



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

(A Deemed to be University Declared under Section 3 of UGC Act, 1956)

Comprising Sri Devaraj Urs Medical College

[Constituent Unit of Sri Devaraj Urs Educational Trust for Backward Classes (Regd.)]

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Learning outcomes and graduate attributes

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**PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES AND COURSE
OUTCOMES FOR ALL PROGRAMS**

DEPARTMENT OF ANATOMY

1st MBBS

Course Objectives and Outcomes

A) KNOWLEDGE:

At the end of the course the student shall be able to:

- Comprehend the normal disposition, clinically relevant interrelationship, functional and cross sectional anatomy of the various structures in the body.
- Identify the microscopic structure and correlate elementary ultra-structure of various organs and tissues and correlate the structure with the functions as a prerequisite for understanding the altered state in various disease processes.
- Comprehend the basic structure and connections of the central nervous system to analyze the integrative and regulative functions of the organs and systems; He/She shall be able to locate the site of gross lesions according to the deficits encountered.
- Demonstrate knowledge of the basic principles and sequential development of the organs and systems; recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. He/She shall be able to explain the developmental basis of the major variations and abnormalities.

B) SKILLS:

At the end of the course the student shall be able to:

- 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 principles of newer imaging techniques and interpretation of Computerized Tomography (CT) Scan, Sonogram etc.
- Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture etc.

C) INTEGRATION

- From the integrated teaching of other basic sciences, student shall be able to comprehend the regulation and integration of the functions of the organs and systems in the body and thus interpret the anatomical basis of disease process.



BACHELOR OF PHYSIOTHERAPY

Course objectives and Outcomes

- At the end of the course, the student shall be able to acquire requisite comprehensive knowledge and skills in the subject of anatomy which shall include functional anatomy of various structures in the human body.
- Candidate shall also able to identify microscopic structures and correlate their functional and clinical aspects.

B.Sc. OPHTHALMIC TECHNOLOGY

Course objectives and Outcomes

- At the end of the course, the student shall be able to acquire requisite comprehensive knowledge and skills in the subject of anatomy which shall include functional anatomy of human eye.
- Candidate shall also able to identify microscopic structure of the anatomy of eye and correlate their functional and clinical aspects.

RENAL DIALYSIS

Course Objectives and Outcomes

- At the end of the course, the student shall be able to acquire requisite comprehensive knowledge and skills in the subject of anatomy which shall include functional anatomy of urinary system in the human body.
- Candidate shall also able to identify microscopic structures of urinary system and correlate their functional and clinical aspects.

CLINICAL NUTRITION AND DIETETICS

Course objectives and Outcomes

- Upon completion of this course the student will have complete knowledge related to anatomy organs, their microscopic structures with basics in embryology.
- Students should able to comprehend about the different organs in the body related to their course work.

ALLIED HEALTH SCIENCES

Course Objectives and Outcomes

At the end of the course the student shall be able to:

- Comprehend the normal disposition of the various structures in the body.
- Identify the microscopic structure of general tissues
- The broad goal of the teaching AHS 1st semester undergraduate students in Anatomy aims at providing basic knowledge of the gross and microscopic structure
- At the end of the course the student shall be able to:
- Identify and locate the structures of the body
- Identify the organs and tissues under the microscope



M.SC. MOLECULAR BIOLOGY

Course Objectives and Outcome

- At the end of the course, the student shall be able to acquire requisite comprehensive knowledge and skills in the subject of anatomy
- Student should also able to identify microscopic structures and correlate their functional and clinical aspects.
- Demonstrate knowledge of the basic principles and sequential development of the organs and systems; recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. student shall be able to explain the developmental basis of the major variations and abnormalities.

M.SC. YOGA

Course Objectives and Outcome

- Basic understanding of the view of all the systems anatomy (over view)
- Applied Anatomy - Emphasize on Nervous system / Neurophysiology/ HPA axis, Endocrine system, Immune system , Limbic system, cognitive functions, Memory etc.

**Sd/-
Prof & HOD
Dept. of Anatomy**



DEPARTMENT OF PHYSIOLOGY

MBBS Undergraduate Program

Course outcomes

- Elucidate functions of the organ systems in normal subjects.
- Explain the various regulatory mechanisms and their integration in maintenance of homeostasis
- Apply the principles of physiology in understanding disease process
- Describe the mechanisms of altered physiology on exposure to stress
- Compare the normal and abnormal data and interpret the same to assess health status
- Comprehend the basics of reproductive physiology as relevant to national family welfare programs.
- Perform basic laboratory investigations relevant for a rural set up
- Demonstrate compassionate approach while examining subjects.

MD Physiology

Program outcomes

- A competent physiologist possessing knowledge that can be used in a variety of clinical settings to solve diagnostic and therapeutic problems.
- A good teacher practicing required skills of teaching and learning to disseminate the knowledge to students.
- A researcher whose work will have significant bearing on human health and patient care.

Course outcomes:

- Demonstrate comprehensive knowledge and understanding of general and systemic physiology
- Comprehend and understand the physiological basis of health and disease affecting various organ system
- Select and use appropriate teaching techniques and resources
- Critically evaluate published journal literature and to effectively use of library facilities
- Carry out relevant research
- Function as an effective member of teaching team or research team
- Carry out professional obligations ethically and keeping in view national health policy.



Course outcomes for Allied Health and Basic Sciences

B.Sc. Allied Health Sciences

- Understand the physiological functioning of various organ systems in our body.
- Demonstrate the concept of altered physiological functions and its manifestations.
- Apply the knowledge gained into professional practice.

B.Sc. Clinical Nutrition and Dietetics

- Elucidate the functions of the different organ systems in normal subject.
- Demonstrate the ability to link the concept of nutrition in functioning of the organ systems.
- Understanding of physiological derangements that takes place due to nutritional deficiencies.

Bachelor of physiotherapy

- Understand the physiological integration of the organ systems to maintain homeostasis
- Demonstrate an understanding of the major physiological organ systems of the human body with emphasis on neuromuscular and neurophysiology
- Understand how altered muscular and neurophysiology affects human function.
- Demonstrate capacity to apply the knowledge acquired into their practice.

B.sc Renal dialysis Therapy

- Elucidate the functions of the renal system
- Demonstrate knowledge of urine formation and various renal function tests
- Expound the knowledge of physiology and pathophysiology of various renal regulatory mechanisms and Mineral metabolism.
- Apply the fundamentals of renal physiology in their practice.

B.sc Optometry

- Apprehend the physiology of optics and defects in image formation
- Demonstrate knowledge of processing of visual information
- Demonstrate the understanding of visual reflexes and basis of visual testing
- Understanding the Pathophysiology in ocular anomalies

M.Sc. Molecular biology and Human genetics

- Understand the Physiological concepts of homeostasis and control mechanisms
- Demonstrate the knowledge of the functions of different organ systems
- Demonstrate understanding of physiology in therapeutic aspects

M.Sc. yoga

- Understanding the basic functioning of the human body



-
- Understanding of the role of physiological mechanisms from the perspective of health
 - Demonstrate the ability to link the practice of yoga into better physiological functions of the human body

Master's in Public health

- Understand basics of Human life cycle
- Demonstrate the understanding of basics functions of Organ Systems.



DEPARTMENT OF BIOCHEMISTRY

MBBS

At the end of the course the student shall be able to:

Knowledge

- Describe the molecular and functional organization of a cell and its subcellular components
- Delineate structure, function and inter-relationships of biomolecules and consequences of deviation from normal
- Summarize the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity is altered
- Describe digestion and assimilation of nutrients and consequences of malnutrition
- Integrate the various aspects of metabolism and their regulatory pathways
- Explain the biochemical basis of inherited disorders with their associated sequelae
- Describe mechanisms involved in maintenance of body fluid and pH homeostasis
- Outline the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application in medicine
- Summarize the molecular concepts of body defense and their application in medicine;
- Outline the biochemical basis of environmental health hazards, biochemical basis of cancer and carcinogenesis
- Familiarize with the principles of various conventional and specialized laboratory investigations and instrumentation analysis and interpretation of a given data
- Suggest laboratory investigations to support theoretical concepts and clinical diagnosis.

Skills

- Acquire skills required to consider relevant biochemical investigations for common clinical conditions & its interpretation

Integration

- Integrate all three preclinical subjects in teaching- learning and evaluation for better understanding of the subject and its correlation.

MD Biochemistry

At the end of the course the student shall be able to:

- Understand the basic concepts of structure and functional relationship of the biomolecules



- Know intermediary metabolism and its integration, regulation and inborn errors of metabolism
- Explain role of Nutrition in health and disease
- Analyse Biological fluids for its chemical constituents and correlate the same in health and disease
- Acquire skills necessary to perform advanced biochemical techniques and to interpret the results
- Know the molecular basis of health and disease

Allied Health Sciences Courses

B.Sc. MLT (B.Sc. Medical Laboratory Technology)

- Understand basic chemistry and metabolism of biomolecules
- Apply acquired knowledge in sample analysis and interpretation
- Acquire in depth knowledge about quality aspects , automation and maintenance of instruments
- Work under different specialties of Laboratory Medicine (Biochemistry, Microbiology, Pathology and Blood bank departments respectively)
- Work and contribute in accreditation of the Laboratory.

