

PROSTHODONTICS & CROWN & BRIDGES: MDS PROGRAM

RATIONALE-

Training program in Prosthodontics, Crown & bridges department includes cognition and psychomotor skills related to fabrication of Complete denture, Removable partial denture, Fixed partial denture and also Implant rehabilitation, full mouth rehabilitation, treatment of sleep apnea and Temporomandibular disorder cases, Maxillofacial prosthesis rehabilitation along with thorough knowledge, understanding and manipulation of Dental Materials.

As it covers a vast area of dentistry, it needs to be updated time to time to keep pace with practice done outside. There is a need to not only train the students regarding knowledge and skill in theoretical and clinical laboratory but also to improve attitude, communicative skills and ability to research with understanding of social, cultural, educational and environmental background of the society. Knowledge and understanding of basic sciences, infection control protocols, biomedical waste management, and basic life support system awareness and during clinical practice evidence based approach is equally important. To prepare an independent practitioner who demonstrate, evaluative and show proper judgment skills in making appropriate decisions regarding prevention, treatment, after care and referral to deliver comprehensive care to patients, there is a need to timely update the syllabus.

PROGRAM OUTCOME-

1. To prepare clinicians who demonstrate proficiency with the diagnosis, treatment planning and treatment of Prosthodontic patients, with particular emphasis on the critical use of the existing literature and current knowledge.
2. To provide the student with information in the basic sciences as a foundation for understanding the literature and adapting future advances into the clinical practice of Prosthodontics.
3. To prepare students to work closely with other health care professionals like dental technician, hygienist and other working staff to the end that patients receive optimal care.
4. To prepare a candidate for teaching, research and clinical abilities including knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to research with understanding of social, cultural, education and environmental background of the society.

COGNITIVE DOMAIN:

The candidate should possess knowledge of applied basic and systemic medical sciences-

1. On human anatomy, embryology, histology, applied in general and particular head and neck, Physiology & Biochemistry, Pathology and microbiology, virology, Health and diseases of various systems of the body (systemic) principles in surgery and medicine, Pharmacology, Nutrition, behavioral Science, Age changes, genetics, Immunology, Congenital defects and syndrome and Anthropology, Bioengineering, Bio-medical and Biological Principle and application and Dental material science.
2. Ability to diagnose and planned treatment for patients requiring a Prosthodontic therapy.

3. Ability to read and interpret a radiograph and other investigations for the purpose of diagnoses treatment plan.
4. Aware with tooth and tooth surface restorations, Complete denture prosthodontics, removable, partial dentures, Prosthodontics, fixed prosthodontics and maxillofacial and Craniofacial Prosthodontics, implants supported Prosthodontics, temporomandibular disorders and occlusion, craniofacial esthetic and biomaterials, Craniofacial disorders.
5. Should have essential knowledge on ethics, laws and jurisprudence and forensic odontology in Prosthodontics
6. Identify social, cultural, economic, environmental, educational and emotional determinants of the patients and consider them in planning the treatment
7. Identify cases which are outside the area of specialty, competence and refer them to appropriate specialists
8. To update self by attending continuing education programs, seminars and conferences related to prosthodontics.
9. Should be able to use information technology tools and carry out research both basic and clinical, with the aims of publishing his/her work and presenting his/her work at various scientific forum
10. Should have essential knowledge of personal hygiene, infection control, prevention of cross infection and safe disposal of waste, keeping in view the risks of transmission of Hepatitis & HIV.
11. Should have an ability to plan to establish Prosthodontic, clinic/hospital teaching department and practice management.

PSYCHOMOTOR DOMAIN:

1. The candidate should be able to examine the patients requiring Prosthodontic therapy, investigate the patient systemically, analyze the investigation results,

radiography, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.

2. The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts. By understanding biological, biomedical, bioengineering principles and systemic condition of the patient to provide a quality health-care of the craniofacial region

3. The candidate should be able to interact with other specialty including medical specialty for a planned team management of patients for a craniofacial and oral acquired and congenital defects, Temporomandibular joint syndromes, esthetics, implant supported Prosthesis and problems of Psychogenic origin.

4. Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their specialty area.

5. Perform clinical and laboratory procedure with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skill for performing clinical and laboratory procedures in fixed, removable, implant and maxillofacial TMJ, esthetics Prosthodontics

6. Laboratory technique management based on skills and knowledge of Dental Materials and dental equipment and instruments.

ATTITUDINAL DOMAIN:

1. Adopt ethical principles in all Prosthodontic practice, Professional honesty and integrity.

2. Treatment to be delivered irrespective of social status, caste, creed or religion of patient.

3. Willing to share the knowledge and clinical experience with professional colleagues.

4. Willing to adopt new methods and techniques in prosthodontics from time to time based on scientific research and evidences.
5. Respect patient's rights and privileges including patient's right to information and right to seek second opinion
6. Develop communication skills, in particular, to explain treatment option available in management.
7. Provide leadership and get the best out of his group in a congenial working atmosphere.

