situation.
- Apply Bio-statistical methods and techniques.
- Outline the demographic pattern of the country and appreciate the roles of the individual, family community and social-cultural milieu in health and disease & also appreciate the Primary Health Care System of the Government, with its National Health Mission, giving scope for Private Health System to rope in for Collaborating with the Government Health Services & Programmes
- Describe the Health information systems.  
Enunciate the principles and components of primary healthcare and the national health policies to achieve the goal of Health for All.
- Identify the environmental and occupational hazards and their control. Describe the importance of water and sanitation in human health to understand the principles of health economics, health administration, and health education in relation to community.
- Use epidemiology as a scientific tool to make rational decisions relevant to community and individual patient intervention.
- Collect, analyze, interpret and present simple community and hospital-based data.
- Diagnosed and managed maternal and child health problems and advised a couple and the community on the family planning methods available in the context of the national priorities.
- Diagnose and manage common nutritional problems at the individual and community level.
- Plan, implement and evaluate a health education programme with the skill to use simple audio-visual aids.
- Interact with other members of the health care team and participate in the organization of health care services and implementation of National Health Programmes, inclusive of Public Private Partnership.

General Medicine Prof. T. THIRUNAVUKKARASU, M.D., D.A.,  
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- Develop clinical skills (history taking, clinical examination and other instruments of examination) to diagnose various common medical disorders and emergencies.
- Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases.
- Outline various modes of management including drugtherapeutics especially dosage, side effects, toxicity, interactions, indications and contra-indications.
- Propose diagnostic and investigative procedures and ability to interpret them.
- Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required.
- Recognize geriatric disorders and their management.
- Refer a patient to secondary and / or tertiary level of health care after having instituted primary care.

Perform simple routine investigations like haemogram, stool, urine, sputum and biological fluid examinations. Assist and common bedside investigative procedures like pleural tap, lumbar puncture, bone marrow aspiration / biopsy and liver biopsy.

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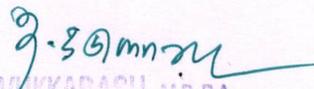
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**Pediatrics**

- Should empathies and Sympathies with the patients and attendance.
- Should constantly update our knowledge by attending skill courses, conferences and workshops and aim to practice evidence.
- Should remember that one is a teacher to all subordinates like medical students, nurses, physiotherapists, technicians and other paramedical personnel.
- As one matures in age and experience, skills in administration, equipment management, financial management etc., Should be learnt.
- Keep updated about the latest rules and regulations related to national programmed and international guidelines.
- Should not at any time hesitate to help peers and subordinates when called for?
- Should not aim to hold on to one's patients at any cost but should refer him or her to a higher center for further.

  
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**Dermatology**

- Identify social, economic, environmental, biological, and emotional attributes of patients and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to patients.
- Recognize the importance of growth and development in the field of basic dermatology; and help each patient realize her/his optimal potential in this regards.
- Plan and deliver comprehensive treatment for illness using principles of rational drug therapy.
- Plan and advocate measures for the prevention of infectious disease and disability.
- Plan rehabilitation of patients suffering from chronic illness and disability, efficiently.
- Provide comprehensive care to normal, 'at risk' and sick patients.
- Play the assigned role in the implementation of national health programmes, especially Leprosy, STD & AIDS efficiently and responsibly.

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**General Surgery**

- Should be adequately familiar with etiopathology, presentation and management of common surgical procedure in on ages.
- Should have adequate practical knowledge of fluid therapy and blood transfusion.
- Should be updated on sterilization, disinfections, sepsis and antisepsis.
- Should be updated on use of common antibiotics and drugs in surgery.
- Should have working knowledge about anesthesia.
- Should update with recent investigations in surgical conditions and injuries.
- Should develop basic surgical skills to manage emergencies including trauma.
- Develops skills to perform minor surgical procedures.
- Identify congenital disorders and refer appropriately.

