

SYLLABUS FOR PhD IN CONSERVATIVE DENTISTRY & ENDODONTICS

Applied anatomy of head & neck
<ul style="list-style-type: none">• Development of face, paranasal sinuses and the associated structures and their anomalies, cranial and facial bones.• TMJ anatomy and functions, arterial and venous drainage of head and neck, muscles of face and neck including muscles of mastication and deglutition.• Structures and function of brain• Cranial nerves and autonomic nervous systems of head and neck its application in clinical practice• Salivary glands, functional anatomy of mastication, deglutition and speech.• Detail anatomy of deciduous and permanent teeth and its general consideration in physiology of permanent dentition, from function, alignment, contact, occlusion.
<ul style="list-style-type: none">• Internal anatomy of permanent teeth and able to apply in clinical situations
<ul style="list-style-type: none">• Histology of skin oral mucosa ,connective tissue, bone cartilage, blood vessels, lymphatics, nerves, muscles, tongue.
Development of teeth:
<ul style="list-style-type: none">• Enamel-development, composition, physical characteristics, chemical properties, structure.
<ul style="list-style-type: none">• Dentin-developmental, its physical and chemical properties, structure type of dentin, innervations, age and functional changes.
<ul style="list-style-type: none">• Pulp development, histological structures, innervations, functions, regressive changes and its clinical considerations.
<ul style="list-style-type: none">• Anatomy of Cementum, its compositions, cementogenesis, structure, functions and clinical considerations
<ul style="list-style-type: none">• Periodontal ligaments, its development, structure, functions and clinical considerations.
<ul style="list-style-type: none">• Eruptions of teeth.
PHYSIOLOGY
<ul style="list-style-type: none">• Mastication, digestion and assimilation, fluid and electrolyte balance.• Blood composition , volume, function, blood groups, haemostasis, coagulation, blood transfusion, circulation heart,pulse, blood pressure, shock respiration, control anoxia hypoxia hypoxia, asphyxia artificial respiration, and endocrinology general principles of endocrine activity and disorders relating to pituitary thyroid parathyroid
Applied dental materials:-
Physical and chemical properties of materials and its application in clinical situations

- Impression materials,
- Details study of various restorative materials, restorative resin
- Recent advances in composite resins.
- Bonding recent development
- Tarnish and corrosion,
- Dental amalgam ,
- Direct filling gold,
- Casting alloy, inlay wax, die materials, investments, casting procedures , defects,
- Dental cements for restoration and pulp protection (luting, liners, bases) cavity varnishes.
- Dental ceramics recent advances, finishing and polishing materials.
- Dental burs-design and mechanics of cutting other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

APPLIED PHYSIOLOGY

- Mastication, deglutition, digestion and assimilation, fluid and electrolyte balance.
- Blood composition, volume, function, blood groups, haemostasis, coagulation, blood transfusion, circulation, heart, pulse, blood pressure, shock, respiration, control, anoxia, artificial respiration and
- Endocrinology- general principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid adrenals including pregnancy and lactation.
- Physiology and saliva composition, function, clinical significance.
- Clinical significance of vitamins, diet and nutrition balanced diet.
- Physiology of pain, sympathetic and para-sympathetic nervous system, pain pathways, physiology of pulpal pain.
- Odontogenic and non Odontogenic pain, pain disorders typical and atypical, biochemistry such as osmotic pressure, electrolytic dissociation, oxidation, reduction, etc. Carbohydrate, proteins, lipids and their metabolism. nucleo proteins, nucleic acid and there metabolism.
- Enzymes, vitamins and minerals, metabolism of inorganic elements, detoxification in the body, anti metabolites, chemistry of blood lymph and urine.

PATHOLOGY

- Inflammation, repair, degeneration, necrosis and gangrene.
- Circulatory disturbances, ischemia, hyperemia, edema , thrombosis , embolism , infarction , energy and hypersensitivity reaction.
- Neoplasm:- classification of tumors, characteristic of benign and malignant tumors, spread tumors.