POST GRADUATE SYLLABUS

S.no	Topic	Objectives
1.	GENERAL HUMAN ANATOMY	<ol style="list-style-type: none"> 1) Anatomy of Head and Neck in detail: Cranial and facial bones 2) TMJ and function 3) Muscles of mastication and facial expression 4) Muscles of neck and back including muscles of deglutition and tongue 5) Arterial supply and venous drainage of the head and neck 6) Anatomy of the Para nasal sinuses in relation to the Vth cranial nerve. 7) General considerations of the structure and function of the brain, brief considerations of V, VII, XI, XII, cranial nerves and autonomic nervous system of the head and neck.

		<p>8) The salivary glands, Pharynx, Larynx Trachea, Oesophagus</p> <p>9) Functional Anatomy of masticatory muscles, Deglutition, speech, respiration, and circulation, teeth eruption, morphology, occlusion and function.</p> <p>10) Myofacial pain dysfunction syndrome.</p>
	GROWTH & DEVELOPMENT	<p>1) General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeleton</p> <p>2) Development, relationship between development of the dentition and facial growth</p>
2.	DENTAL ANATOMY	<p>1) Anatomy of primary and secondary dentition, concept of occlusion, mechanism of articulation, and masticatory function.</p> <p>2) Detailed structural and functional study of the oral and Para oral tissue.</p> <p>3) Normal occlusion, development of occlusion in deciduous mixed and permanent dentitions</p>
3.	HISTOLOGY	<p>1) Histology of enamel, dentin, Cementum, periodontal ligament and alveolar bone, pulpal anatomy, histology and biological consideration.</p> <p>2) Salivary glands and Histology of epithelial tissues including glands.</p>

4.	APPLIED PHYSIOLOGY AND NUTRITION	<ol style="list-style-type: none"> 1) Mastication, deglutition, digestion and assimilation, Homeostasis, fluid and electrolyte balance 2) Blood composition, volume, function, blood groups and hemorrhage , Blood transfusion, circulation, Heart, Pulse, Blood pressure, capillary and lymphatic circulation. Shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration. 3) Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. 4) Role of calcium and Vit D in growth and development of teeth, bone and jaws. 5) Role of Vit. A, C and B complex in oral mucosal and periodontal health. 6) Physiology and function of the masticatory system. 7) Speech mechanism, mastication, swallowing and deglutition mechanism, 8) Salivary glands and Saliva
5.	APPLIED NUTRITION	<ol style="list-style-type: none"> 1) General principles, balanced diet, effect of dietary deficiencies and starvation, 2) Diet, digestion, absorption, transportation and utilization & diet for elderly patients.
6.	APPLIED BIOCHEMISTRY	<ol style="list-style-type: none"> 1) General principles governing the various biological activities of the body, such as osmotic pressure, electrolytic dissociation, oxidation-reduction

		<ul style="list-style-type: none"> 2) Carbohydrates, proteins, liquids and their metabolism, 3) Enzymes, Vitamins, and minerals, Hormones, Blood, 4) Metabolism of inorganic elements, Detoxification in the body & anti metabolites.
7.	APPLIED PHARMACOLOGY AND THERAPEUTICS	<ul style="list-style-type: none"> 1) Dosage and mode of administration of drugs. 2) Action and fate of drugs in the body, Drug addiction, tolerance and hypersensitive reactions, 3) Drugs acting on the central nervous system, 4) General anesthetics hypnotics, analeptics and tranquilizers. 5) Local anesthetics, 6) Chemotherapeutics and antibiotics, 7) Antitubercular and anti syphilitic drugs, 8) Analgesics and antipyretics, Antiseptics, styptics, 9) Sialogogues and antisialogogues, 10) Haematinics, Cortisones, ACTH, insulin and other antidiabetics vitamins: A, D, B – complex group C, K etc. 10) Chemotherapy and Radiotherapy.

		<p>11) Drug regime for antibiotic prophylaxis and infectious endocarditis and drug therapy following dental surgical treatments like placement of implants, pre and peri prosthetic surgery</p>
8.	APPLIED PATHOLOGY	<p>1) Inflammation, repair and degeneration,</p> <p>2) Necrosis and gangrene, Circulatory disturbances, Ischaemia, hyperaemia, chronic venous congestion, oedema, thrombosis, embolism and infarction.</p> <p>3) Infection and infective granulomas, Allergy and hypersensitive reactions,</p> <p>4) Neoplasms; Classification of tumors, Carcinogenesis, characteristics of benign and malignant tumors, spread of tumors.</p> <p>5) Applied histo pathology and clinical pathology</p>
9.	APPLIED MICROBIOLOGY	<p>1) Immunity, knowledge of organisms commonly associated with diseases of the oral cavity (morphology cultural characteristics etc) of strepto, staphylo,</p> <p>2) Clostridia group of organisms,</p> <p>3) Spirochaetes, organisms of tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis etc.</p> <p>4) Virology,</p>
10.	INFECTION CONTROL	<p>1) Sterilization and disinfection</p>