  
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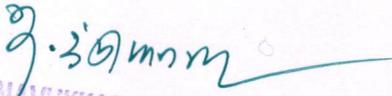
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**Ophthalmology**

- Student Should be able to identify common problems affecting the eye and managing it:
- Ophthalmic emergencies identified & management Principles should be known.
- They should have knowledge of major systemic diseases affecting the eye.
- Effects of local and systemic diseases on patient's vision and the necessary action required to minimize the sequelae of such diseases.
- Adverse drug reactions with special reference to ophthalmic manifestations to be known.
- Magnitude of blindness in India and its main causes.
- National programme of control of blindness and its implementation at various levels eye care education for prevention of eye problems role of primary health centre in organization of eye camps
- Assist to organize primary eye care service through primary health centers & use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.
- Organization of primary health care and the functioning of the ophthalmic assistant.
- Integration of the national programme for control of blindness with the other national health programmes eye bank organization

  
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**Anesthesiology**

**A Through knowledge of:**

- History & scope of Anesthesia
- Anatomy of upper airway
- Physiology of respiration methods of oxygen therapy and its indications
- Pre-Operative evaluation & premedication
- Principle & mechanism of administration of general Anesthetics, balanced anesthesia
- Inhalational Anesthetics agents and stages of Anesthesia
- Muscle Relaxants
- Spinal/Epidural Anesthesia
- Monitoring
- Cardiopulmonary resuscitation (Basis) including use of simple ventilators.
- End tracheal intubation, IPPV & other modes of ventilation.
- Local Anesthesia-The Pharmacology of local Anesthetics, their use & how to perform simple nerve blocks like -Infiltration anesthesia.
  - A. Digital block
  - B. Ankle block
  - C. Pudenda & par cervical blocks
- Fluid, Electrolyte balance & Disorders
- Site of respiratory obstruction and management of airway in an unconscious patient
- ICU, Role of Anesthesiologists In ICU

  
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- Shock, Types, Path physiology & Treatment
- Types of poisoning: Op poisoning, General and specific measures of treatment, snakebite and treatment
- Role of Anesthesiologists in acute and chronic pain relief
- Blood Transfusion,
- Inotropes and Vasopressors
- Management of respiratory infections in ICU (including ARDS)
- Learn and encourage breastfeeding in mothers.

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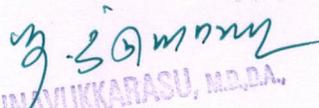
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**Radio-Diagnosis**

- To orient and train students in different aspects of diagnosis and intervention in radiology.
- Special emphasis will be on new imaging techniques USG, CT, MRI and interventional radiology.
- Training will be oriented for technical aspects of clinical radiology and applied radiology and posttreatment follow-up in disease.
- Ultimate goal will be to provide quality education for the undergraduates and quality diagnostic and relevant therapeutic care for different sections of the society.

  
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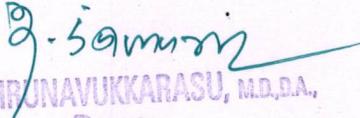
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**Anatomy**

comprehend normal development of human body to provide an anatomical basis for understanding the structure and correlate with functions both in health and in disease presentations.

- Is aware of up-to-date advances and developments in the field of Anatomy.
- Has acquired the competencies pertaining to the subject of Anatomy that are necessary to be practiced at all levels of the health system.
- Is able to release responsibilities and contribute in National Health Education programme.
- Is oriented to the ethics of research methodology.
- Has acquired skills in educating medical and paramedical professionals.
- Has acquired skills in communicating with the students and colleagues from various medical and paramedical fields.
- Has acquired skills of integrating anatomy with other disciplines when needed.
- Has acquired the qualities of a good teacher capable of innovation in teaching methodology.

Has able to demonstrate adequate administration skills to function as an efficient leader of the panel engaged in teaching and research.

  
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**Physiology**

- Be a competent physiologist and a role model medical teacher.
- Effectively teach under graduate medical students the basic
- Train & conduct Experimental Research, as would have a significant clinical bearing.
- Encourage interaction with allied departments to promote integrated teaching, research and advanced laboratory investigations to support publications, paper presentations and patient care.
- Encourage the student to participate in student research project of ICMR/ Science v& technology, workshops, seminar, and CM E programmes in the institution and outside the institution.

