**DEPARTMENT OF CONSERVATIVE & ENDODONTICS**

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**TEACHING & LEARNING :**

**1. CURRICULUM :**

**SYLLABUS :-**

**a) Under Graduate Students**

**DENTAL MATERIALS**

The science of Dental Material has undergone tremendous changes over the years. Continued research has led to new material systems and changing concepts in the dental field. Interlinked with various specialized branched of chemistry, practically all engineering applied sciences and biological characteristics, the science of dental material emerged as a basic sciences in itself with its own values and principles.

**INTRODUCTION**

**AIMS :**

Aim of the course is to present basic chemical and physical properties of Dental materials as they are related to its manipulation to give a sound educational background so that the practice of the dentistry emerged from art to empirical status of science as more information through further research becomes available. It is also the aim of the course of Dental materials to provide with certain criteria of selection and which will enable to discriminate between facts and propaganda with regards to claims of manufactures.

**OBJECTIVES :**

To understand the evolution and development of science of dental material

To explain purpose of course in dental materials to personnel concerned with the profession of the dentistry. Knowledge of physical and chemical properties. Knowledge of biomechanical requirements of particular restorative procedure. An intelligent compromise of the conflicting as well as co-ordinating factors into the desired Ernest. Laying down standards or specifications of various materials to guide to manufactures as well as to help professionals. Search for newer and better materials which may answer our requirements with greater satisfaction. To understand and evaluate the claims made by manufactures of dental materials.

**NEED FOR THE COURSE**

The profession has to rise from an art ot a science, the need for the dentist to possess adequate knowledge of materials to exercises his best through knowledge of properties of different of types of materials. The growing concern of health hazards due to mercury toxicity, inhalation of certain vapour or dust materials, irritations and allergic reaction to skin due to contact of materials. Materials causing irritation of oral tissues, pH of restorative materials causing inflammation and necrosis of pulp which is a cause for the dentist to posses wider knowledge of physical, chemical and biological properties of materials being used. For the protection for the patient and his own protection certain criteria of selection are provided that will enable the dentist to discriminate between facts and propaganda, which will make a material biologically accept.

**SCOPE**

The dental materials is employed in mechanical procedures including restorative dentistry such as Prosthodontics, endodontics, periodontal, Orthodontics and restorative materials. There is scarcely a dental procedure that does not make use of dental materials in one form or another and therefore the application of dental material is not limited to any one branch of dentistry.

Branches such as minor surgery and periodontics require less use of materials but the physical and chemical characters of materials are important in these field.

The toxic and tissue reaction of dental materials and their durability in the oral cavity where the temperature is between 32 & 37 degree centigrade, and the ingestion of hot or cold food ranges from 0-70 degree centigrade. The acid an alkalinity of fluids shown pH varies from 4 to

8.5. The load on 1 sq. mm of tooth or restorative materials can reach to a level as high a many kilograms. Thus the biological properties of dental materials cannot be separated from their physical and chemical properties.

**STRUCTURE OF MATTER AND PRINCIPLES OF ADHESION**

Change of state, inter atomic primary bonds, inter atomic secondary bonds, inter atomic bond distance and bonding energy, thermal energy, crystalline structure, non crystalline structures, diffusion, adhesion and bonding and adhesion to tooth structures.

**IMPORTANT PHYSICAL PROPERTIES ALLICABLE TO DENTAL MATERIALS**

Physical properties are based on laws of mechnics, acoustics, optics, thermodynamics, electricity, magnetism, radiation, atomic structure or nuclear phenomena, Hue, value chroma and translucency physical proerties based on laws of optics, dealing with phenomena of light, vision and sight. Thermal conductivity and coefficient of thermal expansion are physical properties based on laws of thermodynamics. Stress, strain proportional limit, elastic limit yield strength, modulus of elasticity, flexibility, resilience, impact, impact strength, permanent deformation, strength, flexure strength fatigue, static fatigue, toughness, brittleness, ductility and malleability, hardness, abrasion resistance, relaxation, rheology, Thixotropic, creep, static creep, dynamic creep, flow, color, three dimensional colour - hue values, chroma, Munsell system, metamersim, fluorescence, physical properties of tooth stress during mastication.

**BIOLOGICAL CONSIDERATIONS IN USE OF DENTAL MATERIALS**

Materials used are with the knowledge of appreciation of certain biological considerations for use in oral cavity. Requirement of materials with biological compatibility. Classification of material from perspective of biological compatibility. eg. contact with soft tissues, affecting vitality of pulp, used for root canal fillings, affecting hard tissues of teeth, laboratory materials that could be accidentally be inhaled or ingested during handling. Hazards associated with materials : pH effecting pulp, polymers causing chemical irritation, mercury toxicity, etc. Microleakage, Thermal changes, Galvanism, toxic effect of materials. Biological evaluation for systematic toxicity, skin irritation, mutagenecity and carcinogenicity. Disinfection of dental materials for infection control.

**GYPSUM & GYPSUM PRODUCTS**

Gypsum - its origin chemical formula, products manufactured from gypsum.

Dental plaster, Dental stone, Die stone, high strength, high expansion stone.

Application and manufacturing procedure of each, macroscopic and microscopic structure of each. Supplied as and commercial names.

Chemistry of setting, setting reaction, theories of setting, gauging water, Microscopic structure of set material.

Setting time : working time and setting time, Measurement of setting time and factors controlling setting time.

Setting expansion, Hygroscopic setting expansion - factors affecting each Strength : wet strength, dry strength, factors affecting strength, tensile strength Slurry - need and use.

Care of cast.

ADA classification of gypsum products

Description of impression plaster and dental investment Manipulation including recent methods or advanced methods. Disinfection : infection control, liquids, sprays, radiation Method of use of disinfectants

Storage of material - shelf life

**IMPRESSION MATERIALS USED IN DENTISTRY**

Impression plaster, Impression compound, Zinc oxide eugenol impression paste and bite registration paste incl., non eugenol paste, Hydrocolloids, reversible and irreversible,

Elastomeric impression materials. Polysulphide, Condensation silicones, Addition silicones,

Polyether, visible light cure polyether urethane dimethacrylate, Historical background and development of each impression material,

Definition of impression, Purpose of making impression, Ideal properties required and application of material, classification as per ADA specification, general & individual impression material.

Application and their uses in different disciplines, Marketed as and their commercial names,

Mode of supply and mode of application bulk / wash impression. Composition, chemistry of setting, Control of setting time, Type of impression trays required, Adhesion to tray manipulation, instruments and equipments required. Techniques of impression, storage of impression, (Compatibility with cast and die material). Any recent advancements in material and mixing devices. Study of properties : Working time, setting time, flow, accuracy, strength, flexibility, tear strength, dimensional stability, compatibility with cast & die materials incl., electroplating Biological properties : tissue reaction, Shelf life & storage of material, Infection control-disinfection, Advantages & disadvantages of each material.

**SYNTHETIC RESINS USED IN DENTISTRY**

Historical, background and development of material, Denture base materials and their classification and requirement

Classification of resins

Dental resins - requirements of dental resins, applications, polymerization, polymerization mechanism stages in addition polymerization, inhibition of polymerisation, co polymerization, molecular weight, crosslinking, plastixizers, Physical properties of polymers, polymer structures types of resins.

**ACRYLIC RESINS :**

Mole of polymerization : Heat activated, Chemically activated, Light activated, Mode of supply, application, composition, polymerization reaction of each. Technical considerations : Methods of manipulation for each type of resin. Physical properties of denture base resin.

Miscellaneous resins & techniques. Repair resins, Relining and rebasing. Short term and long - term soft - liners, temporary crown and bridge resins, Resin impression trays, Tray materials, Resin teeth materials in maxillofacial prosthesis, Denture cleansers, Infection control in detail, Biological properties and allergic reactions.

**RESTORATIVE RESINS**

Historical background, Resin based restorative materials, Unfilled & filled, Composite restorative materials, Mode of supply, Composition, Polymerisation mechanisms : Chemically activated. Light activated, Dual cure : Degree of conversion, Polymerisation shrinkage

Classification of Composites : Application, co,position and proerties of each Composites of posterior teeth, Prosthodontics resins for veneering. Biocompatibility - microleakage, pulpal reaction, pulpal protection Manipulation of composites: Techniques of insertion of Chemically activated, light activated, dual cure Polymerisation, finishing and polishing of restoration,

Repoair of composites Direct bonding Bonding: Need for bonding, Acid - etch technique, Enamel bonding, Dentin bonding agents. Mode of bonding, Bond strength, Sandwich technique its indication and procedure. Extended application for composites : Resins for restoring eroded teeth, Pit and fissure sealing, Resin inlays system - Indirect & direct, Core build up, Orthodontics applications.

**METAL AND ALLOYS :**

Structure and behaviour of metals, Solidification of metals, mechanism of crystallization amorphous & crystalline. Classification of alloys, Solid solutions, Constitutes or equilibrium phase diagrams : Electric alloys, Physical properties, Peritectic alloys, Solid state reaction other binary systems : Metallography & Heat treatment. Tarnish and corrosion. Definition : cause of corrosion, protection agaist corrosion., Corrosion of dental restorations, clinical significance of galvanic current. Dental Amalgam.

**History :**

Definition of dental amalgam, application, Alloy classification, manufacture of alloy powder composition - available as.

Amalgamation : setting reaction & resulting structure, properties, Microleakage

Dimensional stability, Strength, Creep, Clinical performance

Manipulation : Selection of alloy proportioning, mechanism of trituration, condensation, carving & finishing. Effect of dimensional changes, Marginal deterioration., Repair of amalgam, mercury toxicity, mercury hygiene.

**DIRECT FILLING GOLD:**

Properties of pure gold, mode of adhension of gold for restoration forms of direct filling gold for using as restorative material

Classification : gold Foil, electrolytic precipitate, powdered gold.

Manipulation : Removal of surface impurities and compaction of direct filling gold. Physical properties of compacted gold, Clinical performance.

**DENTAL CASTING ALLOYS :**

Historical background, desirable properties of casting alloys.

Alternatives to cast metal technology: direct filling gold, amalgam, mercury free condensable intermetallic compound - an alternative to metal casting process CAD-CAM process for metal & ceramic inlays - without need of impression of teeth or casting procedure, pure titanium, most bio compatible metal which are difficult to cast can be made into crowns with the aid of

CAD -CAM technology. Another method of making classification of casting alloys : By function & description. Recent classification, High noble (HN), Noble (N) and predominantly base metal (PB)

Alloys for crown & bridge, metal seramic & removable partial denture. Composition, function constituents and application, each alloy both noble and base metal. Properties of alloys: Melting range; mechanical properties, hardness, elongation, modulus of elasticity, tarnish and corrosion.

Casting shrinkage and compensation of casting shrinkage. Biocompatibility - Handling hazards & precautions of base metal alloys; casting investments used. Heat treatment : Softening & hardening heat treatment. Recycling of metals, Titanium alloys & their application, properties & advantages. Technical considerations in casting. Heat source, furnaces.

**DENTAL WAXES INCLUDING INLAY CASTING WAX**

Introduction and importance of waxes : Sources of natural waxes and their chemical nature.

Classification of Waxes :

Properties : melting range, thermal expansion, mechanical properties, flow & residual stresses, ductility. Dental Wax : Inlay wax : Mode of supply : Classification & composition, Ideal requirements : properties of inlay wax : Flow, thermal properties Wax distoration & its causes.

Manipulation of inlay wax : instruments & equipment required, including electrically heated instruments metal tips and thermostatically controlled wax baths.

Other waxes : Applications, mode of supply & properties.

Casting Wax, Base plate wax, Processing wax, Boxing wax, Utility wax, Sticky wax, Impression wax for corrective impressions, Bite registration wax.

**DENTAL CASTING INVESTMENTS**

Definition, requirements, classification

Gypsum bonded - classification, Phosphate bonded, silica bonded

Mode of Supply : Composition, application, setting mechanism, setting time & factors controlling.

Expansions : setting expansion, Hygroscopic Setting expansion, & thermal expansion : factors affecting. Properties : Strength porosity, and fineness & storage. Technical consideration :

For casting procedure Preparation of die, Wax pattern, spruing, investing, control of shrinkage compensation, wax burnout, and heating the invested ring, casting. Casting machines, source of heat for melting the alloy. Defect in casting.