		<p>2) Biomedical waste management</p> <p>3) Biomedical waste management pertaining to dentistry</p>
11.	APPLIED ORAL PATHOLOGY	<p>1) Developmental disturbances of oral and Para oral structures, Regressive changes of teeth,</p> <p>2) Bacterial, viral and mycotic infections of the oral cavity.</p> <p>3) Dental caries, diseases of pulp and periapical tissues</p> <p>4) Physical and chemical injuries of the oral cavity, oral manifestations of metabolic and endocrine disturbances</p> <p>5) Diseases of the blood and blood forming organism in relation to the oral cavity</p> <p>6) Periodontal diseases,</p> <p>7) Diseases of the skin,</p> <p>8) nerves and muscles in relation to the Oral cavity</p>
12.1	APPLIED SURGERY & ANESTHESIA	<p>1) General principles of surgery</p> <p>2) wound healing, incision wound care, hospital care</p>

		<p>3) control of hemorrhage, electrolyte balance.</p> <p>4) Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc</p> <p>5) surgical techniques, nursing assistance, anesthetic assistance.</p> <p>6) Principles in speech therapy, surgical and radiological craniofacial oncology,</p> <p>7) applied surgical ENT and ophthalmology.</p>
13.	APPLIED MEDICINE	<p>1) Systemic diseases and (its) their influence on general health and oral and dental health.</p> <p>2) Medical emergencies like syncope, hyperventilation, angina, seizure, asthma and allergy/anaphylaxis in the dental offices – Prevention, preparation, medico legal consideration</p> <p>3) unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies</p> <p>4) chest pain, cardiac arrest, premedication, prophylaxis and management of ambulatory patients, resuscitation, applied psychiatry, child, adult and senior citizens.</p>

1	Personal identification	1. Basis for dental identification
2	Dental identification procedures	1. Comparative dental identification 2. Oral autopsy 3. Obtaining dental records 4. Comparing post and ante mortem data 5. Writing a report and drawing conclusions 6. Use of ameloglyphics
3	Identification in disasters	1. Dental section 2. Post mortem unit 3. Ante mortem unit 4. Comparison and identification unit
4	Identification from dental DNA	1. Types of DNA 2. Extraction of dental DNA
5	Palatal rugae for identification	1. Classification of palatal rugae 2. Identification of rugae pattern
6	Dental profiling	1. Identifying ethnic origin from teeth 2. Genetic and environmental effect on teeth 3. Metric and non - metric dental traits
7	Sex differentiation	1. From craniofacial and morphological differences 2. Sex determination by differences in tooth size

		3. Sex determination by DNA analysis
8	Dental age determination	1. Schour and Massler's method 2. Demirjian's method 3. Value of third molars 4. Gustafson's method 5. Dentin translucency
9	Crime investigation	1. Bite mark analysis 2. Cheiloscopy 3. Salivary DNA identification

RESEARCH METHODOLOGY

s.no	Topic	Learning objectives
1.	RESEARCH METHODOLOGY	1) Research and types 2) Levels of Scientific evidence 3) Types of studies 4) Sampling
2.	BIOSTATISTICS	1) Characteristics and limitations of statistics 2) planning of statistical experiments, sampling, collection, classification and presentation of data (Tables, graphs, pictograms etc) 3) Analysis of data, parametric and non parametric tests

SOFT SKILLS

S.no	Topic	Learning objectives
1	Soft skills	<ol style="list-style-type: none"> 1. Introduction to skills of a dentist 2. Hard skills 3. Soft skills classifications 4. Visual aids 5. Auditory aids 6. Interpersonal skills 7. Patient doctor rapport 8. Doctor – doctor relationship 9. Rapport of clinician with the technicians 10. Summary of various skills

1. DENTAL MATERIALS

Sr no	Topics	Objectives
1.	PHYSICAL PROPERTIES OF DENTAL MATERIALS	<ol style="list-style-type: none"> 1. Types of physical properties 2. Rheology 3. Abrasion and Viscosity 4. Creep and flow 5. Color and optical effects 6. Thermal properties 7. Electrochemical properties 8. Magnetic materials
2.	MECHANICAL PROPERTIES OF DENTAL MATERIALS	<ol style="list-style-type: none"> 1. Types of mechanical properties 2. Stresses and Strain 3. Elastic properties 4. Strength properties 5. Weibull Statistics 6. Stress concentration effects 7. Criteria for selection of restorative materials