B.Sc. Physiotherapy

- Understand basic chemistry and metabolism of biomolecules
- Acquire knowledge in understanding the metabolism of biomolecules in musculoskeletal system
- To apply the knowledge of metabolism of various biomolecules in interpreting the biochemical diagnostic test report wherever applicable for the rehabilitation of patients through physiotherapy

B.Sc. M.Sc. Clinical Nutrition and Dietetics

- Understand basic chemistry and metabolism of biomolecules
- Understand biochemical role of Vitamins, Micronutrients and macro nutrients in Health and Disease.
- Acquire skills necessary to perform basic biochemical tests and to interpret the results

B.Sc. Ophthalmic Technology

- Understand the role of tissue biomolecules in the vision.
- Understand the role of Vitamins in the vision.
- Understand the biochemical composition and functions of – Retina, Lens, cornea, Aqueous humor and vitreous humor
- Understand the biochemical pathway for cataract formation.



M.Sc. MLT (Clinical Biochemistry)

- Acquire knowledge of molecular basis of disease and apply appropriate molecular techniques in disease evaluation
- Understand biochemical basis of health and disease
- Perform biochemical analysis giving at most importance to quality
- Apply managerial skills acquired to coordinate management of laboratory
- Work and contribute in accreditation of the Laboratory.

M.Sc. Molecular Biology (I Semester)

- Understand basic chemistry and metabolism of biomolecules
- Acquire knowledge of molecular basis of disease and apply appropriate molecular techniques in disease evaluation
- Acquire skills necessary to perform basic biochemical tests and to interpret the results



DEPARTMENT OF PATHOLOGY

MBBS

Course Outcomes

At the end of the course the student shall be able to

- Have an understanding of the common hematological disorders and the investigations necessary to diagnose them
- Understand the pathological basis of cell injury in different tissues and organs
- Understands normal hemostatic mechanism and the derangement of these mechanisms
- Understand the etiopathogenesis, the pathological effect and the clinic pathological correlations of common infectious and noninfectious diseases
- Understand the concept of neoplasia with respect to etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body
- Correlate normal and altered morphology of different organ systems in different diseases to the extent needed for understanding of the disease processes and their clinical significance
- Have Knowledge of common immunological disorders
- Know the principles of collection, handling, storage and dispatch of clinical samples
- Perform and interpret the basic laboratory investigations.
- Describe different types of Bio-medical waste, their potential risks and their management
- The students should be conversant with the organization and functioning of the laboratory and should be aware of the safety precautions to be taken in the laboratories.
- The students should be conversant with the use of compound microscope.
- They should be conversant and be able to perform and interpret the routine laboratory investigations.
- The students should be aware of the common methods of collection of samples for hematological and bio-chemical investigations and anticoagulants to be used. They should be conversant with the methods of collection of body fluids and for cytological examinations and the preservatives to be used.
- The clinicopathological exercises include the physical and chemical examinations of urine including the microscopy and the application of the tests in diagnosis of diseases.



- The haematology exercises should include the Hemoglobin estimation, E.S.R. peripheral smears study, P.C.V. and cell counts (R.B.C., W.B.C., Absolute Eosinophil count), and hematological indices, total and differential count, reticulocyte count, blood grouping, techniques and interpretation of bone marrow preparations to be demonstrated.
- The students should also be conversant with the method of collection and transportation of biopsy specimens to the laboratory including the preservatives used. They should have the knowledge of method of processing of samples and common histological techniques including H & E stain and a few special stains like PAS, Perl's Prussian stain and Papanicolaou etc.,
- The students should also have the knowledge of application of frozen section
- The students should be able to identify as spotters the common histopathological, hematological and cytological slides and specimens and charts and their interpretations.
- The students should be able to correlate the history and identify the common histopathological and hematological slides and specimens and discuss the relevant diagnosis.
- The student should have the knowledge of rapid diagnostic methods and principle and use of Auto Analyzers.
- The students should maintain the practical record book and keep it up-to-date and submit on time for valuation.

MD Pathology

Program Outcome

- Should be able to diagnose routine histopathology, cytopathology, hematology and clinical pathology specimens with interpretation, correlation and advise on ancillary tests so that they can participate in good patient care
- Should be introduced to Basic Research Methodology so that they can conduct Fundamental and Applied Research
- Should be trained in teaching methods which may enable them to take up teaching assignment in Medical Colleges/Institutes.

Course Outcome

- Understand and explain factors about the causation of disease
- Understand the processes involved in gross and microscopic changes of organs and
- tissues in diseases
- Understand and explain the pathological basis of evolution of clinical signs and



- symptoms
- Perform basic and special laboratory procedures for the diagnosis of diseases
- Recognize and report the morphological changes in cells, tissues and organs
- Identify, plan, perform and report specific research projects
- Perform clinical autopsy
- Plan and teach pathology for laboratory technology and medical students.

B.Sc. MLT (Medical Laboratory Technology)

Course Outcomes

- Explain the basics of Cell injury, Inflammation and Hemodynamics
- Should be able to define and differentiate Benign and Malignant Neoplasia
- Understand Infections
- Explain the basics of diseases in CVS,RS, GIT, Kidney, Liver, Breast, CNS
- Understand and be aware of and perform basics investigations in clinical, hematology, blood banking, urine examination
- Should be able to understand and explain basic concept of Histopathology techniques
- Should be able understand the principle of grossing and fixation
- Should be able to perform histopathological techniques such as processing, embedding, microtomy and basic and special staining.
- Should be able to perform basic techniques in hematology, Urine examination, and staining
- Understand the basics of cytology of genital, respiratory, gastrointestinal, urinary tracts and body fluids
- Perform basic techniques and basic stains in cytology
- Should understand the basic molecular diagnostics cytogenetic.
- Should understand the concept and working of Tissue Culture
- Should understand Immunohistochemistry
- Should be introduced to immunohematology, understand basic principles of blood banking and perform the basic investigations in blood bank.

B.Sc. OPH (Ophthalmic Technology)

Course Outcomes

- Explain the basics of Cell injury, Inflammation and Hemodynamics
- Should be able to define and differentiate Benign and Malignant Neoplasia
- Understand Infections
- Explain the basics of diseases in CVS,RS, GIT, Kidney, Liver, Breast, CNS
- Understand and be aware of and perform basics investigations in clinical, hematology, blood banking, urine examination
- Should be able to understand and explain basic concept of Histopathology techniques



- Should understand and discuss the pathology of basic ophthalmological disorders
- Should understand basic haematological investigation
- Should perform basic tests of urine examination

B.Sc. OTT (Operation Theatre Technology)

Course Outcomes

- Explain the basics of Cell injury, Inflammation and Hemodynamics
- Should be able to define and differentiate Benign and Malignant Neoplasia
- Understand pathology of common infections
- Explain the basics of diseases in CVS,RS, GIT, Kidney, Liver, Breast, CNS
- Understand and be aware of and perform basics investigations in clinical, hematology, blood banking, urine examination
- Should be able to understand and explain basic concept of Histopathology techniques
- Understand, Explain and Identify the various diseases of Respiratory System
- Understand, Explain and Identify the various diseases of Cardiovascular System

B.Sc. RDT (Renal Dialysis Technology)

Course Outcomes

- Explain the basics of Cell injury, Inflammation and Hemodynamics
- Should be able to define and differentiate Benign and Malignant Neoplasia
- Understand pathology of common infections
- Explain the basics of diseases in CVS,RS, GIT, Kidney, Liver, Breast, CNS
- Understand and be aware of and perform basics investigations in clinical, hematology, blood banking, urine examination
- Should be able to understand and explain basic concept of Histopathology techniques
- Understand, Explain and Identify the various diseases of Renal System

B.Sc. RTT (Radiotherapy Technology)

Course Outcomes

- Explain the basics of Cell injury, Inflammation and Hemodynamics
- Should be able to define and differentiate Benign and Malignant Neoplasia
- Understand pathology of common infections
- Explain the basics of diseases in CVS,RS, GIT, Kidney, Liver, Breast, CNS
- Understand and be aware of and perform basics investigations in clinical, hematology, blood banking, urine examination
- Should be able to understand and explain basic concept of Histopathology techniques
- Describe and identify the differences between Benign and Malignant Tumors
- Describe and Identify the malignancies arising in various organs



BPT Bachelor of Physiotherapy

Course Outcomes

- At the end of the course, the learner shall be able to explain the
- General mechanisms of cell injury and reaction to injury
- Explain the basic principles of inflammation and their clinical manifestations
- Explain hemodynamic alterations that result in disease
- Explain the mechanism of anemia's and leukemia's and principles of clinically relevant anemia's and leukemia's
- Explain the basic principles of tumorigenesis and tumor spread,
- Explain the principles of atherosclerosis and myocardial infarction
- Explain the morphology of important diseases affecting various other systems
- Perform the basic investigations in Hematology

M.Sc. MLT (Hematology and Blood Banking)

Course Outcomes

- Should be able to perform all the basic hematological and blood banking techniques
- Understand the principles and concept of advanced hematological and blood banking techniques
- Should understand and apply the quality control procedures
- Should be introduced to Basic Research Methodology

M.Sc. MLT (Hematology and Blood Banking)

Course Outcomes

At the end of completion of course student should be able to:

- Understand the concepts of blood formation & stages of maturation,
- Understand and learn various RBC, WBC, Platelets and coagulation Disorders
- Perform and analyze all the basic hematological investigations
- Perform all the specialized investigations in Hematology
- Describe the pathogenesis and learn investigations in basic immunological disorders.
- Should understanding perform basic investigations and special investigations in transfusion medicine
- Students would understand, perform and apply quality control in Hematology and Blood Banking
- Should understand the principle and apply biomedical waste management in everyday laboratory work
- Should perform basic research work



DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY

MBBS

Course Outcomes:

- Shoulder the responsibility of providing quality medico-legal care to the society, without infringing the virtuous medical ethics and medical code of conduct.
- Acquire knowledge of law in relation to medical practice.
- Make observations and infer conclusions by logical deduction.
- To work hand-in-hand with the court system and other health agencies towards the overall goal of reducing social violence and other preventable injury, and to monitor the prevalence of conditions that threaten the safety and health of all our communities.
- Facilitate the law enforcement agencies and the judiciary in criminal investigation and implementation of Justice.
- Diagnose, manage and also identify the legal aspects of common acute and chronic poisonings.
- To provide medico legal consultation round the clock to all public safety and public health request.