**SOLDERING, BRAZING AND WELDING**

Need of joining dental appliances, Terms & Definition

Solders : Definition, ideal requirement types of solders - Soft & hard and their fusion temperature, application. Mode of supply of solders, composition and selection, properties. Tarnish & corrosion resistance mechanical properties, microstructure of soldered joint. Fluxes

& Anti fluxed : Definition, function, Types, commonly used fluxes & their selection Technique of soldering & Brazing : Free hand soldering and investment, steps and procedure. Welding : Definition, application, requirements, procedure, weld decay - causes and how to avoid it Laser welding.

**WROUGHT BASE METAL ALLOYS**

Applications and different alloys used mainly for orthodontics purpose

Stainless steel

Cobalt chromium nickel

Nickel titanium

Beta titanium

Properties required for orthodontic wires, working range, springiness, stiffness, resilence,

Formability, ductility, ease of joining, corrosion resistance, stability in oral environment, bio compatibility

Stainless steels : Description, type, composition & properties of each type. Sensitisation & stabilization, Mechanical properties - strength, tensile, yield strength, KHN. Braided & twisted wires their need, Solders for stainless steel, Fluxes, welding

1. Wrought cobalt chromium nickel alloys, composition, allocation, properties, heat treatment,

Physical properties

Nickel - Titanium alloys, shape, memory & super elastic

Titanium alloys, application, composition, properties, welding, Corrosion resistance.

**DENTAL CEMENTS**

Definition & Ideal requirements:

Cement : Silicate, Glass ionomer, metal modified glass ionomer, resin modified glass ionormer, zinc oxide eugenol, modified zinc oxide eugenol, zinc phosphate, zinc silico phosphate, zinc poly carboxylate, Cavity liners and cement bases, Varnishes Calcium hydroxide, Gutta Percha.

Application, classification (general and individual), setting mechanism, mode of supply,

Properties, factors affecting setting, special emphasis on critical procedures of manipulation and protection of cement, mode of adhension, biomechanics of caries inhibition.

Agents for pulpal protection., Modifications and recent advances, Principles of cementation. Special emphasis on cavity liners and cement bases and luting agents.

**DENTAL CERAMICS**

Historical background & General applications. Dental ceramic : definition, classification, application, mode of supply, manufacturing procedure, methods of strengthening. Properties of fused ceramic : Strength and factors affecting, modulus of elasticity, surface hardness, wear resistance, thermal properties, specific gravity, chemical stability, esthetic properties, biocompatability, technical considerations.

Metal Ceramic (PFM) : Alloys - types and composition of alloys. Ceramic - Type and composition.

Metal Ceramic Bond : Nature of bond. Bonding using electro deposition, foil copings, bonded platinum foil, swaged gold alloy foil coping. Technical considerations for porcelain and porcelain fused metal restotations. Recent advances - all porcelain restorations, Manganese core, injection moulded castable ceramics, glass infiltrated alumina core ceramic (In ceram), ceramic veners, inlays and onlays and CAD - CAM ceramic. Chemical attack of ceramic by fluoride. Porcelain furnaces.

**ABRASION & POLISHING AGENTS**

Definition of abrasion and polishing. Need of abrasion and polishing. Types of abrasives : Finishing, polishing & cleaning. Types of abrasives : Diamond, Emery, aluminium oxides garnet, pumice, Kieselgurh, Tripoli, rouge, tin oxide, chalk, chromic oxide, sand, carbides, diamond, zirconium silicate Zinc oxide.

**ABRASIVE ACTION :**

Desirable characteristics of an abrasive, Rate of abrasion, size of particle, pressure and speed Grading of abrasive & polishing agents. Binder, polishing materials & procedures used. Technical consideration - Material and procedure used for abrasion and polishin Electrolytic polishing and burnishing

**DIE AND COUNTER DIE MATERIALS INCLUDING ELECROFORMING AND**

**ELECTROPOLISHING**

types - Gypsum products, Electroforming, Epoxy resin, amalgam

**DENTAL IMPLANTS :** Evolution of dental implants, types and materials

**MECHANICS OF CUTTING :** Burns and points. At the end of the course the student should have the knowledge about the composition, properties, manipulative techniques and their various commercial names. The student should also acquire skills to select and use the materials appropriately for laboratory and clinical use.

**RECOMMENDED BOOKS**

Philips Science of Dental Materials : 10th edn. - Kenneth J. Anusavice

Restorative Dental Materials - 10 edn. Robert G. Craig

Notes on Dental Materials - E.C. combe

**PRE CLINICAL CONSERVATIVE DENTISTRY LABORATORY EXERCISES.**

Identification and study of handcutting instrument chisles, gingival margin trimmers, excavators and hatchet.

Identification and use of rotary cutting instruments in contra angle hand pieces burs

(Micromotor)

Preparation class I and extended class I and class II and MODs and class V amounting

to 10 exercises in plaster models.

4. 10 exercises in mounted extracted teeth of following class extended cavities 2, class II 4 in number and Class V 2 in number. application matrix and wedge placement restoration with amalgam.

I, 4 in number class I Cavity preparation base

Exercises on phantom head models which included cavity preparation base and varnish application matrix and wedge placement followed by amalgam restoration.

|  |  |
| --- | --- |
| Class I  | 5 |
| Class I with extension  | 2 |
| Class II  | 10 |
| Class H mods  | 2 |
| Class V and III for glass ionmers  | 4 |
| Class V for amalgam  | 2 |

**Polishing of above restorations :**

* Demonstration of class III and class V cavity preparation. For composites on extracted tooth completing the restoration.
* Polishing and finishing of the restoration of composites.
* Identification and manipulation of varnish bases like Zinc Phosphate, Poly carboxylate, Glass Ionomers, Zinc Oxide, Eugenol cements.
* Identification and manipulation of various matrix, tooth separators and materials like composites and modified glass ionomer cements.

**Cast Restoration :**

Preparation of Class I inlay cavity

Fabrication of wax pattern

sprue former attachment investing

**b) Post Graduate Syllabus:**

**Objectives** :

The following objectives are Iaid out to achieve the goals of the course. These are to be achieved by the time the

candidate completes the course. These objectives may be considered under the following subtitles.

**Knowledge**

At the end of 36 months of training, the candidates should be able to:

* Describe aetiology, pathophysiology, periapical diagnosis and management of common restorative situations, endodontic situations that will include contemporary management of dental caries, management of trauma and pulpal pathoses including periodontal situations.
* Demonstrate understanding of basic sciences as relevant to conservative / restorative dentistry and Endodontics.
* Identify social, economic, environmental and emotional determinants in a given case or community and take them into account for planning and execution at individual and community level.
* Ability to master differential diagnosis and recognize conditions that may require multi disciplinary approach or a clinical situation outside the realm of the speciality, which he or she should be able to recognize and refer to appropriate specialist.
* Update himself by self-study and by attending basic and advanced courses, conferences, seminars and workshops in the speciality of Conservative Dentistry – Endodontics-Dental Materials and Restorative Dentistry.
* Ability to teach and guide. (Students and colleagues.)

Use information technology tools and carry out research both basic and clinical with the aim of his publishing his work and presenting the same at scientific platform

**Skills**

* Take proper chair side history, examine the patient and perform medical and dental diagnostic procedures, order, as well as perform relevant tests and interpret them to come to a reasonable diagnosis about the dental condition. To undertake complete patient monitoring including preoperative as well as post operative care of the patient.
* Perform all levels of restorative work and surgical and non-surgical Endodontics including endodontic end osseous implants, endodontic-periodontal surgical procedures as part of multidisciplinary approach to clinical condition.
* Provide basic life saving support in emergency situations.
* Manage acute pulpal and pulpo periodontal situations.
* Have a thorough knowledge of infection control measures in the dental clinical environment and laboratories.
* Should have proper knowledge of sterilization procedures.

**Human Values, Ethical Practice and Communication Abilities**

* Adopt ethical principles in all aspects of restorative and contemporary Endodontics including non-surgical and surgical Endodontics.
* Should have Professional honesty and integrity.
* Dental care to be provided, regardless of social status, caste, creed or religion of the patient.
* Develop communication skills - in particular to explain various options available management and to obtain a true informed consent from the patient.
* Apply high moral and ethical standards while carrying on human or animal research
* He / She shall not carry out any heroic procedures and must know his limitations in performing all aspects of restorative dentistry including Endodontics. Ask for help from colleagues or seniors when required without hesitation.
* Respect patient's rights and privileges including patient’s right to information.

**Course contents (Syllabus) –**

**Part - I**

**Applied Anatomy of Head and Neck**

* Development of face, paranasal sinuses and the associated structures and their anomalies, cranial and facial bones, TMJ anatomy and function, arterial and venous drainage of head and neck, muscles of face and neck including muscles of mastication and deglutition, brief consideration of structures and function of brain. Brief consideration of all cranial nerves and autonomic nervous system of head and neck. Salivary glands, Functional anatomy of mastication, deglutition and speech. Detailed anatomy of deciduous and permanent teeth, general consideration in physiology of permanent dentition, form, function, alignment, contact, occlusion.
* Internal anatomy of permanent teeth and its significance.
* Applied histology, histology of skin, oral mucosa, connective tissue, bone cartilage, blood vessels, lymphatics, nerves, muscles, tongue.

**Anatomy and Development of Teeth:**

* Enamel- development and composition, physical characteristics, chemical properties, structure
* Age changes -clinical structure
* Dentin - development, physical and chemical properties, structure type of dentin, innervations, age and functional changes.
* Pulp - development, histological structures, innervations, functions, regressive changes, clinical considerations.
* Dentin and pulp complex.
* Cementum -composition, cementogenesis, structure, function, clinical considerations.
* Knowledge of internal anatomy of permanent teeth, anatomy of root apex and it implication in endodontic treatment.
* Periodontal ligament -development, structure, function and clinical considerations.
* Salivary glands - structure, function, clinical considerations.

**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, hypoxia, asphyxia, artificial respiration, and endocrinology -general principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.
* Physiology of 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., carbohydrates, proteins, lipids and their metabolism, nucleoproteins, nucleic acid and their 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, allergy and hypersensitivity reaction.
* Neoplasms - classifications of tumors, characteristics of benign and malignant tumors, spread tumors.
* Blood dyscrasias
* 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, mycotic infections of the oral cavity

**Microbiology**

* Pathways of pulpal infection, oral flora and micro organisms associated with endodontic diseases, pathogenesis, host defence, bacterial virulence factors, healing, theory of focal infections, microbes or relevance to dentistry - strepto, staphylococci, lactobacilli, cornyebacterium, actinomycetes, clostridium, neisseria, vibrio, bacteriods, fusobacteria, spirochetes, mycobacterium, virus and fungi.
* Cross infection, infection control, infection control procedure, sterilization and disinfection.
* Immunology -antigen antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts, viral hepatitis. HIV infections and AIDS. Identification and isolation of micro-organisms from infected root canals. Culture medium and culturing technique (Aerobic and anaerobic interpretation and antibiotic sensitivity test)

**Pharmacology**

* Dosage and route of administration of drugs, actions and fate of drug in body, drug addiction, tolerance of hypersensitivity reactions
* Local anaesthesia - agents and chemistry, pharmacological actions, fate and metabolism of anaesthetic, ideal properties, techniques and complications
* General anaesthesia - pre medications, neuro muscular blocking agents, induction agents, inhalation anaesthesia, and agents used assessment of anaesthetic problems in medically compromised patients.
* Anaesthetic emergencies
* Antihistamines, corticosteroids, chemotherapeutic and antibiotics, drug resistance, haemostasis, and haemostatic agents, anticoagulants, sympathomimitic drugs, vitamins and minerals (A, B, C, D, E, K IRON), anti sialogogue, immunosupressants, drug interactions, antiseptics, disinfectants, anti viral agents, drugs acting on CNS.

**Biostatistics**

* Introduction, Basic concepts, Sampling, Health information systems -collection, compilation, presentation of data. Elementary statistical methods -presentation of statistical data, Statistical averages – measures of central tendency, measures of dispersion, Normal distribution. Tests of significance -parametric and non -parametric tests (Fisher extract test, Sign test, Median test, Mann Whitney test, Krusical Wallis one way analysis, Friedmann two way analysis, Regression analysis), Correlation and regression, Use ofcomputers.