3.	BIOLOGICAL CONSIDERATIONS	<ol style="list-style-type: none"> 1. Biocompatibility of dental materials. 2. Adverse effects from exposure to materials 3. Occupational Hazards for dental personnel 4. Biocompatibility Tests 6. Guidelines for selecting biocompatible materials. 7. Disinfection of dental materials
4.	TARNISH AND CORROSION	<ol style="list-style-type: none"> 1. Tarnish and Corrosion 2. Causes and Classification 3. Electrochemical Corrosion 4. Protection against Corrosion Corrosion of dental restorations 5. Evaluation of tarnish and corrosion resistance
5.	SOLIDIFICATION & MICROSTRUCTURE OF METALS	<ol style="list-style-type: none"> 1. Definition & background of metals 2. Liquid to Solid transformation of Cast metals 3. Nucleus formation 4. Solidification modes 5. Grain refinement
6.	CONSTITUTIONS OF CAST ALLOYS	<ol style="list-style-type: none"> 1. Classification of alloys 2. Effects of alloy elements on properties of high noble and noble metal alloys 4. Equilibrium phase diagrams 5. Eutectic alloys 6. Peritectic alloys 7. Solid state reactions in high noble and noble alloy systems 8. Color of Cast Metal Alloys
7.	GYPSUM PRODUCTS	<ol style="list-style-type: none"> 1. Setting of Gypsum products 2. Tests for setting time 3. Control of setting time 4. Setting Reaction and expansion 5. Strength of Set gypsum products 6. Hygroscopic setting expansion 7. Types of Gypsum products
8.	IMPRESSION MATERIALS	

		<ol style="list-style-type: none"> 1. Classification 2. Uses and general properties
9.	INELASTIC IMPRESSION MATERIALS	<ol style="list-style-type: none"> 1. Impression Plaster – Background, Uses, Composition, Properties. 2. Impression compound – Uses, Composition, Manipulation, Properties. 3. Zinc Oxide Eugenol Impression paste- Uses, Composition, Manipulation, Properties, Non Eugenol paste, Disinfection.
10.	HYDROCOLLOID IMPRESSION MATERIALS	<ol style="list-style-type: none"> 1. Hydrocolloids Definition 2. Sol-Gel transformation 3. Reversible Hydrocolloids (AGAR) Background, Uses, Composition, Manipulation. 4. Irreversible Hydrocolloids (ALGINATE) – a) Composition, b) Gelation process, c) Controlling setting time, Properties, d) Manipulation, e) Modified Alginates, Disinfection
11.	ELASTOMERIC IMPRESSION MATERIALS	<ol style="list-style-type: none"> 1. Background 2. General Properties 3. Types 4. Polysulfide – Chemistry and Composition, Properties, Manipulation 5. Polyether – Chemistry and Composition, Properties, Manipulation 6.. Condensation Silicone – Setting Reaction, Composition, Properties, Manipulation 7. Addition Silicone – Setting Reaction, Composition, Properties, Manipulation

12.	DENTAL WAXES	<ol style="list-style-type: none"> 1. background & importance 2. Sources & chemical nature 3. Composition and Classification of waxes 4. Flow of Dental wax 5. Wax distortion 6. Specialty waxes 7. Compensation for solidification shrinkage
13.	INLAY CASTING WAX	<ol style="list-style-type: none"> 1. Classification 2. composition 3. deal requirements 4. Properties 5. Manipulation
14.	CASTING INVESTMENTS MATERIAL	<ol style="list-style-type: none"> 1. Definition & Requirements 2. Classification 3. Gypsum bonded investment 4. Phosphate bonded investment 5. Ethyl silicate bonded investment
15.	CASTING PROCEDURE -I	<ol style="list-style-type: none"> 1. background 2. Steps in casting procedure 3. Preparation of master die 4. Electroformed die 5. Wax pattern 6. Sprue design 7. Casting ring 8. Investing procedure 9. Compensation of shrinkage 10. Selection of casting alloy 11. Casting machines 12. Casting defects – Types, causes, prevention
16.	FINISHING & POLISHING MATERIALS	<ol style="list-style-type: none"> 1. Benefits of finishing & polishing 2. Definitions 3. Principles 4. Abrasive instrument design 5. Types of abrasives – finishing & polishing agents 6. Finishing & Polishing procedures for different restorations

		7. Dentifrices
17.	SYNTHETIC RESINS	<ol style="list-style-type: none"> 1. Background and applications 2. Classification 3. Requirements 4. Nature of Polymers 5. Properties of polymers 6. Polymerization types 7. Types of dental resins
18.	DENTURE BASE RESINS	<ol style="list-style-type: none"> 1. Background and application 2. Mode of polymerization 3. Types of denture base resins 4. Properties 5. Relining & rebasing resin 6. Resin teeth 7. Materials for maxillofacial prosthesis
19.	RESTORATIVE RESINS - I	<ol style="list-style-type: none"> 1. Background 2. Aesthetic restorative materials 3. Unfilled and filled resins 4. Curing of Resin based Composites - Chemical & light activation, Dual cure 5. Composite Resins – Composition, Classification, background, clinical considerations and properties of each 6. Manipulation of composite resin 7. Composites for posterior restoration and for resin veneers 8. Finishing & Polishing of composites 9. Biocompatibility 10. Recent advances
20.	BONDING	<ol style="list-style-type: none"> 1. Need for bonding 2. Mechanism of Adhesion 3. Enamel & Dentin bonding agents 4. Measurement of bond strength
21.	DENTAL CERAMICS	<ol style="list-style-type: none"> 1. Definition 2. Historical background 3. Composition 4. Classification of dental ceramics 5. Ceramic processing methods