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**Biochemistry**

- Shall develop competence to practice evidence-based biochemistry by a. learning to recognize the need of continued education b. using appropriate learning resources and critically analyze the published articles d. Developing skills as a self-directed learner.
- Shall develop knowledge of biochemical basis of diseases & learn to plan the investigations.
- Shall acquire knowledge to perform recent investigations & procedures for the patients.
- Shall develop skills in documentation of reports.
- Shall acquire high level of communication skills to explain diagnosis, management & prognosis, relatives & communities.
- Shall develop ethical practice of clinical biochemistry specialty.
- Shall be able to organize clinical biochemistry laboratory to cater biochemical investigations supporting patient care services.
- Shall develop the ability to teach undergraduate and post graduate students in biochemistry.
- Shall facilitate the learning of medical /nursing/ paramedical students & practicing physicians as teacher trainee.
- Shall learn to review published literature & to apply the knowledge in biochemistry.
- Shall develop knowledge in basic concepts of research methodology & epidemiology.
- Shall make use of knowledge to create & use tools/devices for research purposes.
- Shall develop & execute required managerial & leadership skills to function as efficient member of Academic, research & healthcare team.
- Shall take the responsibility in implementation of national health programmes efficiently.

  
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**Pharmacology**

Possess thorough knowledge of the subject in the following areas:

- Basic principles of pharmacology, Molecular pharmacology, New drug development, recent advances in pharmacology
- Clinical pharmacology
- Pharmacodynamics, Pharmacokinetics
- Drug -Drug interactions
- Drugs used in special conditions.
- P -Drug concept, Individualization of Drug treatment
- Adverse drug reactions
- Systemic pharmacology:
- Principles of essential drugs and rationale use of drugs
- Pharmacoeconomics, Pharmacovigilance
- Pharmacogenomics
- Basic concepts of Research methodology and epidemiology (clinical and animal )
- Biostatistics
- Generally used Laboratory techniques,
- Analytical methods, Handling of instruments
- Implementation of National health programme and problems
- Drug regulations of India and abroad
- Teaching technology
- Communication methods and medical writing
- Applications of principles of pharmacology for practicing drug utilization and evaluation of newly identified drugs
- Data collection and analyzation of both clinical an experimental and Pharmacokinetic and dynamics.
- Interpretation and analyzation of data with logical conclusions and accurate reasons.
- Appropriate suggestions for selection of drug and its usage (common and uncommon side effects, drug interactions and kinetics) .
- Suitable Precautions and measures to be taken while treating the side effects and administrating the drug a special attention to be given towards physiological, psychological & pathological features.

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- Scrutiny for rationale of drug use and its related adverse events
- Drug utilization and related adverse effects auditing
- Assist and assess emergency conditions while conducting the clinical trials and to manage the situation until cooperation and support.
- Capability for continuous learning in order to upgrade the knowledge of recent advances in pharmacology.
- Competent to teach and train undergraduates and junior PG student, nursing and paramedical staff.
- Propose and execute clinical research and experimental research in accordance to GCP/GLP guidelines.
- Knowing legal and ethical issues of drug assessment
- Research findings, its results and conclusion have to be developed via writing skills as well as verbally.
- Enlightened about regulatory procedures required to carry out marketing of new drug in India.
- To achieve common procedures related to clinical evaluation of drug in volunteers and patients enrolled in the study.
- Should be responsible to manage and organize day to day activities and to carry out the appropriate necessary measures in emergency arising while drug evaluation.
- Effective utilization of audio, visuals for teaching and learning (computer, LCD, OHP, etc.)
- Analyze, criticize and correct the research paper!
- Formulating and conducting teaching methods for problem-based learning exercise.
- Function as effective leader and able to manage various workshops/training programmes.
- To organize and conduct minutes of various committee.

Expertise in pharmacology along with interpretation and implementation. To student will be competent to undertake different activities in order to be an expert in his profession as a pharmacologist. pharmacology and tracking on updates and with recent advances. Obtainment of skills related to teaching methods research and corporate world.

  
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**Pathology**

- Has acquired the competence pertaining to technical work required for the practice of Pathology in the community and at all levels of health care system.
- Has acquired skills effectively in communicating the diagnosis to the clinicians, especially cancer patients.
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities.
- Practice the specialty of Pathology in keeping with the principles of professional ethics.
- Function as a productive member of a team engaged in health care, research and education.