**Research Methodology**

* Essential features of a protocol for research in humans
* Experimental and non -experimental study designs
* Ethical considerations of research

**Applied Dental Materials**

* Physical and mechanical properties of dental materials, biocompatibility
* Impression materials, detailed study of various restorative materials, restorative resin and recent advances in composite resins, bonding- recent developments- tarnish and corrosion, dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments, casting procedures, defects, dental cements for restoration and pulp protection (luting, liners. bases) cavity varnishes. Advances in restorative materials.
* 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.

**Part - II**

**Paper- I : Conservative Dentistry**

1. Examination, diagnosis and treatment plan.
2. Occlusion as related to conservative dentistry, contact, contour, its significance. Separation of teeth, matrices, used in conservative dentistry.
3. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology, Histopathology, diagnosis, caries activity tests, prevention of dental caries and management- recent methods.
4. Hand and rotary cutting Instruments, development of rotary equipment, speed ranges, hazards.
5. Dental burs and other modalities of tooth reparation - recent developments (air abrasions, lasers etc)
6. Infection control procedures in conservative dentistry, isolation equipments etc.
7. Direct concepts in tooth preparation for amalgam, composite, GIC, restorative techniques, material, its failures and management.
8. Biologic response of pulp to various restorative materials and operative procedures.
9. Direct and indirect composite restorations.
10. Indirect tooth colored restorations- ceramic, inlays and onlays, veneers, crowns, recent advances in fabrication and materials and tissue management.
11. Impression procedures used for direct restorations.
12. Cast metal restorations, indications, contraindications, tooth preparation for class II inlay, Onlay full crown restorations.

Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and casting.

1. Direct gold restorations
2. Recent advances in restorative materials and procedures
3. Esthetics including smile design.
4. Management of non-carious lesion.
5. Management of discoloured tooth.
6. Minimal intervention dentistry.
7. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth.
8. Hypersensitivity, theories, causes and management.
9. Lasers in Conservative Dentistry.
10. CAD-CAM & CAD-CIM in restorative dentistry.
11. Dental imaging and its applications in restorative dentistry.
12. Clinical photography.

**Paper – II : Endodontics**

1. Rationale of endodontics.
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology
5. Pathobiology of periapex.
6. Diagnostic procedure - recent advances and various aids used for diagnosis, Orofacial dental pain emergencies: endodontic diagnosis and management.
7. Case selection and treatment planning.
8. Infection control procedures used in endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc.)
9. Access cavity preparation - objectives and principles
10. Endodontic instruments and instrumentation -.recent developments, detailed description of hand rotary, sonic, ultra sonic etc.
11. Working length determination I cleaning and shaping of root canal system and recent development in techniques of canal preparation.
12. Root canal irrigants and intra canal medicaments used including non - surgical endodontics by calcium hydroxide.
13. Endodontic microbiology.
14. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
15. Traumatic injuries and management -endodontic treatment for young permanent teeth. Pediatric endodontics -treatment of immature apex.
16. Endodontic surgeries, recent developments in technique and devices, endoosseous endodontic implants-biology of bone and wound healing.
17. Endoperio interrelationship, endo + Perio lesion and management.
18. Drugs and chemicals used in endodontics.
19. Endo emergencies and management.
20. Restoration of endodontically treated teeth, recent advances.
21. Geriatric endodontics .
22. Endo emergencies and management.
23. Biologic response of pulp to various restorative materials and operative procedures.
24. Lasers in endodontics.
25. Multidisciplinary approach to endodontic situations.
26. Endodontic radiology- digital technology in endodontic practice.
27. Local anaesthesia in endodontics.
28. Procedural errors in endodontics and their management.
29. Endodontic failures and retreatment.
30. Resorptions and its management.
31. Microscopes in endodontics.
32. Single visit endodontics, current concepts and controversies.
33. Regenerative Endodontics.

**Teaching / Learning Activities**

The following is the minimum required to be completed before the candidate can be considered eligible to appear for final MDS exam.

**First Year**

**Pre Clinical Work -Operative and Endodontics**

**Preclinical work on typhodont teeth**

1. Class 2 amalgam cavities

a. Conservative preparation - 03

b. Conventional preparation - 03

2. Inlay cavity preparation including wax pattern and casting

on premolars and mo-lars -MO, DO, MOD - 02

3. Onlay preparation on molars including wax pattern - 02

4. Full Crown

a. Anterior - 02

b. Posterior - 02

(2 each to be processed)

**• Pre Clinical work on natural teeth**

1. Wax Carving of all permanent teeth

2. Inlay on molars and premolars MO, DO, and MOD

 including wax pattern and casting - 05

3. Amalgam cavity preparation

a. Conventional - 02

 b. Conservative - 02

4. Complex amalgam on molar teeth - 02

5. Onlay on molars including wax pattern and casting - 02

 (1 to be processed)

6. Full crown premolars and molars (metal, PFM & Ceramic)-04

7. Full crown anterior (PFM, composite& Ceramic) - 03

8. Veneers anterior teeth - 02

9. Composite

a. Composite Filling (Class I,II,III & V) -05 (each)

b. Inlay (Class I & II) -02

c. Veneer -02

d. Diastema Closure -02

e. Angle Buildups -02

**Endodontics:**

1. Sectioning of all maxillary and mandibular teeth (vertical & horizontal).

2. Access cavity opening in relation to maxillary and mandibular permanent teeth.

3. Access cavity preparation, BMP and Obturation

a) Anterior (3 maxillary and 3 mandibular) - 06

- Conventional prep - 02

- Step back - 02

- Crown down - 02

- Obturation - 03

(2 lateral compaction and 1 thermoplasticized)

b) Premolar - 04

(2 upper and 2 lower) obturation 1 each

c) Molar - 06

(3 upper – 2 first molars and 1 second molar

3 lower – 2 first molars and 1 second molar) obturation 1 each

4. Post and core preparation and fabrication in relation to anterior and posterior teeth

a. Anterior 10 (Cast Post 5 and prefabricated post 5)

b. Posterior 05 (Cast Post 2 and prefabricated post 5)

5. Removable dies - 04

**Note : Technique work to be completed in the first four months**

**Clinical Work:**

A Composite restorations 30

B GIC Restorations 30

C Complex amalgam restorations 05

D Composite inlay + veneers 10

(direct and indirect)

E Ceramic jacket crowns 05

F Post and core for anterior teeth 10

G Bleaching vital 05 Non vital 05

H RCT Anterior 20

I Endo surgery – observation and assisting 05

**Presentation of:**

• Seminars – 5 seminars by each student – should include topics in dental materials,

 conservative dentistry and endodontics

• Journal clubs – 5 by each student

• Submission of synopsis at the end of 6 months

• Library assignment work

• Internal assessment – theory and clinicals.

**Second Year**

**Case discussion- 5**

1 Ceramic jacket crowns 10

2 Post and core for anterior teeth 10

3 Post and core for posterior teeth 05

4 Composite restoration 15

5 Full crown for posterior teeth 15

6 Cast gold inlay 05

7 Other special types of work such as splinting - Reattachment of fractured teeth etc. 10

8 Anterior RCT 30

9 Posterior RCT 40

10 Endo surgery performed independently 05

11 Management of endo – Perio problems 05

12 Angle build up composite 05

13 Diastema closure 05

14 Composite Veneers 05

• Under graduate teaching program as allotted by the HOD

• Seminars – 5 by each student

• Journal club – 5 by each student

• Dissertation work

• Prepare scientific paper / poster and present in conference and clinical meeting

• Library assignment to be submitted 18 months after starting of the course

• Internal assessment – theory and clinical

**Third Year**

Dissertation work to be submitted 6 months before final examination.

**Clinical work**

• Cast gold inlay- Onlay, cuspal restoration 10

• Post and core 20

• Molar endodontics 50

• Endo surgery 05

• Diastema Closure 05 98 98

• Angle Build up 05

• All other types of surgeries including crown lengthening, perioesthetics, hemi sectioning, splinting, replantation.

**Presentation of:**

• Seminars – 5 by each student

• Journal club – 5 by each student

• Under graduate teaching program as allotted by the HOD

• Internal assessment – theory and clinical

**Monitoring Learning Progress:**

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Section IV.

**SOP FOR CONDUCT OF THEORY INTERNAL AND PRACTICAL EXAMINATION OF CONSERVATIVE DENTISTRY & ENDODONTICS**

**EXAMINATIONS**

**PREFACE:**

Evaluation is a continuous process, which is based upon criteria developed by the concerned authorities with certain objectives to assess the performance of the learner. This also indirectly helps in the measurement of effectiveness and quality of the concerned B.D.S. programme.

**Evaluation is achieved by two processes**

1) Formative or internal assessment

2) Summative or university examinations. Formative evaluation is done through a series of tests and examinations conducted periodically by the institution. Summative evaluation is done by the university through examination conducted at the end of the specified course.

**METHODS OF EVALUATION**: Evaluation may be achieved by the following tested methods:

 i. written test

ii. Practical examination

 iii. Clinical examination

 iv. Viva voce

**INTERNAL ASSESSMENT EXAMINATION**:

The internal assessment examinations in theory and practical/ clinical held twice in a particular year followed by a model examination in the pattern of university examination to be held at the end of the year of study. Internal assessment marks for a candidate in a subject will be calculated as the average of the marks obtained in the model examination and the highest among all other internal examinations. This average mark will be reported to the University.

1. To be eligible to appear for the University Examination a candidate should have 75% attendance in theory and 80% in clinical posting.
2. For a student to be eligible to appear for the University examination he/she should have secured at least 50% of the maximum marks in internal assessment for both theory and practical/clinical in all subjects/papers, separately.
3. English will be the preferred language for the examination.
4. **UNIVERSITY EXAMINATION-SCHEME** : The entire BDS course should be completed within a period of maximum 9 (double the course duration) academic years from the date of joining.

 **DEPARTMENT OF CONSERVATIVE & ENDODONTICS**

**Three internal exams will be conducted for students who will appear university exams in summer and winter.**

**II Year**

|  |  |  |
| --- | --- | --- |
| **Internal exams** | **Theory marks****(Dental Materials)** | **Practical** |
| **Dental Material** | **Pre-clinical Cons.** |
| **First Internal Exam.** | Section A:20 Section B:18Section C:22Total: 40 | **Zinc Phosphate** **Manipulation :**Spotters : 30Manipulation : 20Viva : 10Total : 60 | **Class-II preparation on plaster block :**Cavity Preparation : 20Wax filling & carving: 10Viva : 20Total : 50 |
| **Second Internal Exam.** | Section A:20 Section B:18Section C:22Total: 40 | **Silver Amalgam Manipulation:**Spotters : 30Manipulation : 20Viva : 10Total : 60 | **Class – II preparation on extracted tooth :**Tooth preparation :20Base filling : 05Restoration : 15Viva : 10Total 50 |
| **Prelim. Exam.** | Section A:20Section B:30Section C:30Total: 80 | **ZOE/GIC/Amalgam/ Zinc Phosphate manipulation :**Spotters : 50Manipulation : 20Viva : 10Total : 80 | **Class- II Amalgam Restoration & Class-I Inlay with pattern on typhodont:**Class-II tooth preparation :20Base filling :10Restoration : 20Class-I Inlay : 30Viva : 20Total : 100 |

**IV Year**

|  |  |  |
| --- | --- | --- |
| **Internal exams** | **Theory marks** | **Practical** |
| **First Internal Exam.** | Section A:20 Section B:20Section C:20Total: 60 | Case History : 10Class-II Amalgam tooth preparation : 15Base filling : 10Restoration : 15Viva : 10Total : 60 |
| **Second Internal Exam.** | Section A:20 Section B:20Section C:20Total: 60 | Case History : 10Class-II Amalgam tooth preparation : 15Base filling : 10Restoration : 15Viva : 10Total : 60 |
| **Prelim. Exam.** | Section A:20Section B:40Section C:20Total: 80 | Case History : 10Class-II Amalgam tooth preparation : 20Base filling : 10Restoration : 20Viva : 20Total : 80 |

**SOP FOR CONDUCT OF THEORY INTERNAL EXAMINATION**

## Time Table from academic committee

* Academic committee dispatch the internal examination time table 1 week before the internal examinations.
* Internal Time Table for Theory and Practical examination will be displaced on department notice board
* Rooms identification and intimation to students and invigilators

## Question Papers generation from Question Bank

* + Preparation of Question Paper as per regulations.