		<ul style="list-style-type: none"> 6. Clinical performance Ceramic-composition, properties, bonding 7. Aluminous porcelain crown 8. Glass ceramics 9. All ceramic systems - conventional, castable, inceram, pressable, cad-cam 10. Strengthening of dental ceramics 11. Recent advances
22.	DENTAL AMALGAM	<ul style="list-style-type: none"> 1. Alloy composition 2. Manufacture of alloy powder 3. Amalgamation - Low & high copper Alloys 4. Dimensional stability and other Properties 5. Clinical performances 6. Factors affecting the success of amalgam restorations Marginal deterioration 7. Side effects of mercury 8. Mercury toxicity
23.	DIRECT FILLING GOLD	<ul style="list-style-type: none"> 1. Background of Gold foil 2. Properties of pure gold 3. Forms of direct filling gold 4. Granular gold 5. Removal of surface impurities 6. Compaction of direct filling gold 7. Physical properties of compacted gold 8. Direct gold restoration
24.	DENTAL CASTING ALLOYS	<ul style="list-style-type: none"> 1. Historical background 2. Desirable properties of casting alloys 3. Classification of casting alloys 4. Desirable properties of dental casting alloys 5. Alloys for all metal and metal ceramic prosthesis 6. Biological hazards and precautions

		7. Joining of dental alloys
25.	WROUGHT ALLOYS	<ol style="list-style-type: none"> 1. Deformation of metals 2. Classification 3. Effects of Annealing wrought metal 4. Stainless steels alloys 5. Cobalt-chromium-nickel alloys 6. Nickel-Titanium alloys 7. Beta-Titanium alloys 8. Other wrought alloys 9. Direct filling gold
26.	DENTAL CEMENTS	<ol style="list-style-type: none"> 1. Classification of dental cements and their applications 2. Cements for luting 3. Cements for pulp protection 4. Cement for restoration 5. Zinc Phosphate cement 6. Zinc Polycarboxylate cement 7. Glass ionomer cement 8. Compomers 9. Silicate Cement 10. Zinc oxide eugenol cement 11. Resin cements 12. Agents for pulp protection - cavity varnishes, liners, bases 13. Calcium Hydroxide cement 14. Modifications & Recent advancement
27.	SOLDERING & WELDING	<ol style="list-style-type: none"> 1. Need for joining dental appliances 2. Terms & definitions 3. Solders - ideal requirements, types, applications, Properties. 4. Soldering Flux, Anti flux 5. Heat sources for soldering 6. Technique procedures for soldering 7. Radiographic analysis of solder joint

		8. Laser welding
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2. COMPLETE DENTURES

Sr. No.	Topic	Learning objectives
1.	BIOMECHANICS OF EDENTULOUS STATE	<ol style="list-style-type: none"> 1. Support mechanisms for Natural dentition and Complete Dentures 2. Introduction to concepts of occlusion in function and para function. 3. Changes in TMJ and face after tooth loss. 4. Adaptation to change
2	EFFECT OF AGING ON EDENTULOUS STATE	<ol style="list-style-type: none"> 1. Introduction to impact of edentulism 2. Impact on Jaw movements, taste and smell, nutrition, skin and teeth. 3. Esthetic concerns in old age.
3	SEQUELAE OF WEARING COMPLETE DENTURE	<ol style="list-style-type: none"> 1. Introduction to dentures in oral environment 2. Direct sequela of denture wear 3. Indirect sequela of denture wear 4. Control of sequela caused by denture wear
4	GERONTOLOGY AND NUTRITIONAL CARE FOR ELDERLY	<ol style="list-style-type: none"> 1. Impact of dental status on food intake. 2. Introduction to gastrointestinal functioning. 3. Nutritional needs and status of older adults. 4. Importance of calcium, vitamins and herbal supplements in health. 5. Dietary counselling of patients undergoing prosthodontic treatment.