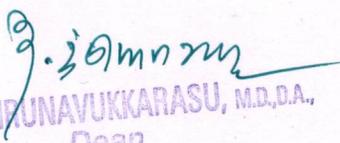
  
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**Microbiology**

- To gain knowledge & skills in different branches in Medical Microbiology so as to be competent enough at international level as a consultant Medical Microbiologist.
- To handle all the instruments ranging from simple to sophisticated which are present in the laboratories.
- To apply the knowledge & skills of Medical Microbiology for patient care to diagnose the diseases at the earliest.
- To monitor & apply the guidelines of infection control practices & Biomedical waste.
- To be able to prepare & execute basic & Molecular research activities.

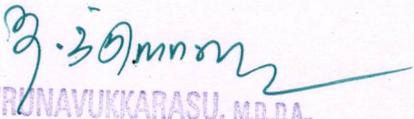
  
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**Community Medicine**

- Define and manage the health problems of the community.
  - Organize epidemiological studies to identify health problems.
  - Plan, implement and evaluate various health programmes, especially national.
  - health, family welfare, disease control/eradication programs.
  - Select, train, supervise and manage various categories of health personnel.
- Organize health care services, routine and for special groups and during periods of special needs such as disasters/calamities and epidemic.
- Plan and execute a research study, including clinical trials.
  - Use/organize bio-statistical analysis using computers and software and prepare reports/ papers.
  - Critically evaluate research activities
  - Make recommendations on policy and procedures.
  - Plan and conduct an educational session/programme.
  - Assist in development of curriculum, teaching and learning activities and methods of evaluation.

  
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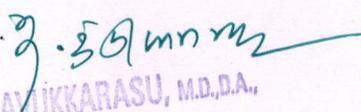
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**General Medicine**

- Special emphasis is placed on the relatively common and treatable disorders. Possession of clinical skills required for making a diagnosis is given utmost importance.
- Physicians with necessary knowledge, skill and attitude to diagnose and manage in a cost effective manner, a wide range of clinical problems in internal medicine as seen in the community or in secondary / tertiary care setting.
- The physician should become competent in the use of the various diagnostic tests, and interpret their results intelligently, keeping in mind their cost effectiveness.
- Skills necessary for diagnosis, management and prevention of medical disorders.
- PG Students should master the art of proper communication with the patients & their relatives.

  
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**Pediatrics**

At the end of the MD course in Paediatrics, the student should be able to

- Recognize the key importance of child health in the context of the health priority of the country.
- Practice the specialty of Paediatrics in keeping with the principles of professional ethics.
- Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to children.
- Recognize the importance of growth, nutrition and development as the foundation of Paediatrics; and help each child realize her/his optimal potential in this regard.
- Take detailed history, perform complete physical examination including neurodevelopment and behavioral assessment and anthropometric measurements of the child and make clinical diagnosis.
- Perform relevant investigative and therapeutic procedures for the pediatric patient; Interpret important imaging and laboratory results;
- Diagnose illness in children based on the analysis of history, physical examination and investigative work up;
- Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy.
- Plan and advise measures for the prevention of childhood disease and disability.
- Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs.
- Manage childhood emergencies efficiently.
- Provide comprehensive care to normal, at risk' and sick neonates; and keep these fundamental attributes in focus while dealing with them.
- Demonstrate empathy and a humane approach towards patients and their families and respect cultural needs.

- Demonstrate communication skills of a high order in explaining

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management and prognosis, providing counseling and giving health education messages to patients, families and communities.

- Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based Paediatrics; Demonstrate competence in basic concepts of research methodology and epidemiology.
- Facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher-trainer.
- Play the assigned role in the implementation of national health programs, effectively and responsibly.

To produce a competent pediatrician who:

- Recognizes the health needs of neonates, infants, children and adolescents and carries out professional obligations in keeping with principles of National Health Policy and professional ethics.
- Has acquired the competencies pertaining to pediatric that are required to be practiced in the community and at all levels of health care system; Has acquired skills in effectively communicating with the child, family and the community.
- Is aware of the contemporary advances and developments in medical sciences related to child health.
- Is oriented to principles of research methodology, and recent advances in Paediatrics.