## Make required no of copies and keep in strong room

## Seating plan & arrangements

* + Preparation of examination pads
	+ Each pad should contains the following stationary
		- Seating plan.
		- Answer sheets / Graphs / etc.
		- Threads.
		- Signature statement.

## Internal Exam timings : 3hours (2pm to 5pm)

## Absentees Statements for all examinations

* 1. Prepare an overall consolidate statement for absentees.

## Collection of answer scripts from invigilators

* 1. Answer scripts collection from invigilators.
	2. Mark absentees on the summery report.
	3. Handed over the answer scripts to Department.

## Evaluation of answer scripts from teachers

* 1. Verify all the scripts
	2. Marks should be written on answer script
	3. Enter the same data in Online server
	4. Signature of faculty is mandatory on verified sheet.
1. Display of marks of individual students on department notice board and display of betterment exam date for failed students

**SOP FOR CONDUCT OF PRACTICAL INTERNAL EXAMINATION**

**II Year : Dental Material**

**First Internal Assessment :**

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Spotter :30Manipulation :20Viva:10 Total: 60 | 30 Minutes5 to 10 Minutes15 Minutes | 10 Spots are placed equidistant. students are allotted 03 minutes per spot.Increments assessment evaluation. Evaluation of method of mixing base & liquid. Final mix evaluation. Viva |

**Second Internal Assessment:**

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Spotter :30Manipulation :20Viva:10 Total: 60 | 30 Minutes5 to 10 Minutes15 Minutes | 10 Spots are placed equidistant. students are allotted 03 minutes per spot.Evaluation of amount of amalgam & mercury taken. Evaluation of squeezing out excess mercury using gauze piece. Evaluation of final mix. Viva |

**Prelim Assessment :**

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Spotter :50Manipulation :20Viva:10 Total: 80 | 50 Minutes10 Minutes15 Minutes | 10 Spots are placed equidistant. students are allotted 05 minutes per spot.Evaluation of manipulation of either ZOE/GIC/Silver Amalgam/Zinc Phosphate. Viva |

**II Year : Preclinical Cons.**

**First Internal Assessment :**

1. Seating arrangements done according to roll number.

2. Arrangement of instruments by students.

3. Cross verification by staff.

4. Plaster block signed by the invigilator provided to each student.

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Cavity Preparation :20Wax Filling & Carving :10Viva:20Total: 50 | 45 Minutes30 Minutes15 Minutes | Cavity preparation evaluation by teachers Final carving evaluation Viva |

**Second Internal Assessment :**

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Tooth Preparation :20Base filling :5Amalgam Restoration : 15Viva:10Total: 50 | 45 Minutes15 Minutes15 Minutes15 Minutes | Tooth preparation on extracted mandibular first molar evaluation by teachers.Evaluation of filling base & matrix band, wedge application.Evaluation of carving & finishing of amalgam restoration.Viva |

**Prelim Assessment :**

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Class-II Amalgam Tooth Preparation : 20Class-I Inlay Tooth Preparation :30Base filling :10Amalgam Restoration : 20Inlay Wax Pattern : 20Viva:10Total: 50 | 75 Minutes15 Minutes15 Minutes15 Minutes15 Minutes | Tooth preparation on typhodont mandibular first molar evaluation by teachers.Evaluation of filling base & matrix band, wedge application.Evaluation of carving & finishing of amalgam restoration.Evaluation of wax pattern with attachment of sprue.Viva |

**IV Year :**

Patients will be allotted to individual students from department OPD for clinical exam

|  |  |  |
| --- | --- | --- |
| **EXAM** | **TIME** | **EVALUATION/MARKS ALLOTMENT BY TEACHERS** |
| Case History :10Class-II Amalgam Tooth Preparation : 15Base Filling : 10Amalgam Restoration : 15Viva:10Total: 60 | 15 Minutes45 Minutes15 Minutes | Cavity preparation evaluation by teachers Final carving evaluation Viva |

* Marks will be displayed after examination
* Date of betterment exam will be declared for failed students.

**SOP FOR REDRESSAL OF EXAMINATION RELATED GRIEVANCES**

Mechanism to deal with examination related grievances is transparent, time-bound and efficient

For **any internal examination grievances** following mechanism is followed

Written signed application from students addressing exam section, mentioning the grievance is taken.

|  |  |  |
| --- | --- | --- |
| Grievance related to subject is Conveyed to subject teacher Grievance resolved by subject teacherOn verification by studentApplication resigned by teacher and student mentioning the grievance as resolved. |  | Any other exam related Grievance is dealt by Principal Grievance resolved by PrincipalOn verification by studentApplication resigned by Principal and student mentioning the grievance as resolved. |

**SOP FOR BETTERMENT EXAM. PROCEDURE**

* Betterment exam date is declared after some time of main exam result declaration.
* Syllabus & Exam pattern for betterment exam is same as that of exam conducted.
* Betterment exam is conducted within 15 days after declaration of results.
* Results of betterment exam are declared within 03 days on the notice board.

**SOP FOR TEACHING METHODS – UG & PG**

**UNDERGRADUATES STUDENTS:**

Teaching dentistry either to Undergraduates or postgraduates is a challenging task. A mixture of technical competency, basic theoretical background and pleasing chair side manners are the prime requirements of any dental school teaching. Alongwith traditional class room teaching augmented by ITC enabled learning, access to online information, tutorials, micro teaching are practiced.

* Didactic lectures
* Laboratory exercises
* Work on phantom head/simulated models
* Clinical chair side demonstrations
* Student seminars and power point presentation
* Integrated teaching

 Lectures are taken by the faculty using LCD projectors, boards and charts and models to explain the topic.

 Demonstration and Chair side discussions for clinical procedures are carried out.

 Regular Pre Clinical exercises and discussions are carried out by students under supervision before starting any new exercise.

Regular written tests and vivas are conducted to evaluate the performance. Term ending practical exams is conducted to assess the students.

The achievements of program objectives and learning outcomes are monitored based on the Internal Assessments

**POSTGRADUATE STUDENTS:**

 The aim of department is to train dental graduates so as to ensure higher competence in both general and special areas of Conservative Dentistry & Endodontics and Prepare a candidate for teaching, research and clinical abilities, including prevention and after care in Endodontics.

 Endodontic treatment should be practiced by developing skills by teaching various and more number of patients to establish skills for diagnosis and treatment planning.

**1. Lectures:** didactic lectures are conducted both in the speciality and in the allied fields.

The department of Conservative Dentistry & Endodontics encourage the guest lecturers in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics on regular basis.

**2. Journal club:** The journal review meeting is held at least once a week. All post graduate students participate in journal club actively and enter relevant details in logbook. Each post graduate makes presentations from the allotted journal of selected articles at least 5 times in a year.

**3. Seminars:** The seminars are scheduled at least twice a week in the department; all post graduate students with postgraduate teaching staff participate actively and enter relevant details in logbook. Each PG Student shall make at least 5– seminar presentation in each year.

**4. Symposium:** The department of Conservative Dentistry & Endodontics held symposium on topics covering multiple disciplines one in each academic year

**5. Workshop:** The department of Conservative Dentistry & Endodontics held workshop on topics covering multiple disciplines one in each academic year.

**6. Clinical Posting:** Each PG student shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated be a specialist.

**7. Clinico Pathological Conference:** The Clinico- pathological conference is held once in a month involving the faculties of oral medicine and radiology, oral pathology, oral surgery, periodontology and concerned clinical department. The PG Students are encouraged to present the clinical detail, radiological and histo-pathological interpretations and participation in the discussions.

**8. Interdepartmental Meetings:** the department of Conservative Dentistry & Endodontics brings in more integration among various specialties. These interdepartmental meeting are chaired by the dean with all heads of postgraduate departments atleast once a month.

**9. Rural oriented Conservative Dentistry & Endodontics health care**: the department of Conservative Dentistry & Endodontics motivates the PG students to carry out a Endodontic therapy interacting with rural centers and the institution.

**10. Teaching skills:** All the PG Students shall be encouraged to take part in undergraduate teaching programme either in the form of lectures or group discussions.

**11. Evaluation skills:** All the PG Students shall be encouraged to enhance their skills and knowledge in clinical, laboratory practice including theory by formulating question banks and model answers.

**12. Continuing dental Education programme:** Each Postgraduate department shall organize these programmes on regular basis involving the other institutions. The PG Students shall also be encouraged to attend such programmes conducted elsewhere.

**13. Conference / Workshop / Advanced courses:** The PG Student shall be encouraged not only to attend conference / Workshop / advance course but also to present atleast two papers & one poster at state / national speciality meeting during their courses.

**14. Rotational posting in other Departments:**  : the department of Conservative Dentistry & Endodontics brings in more integration between the speciality and allied fields each post graduate department shall workout a programme to rotate the PG Students in related disciplines and craniofacial and maxillofacial ward

**15. Dissertation:** PG Students shall prepare a dissertation based on the clinical or laboratory experimental work or any other study conducted by them under the supervision of the post graduate guide.

The set programmes regarding Dissertations, quota of work and clinical work are evaluated periodically both by the Guide and other designated Co-guides.

Department ensure that program objectives are constantly met and learning outcomes are monitored by

* **Regular discussions, chair side interactions with students.**
* **Internal assessments for theory, practical and clinical.**
* **Evaluation of the performance of the students in internals.**
* **Betterment examinations for the average students.**
* **Regular theory, clinical and pedagogy exercises for the postgraduate students.**

**SOP FOR DEMONSTRATIONS & CLINICAL EXERCISES**

**MASTER PLAN FOR 1st YEAR BDS**

1. Introduction & orientation to Dentistry & Dental Materials
2. Introduction to dental cements
3. Weekly one theory lecture for dental materials
4. Manipulation of
	1. Zinc Phosphate
	2. Zinc Oxide Eugenol
	3. Silver Amalgam
	4. GIC
5. Preparation of plaster models using moulds.

**MASTER PLAN FOR FOR 3RD YEAR BDS**

1. Demonstration of chair position.
2. Case History
3. Class I Cavity Preparation, Zinc Phosphate base application, Silver amalgam restoration
4. GIC Restoration
5. Class-I Compound Cavity Preparation, Zinc Phosphate base application & silver amalgam restoration
6. Weekly one theory lecture.

**MASTER PLAN FOR 2nd YEAR BDS**

1. Introduction to operative dentistry
2. Three Theory lectures conducted weekly – (02 Pre-cons. & 01 D.M.)
3. Identification and study of handcutting instruments chisles, gingival margin trimmers, excavators and hatchet.
4. Identification and use of rotary cutting instruments in contra angle hand pieces burs (Micromotor)
5. Preparation class I and extended class I and class II and MOD’s and class V amounting to 10 exercises in plaster models.
6. Ten exercises in mounted extracted teeth of following; class I, 4 in number; class I extended cavities2; class II 4 in number and class V 2 in number. Cavity preparation base application, matrix and wedge placement restoration with amalgam.
7. Exer4cises on phantom head models which includes cavity preparation base and varnish application matrix and wedge placement followed by amalgam restoration.
	1. Class I 5
	2. Class I with extension 2
	3. Class II 10
	4. Class II Mods 2
	5. Class V and III for glass ionomers 4
	6. Class V for amalgam 2
8. Identification and manipulation of varnish base like Zinc Phosphate, Poly carboxylate, Glass Ionomers, Zinc Oxide, Euginol cements.
9. Identification and manipulation of various matrices, tooth separators.
10. Preparation of Class I inlay cavity
11. Fabrication of wax pattern
12. Identification of base endodontics instruments..3

 **DEMONSTRATION SCHEDULE FOR 4th YEAR BDS**

1. Demonstration of Class-II Cavity Preparation.
2. Demonstration of Vitality Test.
	1. Heat Test
	2. Cold Test
3. Demonstration of Pulp Tester
4. Introduction of various root canal treatment instruments.
5. Demonstration of Rubber Dam Application
6. Demonstration of access cavity preparation\
7. Demonstration of working length determination and biomechanical preparation
8. Demonstration of apex locator.
9. Demonstration of Obturation.
10. Demonstration of RVG
11. Demonstration of Composite Restoration.
12. Principles of Cavity Preparation

Steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors and angles of cavities.

1. Dental Caries:

Aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.

1. Treatment planning for operative dentistry:

Detailed clinical examination, radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet.