		6. Dietary management when teeth are extracted.
5	TMJ DISORDERS IN EDENTULOUS PATIENTS	<ol style="list-style-type: none"> 1. Introduction to epidemiology and etiology for temporomandibular disorders. 2. Management of temporomandibular disorders in edentulous patients.
6	DIAGNOSIS AND TREATMENT PLANNING IN COMPLETELY EDENTULOUS PATIENTS	<ol style="list-style-type: none"> 1. Introduction to importance of diagnostic points. 2. Contributing history of the patient. 3. Various approaches for data collection and recording. 4. Specific observations. 5. Interpreting diagnostic findings. 6. Importance of treatment planning
7	IMPROVING THE DENTURE FOUNDATION	<ol style="list-style-type: none"> 1. Various Non – surgical methods of modifying the denture bearing area. 2. Various surgical methods of modifying the denture bearing area.
8	COMMUNICATION WITH EDENTULOUS PATIENTS	<ol style="list-style-type: none"> 1. Introduction to the art of communication. 2. Importance of communication. 3. Elements of effective communication. 4. Significance of doctor patient rapport. 5. Introductory interview and trouble shooting.
9	SINGLE CD, INTERIM DENTURE	<ol style="list-style-type: none"> 1. Challenges of varying support in single edentulous arch 2. Diagnosis and treatment planning 3. Clinical and laboratory procedures 4. Potential adverse treatment outcomes 5. Rationale for mandibular dentures

10	OVER-DENTURE	<ol style="list-style-type: none"> 1. Introduction to overdentures. 2. Advantages and disadvantages 3. Indications and treatment planning. 4. Selection of abutment teeth. 5. Clinical procedures. 6. Treatment outcome.
11	IMMEDIATE DENTURE	<ol style="list-style-type: none"> 1. Definition of immediate dentures. 2. Advantages and disadvantages of various types of immediate dentures. 3. Contraindications 4. Diagnosis, treatment planning and prognosis. 5. Clinical and laboratory procedures. 6. Post - operative care for the patient. 7. Planning for definitive treatment options.
12	BIOLOGIC CONSIDERATION FOR MAXILLARY AND MANDIBULAR DENTURES	<ol style="list-style-type: none"> 1. Anatomy of supporting structures. 2. Anatomy of peripheral / limiting structures. 3. Principles and objectives for impression making.
13	IMPRESSION IN COMPLETE DENTURE (MAXILLARY AND MANDIBULAR)	<ol style="list-style-type: none"> 1. Materials and techniques used based of theories of impression materials. 2. Principles and objectives for impression making. 3. Preliminary impressions – tray selection, impression making. 4. Final impressions – Custom tray fabrication and adjustment, making impression, pouring aster casts

14	RETENTION, STABILITY AND SUPPORT IN COMPLETE DENTURE	<ol style="list-style-type: none"> 1. Factors involved in the retention of complete dentures – Interfacial force, adhesion, cohesion, Saliva, oral and facial musculature, atmospheric pressure, gravity, undercuts. 2. Adhesive retention by use of denture adhesives 3. Factors affecting stability 4. Concept of support
15	TRIAL DENTURE BASE AND OCCLUSION	<ol style="list-style-type: none"> 1. Need for record bases 2. Introduction to occlusion rims 3. Arch forms 4. Level of occlusal plane 5. Tests to determine vertical dimension
16	BIOLOGIC CONSIDERATION OF ORIENTATION, VERTICAL AND HORIZONTAL JAW RELATIONS	<ol style="list-style-type: none"> 1. Regulation of mandibular movements 2. Identification of maxillomandibular relations for complete dentures 3. Determination of horizontal jaw relation 4. Transferring records from patient to articulators. 5. Types of patient records
17	SPEECH AND PHONETICS	<ol style="list-style-type: none"> 1. Speech production – Structural and functional demands 2. Neurophysiological background 3. Role of teeth and other oral structures in speech production 4. Different types of sounds and their characteristics 5. Methods for speech analysis 6. Prosthetic considerations
18	ARTICULATORS	<ol style="list-style-type: none"> 1. Introduction to need for articulators.

		<ol style="list-style-type: none"> 2. Transferring records from patient to articulators. 3. Determination of centric and eccentric records for the patient. 4. Parts of articulator 5. Selecting the articulator for use in complete dentures. 6. Programming of articulators.
19	OCCLUSION	<ol style="list-style-type: none"> 1. Introduction to occlusion 2. Comparison between occlusion in natural dentition and complete dentures. 3. Various occlusal schemes for complete dentures 4. Factors affecting occlusion in complete dentures 5. Bilateral balanced occlusion 6. Occlusal modifications and selective reshaping
20	SELECTION AND ARRANGEMENT OF ARTIFICIAL TEETH	<ol style="list-style-type: none"> 1. Anterior tooth selection 2. Posterior tooth selection 3. Factors influencing tooth selection 4. Various tooth forms 5. Arrangement of teeth for complete denture occlusion
21	TRY-IN APPOINTMENT	<ol style="list-style-type: none"> 1. Perfection and verification of jaw relation records 2. Eccentric jaw relation records, articulators and cast adjustment, establishment of the posterior palatal seal 3. Creating facial and functional harmony with anterior teeth 4. Evaluation of patient acceptance of teeth arrangement