DEPARTMENT OF PHARMACOLOGY

MBBS - Pharmacology

At the end of the course (Phase II), the learner shall be able to:

Knowledge & Intellectual skills

- Explain the general principles of drug action, pharmacokinetic parameters and drug interactions in individuals including special situations
- List routes of drug administration and explain the advantages and disadvantages of each route with examples
- Explain the clinical relevance of pharmacokinetic principles in different disease conditions
- Explain the principles of pharmacovigilance, pharmacoeconomics, essential medicines and p drug concept
- Explain the clinical presentation and treatment of common poisonings including the bites and stings
- Analyze critically the medications given in case scenarios, in terms of (a) pharmacological action of the ingredients (b) cost (c) rational or irrational nature of fixed dose drug combinations

Psychomotor Skills:

- Perform chemical tests to identify the unknown substance and interpret the clinical significance and write the treatment
- Write a correct prescription in recommended format for different clinical conditions
- Demonstrate parenteral administration of drugs in mannequin
- Identify and document the adverse drug reaction in format provided

Attitudes and Communication skills:

- Counsel, demonstrate and instruct a simulated patient to use medication devices
- Educate the simulated patient the use of Oral Rehydration Salt Solution and Oral Contraceptive Pills

MD PHARMACOLOGY

At the end of the program, the student shall be able to

- Teach the under graduate medical, dental, nursing and other allied course students the basics of Pharmacology
- Plan a protocol for conduct of clinical trial of all phases
- Perform Post marketing surveillance (Pharmacovigilance) for approved drugs
- Analyze critically a scientific article published in a journal.



- Perform experiments in animals and interpret the results of the same, conducted in preclinical studies
- Identify the drug interaction in a patient, interpret and assist the clinician in patient care
- Perform literature search, plan and conduct a research project and prepare a manuscript in publishable format.

ALLIED HEALTH AND BASIC SCIENCES COURSES

Bachelor of Physiotherapy (BPT) – Pharmacology

At the end of the course, the learner shall be able to:

Knowledge

- Explain the general principles involved in drug action, dose and route of administration (Pharmacodynamics and Pharmacokinetics)
- Explain the indications, contraindications and adverse drug reactions of the drugs used in different diseases
- Explain effects of drugs on Autonomic and Somatic Nervous System, Cardiovascular System and Central Nervous System
- Explain the mechanism of action, uses and adverse effects of drugs used in the treatment of diabetes mellitus, immunological and respiratory diseases

Bachelor of Ophthalmic Technology (B.Sc. OphT) -Pharmacology

At the end of the course, the learner shall be able to:

Knowledge

- Explain the general concepts regarding routes of ocular drug administration
- Explain the mechanism of action, uses and adverse effects of drugs acting on eye
- Explain the mechanism of action, uses and adverse effects of drugs used in the treatment of bacterial, viral and fungal infections of eye
- Explain the mechanism of action, uses and adverse effects of contact lens solution, ocular antiseptics, dyes, preservatives and lubricants

Psychomotor skill

- Perform the chemical test, identify the unknown drug and explain its clinical significance
- Identify the dosage forms and explain its clinical application
- Analyze and interpret the effects of different drugs used in the eye from the given data



Bachelor of Operation Theater Technology (BSc OTT) -Pharmacology

At the end of the course, the learner shall be able to:

Knowledge

- Explain the general principles involved in drug action, dose and route of administration (Pharmacodynamic and Pharmacokinetics)
- Explain mechanism of action, uses and adverse effects of drugs acting on Autonomic Nervous System, Cardiovascular System and Central Nervous System
- Explain the mechanism of action, uses and adverse effects of drugs used in the treatment Gastrointestinal diseases, diabetes mellitus and bronchial asthma
- Explain the mechanism of action, uses and adverse effects of antihistaminics, corticosteroids and antimicrobial agents

Bachelor of Renal Dialysis Technology (BSc RDT) -Pharmacology

At the end of the course, the learner shall be able to:

Knowledge

- Explain principles of intravenous fluid therapy with special emphasis in renal disease
- Explain the mechanism of action, uses and adverse effects of drug acting on renal system
- Explain the principles of drugs used in dialysis and dialyzable drugs
- Explain the mechanism of action, uses and adverse effects of drugs used blood and blood formation
- Explain the composition of hemodialysis concentrates and peritoneal dialysate with their clinical significance



DEPARTMENT OF MICROBIOLOGY

MBBS

GOAL:

The broad goal of teaching Microbiology to MBBS students is to provide an understanding of the natural history of infectious diseases to deal with the etiology, pathogenesis, laboratory diagnosis, treatment & control of infections in the community

COURSE OBJECTIVES:

MBBS student at the end of microbiology course should be able to :

Knowledge

- Describe the normal microbial flora & its importance in health & disease
- Describe the etiopathogenesis of common infectious diseases
- Choose appropriate laboratory investigations to confirm the clinical diagnosis of infectious diseases
- Select appropriate antibiotics and chemotherapeutic agents for the treatment
- Draw up a plan to prevent microbial infections using vaccines, chemoprophylaxis & other measures
- Explain the mechanisms of immunity to infections
- Identify and report notifiable infectious diseases to concerned public health authorities
- Explain the epidemiological & microbiological basis of National health programmes for the prevention of communicable diseases
- Identify the microbial ecology of specialized areas like hospital, water, food and prevent the possible spread of infections

SKILL

- Follow Standard precautions during health care activities
- Instruct the patients to collect appropriate clinical samples and transportation to the laboratory
- Perform simple point of care microbiological tests which help to arrive at rapid diagnosis
- Interpret the cultural and serological reports
- Apply appropriate method of sterilization, disinfection and disposal of biomedical waste to control & prevent hospital and community acquired infections



MD MICROBIOLOGY

GOALS:

The main goal of the Post Graduate course is to train students of medicine in the field of medical microbiology. The focus of training will be on teaching, diagnostic laboratory services and research activities

COURSE OBJECTIVES

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

- Establish good "Clinical Laboratory medicine" in hospitals and community in the field of bacteriology, virology, parasitology, immunology, and mycology.
- Carry out applied and fundamental research in various branches of medicine involving microbiological work
- Demonstrate competence as a clinical microbiologist
- Interact effectively with the allied departments by rendering services in basic as well as advanced laboratory investigations
- Demonstrate application of microbiology in a variety of clinical settings to solve diagnostic and therapeutic problems along with preventive measures.
- Play a pivotal role in hospital infection control, including formulation of antibiotic policy and management of biomedical waste
- Acquire skills in conducting collaborative research in the field of Microbiology and allied sciences.
- Conduct clinical/experimental research as would have significant bearing on human health and patient care.
- Demonstrate effective communication skills required for the practice of clinical microbiology and while teaching undergraduate students.
- Plan, execute and evaluate teaching assignments in Medical Microbiology.
- Plan, execute, analyze and present the research work in medical microbiology.
- Undertake teaching assignment of Microbiology in a medical college.
- Undergo specialization in any of the sub specialties.
- To acquire various skills for collaborative research.
- To participate in various workshops/seminars/journal clubs/demonstration in the allied departments.
- Uphold the prestige of the discipline amongst the fraternity of doctors.

B.Sc. MLT

GOAL:

The goal of teaching BSc MLT students is to perform appropriate laboratory tests to facilitate the diagnosis, treatment and control of infectious diseases.

Course outcomes

MLT student at the end of training course should be able to :



Knowledge

- Classify the micro organisms based on their morphology
- Describe the etiology , modes of transmission, clinical manifestations and complications of common infectious diseases
- Describe the normal microbial flora and its importance in health and disease
- Enlist the opportunistic infections in HIV / AIDS patients and their laboratory diagnosis
- Describe the various diagnostic methods employed in the diagnosis of infectious diseases
- Describe the various stains used in in the diagnosis of infectious diseases
- Describe the various culture media used in the diagnosis of infectious diseases
- Describe the various culture methods used in the diagnosis of infectious diseases
- Categorize the antibiotic panel to be used in Antibiotic Sensitivity testing (AST)
- Describe the principles of Serological investigations used in the diagnosis of infectious diseases
- Describe the principles of Molecular methods used in the diagnosis of infectious diseases
- Describe the principle of Sterilization and Disinfectants
- Enlist the disinfectants along with their concentrations commonly used in the laboratory
- Categorize the biomedical waste into different color coded containers
- Inform the notifiable diseases once diagnosed in the laboratory to concerned faculty in charge or public health officials
- Recognize the factors that influence laboratory test results and take appropriate actions to prevent it

SKILL

- Follow Standard precautions during clinical laboratory services
- Instruct the patients about proper sample collection (Urine, sputum, stool)
- Collect and label the appropriate clinical samples and transport them promptly to the laboratory
- Follow protocol to collect and transport specimen for anaerobic culture
- Perform routine and specialized microbiological investigations in the field of clinical laboratory medicine
- Perform simple point of care microbiological tests which help to arrive at rapid diagnosis
- Prepare smears / wet mount for microscopic examinations (Grams, AFB, Special stain, India Ink)
- Prepare different types of culture media for the isolation of the micro organisms
- Perform appropriate culture methods for isolation of micro organisms