1. Armamentarium for Cavity Preparation.

General classification of operative instruments, hand cutting instruments design formula and sharpening of instruments. Rotary cutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instruments tray set up.

1. Control of Operating Filed:
2. Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogagues.
3. Amalgam Restoration :

Indication contraindication, physical and mechanical properties, clinical behaviour. Cavity preparation of Class I, II, V and III. Step wise procedure for cavity preparation and restoration. Failure of amalgam restoration.

1. Pulp Protection:

Liners, varnishes and base, Zinc Phosphate, Zinc polycarboxylate, zinc oxide eugenol and glass inomer cements.

1. Preventive Measures in Restorative Practice:

Contact and contour of teeth and restorations matrices tooth separation and wedges.

1. Management of Deep Carious lesions; indirect and direct pulp capping.
2. Non carious Destruction of Tooth Structures Diagnosis and Clinical Management.
3. Recent Cavity Modification Amalgam Restoration.
4. Control of Pain During Operative Procedures.
5. Treatment Planning for Operative Dentistry Detailed Clinical and Radiographic Examination.

**DEMONSTRATION SCHEDULE FOR INTERNSHIP**

1. Endodontics: introduction, definition, scope and future of endodontics.
2. Clinical diagnostic methods.
3. Emergency endodontics procedures.
4. Pulpal diseases causes, types and treatment.
5. Periapical diseases: acute periapical abscess, acute periodontal abscess phoenix abscess, chronic alveolar abscess granuloma cysts condensing osteits, external resorption.
6. Vital pulp therapy: indirect and direct pulp capping, pulpotomy, different types and medicaments used.
7. Principles of root canal treatment, mouth preparation, root canal instruments, hand instruments, power driven instruments, standardization, colour – coding principles of using endodontics instruments. Sterilisation of root canal instruments and materials rubber dam application.
8. Anatomy of the pulp cavity: root canal apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
9. Preparation of root canal space, Determination of working length, cleaning and shaping of root canals, irrigating solution, chemical aids to instrumentation.
10. Disinfection of root canal space intracanal medicaments, poly antibiotic paste gross mans paste, mummifying agents. Outline of root canal treatment, bacteriological examinations, culture methods.
11. Problems during cleaning and shaping of root canal spaces, Perforation and its managements. Broken instruments and its management, management of single and double curved root canals.
12. Methods of cleaning and shaping like step-back crown down and conventional methods.
13. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment.
14. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
15. Post endodontics restoration fabrication and components of post core preparation.
16. Traumatised teeth classification of fractured teeth, management of fractured tooth and root, Luxated teeth and its management.
17. Dental material and basic equipment management.
18. Ethics

**Demonstrations For Post Graduate Students**

Conservative Dentistry:

1. Cavity preparation with base application and silver amalgam restoration:
2. Class 1 Conventional
3. Class 2 Conventional
4. Class 2 Conservative
5. Inlay cavity preparation on premolars & molars with wax pattern
6. For cast metal
7. For porcelain
8. Onlay cavity preparation on premolars & molars with wax pattern
9. Tooth preparation on premolars & molars
10. Full crown- all metal
11. Full crown porcelain fused to metal
12. Full crown -all ceramic
13. 7/8th crown
14. 3/4th crown on premolars
15. Anterior aesthetic restorations:
16. Class 3 composite restoration
17. Class 4 composite restoration
18. Class 5 composite restoration
19. Midline diastema closure
20. Veneer preparation on anterior teeth

Endodontics:

1. Access cavity preparation on all Teeth
2. Biomechanical preparation:
3. Standardized
4. Step back
5. Step down
6. Anti-curvature filing
7. Balanced force technique
8. Crown down pressure less
9. Double flare
10. Combination of conventional and rotary technique :
11. Rotational b) Reciprocating
12. Obturation techniques
13. Single cone
14. Lateral condensation
15. Vertical condensation
16. Thermoplasticized gutta-percha
17. Pastes
18. Retreatment by removal of canal contents:
19. Gutta percha b) Sealer
20. Management of complication:
21. Perforation repair
22. Broken file retrieval
23. Ledge bypass
24. Post and core
25. Custom cast post
26. Prefabricated post-metal
27. Prefabricated post-fibre
28. Bleaching:
29. Vital b) Non-vital
30. Clinical demonstration of Loupes/ Surgical operating microscope

Preclinical work (06 Months)

Pre Clinical Work – Operative and Endodontics

Preclinical work on typhodont teeth.

Pre Clinical work on natural teeth

Endodontics

Clinical Work

Composite restorations

GIC Restorations

Complex amalgam restorations.

Composite inlay + veneers (direct and indirect)

Ceramic jacket crowns

Post and core for anterior teeth

Bleaching vital

Non vital

RCT Anterior

Endo surgery 0 observations and assisting

Presentation of :

* Seminars- 5 seminars by each students-should include topics in dental materials.
* Conservative Dentistry and endodontics
* Journal clubs – by each student
* Submission of synopsis at the end of 6 months
* Library assignment work
* Internal assessment – theory and clinicals.

Second year

Case discussion – 5

1. Ceramic jacket crowns
2. Post and core for anterior teeth
3. Post and core for posterior teeth
4. Composite restoration
5. Full crown for posterior teeth
6. Cast gold inlay
7. Other special types of work such as splinting – Reattachment of fractured teeth etc.
8. Anterior RCT
9. Posterior RCT
10. Endo surgery performed independently
11. Management of endo-Perio Problems
* Under graduate teaching program as allotted by the HOD
* Seminars – 5 by each student
* Journal club – 5 by each student
* Dissertation work
* Prepare scientific paper and present in conference and clinical meeting
* Library assignment to be submitted 18 months after starting of the course
* Internal assessment – theory and clinical

Third Year

Dissertation work to be submitted 6 months before funal examination

Clinical work

* Cast gold inlay – Onlay, cuspal restoration
* Post and core
* Molar endodontics
* Endo surgery
* All other types of surgeries including crown lengthening, perioesthetics, hemi sectioning, splinting, replantation, endodontic implants.

Presentation of :

* Seminars
* Journal club
* Teaching – lecture (under graduates)
* Internal assessment – theory and clinical

Monitoring Learning Process:

 It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Section IV.

**INTRODUCTION**

The department of Conservative Dentistry and Endodontics is department no 9 of the MIDSR Dental College and Hospital, Latur, Maharashtra. This branch of dentistry deals with the prevention, diagnosis and treatment of dental caries and other defects of teeth. It also involves root canal treatments and other aesthetic procedures, all aiming to conserve teeth and restoring them back to form and function. Emergency treatment is also rendered to patients who present with pain, swelling or with trauma to teeth. The department is equipped with the latest dental chairs and advanced equipment like light cure units, apex locators, loupes, endodontic motors microscopes.

The department caters to a large number of patients from in and around Latur. It has been the continual effort of the department to render the necessary dental services with utmost care. Appropriate sterilization and disinfection control protocols are followed and quality dental materials are used during the treatment procedures. The department also works in collaboration with other departments of the college for interdisciplinary cases to deliver wholesome dental care to the patient.

It offers both undergraduate and post graduate teaching programs which are of 5 years and 3 years duration respectively. The undergraduate students, after 2 years of preclinical training, carry out restorations on patients under supervision of the teaching staff. Post graduate students carry out advanced procedures under guidance and also carry out research work for presentation at various conferences, making them skilled professionals at the end of the teaching program.

The department is well-equipped with state of the art instruments & museum, where the students are trained on the fine aspects of different treatment modalities.

The department has sterilization room, computer room, store room, seminar room & clinics for both the UG & PG Courses separately.

One RVG each for UG & PG. A separate clinic for endodontics surgery equipped with dental operating microscope.

**OUT PATIENT DEPARTMENT MANAGEMENT**

* 1. **Purpose:**
		+ For providing coordinated services, required care & treatment to the patients
		+ To respond to the need and expectation of the patients and to enhance patient satisfaction.

# Scope:

It covers the patients (new and old patients) visiting the department for diagnosis or emergency treatment or appointment treatment procedures.

# Responsibility:

* + - Class IV staff are responsible for opening the department and its cleanliness.
		- The Clerical Staff are responsible for registering patients and also giving appointments where indicated after their diagnostic checkups or treatment.
		- The Nursing Staff are responsible for maintenance of instruments, sterilization protocol & distribution of materials.
		- The interns, post graduate students and staff are responsible for checking the patients and rendering the necessary treatment.
		- The senior staff is responsible for supervision of the ongoing departmental work and also rendering treatment to patients on their respective work checking and working days.

# Standard procedures:

**DAILY PROCEDURE:**

**START OF THE DAY**

* Class-IV Staff : - opens the clinic by 8.30 am and switch the mains on.Clean and disinfect the chairs, spittoons, side trolleys and fill bottles of dental chairs with water. Sweep and swab the department.
* Clerk :- Register patients and segregate case papers into those for diagnostic check up or for appointment.
* Staff Nurse : Sort out and arrange sterilized instruments in trays for use. Remove essential equipment (endomotors, apex locators, light cure units), disinfect and keep ready for use. Prepare clinical areas before the Senior Staffs start treating the patient.

**DAILY WORK DISTRIBUTION**

* Class-IV Staff : - Wash instruments at regular intervals. Pack instruments in sterilization pouches. Clean spittoons when necessary. Refill bottles of chairs. Empty waste receptacles from every dental chair at regular intervals.
* Clerk :- Maintaining patient record by using patient management software & maintaining appointment records by giving regular appointments to the patients. Maintaining payment record of the patients reported to the department.
* Staff Nurse : Dispense all dental materials required during treatment for UG, PG & Staff and maintains record for the same in individual record registers/files. Autoclave instruments of UG, PG & Staff and maintains record for the same in individual record registers/files. Making of cotton rolls and gauze pieces & distribution according to the need. Disinfect and transfer essential equipment from one chair to other as required.
* X-Ray Technician : Distribution of IOPA Films & maintaining record of the same. Preparation of radiographic developer & fixer solution as per need. Maintenance of Dark Room. Maintenance of RVG Room & keeping daily RVG Exposure records.

**END OF THE DAY**

* Staff Nurse : Collect, disinfect and safely store essential equipment.
* Clerk :- Preparing daily work done record.
* X-Ray Technician : Disinfecting RVG sensor.
* Class-IV Staff : - Close windows, put off mains and lock the department & submit the key to the Main Office.

**DIAGNOSTIC CHECK- UP PROCEDURES FOR PATIENTS**

* Clerk : Registers all patients coming to the department. Check allotment of appointment patients.
* Interns, post graduate student & Junior staff under the supervision of Senior Staff : Carry out oral examinations of the patients and categories them into those for **Diagnostic check- up** and those needing **Emergency treatment**.
* **Diagnostic check-up:** Diagnose teeth with cavities, teeth requiring root canal treatments, repeat root canal treatments, esthetic treatment and record in patient’s case paper.
* **Emergency treatment:** If the patient needs emergency treatment, mention the emergency treatment procedure to be carried out on the case paper after checking the post endodontic prognosis. Give appointments as advised on patient’s case paper to III BDS, IV BDS Students, interns, postgraduate students, staff and Senior Staff.
* If all the students & staff are engaged with patients & there is no further free slot for the treatment on the same day then patient is given option of future appointment in the same department or he can visit IDSC for immediate treatment (after informing patient about charges in the IDSC).

**Work Allotment**

|  |  |  |
| --- | --- | --- |
| 1. | Class I – Silver amalgam restoration | 3rd Year BDS |
| 2. | Class II – Silver amalgam restoration | 4th Year BDS |
| 3. | GIC Restoration | 3rd & 4th Year BDS |
| 4. | Composite Restoration | Interns, 1st & 2nd year Post Graduates |
| 5. | Anterior Root Canal Treatment | Interns, 1st & 2nd year Post Graduates |
| 6. | Premolar & 1st Molar Root Canal Treatment | Interns, 2nd & 3rd year Post Graduates |
| 7. | 2nd & 3rd molars Root Canal Treatment | 2nd & 3rd year Post Graduates |
| 8. | Post Obturation restoration | Respective student doing Root Canal Treatment |
| 9. | Special cases | 2nd & 3rd Year Post Graduates |

**TREATMENT PROCEDURES FOR APPOINTMENT PATIENTS**

1. **Purpose:**

To ensure that adequate treatment services are provided to patients during the appointments and all the diseased teeth are restored back to form and function.