- Blood dyscrasis
- developmental disturbances of oral and para-oral structures, dental caries , regressive changes of teeth, pulp, periapical pathology , pulp reaction to dental caries and dental procedures. Bacterial, viral, micotic infections of the oral cavity

MICROBIOLOGY

- Pathways of pulpal infections, oral flora and micro organism associated with endodontic, pathogenesis, host defense, bacterial virulent factor, healing, and theory of focal infection, microbes or relevance to dentistry. Strepto, saphylo, lactobacilli , corny bacterium , actinomycosis , clostridium , nisseria , vibrio, spirocates , mycobacterium , virus and fungi.
- Cross infection, infection control, infection control procedures, sterilization and disinfections. Body reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts, viral hepatitis, HIV infections and AIDS.
- Identification and isolation of microorganism from infected root canals. cultures medium
- Immunology antigen and antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts viral hepatitis, HIV infections and aids.
- Identification and isolation of microorganisms from infected root canals.
- Culture medium and culturing technique (Aerobic and anaerobic interpretation and antibiotic sensitivity test)

PHARMACOLOGY

- Dosage and routes of administration of drugs, action and fate of drug in body, drug addition, tolerance of hypersensitivity reactions.
- Local anesthesia agents and chemistry, pharmacological actions, fate and metabolism of anesthetic, ideal properties, technique and complications.
- General anesthesia pre medications, neuro-muscular blocking agents, induction agents, inhalation anesthesia, and agents used. assessment of anesthetic problems in medically compromised patients.
- Anesthetic emergencies.
Antihistamines, corticosteroids, chemotherapeutic and antibiotics, drug resistance, haemostasis, and haemostatic agents, anticoagulants, sympathomimetic drugs, vitamins and minerals (A,B,C,D,E,K IRON) anti sialogogue, immunosupresants, drug interactions, antiseptics, disinfectants, and viral agents, drugs acting on CNS.

CONSERVATIVE DENTISTRY
Examination, diagnosis and treatment plan.
Occlusion as related to conservative dentistry, contact, contour ,its significance. Separation of teeth matrices used in conservative dentistry
Dental caries its historical prospective ,epidemiology, and awareness of recent concept of etiological factors, Pathology physiology, histopathology, diagnosis ,caries activity tests, prevention of dental caries
Hand and rotary instruments, and development of rotary equipment, speed ranges, hazards
Dental burs and other modalities of tooth preparation and recent developments (air abrasions, lasers etc)
Sterilization technique and Infection control procedures in conservative dentistry
Tooth preparations for amalgams, composite, GIC and restorative techniques, failures.
Direct and indirect composites restorations.
Basic principle of Indirect tooth color restoration ceramic, inlay and onlays, veneers crowns,
Impression materials used for indirect restoration.
Cast metals restoration, and illustrate indication ,contraindications, tooth preparation for class II inlay, onlay full crown preparation ,restoration techniques , direct indirect method of fabrication including materials used for fabrication like inlay wax, investment material .
Historical aspects of direct gold restorations.
Recent advancements in restorative material
Principle of non carious lesions
Minimal intervention dentistry.
Principle of recent advances in restoration of endodontically treated and grossly mutilated teeth
Hypersensitivity, illustrate theories, causes
Lasers in conservative dentistry.
CAD-CAM in restorative dentistry.
Basic of dental imaging in restorative dentistry
Principles of aesthetics <ul style="list-style-type: none"> ● Colour ● Facial analysis ● Smile design ● Principal of aesthetic integration ● Treatment planning in aesthetic dentistry

ENDODONTICS
Rational of endodontics.
Internal anatomy of permanent teeth, and anatomy of root apex .
Dentin pulp complex.
Pulp and periapical pathology
Pathology of periapex
Diagnostic procedure .
Treatment planning of Case selection
Sterilization technique and Infection control procedures used in endodontics(aseptic techniques such as rubber dam, sterilization
Basic principle of Access cavity preparation
Endodontics instruments and instrumentation. Appraise recent developments and detailed description of hand, sonic, ultra sonic etc.
Root canal irritants and inter canal medicaments
Working length determination, cleaning and shaping of root canal system and recent development in techniques of canal preparation.
Endodontics microbiology
Obturing materials, various obturation techniques and appraise recent advances in obturation of root canal
Diagnosis of Traumatic injuries for pediatrics and adult patients
Endodontics surgery and aware of recent development in technique and devices,
Endo-Perio interrelationship
Drugs and chemicals used in endodontics.
Endodontics emergencies and its management
Restoration of endodontically treated teeth and its recent advances
Disease of Geriatric patients
Biologic response of pulp to various restorative materials and operative procedures
Lasers in Endodontics
Endodontics Radiology
Local Anaesthesia in Endodontics
Procedural errors in Endodontics
Endodontic failures and retreatment
Resorption
Microscopes in endodontics
Single visit endodontics and analyses current concepts and controversies.