22	PROCESSING OF DENTURE, INSERTION ADJUSTMENT	<ol style="list-style-type: none"> 1. Waxing and polishing of denture surfaces 2. Formation and preparation of the mold 3. Packing the mold 4. Preserving the orientation relations 5. Shaping and polishing the cured resin bases 6. Construction of remounting casts 7. Delivery after evaluation of polished surfaces 8. Elimination of basal surface errors 9. Errors in occlusion and remounting to verify records 10. Special instructions to the patient
23	POST INSERTION AND FOLLOW UPS	<ol style="list-style-type: none"> 1. Maintaining the comfort and health of oral cavity in complete denture patients 2. Twenty four hour oral examination 3. Adjustments related to denture bases, teeth, polished surfaces, occlusion. 4. Subsequent oral examinations and treatment. 5. Periodic recall visits
24	RELINING AND REBASING	<ol style="list-style-type: none"> 1. Rationale for treatment 2. Diagnosis for need of relining and rebasing 3. Preliminary treatment 4. Clinical impression techniques 5. Chairside procedures 6. Laboratory procedures
25	MAXILLOFACIAL PROSTHESIS	<ol style="list-style-type: none"> 1. Anatomical and physiological considerations of normal function 2. Functional deficits of speech and swallowing with dentures 3. Maxillofacial prosthodontics – history 4. Importance

		<ol style="list-style-type: none"> 5. Obturators 6. Palatal augmentation prosthesis 7. Mandibular resection prosthesis 8. Maxillofacial implant supported prosthesis
26	IMPLANT SUPPORTED DENTURES	<ol style="list-style-type: none"> 1. Need for Implants and scientific development 2. Patient considerations for implant prosthesis 3. Treatment outcome considerations 4. Planning for placement of implants 5. Prosthetic options for implant supported dentures 6. Evaluation of outcome and trouble shooting.

4. REMOVABLE PARTIAL DENTURES

Sr. No.	Topic	Learning objectives
1	CLASSIFICATION OF PARTIAL EDENTULOUS ARCHES	<ol style="list-style-type: none"> 1. Need and requirements for classification 2. Different classifications in the past and present
2	BIOMECHANICS AND PRINCIPLES OF REMOVABLE PARTIAL DENTURES: PART I,II	<ol style="list-style-type: none"> 1. Biomechanics 2. Possible movements of denture base
3	MAJOR CONNECTORS & MINOR CONNECTORS	<ol style="list-style-type: none"> 1. Definition and their function 2. Types and location

4	REST AND REST SEATS	<ol style="list-style-type: none"> 1. Types 2. Function 3. Implants and rest seats
5	DIRECT RETAINERS &INDIRECT RETAINERS	<ol style="list-style-type: none"> 1. Definition and their function 2. Types 3. Criteria for selection 4. Implants as direct retainers
6	SURVEYING	<ol style="list-style-type: none"> 1. Definition 2. Purpose 3. Types 4. Procedures 5. Block out 6. Latest advancements
7	DESIGNING OF RPD	<ol style="list-style-type: none"> 1. Biomechanics 2. RPD designing
8	DIAGNOSIS AND TREATMENT PLANNING.	<ol style="list-style-type: none"> 1. Patient interview 2. Examination and investigations 3. Differential diagnosis 4. Treatment options 5. Treatment planning 6. Multi disciplinary approach
9	MOUTH PREPARATION AND MASTER CAST	<ol style="list-style-type: none"> 1. Oral surgical procedures 2. Periodontal procedures 3. Restorative/ endodontic procedures 4. Abutment preparations
10	SUPPORT FOR THE DISTAL EXTENSION DENTURE BASE	<ol style="list-style-type: none"> 1. Factors influencing the support of distal extension denture base 2. Anatomic and functional impressions

11	IMPRESSION MATERIALS AND PROCEDURES	<ol style="list-style-type: none"> 1. Various impression materials 2. Techniques
12	PRELIMINARY JAW RELATION AND ESTHETIC TRY-IN FOR ANTERIOR REPLACEMENT TEETH	<ol style="list-style-type: none"> 1. Desirable occlusal contacts 2. Methods for Establishing Occlusal Relationships 3. Artificial teeth materials 4. Single complete denture opposing distal extension RPD
13	FITTING THE FRAMEWORK WITH SPECIAL IMPRESSION PROCEDURE	<ol style="list-style-type: none"> 1. Pick up impressions 2. Occlusal adjustments
14	OCCLUSAL CONSIDERATIONS	<ol style="list-style-type: none"> 1. Concepts of occlusion 2. Considerations of occlusion in RPD 3. Occlusion of RPD against Natural dentition 4. Considerations of occlusion of RPD against Removable prosthesis 5. Considerations of occlusion of RPD against Fixed prosthesis
15	LABORATORY PROCEDURE AND DELIVERY	<ol style="list-style-type: none"> 1. Cast duplication 2. Investing and casting 3. Processing the denture 4. Remounting 5. Delivery 6. Instructions and follow up
16	POST-INSERTION OBSERVATIONS RELINING, REBASING AND REPAIR	<ol style="list-style-type: none"> 1. Post insertion occlusal adjustments 2. Relining tooth supported prosthesis 3. Relining tissue supported prosthesis 4. Re establish occlusion 5. Repair
17.	WORK AUTHORISATION	<ol style="list-style-type: none"> 1. Contents