# Scope:

It covers the patients visiting the department for appointment treatment procedures.

# Responsibility:

* + The Clerical Staff is responsible for registering patients and also giving appointments where indicated after the treatment is completed.
	+ The interns, post graduate students and staff are responsible for treating the patients, as per the appointments.
	+ The Senior staff are responsible for supervision and also rendering treatment to patients on their respective work checking and working days.

# Standard procedures:

* UG/Intern/PG/Staff : Call the patient in the department and make the patient sit comfortably in the dental chair.
* Establish a verbal communication with the patient and enquire about his/her chief complaint and any associated medical conditions.
* After oral examination patient is explained about the procedure to be carried out.
* Assure and allay patient’s fears if any about the dental treatment.
* Wear mask and gloves and follow the OSHA’S safety and health program managements guidelines while treating patients reported in the department.
* At the end of the procedure, dispose the mask and gloves as per the waste disposal guidelines.
* Schedule the patient for another appointment for continuation / completion of the treatment.
* Refer the patient to the concerned department after all the restorations are completed.
* Enter the patient details and treatment carried out on work done registers.

**Procedural SOP for each treatment provided in the department**

The following are the treatment procedures carried out in the department.

## PULP VITALITY TESTING

1. **Purpose:**
* To have a document procedure for assessing the health of the dental pulp based on its sensory response.
1. **Scope :**
* Post-trauma assessment: for monitoring the pulpal health after trauma to teeth.
* Prior to restorative or orthodontic procedures where pulp health of selected teeth question.
* Assessment of teeth that have been pulp capped or require deep restorations.
1. **Responsibility:**
* Senior staff
* Post graduate student
* Staff Nurse
* Attendant
1. **Procedure:**
* The Senior Staff and post graduate student is responsible for examining the patients and for performing the Pulp Vitality Testing
* **Instruments Used:** Mouth Mirror, Explorer, tweezer, cotton rolls in a kidney tray, Vaseline / toothpaste, ball-burnisher / guttapercha, spirit lamp, electric pulp tester kit (Pulp Testing device, probe tip, ‘lip clip’) are brought by the staff nurse and kept on the table besides the Senior Staff.

**Technique:**

* The patient is first asked to rinse the mouth to remove saliva or debris
* The teeth to be tested are isolated and dried using cotton rolls
* The surface of the tooth is coated with Vaseline / desensitizing toothpaste (which acts as a lubricant / conducting medium)
* Heat Test: The ball-ended metallic instrument / guttapercha is heated and applied to the surface of the tooth to be tested and the patient’s response is evaluated
* Cold Test: A sliver of ice wrapped in gauze / an ice stick is placed on the surface of the test tooth and the patient’s response is evaluated
* Electric Pulp Test:
	+ The probe tip of the electric pulp tester is placed in the device, and the ‘lip clip’ is placed in the angle of mouth region to complete the circuit.
	+ The pulp tester is switched on.
	+ The probe tip is placed flat on the surface of the test tooth
* The intensity of the electric stimulus is increased steadily at a pre- selected rate, and a note is made of the read-out on the digital display when the patient acknowledges a warm or tingling sensation.
* The response may be summarized as follows:
	+ Normal Pulp: there is a response to the stimulus provided by the test which is not pronounced or exaggerated and does not linger
	+ Pulpitis: Exaggerated response producing pain
	+ Pulp Necrosis: absence of response

**DIRECT RESTORATIONS**

* Proximity of the carious lesion is checked by taking preoperative IOPA in case of deep carious lesions.
* Check occlusion and design the outline form.
* Local anaesthesia is given where needed.
* Cavity is prepared according to the outline form required for specific material used for restoration. Deep caries are excavated using hand cutting instruments.
* Liners, sub base, base are selected according to depth of cavity & material used.
* Proper isolation protocol is followed for the restoration of indicated tooth.
* Place matrix band, retainer and wedge according to the need of restoration.
* Amalgam/GIC/Composite resin are the materials use for direct restoration in the department.
* During composite restoration steps like etching, bonding & incremental placement of composite are performed according to the manufacturer instructions.
* Occlusion is checked & high points are corrected.
* Finishing & polishing of the restoration is performed according to the material used.
* Patient is discharged after giving post restoration instructions according to the restorative material used.

**INDIRECT RESTORATIONS**

* Proximity of the carious lesion is checked by taking preoperative IOPA in case of deep carious lesions.
* Check occlusion and design the outline form.
* Local anaesthesia is given where needed.
* Different instruments are used according to the indirect restoration – inlay, onlay, full coverage crown, laminate/veneers.
* Cavity is prepared according to the restoration indicated.
* Direct wax patterns is carried out in the cavity or for indirect wax pattern impression is recorded.
* Temporary restoration is given & patient is reappointed.
* Further casting procedure is carried out in the laboratory.
* Finishing & polishing of the indirect restoration is performed in the laboratory.
* In the next appointment tryin of indirect restoration is checked in the cavity followed by permanent cementation.
* Patient is discharged after giving post restoration instructions according to the restorative material used.

**ROOT CANAL TREATMENT**

* Appointments are given to the patient according to availability of the working staff, severity of the infection & difficulty of the procedure.
* Case is started with help of preoperative radiograph.
* Local anaesthesia is given & patient is asked to wait for ten minutes for proper effect of local anaestheisa.
* Access opening is carried out for indicated tooth.
* Working length is determined & confirmed by taking IOPA/RVG.
* Biomechanical preparation of tooth is performed by either crown down or step back technique.
* Copious irrigation done using different irrigating solutions.
* Gutta percha cones are selected according to final preparation & checked by taking master cone IOPA/RVG.
* Required changes are done which are seen in master cone radiograph followed by second master cone radiograph.
* The tooth is obturated using either lateral condensation or warm vertical condensation technique.
* Desired post endodontic restoration done.

**BLEACHING OF TEETH**

**In- Office bleaching**

* Radiographic evaluation of teeth, clinical photographic records.
* Evaluate tooth color with shade guide.
* Protect gingival tissue with orabase or petroleum gelly.
* Isolate with rubber dam.
* Place protective eye wears over patient & operator.
* Clean enamel surface with pumice & water.
* Apply 30 to 35% H2O2 on labial surfaces of teeth
* Apply heat or light, the temperature should be maintained between 125 to 140 degree F (52 to 60 degree C).
* Treatment time should not exceed 30 min.
* Remove residual solution or gel with pumice, allow tooth to cool, irrigate tooth thoroughly.
* Dry & polish with composite polishing cup, apply neutral sodium fluoride gel for 3 to 5 min.
* Instruct patient to use a fluoride rinse daily for two weeks.

**Walking bleach technique**

* Evaluation of crown & obturated root.
* Root canal fillings should be examined to avoid percolation of bleaching material into canal.
* Prepare tooth by polishing with paste.
* Apply petroleum jelly over gingival tissue adjacent areas.
* Isolate with rubber dam.
* Re-establish access cavity.
* Remove fillings in pulp chamber up to CEJ or alveolar crest, remaining root canal fillings should be vertically condensed to 1mm apical to cemento-enamel junction.
* Seal orifice of canal with 1mm intracoronal barrier like Glass Ionomer Cement, Resin modified GIC, mineral trioxide aggregate( MTA), etc 1mm above CEJ, to prevent percolation of bleaching agent into canal & cervical root resorption.
* Mix sodium perborate powder with distilled water, 3% H2O2 can be used to thicken paste in case of severe stains.
* Carry paste into pulp chamber with plastic carrier, make sure entire facial surface of chamber is covered.
* Place a small cotton pellet moistened with H2O2 over paste.
* Seal access cavity with adhesive material to a thickness of 3mm to prevent leaching of bleaching agent.
* Maximum effect occurs within 24 hrs, patient should be re-evaluated within 3 to 7 days, and tooth should be permanently restored accordingly.
* Generally two treatments performed about a week apart are necessary to attain the desired shade.

**Home bleaching**

* It involves fabrication of a vacuum pressed trays over dental casts by following steps.
* Upper & lower alginate impressions are made in first visit & casts are poured, the base of casts is trimmed to 0.5 inches for better adaptation.
* Reservoirs of light polymerized resin or of pattern forming wax of 0.5 to 1mm are placed to provide space for bleaching agent, it terminates 1mm short of gingival margin.
* Thick, semi rigid plastic material is used to fabricate trays, in vacuum forming machine.
* The patient should be instructed to brush teeth prior to application of trays
* To place enough bleaching agent into tray & excess material should be wiped off.
* The tray should be worn for a time period of 4 hrs every session, & reduce time period if sensitivity experienced.
* After every bleaching session tray should be rinsed off the agent & gently brushed & stored in cool or room temperature.
* Patient is recalled after 01 week.

**POST AND CORE**

* Pre operative IOPA/RVG is recorded to ensure the accuracy of Obturation & periapical status of the tooth.
* Post space preparation is done using Peeso reamers.
* Direct wax pattern is recorded using green stick/pattern.
* Temporary restoration is palced.
* Casting procedures is carried out in laboratory.
* Final fit of the casting checked and confirmed using IOPA/RVG.
* Casting is cemented using luting cement.
* Impression is recorded and sent to laboratory for further prosthesis.

**ENDODONTIC- PERIODONTAL CASES**

* Cases requiring periodontal care are discussed in interdepartmental meet with the department of Periodontics.
* Thorough clinical and radiographic examination is performed to confirm the type of Endo-perio lesion.
* Endodontics & periodontic treatments are performed according treatment plan decided.
* Different periodontal treatment options are used like curettage, root resection, hemisection, bicuspidization, Guided Tissue Regeneration, wherever indicated.
* Patient is recalled after 01 week for follow up.

**ENDODONTIC SURGERIES**

* Cases requiring endodontic surgeries care are discussed in interdepartmental meet with the department of Periodontics or Oral & Maxillofacial Surgery.
* Thorough clinical and radiographic examination is performed to assess the need of endodontic surgery.
* Endodontic treatment of indicated tooth is completed prior to endodontic surgery.
* After proper anaesthetizing the area, flap reflection is done and further endodontic surgeries are carried out like :
	+ Apicoectomy and retropreparation followed by retrograde filling.
	+ Enucleation of the ccyst.
	+ Instrument retrieval.
	+ Hemisection.
	+ Bicuspidisation.
* Approximation of the flap followed by suture placement is performed.
* Post operative instructions are given to the patient.
* Patient is recalled after 48 hours for follow up.

**EMERGENCY TREATMENT PROCEDURES FOR PATIENTS**

1. **Purpose:**

To provide emergency treatment to patients who report to the department with pain, swelling or traumatic injuries.

1. **Scope.**

It covers the patients (new and old patients) visiting the department for emergency treatment.

1. **Responsibility:**
	* The clerical staff are responsible for registering patients and also giving appointments where indicated after their emergency treatment procedure.
	* The interns, post graduate students and staff are responsible for rendering the necessary emergency treatment.
	* The Senior Staffs are responsible for supervision on their respective work checking days.

# Standard procedures:

* Render emergency treatment to patients having moderate to severe pain in the teeth/ difficulty in eating, patients presenting with swelling, patients with trauma/ fractured teeth.
* Call the patient in the department and make the patient sit comfortably in the dental chair.
* Establish a verbal communication with the patient and enquire about his/her chief complaint and any associated medical conditions.
* Carry out an oral examination and explain the procedure in simple terms to the patient.
* Assure and allay patient’s fears if any about the dental treatment.
* Wear mask and gloves and follow the universal standard precautions while treating patients.
* At the end of the procedure, dispose the mask and gloves as per the biomedical waste disposal guidelines.
* Enter the patient details and treatment carried out on work done registers.
* After the emergency treatment is rendered, schedule the patient for a regular appointment for continuation / completion of the treatment.
* The following emergency procedures are carried out.

**CARIES EXCAVATION AND TEMPORIZATION**

* Carry out this procedure for patients having moderate pain in the teeth and difficulty in eating.
* Administer local anaesthesia where indicated.
* Prepare a cavity and excavate caries. If the pulp is not exposed, then temporize the tooth with a temporary material like zinc oxide eugenol.