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**Dermatology**

- Function as an effective leader of health team engaged in health care, research or training.
- Identify social, economic, environmental, biological, and emotional attributes of patients and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to patients.
- Recognize the importance of growth and development in the field of Dermatology; and help each patient realize her/his optimal potential in this regards.
- Plan and deliver comprehensive treatment for illness using principles of rational drug therapy.
- Plan and advocate measures for the prevention of infectious disease and disability.
- Plan rehabilitation of patients suffering from chronic illness and disability, efficiently.
- Provide comprehensive care to normal, at risk' and sick patients.
- Play the assigned role in the implementation of national health programmes, especially Leprosy, STD & AIDS efficiently and responsibly.

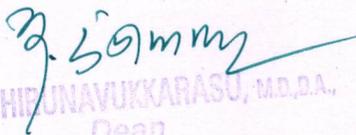
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**Psychiatry**

- Competent in basic skills in psychiatry and behavioral sciences.
- Is competent in primary, secondary and the tertiary level of psychiatric care.
- Well versed in contemporary developments in medical science as related to mental health.
- Has sound knowledge of principles of research methodology.
- Is proficient in educating medical and paramedical professionals.

  
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**M.D. Anesthesia**

- A thorough knowledge of the pharmacokinetics and pharmacodynamics of anesthetic drugs and adjuncts.
- Knowledge of cardiovascular, respiratory neurological, hepatobiliary, renal and endocrine homeostasis and related drugs as relevant to patients undergoing anesthesia.
- Relevant anatomy, physiology and biochemistry.
- A basic idea of the relevant physical principles involved in the construction and functioning of equipment used in anesthesia and monitoring.
- Knowledge to attain expertise of the commonly used techniques in general, regional and local anesthesia.
- A clear-cut concept of unconsciousness and its implications.
- Relevant knowledge about chronic intractable pain and its management.
- Relevant knowledge to manage patients in intensive therapy unit.
- Relevant knowledge of medical Statistics
- Knowledge & Expertise in Cardiopulmonary resuscitation.

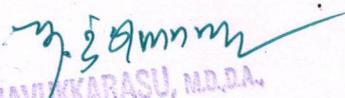
  
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**Learn to perform preoperative evaluation.**

- Learn to collect and synthesize preoperative data and to develop a rational strategy for the perioperative care of the patient. Outpatients: Develop skills in obtaining medical information from sources outside our institution, that is, other hospital and private physician
- Learn a thorough and systematic approach to preoperative evaluation of patients with systemic diseases. Perform preoperative medical evaluations of patients undergoing many different types of operations, both of inpatients and outpatients but especially elderly patients with complex medical illnesses such as alcoholism, chronic obstructive pulmonary diseases, congestive heart failure, coronary artery disease, hepatic failure, hypertension, myocardial infarction, renal failure, and stroke etc.
- Learn to prioritize problems and to present cases clearly and systematically to attending consultants.
- Develop working relationships with consultants in other specialties to assist in preoperative evaluation.
- Learn to get a good consultation.
- Learn to interact with preoperative patients and develop effective counseling techniques for different anesthetic techniques and perioperative procedures. Learn to assess and explain the risk of procedure and take informed consent.

  
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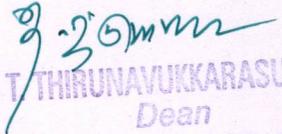


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- Learn anesthetic techniques and skills and understand operate different equipment used by anesthetist, develop optimum plans depending on patients condition Know the special considerations and techniques required to anesthetize patient in locations inside and outside of the operating room, for example, the Cardiac Catheterization Laboratory, Electroconvulsive Therapy, Genitourinary Clinic, Magnetic Resonance Imager, Radiology & Radiotherapy.
- Perform the anesthesia machine check and prepare basic equipment necessary for all anesthetic cases.
- Prepare drug table: select appropriate drugs for a case and develop a good system for arranging the drug and work tables.
- Place standard monitors, for example, electrocardiogram, noninvasive blood pressure device, precordial stethoscope, neuromuscular blockade monitor, pulse oximeter, and capnograph.
- Learn proper techniques of preoxygenation.