- Identify the micro organisms based on their colony morphology
- Identify the microorganisms based on their biochemical tests
- Perform different types of antibiotic sensitivity testing methods
- Follow Standard precautions during clinical laboratory services
- Instruct the patients about proper sample collection (Urine, sputum, stool)
- Collect and label the appropriate clinical samples and transport them promptly to the laboratory
- Follow protocol to collect and transport specimen for anaerobic culture
- Perform routine and specialized microbiological investigations in the field of clinical laboratory medicine
- Perform simple point of care microbiological tests which help to arrive at rapid diagnosis
- Prepare smears / wet mount for microscopic examinations (Grams, AFB, Special stain, India Ink)
- Prepare different types of culture media for the isolation of the micro organisms
- Perform appropriate culture methods for isolation of micro organisms
- Identify the micro organisms based on their colony morphology
- Identify the microorganisms based on their biochemical tests
- Perform different types of antibiotic sensitivity testing methods

B.Sc. OPTOMETRY

COURSE OBJECTIVES

B.Sc. OPH students at the end of training course should be able to:

Knowledge

- Describe the etiology, modes of transmission, clinical manifestations and complications of ocular infectious diseases.
- Outline the control measures that could be applied to prevent & control infections
- Describe the principle of sterilization and disinfectants

Skill

- Follow the Standard precautions during health care activities
- Apply appropriate methods of sterilization, disinfection and disposal of biomedical waste
- Follow the safety guidelines and adhere to standard precautions in the work place
- Use appropriate Personal Protective equipment
- Disinfect the workplace and follow protocol of containment procedures
- Follow biomedical waste guidelines for proper disposal of hazardous waste
- Collect appropriate clinical samples and transport them promptly to the laboratory



B.Sc. OT TECHNOLOGY COURSE OBJECTIVES

B.Sc. OTT students at the end of training course should be able to :

Knowledge

- Describe the principle of Sterilization and disinfectants
- Identify microbial ecology of specialized areas in the hospital and prevent the possible spread of infections
- Outline the control measures that could be applied to prevent & control infections
- Describe the etiology modes of transmission, clinical manifestations and complications of common infectious diseases

Skill

- Follow the Standard precautions during health care activities
- Apply appropriate methods of sterilization, disinfection and disposal of Biomedical waste
- Follow the safety guidelines and adhere to standard precautions in the work place
- Use appropriate Personal Protective equipment
- Disinfect the workplace and follow protocol of containment procedures
- Follow biomedical waste guidelines for proper disposal of hazardous waste

B.Sc. RENAL DIALYSIS COURSE OBJECTIVES

B.Sc. Renal Dialysis student at the end of training course should be able to :

Knowledge

- Describe the etiology, clinical manifestations and complications of blood borne infectious diseases.
- Describe the etiological agents, clinical manifestations of urinary tract infections
- Enlist the opportunistic infections in HIV / AIDS patients and their laboratory diagnosis

Skill

- Follow the Standard precautions during health care activities
- Follow the safety guidelines and adhere to standard precautions in the work place
- Use appropriate Personal Protective equipment
- Follow biomedical waste guidelines for proper disposal of hazardous waste

MASTER OF PUBLIC HEALTH COURSE

Course outcomes

By the end of the course in Basic Microbiology the student should be able to:

- Associate microbial pathogens with the disease caused by them



- Describe the different modes of transmission of microbes causing diseases in man
- Describe the various diagnostic methods in the identification of pathogens
- Explain the terminology used in describing different types of infections & infestations
- Describe the types of Immunity & their role in health & diseases
- Outline the control measures that could be applied to prevent & control infections
- Develop skills to collect, store & transport infective specimens for diagnostic tests

M.Sc. MOLECULAR BIOLOGY & HUMAN GENETICS

Goal:

M.Sc. Molecular Biology & Human Genetics students should be aware of the natural history, pathogenesis, clinical features, preventive measures of infectious diseases .

Course outcomes

Knowledge:

The student at the end of the Microbiology course should be able to :

- Describe the etiology modes of transmission, clinical manifestations and complications of common infectious diseases
- Describe the mechanism of immunity to infections
- Describe the principle of Sterilization and Disinfectants

Skills:

Follow the Standard precautions during health care activities

- Apply appropriate methods of sterilization, disinfection and disposal of Biomedical waste
- Follow the safety guidelines and adhere to standard precautions in the work place
- Use appropriate Personal Protective equipment
- Disinfect the workplace and follow protocol of containment procedures
- Follow biomedical waste guidelines for proper disposal of hazardous waste

M.Sc. MEDICAL LABORATORY TECHNOLOGY IN MICROBIOLOGY.

Goal:

M.Sc. Medical Laboratory technology students should be aware of the natural history, pathogenesis , clinical features, preventive measures of infectious diseases .

Course outcomes

Knowledge:

The student at the end of the Microbiology course should be able to :

- Describe the etiology, modes of transmission, clinical manifestations and complications of common infectious diseases
- Describe the various diagnostic methods in the identification of pathogens



- Describe the mechanism of immunity to infections
- Describe the principle of Sterilization and Disinfectants.
- Describe the principles of Serological investigations used in the diagnosis of infectious diseases.
- Describe the quality control procedures in Microbiology

Skills:

- Follow Standard Operating Procedures (SOP's) while performing the test
- Perform routine and specialized microbiological investigations in the field of clinical laboratory medicine
- Perform simple point of care microbiological tests which help to arrive at rapid diagnosis
- Perform quality control procedures.
- Perform the test with accuracy and precision
- Follow the Standard precautions during health care activities
- Apply appropriate methods of sterilization, disinfection and disposal of Biomedical waste
- Write a research protocol and conduct Research



DEPARTMENT OF COMMUNITY MEDICINE

MBBS Curriculum

- After completing the Community Medicine course, students will be able to:
- Appraise health promotion, disease prevention and public health as major components of health and appraise the role of public health in providing individual healthcare.
- Apply appropriate statistical techniques for presentation, analysis and interpretation of health data and critically appraise the statistical analysis in medical literature.
- Identify the demographic changes in the community by accessing the demographic data sources and critically appraise the causal factors and implications of such changes pertaining to public health.
- Describe the basic concepts of maternal and child health, promote maternal and child health through practical application of these concepts and critically appraise the relevant national programme of India.
- Describe the basic concepts of adolescent health through practical application of the concepts and critically appraise the relevant national health programme of India.
- Describe the distribution and determinants of health related events in a community by using appropriate epidemiological measures explain basic concepts of causation and critically appraise the epidemiological methods used in scientific literature.
- Explain the epidemiology of common communicable diseases in the global and local context and apply the knowledge for the control and prevention of the communicable diseases in the community in parallel with the public health system.
- Explain the epidemiology of common non communicable diseases in the global and local context and to apply the knowledge for the control and prevention of the non communicable diseases in the community by addressing the modifiable and non modifiable risk factors in the context of the national programme.
- Explain nutrition related problems in the community/individuals by conducting appropriate nutritional assessment methods and/or by interpreting data to formulate appropriate strategies to address immediate, underlying and basic causative factors in parallel with the public health policy context.
- Apply the basic concepts in occupational health to promote health in working places and to prevent common hazard at work settings.
- Recognize the environmental health issues at household and community levels and to formulate appropriate environmental friendly interventions.



- Access and appraise scientific information, design and carry out simple epidemiological research by identifying gaps in scientific literature and present the findings of the research in a scientific format.
- Promote health of individuals and families focusing on priority health needs and health related problems at individual/family level considering the given social, cultural, economic and demographic context.
- Describe the basic concepts of geriatric health through practical application of the concepts and critically appraise the relevant national health programme of India.
- Recognize the disaster and Biomedical waste issues in the environment and appraise the role of public health in providing individual and community healthcare.

MD (Community Medicine)

The students would have adequate knowledge, requisite skills and appropriate behavioral attributes so as to be able to:

- Demonstrate sufficient understanding of the basic sciences relevant to Community Medicine.
- Diagnose and manage majority of the health conditions in the community on the basis of clinical assessment and conduct appropriate investigations.
- Play the assigned role and apply the principles and process of health management in the implementation of National Health Programmes, effectively and responsibly.
- Identify social, cultural, economic, environmental, biological and emotional determinants of health in a given case and take them into account to plan, organize, implement, monitor or evaluate outcome and impact of health care programmes and services.
- Assess costs and carry out budgeting of such programmes (eg- Routine Immunization Programme)
- Demonstrate the skills in documentation of individual / community case details as well as morbidity and mortality data relevant to the assigned situation.
- Acquire the epidemiological know how and understand the dynamics of transmission of common communicable diseases for necessary measures to prevent and control diseases.
- Integrate the know-how of diagnosis and management of health issues with the science of public health practice and expertise of health communication.
- Critically appraise National health policies, priorities and approaches.
- Develop skills in using educational methods and techniques to plan, organize, implement and evaluate teaching/learning sessions for medical and paramedical personnel.



- Demonstrate competence in basic concepts of research methodology and epidemiology and be able to design research protocols, collect and critically analyze data on bio-medical, epidemiological, social and health service issues and publish quality research papers.
- Apply knowledge of epidemiology and Bio-statistics to interpret reports and publications.
- Demonstrate empathy and humane approach towards clientele and exhibit interpersonal behavior in accordance with the societal norms and expectations.
- Organize and supervise the chosen/assigned health care services including logistics and demonstrating managerial skills in the clinic/hospital or field situation.
- Function as an effective leader of a health team engaged in health care, research and training.
- Develop skills as a self-directed learner, recognize continuing educational needs and select & use appropriate learning resources.
- Implement public health laws
- Establish Surveillance System and respond to public health threats efficiently and effectively.
- Anticipate, prepare for and respond to disasters
- Plan human resources development in health care sector

Intellectual and practical skills Outcomes

- Detailed inquiry and critical analysis
- Critical, creative and reflective thinking and writing
- Good written and oral communication
- Quantitative literacy
- Information literacy
- Team work
- Problem solving
- Ethical reasoning and action
- Self-learning and learning through observations



DEPARTMENT OF MEDICINE

M.B.B.S.