**EMERGENCY ROOT CANAL OPENING PROCEDURE**

**Tooth is vital and non tender to percussion (non TTP)**

* Administer local anesthesia
* Prepare an access cavity
* Remove coronal pulp
* Flush cavity with sodium hypochlorite (NaOCl)
* Place a cotton pellet
* Temporize the cavity
* Prescribe analgesics to the patient

**Tooth is nonvital and non TTP or TTP**

* Prepare an access cavity
* Locate and debride the canals
* Flush cavity with sodium hypochlorite (NaOCl)
* Place a cotton pellet
* Temporize the cavity Prescribe analgesics to the patient

**Patient presents with extraoral swelling**

* Prepare an access cavity
* Locate and debride the canals
* Establish drainage
* Flush cavity with sodium hypochlorite (NaOCl)
* Place a cotton pellet
* Temporize the cavity / give an open dressing (not longer than 24 hours) if there is active pus drainage prescribe antibitotics and analgesics to the patient.

**TRAUMA CASES MANAGEMENT**

* These cases are referred from the department of Oral Medicine or Oral & Maxillofacial Surgery.
* Follow International Association for Dental Traumatology (IADT) guidelines for management of avulsed permanent teeth and management of fractures and luxation of permanent teeth.

**Avulsion**

**Treatment guidelines for avulsed permanent teeth with closed apex**

**a. The tooth has been replanted before the patient’s arrival at the clinic**

* Leave the tooth in place.
* Clean the area with water spray, saline or chlorhexidine.
* Suture gingival lacerations, if present.
* Verify normal position of the replanted tooth both clinically and radiographically.
* Apply a flexible splint for up to 2 weeks.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* Initiate root canal treatment 7–10 days after replantation and before splint removal.
* Follow up.

**b. The tooth has been kept in a physiologic storage medium or osmolality balanced medium and/or stored dry, the extraoral dry time has been less than 60 minutes**

* Clean the root surface and apical foramen with a stream of saline and soak the tooth in saline thereby removing contamination and dead cells from the root surface.
* Administer local anesthesia.
* Irrigate the socket with saline.
* Examine the alveolar socket. If there is a fracture of the socket wall, reposition it with a suitable instrument.
* Replant the tooth slowly with slight digital pressure. Do not use force.Suture gingival lacerations, if present.
* Verify normal position of the replanted tooth both clinically and radiographically.
* Apply a flexible splint for up to 2 weeks.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* Initiate root canal treatment 7–10 days after replantation and before splint removal.
* Follow up.

**c. Dry time longer than 60 min**

* Remove attached non‐viable soft tissue carefully e.g. with gauze.
* Root canal treatment to the tooth can be carried out prior to replantation or later.
* Treat root surface with 2% sodium fluoride solution for 20 min prior to replantation.
* In cases of delayed replantation, root canal treatment should be done either on the tooth prior to replantation, or it can be done 7–10 days later like in other replantation situations.
* Administer local anesthesia.
* Irrigate the socket with saline.
* Examine the alveolar socket. If there is a fracture of the socket wall, reposition it with a suitable instrument.
* Replant the tooth. Suture gingival lacerations, if present.
* Verify normal position of the replanted tooth clinically and radiographically.
* Stabilize the tooth for 4 weeks using a flexible splint.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* Follow‐up.

**Treatment guidelines for avulsed permanent teeth with an open apex**

**a. The tooth has been replanted before the patient’s arrival at the clinic**

* Leave the tooth in place.
* Clean the area with water spray, saline or chlorhexidine.
* Suture gingival lacerations, if present.
* Verify normal position of the replanted tooth both clinically and radiographically.
* Apply a flexible splint for up to 2 weeks.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* The goal for replanting still‐developing (immature) teeth in children is to allow for possible revascularization of the pulp space.
* If that does not occur, root canal treatment may be recommended.
* Follow-up.

**b. The tooth has been kept in a physiologic storage medium or osmolality balanced medium and/or stored dry, the extraoral dry time has been less than 60 minutes**

* Physiologic storage media include e.g. tissue culture medium and cell transport media. Examples of osmolality balanced media are HBSS, saline and milk. Saliva can also be used.
* If contaminated, clean the root surface and apical foramen with a stream of saline.
* Topical application of antibiotics has been shown to enhance chances for revascularization of the pulp and can be considered if available.
* Administer local anesthesia.
* Examine the alveolar socket.
* If there is a fracture of the socket wall, reposition it with a suitable instrument.
* Remove the coagulum in the socket and replant the tooth slowly with slight digital pressure.
* Suture gingival lacerations, especially in the cervical area.
* Verify normal position of the replanted tooth clinically and radiographically. Apply a flexible splint for up to 2 weeks.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* The goal for replanting still‐developing (immature) teeth in children is to allow for possible revascularization of the pulp space.
* The risk of infection related root resorption should be weighed up against the chances of revascularization.
* Such resorption is very rapid in teeth of children. If revascularization does not occur, root canal treatment may be recommended.
* Follow‐up.

**c. Dry time longer than 60 minutes or other reasons suggesting non‐viable cells**

* Delayed replantation has a poor long‐term prognosis. The goal in delayed replantation is to restore the tooth to the dentition for aesthetic, functional and psychological reasons and to maintain alveolar contour. The eventual outcome will be ankylosis and resorption of the root.
* Remove attached non‐viable soft tissue carefully e.g. with gauze.
* Root canal treatment to the tooth can be carried out prior to replantation or later.
* Administer local anesthesia.
* Remove the coagulum from the socket with a stream of saline. Examine the alveolar socket. If there is a fracture of the socket wall, reposition it with a suitable instrument.
* Replant the tooth slowly with slight digital pressure. Suture gingival laceration. Verify normal position of the replanted tooth clinically and radiographically.
* Stabilize the tooth for 4 weeks using a flexible splint.
* Administer systemic antibiotics.
* Check tetanus protection.
* Give patient instructions.
* In order to slow down osseous replacement of the tooth, treatment of the root surface with fluoride prior to replantation (2% sodium fluoride solution for 20 min) has been suggested but it should not be seen as an absolute recommendation.
* Follow‐up.

**Fractures of teeth and alveolar bone**

**Infraction**

* In case of marked infractions, etching and sealing with resin to prevent discoloration of the infraction lines. Otherwise, no treatment is necessary

**Enamel fracture**

* If the tooth fragment is available, it can be bonded to the tooth.
* Contouring or restoration with composite resin depending on the extent and location of the fracture

**Enamel-dentin fracture**

* If a tooth fragment is available, it can be bonded to the tooth. Otherwise perform a provisional treatment by covering the exposed dentin with glass- Ionomer or a more permanent restoration using a bonding agent and composite resin, or other accepted dental restorative materials
* If the exposed dentin is within 0.5mm of the pulp (pink, no bleeding) place calcium hydroxide base and cover with a material such as a glass ionomer.

**Enamel-dentin-pulp fracture**

* In patients with mature apical development, root canal treatment is usually the treatment of choice, although pulp capping or partial pulpotomy also may be selected.
* If tooth fragment is available, it can be bonded to the tooth.
* Future treatment for the fractured crown may be restoration with other accepted dental restorative materials.

**Crown-root fracture without pulp exposure**

**Emergency treatment**

* As an emergency treatment a temporary stabilization of the loose segment to adjacent teeth can be performed until a definitive treatment plan is made.

**Non-Emergency Treatment Alternatives**

* Fragment removal only.
* Fragment removal and gingivectomy.
* Orthodontic extrusion of apical fragment.
* Surgical extrusion.
* Root submergence.
* Extraction- Extraction is inevitable in crown-root fractures with a severe apical extension, the extreme being a vertical fracture.

**Horizontal Root fracture**

* Reposition, if displaced, the coronal segment of the tooth as soon as possible.
* Check position radiographically.
* Stabilize the tooth with a flexible splint for 4 weeks. If the root fracture is near the cervical area of the tooth, stabilization is beneficial for a longer period of time (up to 4 months).
* It is advisable to monitor healing for at least one year to determine pulpal status.
* If pulp necrosis develops, root canal treatment of the coronal tooth segment to the fracture line is indicated to preserve the tooth.

**Vertical Root fracture**

* Extraction is advised for a vertical root fracture.

**Alveolar fracture**

* Reposition any displaced segment and then splint.
* Suture gingival laceration if present.
* Stabilize the segment for 4 weeks.

**Concussion**

* No treatment is needed.
* Monitor pulpal condition for at least one year.

**Subluxation**

* Normally no treatment is needed, however a flexible splint to stabilize the tooth for patient comfort can be used for up to 2 weeks.

**Extrusive luxation**

* Reposition the tooth by gently re- inserting it into the tooth socket.
* Stabilize the tooth for 2 weeks using a flexible splint.
* In mature teeth where pulp necrosis is anticipated or if several signs and symptoms indicate that the pulp of mature or immature teeth became necrotic, root canal treatment is indicated.

**Lateral luxation**

* Reposition the tooth digitally or with forceps to disengage it from its bony lock and gently reposition it into its original location.
* Stabilize the tooth for 4 weeks using a flexible splint.
* Monitor the pulpal condition.
* If the pulp becomes necrotic, root canal treatment is indicated to prevent root resorption.

**Intrusive luxation**

**Teeth with incomplete root formation**

* Allow eruption without intervention
* If no movement within few weeks, initiate orthodontic repositioning.
* If tooth is intruded more than 7mm, reposition surgically or orthodontically.

**Teeth with complete root formation:**

* Allow eruption without intervention if tooth intruded less than 3mm. If no movement after 2-4 weeks, reposition surgically or orthodontically before ankylosis can develop.
* If tooth is intruded 3-7 mm, reposition surgically or orthodontically.
* If tooth is intruded beyond 7mm, reposition surgically.
* The pulp will likely become necrotic in teeth with complete root formation.
* Root canal therapy using a temporary filling with calcium hydroxide is recommended and treatment should begin 2-3 weeks after repositioning.
* Once an intruded tooth has been repositioned surgically or orthodontically, stabilize with a flexible splint for 4 weeks.

**MANAGEMENT OF MEDICALLY COMPROMISED PATIENT DURING CONSERVATIVE DENTISTRY & ENDODONTIC PROCEDURES**

1. **Purpose:**

To carry out conservative dentistry and endodontic procedures for the medically compromised patient with utmost care and thus avoid complications.

# Scope:

It covers medically compromised patients like patients with cardiovascular disease, pulmonary disease, endocrine disease, immunologic disease etc visiting the department for diagnosis or emergency treatment or appointment treatment procedures.

# Responsibility:

* + The clerk are responsible for registering patients and also giving appointments where indicated after their diagnostic check ups or treatment.
	+ The interns, post graduate students, Staff are responsible for evaluating medically compromised patients and rendering the necessary treatment.
	+ The Senior Staffs are responsible for supervision and also rendering treatment to medically compromised patients on their respective work checking and working days.

# Standard procedures:

**PATIENT EVALUATION/ RISK ASSESSMENT**

* Take a medical history for every patient who is to receive dental treatment. Engage in direct discussion of relevant issues with the patient.
* Identify all medications and drugs being taken, by the patient.
* Examine the patient for signs and symptoms of disease.
* Review/ obtain recent laboratory test results or images where indicated.
* Obtain a medical consultation if the patient has a poorly controlled or undiagnosed problem, or if the patient’s health status is uncertain.
* Various medical conditions along with their oral manifestation, prevention of problems and treatment planning modifications are attached with this document.