Learn how to induce anesthesia, both routine induction and rapid sequence induction, and the pertinent mechanical skills and choice of drugs

- Perform airway management by knowing various procedures and equipment: They should know how to use/do.
  - Direct laryngoscopy using curve and straight blade.
  - Laryngeal mask airway They should be familiar with
- a. Fiberoptic techniques

  
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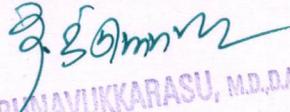


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- b. Light wand techniques
- c. Blind techniques
- d. Combi tube Failed Intubation or difficult airway algorithms a. All techniques for endotracheal intubation b. Additional techniques such as retrograde wire intubation and surgical cricothyroidotomy both of which will be learned on a mannequin.

**Awake intubation**

- a. Topical/Local anesthesia for airway
- b. Airway nerve block, for example, superior laryngeal nerve and glossopharyngeal nerve block Learn anesthetic maintenance: appropriate choice and use of anesthetic drugs and adjuvant drugs such as muscle relaxants and how to monitor their effects :
  - Assessment of Anesthetic depth.
  - Assessment of volume status
  - Replacement of intraoperative fluid losses
  - Appropriate use of blood and blood products
  - Effect of different types of surgical procedures on anesthetic management, for example, effects of aortic cross-clamping
- Appropriate use of intraoperative laboratory tests blood gas coagulation tests etc.
- Become skilled in catheterizing or cannulating the following vessels for sampling blood, measuring concentrations or pressures, or administering drugs of fluids:
  - a. Veins: all ages and all sizes
  - b. Arteries: radial and other sites

  
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- c. Central vessels: internal jugular, subclavian, and long-arm routes.
- Become skilled in using and interpreting the following routine noninvasive and invasive monitors intraoperatively and others:
  - a. Electrocardiogram with ST-segment analysis
  - b. Noninvasive blood pressure
  - c. Capnograph: values and changes in values and waveform.
- Pulse oximetry: values and changes in values
  - a. Neuromuscular blockade monitor
  - b. Invasive arterial pressure: waveform and changes in the waveform
  - c. Central venous pressure: values and waveform
- Pulmonary artery pressure: Values and waveforms, pulmonary capillary wedge tracing.
  - a. Cardiac output
  - b. Mixed venous oxygen saturation
  - c. Evoked potential
  - d. transesophageal echocardiography: basic understanding
- Become skilled in techniques for regional anesthesia.
  - a. Brachial plexus blockade: interscalene, supraclavicular, axillary techniques with and without nerve stimulator for localization
  - b. Spinal anesthesia (including continuous spinal where appropriate)
  - c. Epidural anesthesia: lumbar, caudal, and thoracic.
  - d. Lower extremity blockade: femoral, sciatic, and lateral femoral cutaneous nerves
  - e. Upper extremity blockade: ulnar, median, and radial nerves
  - f. Bier block

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g. Cervical plexus block

- Become skilled in discontinuing anesthesia and monitoring emergence from anesthesia.
  - a. Reversal of neuromuscular blockade. Determination of appropriate time for extubating
  - b. Monitoring of airway function during and after emergence
- Become familiar with/skilled in perioperative pain management :
  - Postoperative epidural infusion (opiates, local anesthetics)
  - Patient-controlled analgesic
  - Adjunctive nerve blockade
- Become skilled in the use of techniques for conscious sedation and monitored anesthesia care.
  - Selection of patients for conscious sedation
  - Selection of drugs for use in conscious sedation
  - Monitoring techniques helpful in controlling depth of sedation.
  - Recognition of when conscious sedation has become unconscious sedation.
- Know how to successfully resuscitate and develop skills of Basic Life support and Advance Cardiac Life support.
- Work with other members of the OR team, including surgeons and nurses, to optimally care for surgical patients, especially develop communications skills.

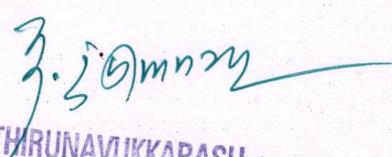
  
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**M.D. Radio Diagnosis**

- To orient and train students in different aspects of diagnosis and intervention in radiology.
- Special emphasis will be on new imaging techniques USG, CT, MRI and interventional radiology.
- Training will be oriented for technical aspects of clinical radiology and applied radiology and post treatment follow-up in disease.
- Ultimate goal will be to provide quality education for the post graduates and quality diagnostic and relevant therapeutic care for different sections of the society.