Course Outcomes

At the end of the course, the student shall be able to:

- Develop clinical skills (history taking, clinical examination) to diagnose various common medical disorders and emergencies.
- 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 the common bedside investigative procedures like pleural tap, lumbar puncture, bone marrow aspiration/biopsy and liver biopsy.

M.D.

Program Outcome

- Practice efficiently internal medicine specialty, backed by scientific knowledge including basic sciences and skills.
- Diagnose and manage majority of conditions in his specialty (clinically and with the help of relevant investigations).
- Exercise empathy and a caring attitude and maintain professional integrity, honesty and high ethical standards.
- Plan and deliver comprehensive treatment using the principles of rational drug therapy.
- Plan and advise measures for the prevention and rehabilitation of patients belonging to his specialty.
- Manage emergencies efficiently by providing Basic Life Support (BLS) and Advanced Life Support (ALS) in emergency situations.
- Recognize conditions that may be outside the area of the specialty/ competence and refer them to an appropriate specialist.
- Demonstrate skills in documentation of case details including epidemiological data.
- Play the assigned role in the implementation of National Health Programs.
- Demonstrate competence in basic concepts of research methodology and clinical epidemiology; and preventive aspects of various disease states.
- Be a motivated 'teacher' - defined as one keen to share knowledge and skills with a colleague or a junior or any learner.
- Continue to evince keen interest in continuing education irrespective of whether he/she is in a teaching institution or is practicing and use appropriate learning resources.
- Be well versed with his medico-legal responsibilities.



- Undertake audit, use information technology tools and carry out research - both basic and clinical, with the aim of publishing the work and presenting the work at scientific forums.
- The student should be able to recognize the mental condition characterized by self-absorption and reduced ability to respond to the outside world (e.g. Autism), abnormal functioning in social interaction with or without repetitive behaviour and/or poor communications, etc.

M.D.

Course Outcome

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

Cognitive domain:

Basic Sciences

- Basics of human anatomy as relevant to clinical practice e.g. surface anatomy of various viscera, neuro-anatomy, important structures/organs location in different anatomical locations in the body; common congenital anomalies.
- Basic functioning of various organ-system, control of vital functions, patho-physiological alteration in diseased states, interpretation of symptoms and signs in relation to patho-physiology.
- Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.
- Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.
- Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.
- Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.
- Research Methodology and Studies, epidemiology and basic Biostatistics.
- National Health Programmes.
- Biochemical basis of various diseases including fluid and electrolyte disorders; Acid base disorders etc.
- Recent advances in relevant basic science subjects.



Affective Domain:

- Should be able to functions as part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
- Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

Psychomotor domain

Clinical Assessment Skills:

- Elicit a detailed clinical history.
- Perform a thorough physical examination of all the systems.

Procedural skills:

Test dose administration.

- Mantoux test.
- Sampling of fluid for culture.
- IV- Infusions.
- Intravenous injections.
- Intravenous cannulation.
- ECG recording.
- Pleural tap.
- Lumbar puncture.

Cardiac:

TMT

- Holter Monitoring.
- Echocardiogram.
- Doppler studies.
- Cardio Pulmonary Resuscitation (CPR).
- Central venous line insertion, CVP monitoring.
- Blood and blood components matching and transfusions.
- Arterial puncture for ABG.
- Fine needle aspiration cytology (FNAC) from palpable lumps.
- Bone marrow aspiration and biopsy.
- Abdominal paracentesis – diagnostic.
- Aspiration of liver abscess.
- Pericardiocentesis.
- Joint fluid aspiration.
- Liver biopsy.
- Nerve/ muscle/ skin/ kidney/ pleural biopsy.



- Ultrasound abdomen.
- Upper GI endoscopy, procto-sigmoidoscopy.

Respiratory management:

- Nebulization.
- Inhaler therapy.
- Oxygen delivery.
- Critically ill person:
- Monitoring a sick person.
- Endotracheal intubation.
- CPR
- U Using a defibrillator.
- Pulse oximetry.
- Feeding tube/Ryle's tube, stomach wash Naso-gastric intubation.
- Urinary catheterization – male and female.
- Prognostication
- Haemodialysis

Neurology- interpret

- Nerve Conduction studies
- EEG
- Evoked Potential interpretation
- Certification of Brain death
- Intercostal tube placement with underwater seal Thoracocentesis
- Sedation
- Analgesia

Laboratory-Diagnostic Abilities

- Urine protein, sugar, microscopy
- Peripheral blood smear
- Malarial smear
- Ziehl Nielson smear-sputum, gastric aspirate
- Gram's stain smear-CSF, pus
- Stool pH, occult blood, microscopy
- KOH smear
- Cell count - CSF, pleural, peritoneal, any serous fluid

Observes the procedure

- Subdural, ventricular tap
- Joint Aspiration – Injection
- Endoscopic Retrograde Cholangio- Pancreatography (ERCP)
- Peritoneal dialysis

**Interpretation Skills**

Clinical data (history and examination findings), formulating a differential diagnosis in order of priority, using principles of clinical decision making, plan investigative work-up, keeping in mind the cost-effective approach i.e. problem solving and clinical decision-making.

- Blood, urine, CSF and fluid investigations - hematology, biochemistry
- X-ray chest, abdomen, bone and joints
- ECG
- Treadmill testing
- ABG analysis
- Ultrasonography
- CT scan chest and abdomen
- CT scan head and spine
- MRI
- Barium studies
- IVP, VUR studies
- Pulmonary function tests
- Immunological investigations
- Echocardiographic studies

Interpretation under supervision

- Hemodynamic monitoring
- Nuclear isotope scanning
- MRI spectroscopy/SPECT
- Ultrasound guided aspiration and biopsies

Communication skills

- While eliciting clinical history and performing physical examination
- Communicating health, and disease
- Communicating about a seriously ill or mentally abnormal
- Communicating death
- Informed consent
- Empathy with patient and family members
- Referral letters, and replies
- Discharge summaries
- Death certificates
- Pre-test counseling for HIV
- Post-test counseling for HIV
- Pedagogy -teaching students, other health functionaries-lectures, bedside clinics, discussions
- Health education - prevention of common medical problems, promoting healthy life-style, immunization, periodic health screening, counseling skills in risk factors for common malignancies, cardiovascular disease, AIDS



- Dietary counseling in health and disease
- Case presentation skills including recording case history/examination, preparing follow-up notes, preparing referral notes, oral presentation of new cases/follow-up cases
- Co-coordinating care - team work (with house staff, nurses, faculty etc.)
- Linking patients with community resources
- Providing referral
- Genetic counseling

Others

- Demonstrating
- Professionalism
- Ethical behavior (humane and professional care to patients)
- Utilization of information technology
- Medline search, Internet access, computer usage
- Research methodology
- Designing a study
- Interpretation and presentation of scientific data
- Self-directed learning
- Identifying key information sources
- Literature searches
- Information management
- Therapeutic decision-making
- Managing multiple problems simultaneously
- Assessing risks, benefits and costs of treatment options
- Involving patients in decision-making
- Selecting specific drugs within classes
- Rational use of drugs



DEPARTMENT OF GENERAL SURGERY

Program out come

- Recognise the importance of Surgical speciality in the context of the health need of the community and the national priorities in the health sector.
- Practice the Surgical speciality ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to the Surgical speciality.
- Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and promotive measures/strategies.
- Diagnose and manage majority of the conditions in the Surgical speciality on the basis of clinical assessment, and appropriately selected and conducted investigations.
- Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to Surgical speciality.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality data relevant to the assigned situation,
- Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- Play the assigned role in the implementation of national health programmes, effectively and responsibly.
- Organise and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- Develop skills as a self-directed learner, recognise continuing educational needs; select and use appropriate learning resources.
- Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- Function as an effective leader of a health team engaged in health care, research or training.
- Practice surgery efficiently and effectively, backed by scientific knowledge and skill base.
- Exercise empathy and a caring attitude and maintain high ethical standards.
- Continue to evince keen interest in continuing surgical education irrespective of whether he is in a teaching institution or is a practicing surgeon.



- Be a motivated 'teacher' - defined as a surgeon keen to share his knowledge and skills with a colleague or a junior or any learner.

Course out come

- Describe the aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children.
- Describe the indications and methods for fluid and electrolyte replacement therapy including blood transfusion
- Describe common malignancies in the country and their management including prevention.
- Demonstrate understanding of basic sciences relevant to general surgery
- Identify social, economic, environmental and emotional determinants in a given case, and take them into account for planning therapeutic measures.
- Recognize conditions that may be outside the area of his specialty/competence and to refer them to the proper specialist.
- Advise regarding the operative or non-operative management of the case and to carry out this management effectively.
- Update himself by self study and by attending courses, conferences and seminars relevant to surgery.
- Teach and guide his team, colleagues and other students.
- Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific fora.
- Take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the surgical condition.
- Perform minor operative procedures and common general surgical operations independently and the major procedures with help from a senior surgeon.
- provide basic and advanced life saving support services (BLS & ALS) in emergency situations, manage acute abdominal emergencies and poly trauma.
- Undertake thorough wound management, including burn wounds.
- Undertake complete patient monitoring including the preoperative and post operative care of the patient.