**PATIENT EDUCATION MODELS**

**Museum:-**

**Models:-**

* Models in Clinical Area:- **30**
* Models in Preclinical area:- **03**

**Charts:-**

* No. Of Charts in Clinical area :- **28**
* No. Of Charts in Preclinical area :- **18**

**Museum :**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Topic** | **Model No.** |
|  | Wax carving exercises (Maxillary & Mandibular Teeth) | 1 |
|  | Pre-clinical plaster model exercise | 2 |
|  | Pre-clinical plaster model exercise | 3 |
|  | Pre-clinical plaster model exercise | 4 |
|  | Vertuccis classification of canals | 5 |
|  | Plaster tooth models | 6 |
|  | Histological features of reversible and irreversible pulpitis | 7 |
|  | Modes of spread of infection. | 8 |
|  | Wax Carving Exercise | 9 |
|  | G.V. Black’s classification of caries & cavity preparation | 10 |
|  | Ellis & Devey’s classification of fracture | 11 |
|  | Regressive alteration of teeth | 12 |
|  | Laws & objectives of access cavity preparation | 13 |
|  | Surgical endodontics | 14 |
|  | Steps in Root Canal Treatment` | 15 |
|  | Custom cast metal restorations | 16 |
|  | Restoration of an endodontically treated tooth using Fiber Post | 17 |
|  | Calcium hydroxide : Steps in remineralisation  | 18 |
|  | Inlay cavity preparation | 19 |
|  | Fish Zone | 20 |
|  | BMP Steps (Step back method) | 21 |
|  | Armamentarium for access cavity preparation | 22 |
|  | Preclinical natural teeth excercises and removable dies | 69 |
|  | Cutting instruments | 70 |
|  | Diagnostic Instruments | 71 |
|  | Preclinical natural teeth excercises and removable dies | 72 |
|  | Dental Caries (G.V. Black) | 73 |
|  | Carving and burnishing instrument | 74 |
|  | Restorative Instrument | 75 |
|  | Preclinical natural teeth excercises and removable dies | 76 |

**Charts (in Department):**

|  |  |  |
| --- | --- | --- |
| **Sr.No.** | **Topic** | **Model No.** |
|  | Chair position in dentistry | 23 |
|  | Diamond Burs and carbide burs | 24 |
|  | Diseases of pulp | 25 |
|  | Composite | 26 |
|  | Infection Control | 27 |
|  | Generation of bonding agent | 28 |
|  | Rubber dam isolation | 29 |
|  | Mercury Hazards | 30 |
|  | Occupational safety & health administration (OSHA) for health personnel | 31 |
|  | Who classification of Periradicular disease | 32 |
|  | Basic terminologies | 33 |
|  | Difference between amalgam and inlay cavity preparation | 34 |
|  | Glass ionomer cement | 35 |
|  | Dental caries classification by graham J Mount | 36 |
|  | Vertucci’s classification of Root Canal System | 37 |
|  | Endodontics Instruments | 38 |
|  | Zinc Phosphate Cement | 39 |
|  | Methods of sterilization | 40 |
|  | Instruction to patient (Marathi) | 41 |
|  | Root Canal Treatment (Marathi) | 42 |
|  | Esthetic Dentistry | 43 |
|  | Root canal treatment | 44 |
|  | Sterilisation in operative dentistry | 45 |
|  | Dental operating microscope | 46 |
|  | Additional emergency drugs | 47 |
|  | Additional emergency drugs | 48 |
|  | Infection Control | 49 |
|  | Obturation Techniques | 68 |

**RECORD MAINTAINING :**

1. New OPD Register
2. Old OPD Register
3. Patient Appointment Register –
	1. First Year – PG Students
	2. Second Year – PG Students
	3. Third Year – PG Students
	4. Interns
	5. UG Students
4. Patient Appointment Register - Staff
5. Work Done Register –
	1. Staff
	2. PG
	3. Interns.
	4. UG
6. Emergency Treatment Register
7. X-Ray Record Register
8. RVG Record Register
9. Payment Record Register

**BIOMEDICAL WASTE MANAGEMENT :**

Being a health care provider, we follow a stringent protocol for management of the bio-hazardous waste material.

This includes constitution of an exclusive committee in the department for the purpose of sensitization, monitoring and scrutiny of waste management system under the following guidelines:

* Maintaining a strict system of segregation and disposal of waste in department.
* Assigning specific staff members for scrutinizing and implementing the process.
* Use of colour coded plastic bags for the segregation of the bio-medical waste

These bags are later transported within the hospital to common collection point. Private bio-medical waste management agency disposes these materials

General waste which is not contaminated, and can be handled with general municipal reuse:

500 gm/chair/day in the Dept of Conservative & Endodontics.

Contaminated medical waste which needs special management, and is considered potentially hazardous: 0.1 kg/chair/day

Most wastes generated in department of Conservative & Endodontics are non-hazardous. General wastes from patient processing activities in department which are not handling infectious diseases. After source segregation of recyclables, disposal is typically by sanitary landfill.

Secured sanitary landfill is generally considered the preferred technology for medical wastes which do not require incineration or disinfection, such as packaging materials and general departmental waste.

All the waste materials of the department are disposal off in garbage bins. These are color-coded white and red. Blue bin meant for disposal of glass bottles, fragile materials, and expired materials. White garbage bin is meant for disposal of cotton, dry garbage, cloth & dust. Red garbage bin is meant for disposal of syringes, tubes, IV bottles. All the amalgam waste is disposal off in tightly sealed containers having fixer solution in it. All the needles are destroyed is needle extractor before disposing the plastic syringes. The waste is then collected, transported & sent for incineration.

**West disposal is done according to following colour codes**

**RED**: Injection, syringes.

**BLUE**: Glass bottles, broken glass, Materials.

**YELLOW**: Contaminated materials by body fluids.

**WHITE:** Other dry waste paper, Dust, Clothes.

**BLACK:** Kitchen food materials, Vegetable and other waste material.

**BLACK DRUM**: Open needles without syringes, scalpels, Blades, Metallic materials

**C. SOP FOR ADMINISTRATION OF CONSERVATIVE DENTISTRY & ENDODONTICS**

**LEAVE APPLICATION :**

**Teaching/Non teaching Staff :**

1. Any staff willing to take leave should fulfill the leave application form prescribed by the institution.
2. Fulfilled leave application form should be signed by the individual staff.
3. Concerned staff should take the signature of reliever on his/her leave application.
4. The same leave application should be forwarded to HOD form departmental approval.
5. The entry of the leave application is made into the outward register & forwarded to the main office fur further approval.

**UG Students/Interns/PG Students:**

1. Students willing to take leave has to submit leave application to the department in advance.
2. In case of any medical condition, leave application alongwith fitness certificate has to be submitted to the department on rejoining date.
3. In the absence, their on-going patient’s treatments are managed by their colleagues.

**NEW JOINING:**

**Teaching/Non teaching Staff:**

* On first day, orientation about department is given.
* His/her duties are explained.
* Rules & regulations of the department are explained by senior staff members.
* The new joined staff should submit file with complete set of documents.

**PG**

* Joining letter has to be submitted to the department.
* PG’s are given orientation about the work, thesis & library dissertations.

**WORK DISTRIBUTION :**

1. **Purpose:**

To ensure that adequate treatment services are provided to patients during the appointments and all the diseased teeth are restored back to form and function.

# Scope:

It covers the patients visiting the department for appointment treatment procedures.

# Responsibility:

* + The Clerical Staff is responsible for registering patients and also giving appointments where indicated after the treatment is completed.
	+ The interns, post graduate students and staff are responsible for treating the patients, as per the appointments.
	+ The Senior staff are responsible for supervision and also rendering treatment to patients on their respective work checking and working days.

# Standard procedures:

* UG/Intern/PG/Staff : Call the patient in the department and make the patient sit comfortably in the dental chair.
* Establish a verbal communication with the patient and enquire about his/her chief complaint and any associated medical conditions.
* After oral examination patient is explained about the procedure to be carried out.
* Assure and allay patient’s fears if any about the dental treatment.
* Wear mask and gloves and follow the OSHA’S safety and health program managements guidelines while treating patients reported in the department.
* At the end of the procedure, dispose the mask and gloves as per the waste disposal guidelines.
* Schedule the patient for another appointment for continuation / completion of the treatment.
* Refer the patient to the concerned department after all the restorations are completed.
* Enter the patient details and treatment carried out on work done registers.

**RECORD KEEPING:**

**List of Register:**

1. Inward Register
2. Outward Register
3. Indent Book Register
4. Stock Register – Consumable
5. Stock Register – Non Consumable
6. Interns Attendance Register
7. Student Attendance Register – UG
	1. First Year (Theory & Practical)
	2. Second Year (Theory & Practical)
	3. Third Year (Theory & Practical)
	4. Final Year (Theory & Practical)
8. Student Attendance Register – PG
9. New OPD Register
10. Old OPD Register
11. Patient Appointment Register –
	1. First Year – PG Students
	2. Second Year – PG Students
	3. Third Year – PG Students
	4. Interns
	5. UG Students
12. Patient Appointment Register - Staff
13. Work Done Register –
	1. Staff
	2. PG
	3. Interns.
	4. UG
14. Emergency Treatment Register
15. PG Presentation Register
16. X-Ray Record Register
17. RVG Record Register
18. Payment Record Register
19. OPD Paper Submission Record
20. Departmental Library Book Register
21. Museum Register
22. Laundry Register
23. Sterilization Register
24. Autoclave Register
25. Other Dental Equipment Register
26. Instruments Issue Register – PG
27. Instrument Box Issue Register –Staff
28. Student Autoclave Entry Book - UG
29. Student Autoclave Entry Book – PG
30. Fumigation Register
31. Preclinic Mold Register
32. Material Issue Register – UG
33. Material Issue Register – PG
34. Material Issue Register – Staff
35. Composite Material Record Register
36. Bio waste Record Register
37. Non Consumable Instruments Loan Register
38. Movement Register –
	1. Teaching Staff
	2. Non Teaching Staff
	3. Interns
	4. PG Students
39. Dental Chair Maintenance Register

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| **List of Files – Common for UG & PG** |
| **Dept. Name** | **File No.** | **File Name** |
| MIDSR/CONS./09 | **1** | Circular |
| MIDSR/CONS./09 | **2** | General Correspondence |
| MIDSR/CONS./09 | **3** | Office Correspondence |
| MIDSR/CONS./09 | **4** | Special Cases Record |
| MIDSR/CONS./09 | **5** | Staff Publications |
| MIDSR/CONS./09 | **6** | Non-Teaching & Technical Staff File |
| MIDSR/CONS./09 | **7** | Patient Census |
| MIDSR/CONS./09 | **8** | Departmental Scientific Activities |
| MIDSR/CONS./09 | **9** | Library Correspondence |
| MIDSR/CONS./09 | **10** | Equipments & Instruments FILE |
| MIDSR/CONS./09 | **11** | Stock Verification |
| MIDSR/CONS./09 | **12** | Requirement Correspondence |
| MIDSR/CONS./09 | **13** | Students Assignment Record |
| MIDSR/CONS./09 | **14** | Purchase Orders/ Bill File |
| MIDSR/CONS./09 | **15** | Infrastructure Correspondence |
| MIDSR/CONS./09 | **16** | Teaching Staff Personal Files |
| MIDSR/CONS./09 | **17** | Patient's Feedback |
| MIDSR/CONS./09 | **18** | Students Leave Correspondence |
| MIDSR/CONS./09 | **19** | Student Discipline /Warning/Fine |
| MIDSR/CONS./09 | **20** | University Vacations |
| MIDSR/CONS./09 | **21** | NAAC Corrrespondence |
| MIDSR/CONS./09 | **22** | Staff Discipline /Notice/Warning/Fine |

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| **List Of Files – Only For UG** |
| MIDSR/CONS./09/UG | **51** | DCI Regulation / Ammendment – UG |
| MIDSR/CONS./09/UG | **52** | Examination Ruling & SYLLABUS – UG |
| MIDSR/CONS./09/UG | **53** | Rotating Internship Clinical Posting Time Table for Interns |
| MIDSR/CONS./09/UG | **54** | Monthly Attendance (Ist to IVth BDS) |
| MIDSR/CONS./09/UG | **55** | Attendance For University Exam. (Ist to IVth BDS) |
| MIDSR/CONS./09/UG | **56** | Interns Attendance Report (Yearly-Batchwise) |
| MIDSR/CONS./09/UG | **57** | University Examination Correspondence |
| MIDSR/CONS./09/UG | **58** | Academic Records - II BDS (Yearly-Batchwise) |
| MIDSR/CONS./09/UG | **59** | Academic Records - IV BDS (Yearly-Batchwise) |
| MIDSR/CONS./09/UG | **60** | UG Question Papers (MUHS) |
| **List Of Files – Only for PG** |
| MIDSR/CONS./09/PG | **101** | DCI Regulation / Ammendment – PG |
| MIDSR/CONS./09/PG | **102** | PG Students Biodata  |
| MIDSR/CONS./09/PG | **103** | Examination Ruling & SYLLABUS – PG |
| MIDSR/CONS./09/PG | **104** | PG Time Table |
| MIDSR/CONS./09/PG | **105** | PG Question Papers (MUHS) |
| MIDSR/CONS./09/PG | **106** | PG Monthly Attendance |
| MIDSR/CONS./09/PG | **107** | Students Seminar Corresspondance |
| MIDSR/CONS./09/PG | **108** | PG Activities |
| MIDSR/CONS./09/PG | **109** | PG Students - Six Months Report |