  
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**General Surgery**

- Should empathies and sympathies with the patients and attendance.
- Should constantly update knowledge by attending skill courses, conferences and workshops and aim to practice evidence – based surgery.
- Should remember that one is a teacher to all subordinates like medical students, nurses, physiotherapists, technicians and other paramedical personnel.
- As one matures in age and experience, skills in administration, equipment management, financial management etc., should be learnt.
- Keep updated about the latest rules and regulations related to National Programmes and International guidelines.
- Should not at any time hesitate to help peers and subordinates when called for.
- Should maintain documents, registers, books, manuals, etc., as required for surgical practice.
- Should not aim to hold on to one's patients at any cost but should refer him or her to a higher center for further treatment if necessary.
- At all times, prior to any intervention, informed consent from patients and attendants should be obtained after giving detailed and correct explanation about the need for the procedure.

At no time should the patient or attendants be denied knowledge about clinical progress and complications if any.

  
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**Orthopedics**

- To order surgical implant and surgically manage polytrauma patients.
- Assist hemi-orthoplasty/ total orthoplasties of Hip, knee, shoulder elbow.
- Assist spinal surgeries, both trauma and orthopedics
- Assist in arthroscopy diagnostic and operative cases.
- Perform arthrodesis of major and minor joints like, hip, knee elbow ankle
- perform osteotomy around hip, knee ankle elbow.
- Assist in Surgical operations on benign and malignant tumors of the musculoskeletal system and prepare for custom made prosthesis.
- Perform open reduction and internal fixation of complex fracture of the acetabulum, femur, Tibia, humerus!
- Knee, ankle and hip.
- Independently perform open reduction/ closed reduction and internal fixation with DCP, LCP, IMIL nailing, LRS
- Assist in Ilizarov and limb lengthening procedures.
- Assist in revision surgeries.
- provide Pre and post op care of patients.
- To have a complete and thorough knowledge of all the orthopedic instruments and implants

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**ENT**

- PG students will be well versed in drugs used, their side effects, contraindications, dosage and routes of administration.
- Can identify, manage and know the preventable causes of the infectious diseases in ENT.
- Can identify and immediately manage appropriately the emergency and dangerous conditions in ENT such as bilateral vocal cord palsy, foreign body in cricopharynx, airway obstruction.
- Early recognition, treatment and referral of cases such as leukoplakia, suspected diphtheria, early recognition of hearing loss in infants and others.
- Emergencies in oto-rhino-laryngology and head and neck.

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## Ophthalmology

- Offer to the community, the current quality of 'standard of care' in ophthalmic diagnosis as well as therapeutics, medical or surgical, in most of the common situations encountered at the level of health services.
- Periodically make self-assessment of his or her performance and measures to keep up with ongoing advances in the field and apply the same in his/her practice.
- Be aware of her/his own limitations in managing an emergency situation or in absence of required resources, which warrant referral to more qualified centers.
- Apply research and epidemiological methods during his/her practice. The post graduate student should be able to present or publish work done by him/her.
- Play the assigned role in the implementation of national programme for the prevention of blindness effectively and responsibly.
- Students should acquire skills in educating Medical and paramedical professionals.

  
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**Obstetrics and Gynecology**

- Provide quality care to the community in the diagnosis and management of Antenatal, Intra-natal and Post-natal period of normal and abnormal pregnancy and labor.
- Provide effective and adequate care to a pregnant woman with complicated pregnancy.
- Provide effective and adequate care to a normal and high-risk neonate.
- Perform obstetrical ultrasound in normal and abnormal pregnancy including Doppler.
- Manage effectively all obstetrical and gynecological emergencies and if necessary, make appropriate referrals.
- Provide quality care to the community in the diagnosis and management of gynecological problems including screening, and management of all gynecological cancers including during pregnancy.
- Conduct a comprehensive evaluation of infertile couple and have a broad-based knowledge of assisted reproductive techniques including ovulation induction, in vitro fertilization and intra-cytoplasmic sperm injection, gamete donation, surrogacy and the legal and ethical implications of these procedures.
- Provide counseling and delivery of fertility regulation methods including reversible and irreversible contraception, emergency contraception etc.

Provide quality care to women having spontaneous abortion or requesting Medical Termination of Pregnancy (MTP) and manage their related complications.

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