MBBS

Course outcomes:

- describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
- define indications and methods for fluid and electrolyte replacement therapy including blood transfusion;



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- define asepsis, disinfection and sterilization and recommend judicious use of antibiotics;
 - describe common malignancies in the country and their management including prevention;
 - Enumerate different types of anesthetic agents, their indications, mode of administration, contra indications and side effects.
 - plan various laboratory tests for surgical conditions and interpret the results;
 - identify and manage patients of haemorrhagic, septicæmic and other types of shock,
 - Be able to maintain patent air-way and resuscitate.
 - A critically injured patient;
 - Patient with cardio-respiratory failure;
 - A drowning case;
 - monitor patients of head, chest, spinal and abdominal injuries, both in adults and children;
 - provide primary care for a patient of burns;
 - In the situations identified in Sl. No: 3, 4, 5, and 6, calling for urgent or early surgical
 - intervention, refer at the optimum time to appropriate centers;
 - acquire principles of operative surgery, including pre-operative, operative and post-operative care and monitoring;
 - treat open wounds including preventive measures against tetanus and gas gangrene.
 - diagnose neonatal and pediatric surgical emergencies and provide sound primary care
 - before referring the patient to secondary/tertiary centers;
 - identify congenital anomalies and refer them for appropriate management
 - counsel and guide patients and relatives regarding need, implications and problems of
 - surgery in the individual patient;
 - develop adequate and right attitude in dealing with surgical problems of patients;
 - Organize and conduct relief measures in situations of mass casualties.
 - Effectively participate in the National Health Programmes especially the Family Welfare Programme.
 - Discharge effectively medico-legal and ethical responsibilities.



DEPARTMENT OF OBG

MBBS;

Programme outcomes

Objectives:

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

- Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it.
- Detect normal pregnancy, labor, Puerperium and manage the problems likely to encounter.
- List the leading causes of maternal and perinatal mortality and morbidity.
- Understand the principles of contraception and various techniques employed , methods of medical termination of pregnancy, sterilization and their complications.
- Identify the use, abuse and side effects of drugs in pregnancy, premenopausal, post menopause periods.
- Describe the national programmers of maternal and child , family welfare and their implementation at various levels.
- Identify common gynecological diseases and describe principles of their management.
- State the indications, procedures and complications of surgeries like Caesarian sections, laparotomy, abdominal and vaginal hysterectomies, Fothergill operation. Vacuum aspiration for MTP.

Skills:

- Examine a pregnant women and recognize high risk pregnancy, appropriate referral.
- Conduct a normal delivery, recognize complications and provide postnatal care,
- Resuscitate newborn and recognize congenital anomalies.
- Advise a couple on the use of various available contraceptive devices and assist in insertion and removal of intrauterine contraceptive devices.
- Perform pelvic examination, diagnose and manage common gynecological problems including early detection of genital malignancies



- Make a vaginal cytological smear, wet smear for identification of trichomonas vaginalis, candida and gonorrhea.
- Interpret data of biochemical histopathological, radiological, USG investigation

M.S

Objectives:

- At the end of postgraduate training student should be able to –
- Recognize the importance of concerned specialty in the context of the health needs of the community and the national priorities in the health sector.
- Practice the specialty concerned ethically and in step with the principles of primary health care.
- Demonstrate sufficient understanding of the basic sciences relevant to concerned specialty.
- Identify social, economic, environmental, biological, and emotional determinants of health in a given case and take them into account while planning therapeutic rehabilitate, preventive and promotive measures / strategies.
- Diagnose and manage majority of the conditions in the specialty concerned on the basis of clinical assessment.
- Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.
- Demonstrate skills in documentation of individual case details as well as morbidity and mortality data relevant to assigned situation.
- Demonstrate empathy and human approach towards patients and their families
- Play the assigned role in the implementation of national health programs
- Organize and supervise health care services demonstrating adequate managerial skills in the hospital or the field situation
- Develop skills as a self-directed learner, recognize continuing educational needs and use appropriate learning resources
- Demonstrate competence in basic concepts of research methodology and epidemiology and critically analyze relevant published research literature
- Develop skills in using educational methods and techniques as applicable to the teaching of medical / nursing student / G.P students and paramedical health officers
- Function as an effective leader of a health team, engage in health care research and training



D.G.O

Objectives:

- At the end of postgraduate training student should be able to –
- Offer to the community the current quality of standard care in OBG diagnosis as well as therapeutics
- Periodically self-assess his or her performance and abreast with ongoing advances in the field and apply the same in his/her practice.
- Beware of his or her own limitations to the application of the specialty in situations which warrant referral to major centers or individuals more qualified to treat.
- Epidemiological methods during his or her practice.
- Contribute as an individual or in a group or institute towards the fulfillment of national objectives with regards to prevention of maternal mortality and morbidity and improving the neonatal outcome.
- Effectively communicate with patients or relatives so as to educate them sufficiently and give them fully benefit informed consent to treatment and ensure compliance.
- Effectively communicate with colleagues.

BPT: Objectives

- To provide knowledge about general women's health conditions & disease which they encounter in their practice. The objective of this course is that after 60 hours of lecture & discussion the student will be able to demonstrate an understanding of women's health illness, list the etiology, clinical features and methods of investigations and management.



DEPARTMENT OF OPHTHALMOLOGY

MBBS

Program Outcomes

The Indian Medical Graduates coming out of a medical institute should:

- Be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- Appreciate rationale for different therapeutic modalities is familiar with the administration of the "essential drugs" and their common side effects.
- Be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- Possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- Be familiar with the basic factors which are essential for the implementation of the National Health Programs like NPCB.
- Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counseling.
- Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- Be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- Be competent to work in a variety of health care settings.
- Have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

MBBS

Course Outcomes

At the end of the course (MBBS), the student should be able to:

- Identify the abnormal conditions of the eye.
- Recognize and give medical treatment for those conditions, which are unlikely to cause blindness.



- Recognize and give immediate first aid treatment and arrange for immediate referral in those conditions threatening to produce blindness.
- Describe the National objectives in the prevention of Blindness, and be an active participant in the implementation of National Programme for Control and Prevention of Blindness (NPCB).

MD Program

Course Outcomes

A post graduate student upon successfully qualifying in the M.S. (Ophthalmology) examination should be able to:

- 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 self assess his or her performance and keep abreast with ongoing advances in the field and apply the same in his/her practice.
- Be aware of her/his own limitations to the application of the specialty in situations, which warrant referral to more qualified centers or individuals.
- 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.
- Active participation in inter departmental symposium.
- Contribute as an individual/group towards the fulfillment of national objectives with regard to prevention of blindness.
- Effectively communicate with patients or relatives so as to educate them sufficiently and give them the full benefit of informed consent to treatment and ensure compliance.
- Cultivate research interest in collaboration with other departments.



DEPARTMENT OF ORTHOPEDICS

Student Performance and Learning Outcomes

The overall goal of the orthopedic training program is to identify, educate and equip them to treat with compassion, wisdom and expertise the musculoskeletal needs through direct care, research, education.

Program Outcomes

The outcomes of the program are based on

- Patient Care
- Medical Knowledge
- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

The objectives are student should be able to

- Aware of the current concepts in quality care in orthopedics and musculo- skeletal trauma and also of diagnosis, therapeutic, medical or surgical management of Orthopaedic problems.
- Demonstrate competence in the pre-admission care, hospital care, operative care and follow-up care (including rehabilitation) of patients.
- Show competence in the ability to make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date orthopaedic scientific evidence and clinical judgment.
- Demonstrate competence in the ability to develop and carry out patient management plans.
- Show expertise in the knowledge of other medical speciality areas appropriate for an orthopaedic surgeon.
- Identify strengths, deficiencies and limits in one's knowledge and expertise Aware of the limitations and refer readily to major centers for more qualified care of cases which warrant such referral.
- Set learning and improvement goals
- Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement.
- Use information technology to optimize learning.
- Participate in the education of students, residents and other health professionals.
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.
- Maintain comprehensive, timely and legible medical records.
- Demonstrate respect, integrity and compassion for others.



- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices.
- Practice cost-effective health care and resource allocation that does not compromise quality of care.
- Advocate for quality patient care and optimal patient-care systems.

Program Specific Outcomes

At the end of the first year of M.S. Orthopaedics programme, the student should be able to:

- Elicit a clinical history from a patient, do a physical examination, document in a case record, order appropriate investigations and make a clinical diagnosis.
- Impart wound care where applicable.
- Apply all types of POP casts/slabs, splints and tractions .
- Identify shock and provide resuscitation.
- Perform aspiration of joints and local infiltration of appropriate drugs.
- Perform appropriate wound debridement.
- Perform arthrotomy of knee joint.
- Perform incision and drainage of abscess.
- Perform split thickness skin grafting.
- Perform fasciotomes.
- Apply external fixators.
- Apply skeletal tractions including skull tongs.
- Triage a disaster situation and multiple trauma patients in an emergency room
- Perform on bone models, interfragmentary compression screws, external fixation, tension band wiring and Broad plating
- Perform closed reduction of common dislocations like shoulder and common fractures like collar fracture, supracondylar fracture.
- Perform on a cadaver standard surgical approaches to the musculo skeletal system.

At the end of the second year of M.S. Orthopaedics course, the student should be able to

- Take an informed consent for standard orthopaedic procedures
- Perform closed/open biopsies for lesions of bone, joints and soft tissues
- Perform split thickness skin grafting and local flaps
- Perform on bone models, internal fixation with k-wires, screws, plates, Dynamic hip/ condylar screws/nailing.
- Perform sequestrectomy and saucerisation
- Perform arthrotomy of joints like hip/shoulder, ankle, elbow
- Perform repair of open hand injuries including tendon repair
- Perform arthrodesis of small joints
- Perform diagnostic arthroscopy on models and their patients



- Perform carpal tunnel/tarsal tunnel release
- Apply ilizarov external fixator
- Perform soft tissue releases in contractures, tendon lengthening and correction of deformities
- Perform amputations at different levels
- Perform corrective surgeries for CTEV, DDH, perthes / skeletal dysplasia

At the end of the third year of M.S. Orthopaedics programme, the student should be able to:

- Assist in the surgical management of polytrauma patient
- Assist in Arthroplasty surgeries of hip, knee, shoulder and the ankle
- Assist in spinal decompressions and spinal stabilizations
- Assist in operative arthroscopy of various joints
- Assist /perform arthrodesis of major joints like hip, knee, shoulder, elbow
- Assist in corrective osteotomies around the hip, pelvis, knee, elbow, finger and toes
- Assist in surgical operations on benign and malignant musculoskeletal tumour including radical excision and custom prosthesis replacement.
- Assist in open reduction and internal fixations of complex fractures of acetabula, pelvis, ipsilateral floating knee/elbow injuries, shoulder girdle and hand
- Assist in spinal deformity corrections
- Independently perform closed/open reduction and internal fixation with DCP, LCP, intramedullary nailing
- Assist in limb lengthening procedures
- Assist in Revision surgeries
- Provide pre and post OP care
- Perform all clinical skills as related to the speciality.

Course Outcomes

At the end of the M.S. Orthopaedics programme, the post graduate student should be able to

- Demonstrate sufficient understanding of the basic sciences relevant to orthopaedic speciality through a problem based approach.
- Describe the Principles of injury, its mechanism and mode, its clinical presentation, plan and interpret the appropriate investigations, and institute the management of musculoskeletally injured patient.
- Identify and describe the surface anatomy and relationships within of the various bones, joints, ligaments, major arteries, veins and nerves of the musculoskeletal system of the spine, upper limb, lower limb and the pelvis, chest, abdomen and head & neck.
- Define and describe the pathophysiology of shock (circulatory failure).
- Define and describe the pathophysiology of Respiratory failure



- Describe the principles and stages of bone and soft tissue healing
- Understand and describe the metabolic, nutritional, endocrine, social impacts of trauma and critical illness.
- Enumerate, classify and describe the various bony/soft tissue injuries affecting the axial and appendicular skeletal system in adults and children.
- Describe the principles of internal and external fixation for stabilization of bone and joint injuries.
- Describe the mechanism of homeostasis, fibrinolysis and methods to control haemorrhage
- Describe the physiological coagulation cascade and its abnormalities
- Describe the pharmacokinetics and dynamics of drug metabolism and excretion of analgesics, anti inflammatory, antibiotics, disease modifying agents and chemotherapeutic agents.
- Understanding of biostatistics and research methodology
- Describe the clinical presentation, plan and interpret investigations, institute management and prevention of the following disease conditions
 - Nutritional deficiency diseases affecting the bones and joints
 - Deposition arthropathies
 - Endocrine abnormalities of the musculoskeletal system
 - Metabolic abnormalities of the musculoskeletal system
 - Congenital anomalies of the musculoskeletal system
 - Developmental skeletal disorder of the musculoskeletal system
- Describe the pathogenesis, clinical features plan and interpret investigations and institute the management in adults and children in
 - Tubercular infections of bone and joints (musculoskeletal system)
 - Pyogenic infections of musculoskeletal system
 - Mycotic infections of musculoskeletal system
 - Autoimmune disorders of the musculoskeletal system
 - Rheumatoid arthropathy, Ankylosing spondylitis, seronegative arthropathy
 - Osteoarthritis and spondylosis
- Describe the pathogenesis, clinical presentation, plan and interpret investigations and institute appropriate treatment in the following conditions:
 - Post polio residual paralysis
 - Cerebral palsy
 - Muscular dystrophies and myopathies
 - Nerve Injuries
 - Entrapment neuropathies
- Identify the diagnosis and describe management of musculoskeletal manifestation of AIDS and HIV infection
- Describe the aetiopathogenesis, identify, plan and interpret investigation and institute the management of osteonecrosis of bones.



- Identify situations requiring rehabilitation services and prescribe suitable orthotic and prosthetic appliances and act as a member of the team providing rehabilitation care
- Identify a problem, prepare a research protocol, conduct a study, record observations, analyse data, interpret the results, discuss and disseminate the findings.
- Identify and manage emergency situation in disorders of musculoskeletal system
- Understanding of the basics of diagnostic imaging in orthopaedics like:
 - Plain x-ray
 - Ultrasonography
 - Computerised axial tomography
 - Magnetic resonance imaging
 - PET scan
 - Radio Isotope bone scan
 - Digital Subtraction Angiography (DSA)
 - Dual energy x-ray Absorptiometry
 - Arthrography
- Describe the aetiopathogenesis, clinical presentation, Identification, Plan investigation and institute treatment for oncologic problems of musculoskeletal system both benign and malignancies, primary and secondary.
- Understand the basics, principles of biomaterials and orthopaedic metallurgy
- Describe the principles of normal and abnormal gait and understand the biomedical principles of posture and replacement surgeries.
- Describe social, economic, environmental, biological and emotional determinants of health in a given patient with a musculoskeletal problem.



DEPARTMENT OF ANAESTHESIOLOGY

MBBS

Objectives:

At the end of the course, the learners shall be able to:

- Enumerate different types of anaesthesia, drugs, indications, administration, side effects & contraindications.
- To perform Cardiopulmonary resuscitation (Adult and pediatric)
- Set up I.V infusion and Peripheral cannulation (Adult and pediatric)
- Maintain Airway in the unconscious patient
- Administer O₂ in the hospital and domestic setup

Course Contents

- History and Scope of Anaesthesia
- Anatomy of upper airway;
- Physiology of Respiration, O₂ / Co₂ Transport, Various methods of oxygen therapy and its indications.
- Pre-Operative Evaluation / Pre-Medication
- Inhalation Anaesthetic agents, Stages of Anaesthesia
- The principles and mechanism of administration of general anaesthetics, Balanced Anaesthesia
- IPPV, Endotracheal Intubation
- Muscle Relaxants
- Spinal / Epidural Anaesthesia
- 10. Local Anaesthesia : The pharmacology of local anaesthetics and their uses.
- Cardio pulmonary resuscitation (C P R) basic, including use of simple ventilators
- Monitoring
- ICU, Role of anaesthesiologists in ICU
- Shock
- Blood Transfusion, and Fluid Electoral Balance (Basic)
- Sites of respiratory obstruction and management of airway in an unconscious patient.

MD

Program Out Comes:

- Practice independently, the art and science of Anaesthesiology and Resuscitation effectively and ethically, backed by scientific knowledge and skill base.
- Undertake responsibilities in critical care unit, trauma unit, and respiratory therapy unit of unconscious patients requiring ventilatory support.



- Be a dedicated, motivated teacher who is always keen to train or to share his knowledge and skills with a colleague or junior or any learner.

Course-Out Comes:

- Demonstrate knowledge of Anatomy related to;
 - Diaphragm, upper and lower airway, heart and coronary circulation ,
 - Regional anaesthesia - field block, central neuraxial, blockade, block for acute pain states
 - Procedures like -Intramuscular injections, arterial and venous cannulations
 - Patient Positioning under anaesthesia
- Demonstrate knowledge of Physiology related to various systems such as respiratory, cardiovascular, hepatobiliary, renal, endocrine, pregnancy, haematological, neuromuscular, regulation of temperature and metabolism, stress response,
- Demonstrate knowledge of commonly used drugs and gases in Anaesthesia practice, general principles, concepts of pharmacokinetics and pharmacodynamics, drug interactions with the other drugs taken concomitantly by the patient and anaphylactoid reactions.
- Demonstrate knowledge of importance of pre-anaesthetic assessment and optimization of a patient; consisting of evaluation, interpretation of laboratory investigation as applied to the care of the patients in planning and conduct of general anaesthesia.
- Demonstrate knowledge of basic life support, advanced cardiac, trauma life support, and neonatal resuscitation according to latest guidelines.
- Demonstrate knowledge of principles of sterilization and universal precautions, selection, maintenance and sterilization of anaesthesia and related equipment, Infection control, cross contamination in OT and ICU. Immune response and anaesthesia.
- Demonstrate knowledge of principles of artificial ventilation, management of unconscious patients, oxygen therapy, shock- (pathophysiology and management) and various protocols related to Intensive Care Unit.
- Demonstrate knowledge of post-operative care in the post-anaesthesia recovery room, in terms of management of
 - Post-operative pain: various modalities
 - Nausea and vomiting
 - Identified emergencies and postoperative complications.
 - Special precautions to be taken in specific surgical patients.
- Demonstrate knowledge of acute pain management, chronic pain therapy & therapeutic nerve blocks, acupuncture, acupressure and other non-conventional methods of treatment.
- Describe documentation, medico-legal aspects of anaesthesia and concept of informed consent.



- Demonstrate knowledge of research methodology and basics of biostatistics relevant to data collection, analysis, record keeping in anaesthesia, comparison and estimation of significance.
- Demonstrate knowledge of Principles of anaesthetic management of neuro/cardiac/thoracic/vascular/ transplantation/burns and plastic surgery.
- Demonstrate knowledge of general principles of medical audit and Critical incident reporting.
- Demonstrate knowledge of Ethics and clinical trial.



DEPARTMENT OF PAEDITRICS

MBBS

Program Outcomes

The Indian Medical Graduates coming out of a medical institute should:

- Be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- Appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- Be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- Be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - Family Welfare and Maternal and Child Health (MCH);
 - Sanitation and water supply;
 - Prevention and control of communicable and non-communicable diseases;
 - Immunization;
 - Health Education;
 - Indian Public Health Standards (IPHS) at various level of service delivery;
 - Bio-medical waste disposal; and
 - Organizational and or institutional arrangements.
- Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counseling.
- Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- Be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- Be competent to work in a variety of health care settings.



- Have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

MBBS - Course Outcomes

At the end of the course (MBBS), the student should be able to:

- Demonstrate knowledge of normal growth and development during fetal period, childhood and adolescence.
- Demonstrate knowledge and ability to assess common problems related to growth and development.
- Demonstrate knowledge of nutritional requirements from neonatal period through adolescence in health and disease.
- Demonstrate ability to provide nutritional support, assess and monitor for common nutritional problems from neonatal period through adolescence.
- Demonstrate knowledge of common neonatal and pediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational management, rehabilitation and prevention.
- Demonstrate ability to take a detailed neonatal and pediatric history, conduct an appropriate physical examination, make a clinical diagnosis, interpret results of common laboratory investigations and make a treatment plan.
- Demonstrate knowledge of National Health Programs pertaining to maternal and child health and analyze the outcomes and appraise the monitoring and evaluation of various health programs.
- Demonstrate knowledge of common childhood poisonings, accidents and child abuse and neglect.
- Demonstrate ability to communicate effectively and respectfully with patients/guardians and colleagues and abide by prescribed ethical and legal codes of conduct and practice.
- Demonstrate ability to search and critically reevaluate medical literature (self directed learning) and update one's knowledge and skills and apply the new knowledge for care of the patient.

MD Program/Course Outcomes

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

- Demonstrate knowledge of and ability to 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
- Demonstrate knowledge of the importance of growth and development as the foundation of paediatrics and help each child realize her/his optimal potential in this regard



- Demonstrate the ability to take detailed history; perform full physical examination including neurodevelopment and behavioral assessment and anthropometric measurements in the child and make clinical diagnosis.
- Demonstrate the ability to take detailed history; perform full physical examination including neurological assessment and anthropometric measurements in neonates; make clinical diagnosis and provide comprehensive care to normal, 'at risk' and sick neonates.
- Demonstrate the ability to perform relevant investigative and therapeutic procedures for the paediatric patient; interpret important imaging and laboratory results; diagnose illness based on the analysis of history, physical examination and investigations and plan and deliver comprehensive treatment for illness using principles of rational drug therapy.
- Plan and advice measures for the prevention of childhood disease and disability and plan rehabilitation of children with chronic illness and handicap and those with special needs.
- Demonstrate the ability to manage neonatal and childhood emergencies efficiently.
- Implement National Health Programs, effectively and responsibly.
- Recognize mental conditions, characterized by self-absorption, reduced ability to respond, abnormal functioning in social interaction with or without repetitive behavior, poor communication (autism) and collaborate with Psychiatrists/Child Psychologists for the treatment of such patients.
- Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation.
- Demonstrate the ability to recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them; demonstrate empathy and humane approach towards patients and their families and keep their sensibilities in high esteem; demonstrate communication skills of a high order in explaining 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 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.
- Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Organize and supervise the desired managerial and leadership skills; function as a productive member of a team engaged in health care, research and education.



**DEPARTMENT OF MD. DERMATOLOGY, VENEREOLOGY AND
LEPROLOGY**

M.B.B.S

Course Outcomes:

- At the end of the course of dermatology and sexually transmitted diseases (STD) and Leprology the student shall be able to:
- Demonstrate sound knowledge of common diseases their clinical manifestations including emergent situations and investigative procedures to confirm their diagnosis.
- Demonstrate comprehensive knowledge of various modes of topical therapy.
- Describe the mode of action of commonly used drugs, their doses, side-effects/toxicity, indications and contra-indications and interactions.
- Describe commonly used modes of management including the medical and surgical procedures available for the treatment of various diseases and to offer a comprehensive plan of management for a given disorder.
- Diagnose and manage emergencies specially recognizing the need for referral when appropriate and necessary

GOALS:

The goals of postgraduate training course would be to train a MBBS doctor:

- To practice Dermatology, Venereology and Leprosy efficiently and effectively, backed by scientific knowledge, skill base, ethics and tenets of good medical practice.
- Recognize the economic costs of treatment and use the most effective therapy within the available economic resources.
- Communicate to patients and families the advantage of preventive as well as the importance of compliance to prescribed therapies.
- Be able to co-operate, collaborate with colleagues and contribute to the management, when the problem is a multi-system disease process.

OUTCOMES:

- After completing the course the postgraduate student should:
- Acquire skills in history taking, physical examination, diagnosis and management of patients in dermatology, venereology and leprosy.
- Demonstrate understanding of basic sciences relevant to dermatology.
- Have acquired the competencies pertaining to the subject of dermatology that are required to be practiced at all levels of health system.
- Accurately describe skin lesions including morphology, configuration and distribution.
- Recognize the clinical manifestations of common dermatologic conditions.



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- Identify, classify and differentiate cutaneous findings in dermatological terms in a systematic way.
 - Plan and deliver comprehensive treatment for diseases using principles of rational drug therapy to treat common dermatological conditions.
 - Plan and advice measures for the prevention of infectious disease.
 - Plan rehabilitation of patient suffering from chronic illness and disability and those with special needs like leprosy.
 - Demonstrate skills in documentation of case details and of morbidity/mortality data relevant to the assigned situation.
 - Update oneself by self-study and by attending courses, conferences and seminars relevant to the speciality.
 - Be oriented to the principles of research methodology.



DEPARTMENT OF PSYCHIATRY

MBBS

Course outcomes

- Identify the signs and symptoms of common psychiatric disorders
- Recognize when it is appropriate to refer a patient to psychiatry
- Demonstrate an understanding of the effects of alcohol and illicit drugs on health and psychosocial wellbeing
- Appreciate the inter-relationship between physical and psychological
- Symptoms
- Understand that psychiatric illness is associated with stigma and recognize their role in combating this stigma.
- Respond empathically to mental illness and psychological distress in all settings.



M.Sc. (YOGA)

Program Outcome

Knowledge

- A comprehensive understanding of the basic principles and practices of Yoga by exploring classical yoga texts.
- Basic knowledge about anatomy, physiology, Ayurveda systems from an integrative and holistic perspective, as needed for the practice of Yoga Therapy
- A comprehensive understanding about non-communicable disorders and application of Yoga therapy in their management
- Basic understanding about concept of wellness, illness, recent advancement in the field of Yoga therapy
- Basic understanding about research methodology and biostatistics

Skill

- Able to demonstrate and instruct Yoga Practices with applied anatomy and physiology
- Able to conduct Yoga theory and practice classes in schools, colleges and universities.
- Ability to effectively use Yoga as a therapeutic modality through the integration of diverse approach and conduct research in the field of Yoga
- Critical thinking skills and science-based literacy to advance the evolution of Yoga Therapy as an integrative health practice

Attitude

- Able to practice Yama (Social discipline) and Niyama (Self-discipline) in day today life.
- Develop integrity, responsibility, reliability, dependability and compassion, which are characteristics required for successful professional life.

Communication

- Able to organize, conduct mass yoga program and outreach activities in the field of Yoga
- Develop leadership and communication skills to work as leading therapist in healthcare



DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS

Programme Outcome

- Understand the basis of Human nutrition requirements and recommendations through out their life cycle
- Should be able to understand the principles and concepts of nutrition and Dietetics in relation to disease condition
- To enable students to acquire skills for investigation, theoretical, clinical and applied aspects of Nutrition
- Learn to implement the principles of Dietetics in the clinical set up
- Learn to plan diet to address the specific disease conditions.
- Understand the concept of evaluating the nutritional status of the patients.
- Students should be able to translate knowledge into action
- Should be able to critically appraise plan and organise/ supervise different types of therapeutic diets in hospital dietary services
- Develop skills for patient counselling
- Should be able to interact effectively with the patients and their families and to give dietary advice in the context of socio economic status.
- Should be able to develop a holistic knowledge base and understanding of the nature of important nutrition problems and their prevention and control for the upliftment of the society
- Should be familiar with various approaches to nutrition and health interventions, programmes and policies.
- To equip individuals to start their own food service unit, leading to entrepreneurship.
- Students should assume the positions of responsibility in any aspects of food service management field.
- Should be able to make use of all the knowledge and skills acquired during the entire course in the practical application of dietetics .
- To understand the significance of research methodology in clinical nutrition research.
- To understand the fundamental concepts related to functional foods.
- Should be able to understand the applications of omics scale approaches to measure the effect of the diet
- To understand the latest procedures adopted in various food operations to prevent various food borne infection and legal aspects involved in these.



Course Outcome

- To learn the physiological conditions related to nutrition
- To understand the biological process and systems as applicable to human nutrition and its clinical aspects
- To obtain the insight into the chemistry of major nutrients and physiologically important components
- To describe the structure and position of the organs in the human body
- To understand the food composition, preparation and processing, preservation techniques
- To understand the concept of food safety and quality control in food industries
- To provide nutritional management for various disease conditions
- To understand various concepts of medical nutrition management of various disorders
- Formulate personalised diet plans for various disease conditions
- To provide nutritional management for individuals with developmental disabilities
- Should be able to understand allergy and food intolerance
- To make nutritional, dietary and physical activity recommendations to achieve fitness and well-being
- To develop and understand the concepts, approaches, models and theories of extension and recent advances in communication
- To develop skills to plan and use the IEC approach to nutrition.
- To provide practical field level experience in institutional food administration
- To apply statistical techniques for analysing and interpretation of data in their research work
- To have knowledge of underlying genetics interaction to increased susceptibility to diseases
- To understand application, strengths and limitations, different method involved in food analysis.