		<ul style="list-style-type: none"> 2. Definitive instructions by work authorisation 3. Legal aspects 4. Responsibilities of dentist 5. Responsibilities of the technician 6. Design of the prosthesis

5. FIXED PARTIAL DENTURES

Sr. No.	Topics	Learning objectives
1	DIAGNOSIS & TREATMENT PLANNING IN FDP	<ul style="list-style-type: none"> 1) Patient history, expectations and need. 2) Systemic and emotional health. 3) Clinical examinations. 4) Selection of type of prosthesis 5) Abutment Evaluation 6) Biomechanical considerations
2	FUNDAMENTALS OF OCCLUSION	<ul style="list-style-type: none"> 1) Centric Relation 2) Mandibular Movements 3) Organization of Occlusion
3	INTEROCCLUSAL RECORDS	<ul style="list-style-type: none"> 1) Centric Relation records 2) Maximum intercuspation records 3) Lateral Interocclusal records
4	ARTICULATION OF CASTS	<ul style="list-style-type: none"> 1) Types of articulator 2) Principles of articulator 3) Setting condylar guidance 4) Hanau Facebow, Denar and Whipmix facebow 5) Method of facebow record 6) Mounting of maxillary and mandibular casts 7) Anterior Guidance

5	PRINCIPLES OF TOOTH PREPARATIONS	<ol style="list-style-type: none"> 1. Conservation of tooth structure 2. Retention and resistance 3. Structural durability 4. Marginal Integrity 5. Preservation of the periodontium
6	PREPARATIONS FOR FULL VENEER CROWNS AND PARTIAL VENEER CROWNS	<ol style="list-style-type: none"> 1. full metal crown - maxillary molar 2. full metal crown - mandibular molar 3. Uniformity of tooth reduction 4. Sequential preparation procedure 5. Partial ¾, radicular 7/8, telescopic, pin ledge tooth preparations.
7	PREPARATIONS FOR INTRACORONAL RESTORATIONS	<ol style="list-style-type: none"> 1. Indications 2. Anterior versus posterior teeth 3. Techniques and materials
8	PREPARATIONS FOR EXTENSIVELY DAMAGED TEETH AND PERIODONTALLY COMPROMISED TEETH	<ol style="list-style-type: none"> 1. Introduction and limitations 2. Splints - types, indications 3. Tooth preparation - margin placement, proximal contours, cementation 4. Restoration of molars with furcation involvement. 5. Prognosis
9	PROVISIONAL RESTORATIONS	<ol style="list-style-type: none"> 1. Introduction and need 2. Types and techniques 3. Materials and limitations 4. Provisional splints
10	FLUID CONTROL AND SOFT TISSUE MANAGEMENT	<ol style="list-style-type: none"> 1. Tissue health 2. Tissue dilation -types, materials.
11	IMPRESSIONS, WORKING CASTS AND DIES	<ol style="list-style-type: none"> 1. Impression materials. 2. Techniques 3. Die preparation
12	WAX PATTERNS	<ol style="list-style-type: none"> 1. Introduction 2. Types of wax, properties, method

13	THE FUNCTIONALLY GENERATED PATH TECHNIQUE	<ol style="list-style-type: none"> 1. Introduction 2. Indications 3. Technique
14	INVESTING AND CASTING	<ol style="list-style-type: none"> 1. Materials 2. Procedure
15	ESTHETIC CONSIDERATIONS, FINISHING AND CEMENTATION	<ol style="list-style-type: none"> 1. Introduction 2. Materials 3. Technique
16	ALL- CERAMIC RESTORATIONS	<ol style="list-style-type: none"> 1. Introduction and indications 2. Types of all ceramic system Procedure
17	METAL- CERAMIC RESTORATIONS	<ol style="list-style-type: none"> 1. Introduction and indications. 2. Tooth preparation.
18	PONTICS AND EDENTULOUS RIDGES	<ol style="list-style-type: none"> 1. Types of pontic 2. design 3. Indications and contraindications
19	RETAINERS, SOLDER JOINTS AND OTHER CONNECTORS	<ol style="list-style-type: none"> 1. Types 2. Techniques
20	RESIN-BONDED FIXED PARTIAL DENTURES	<ol style="list-style-type: none"> 1. Introduction 2. Types of resin bonded FPD 3. Indications, Contraindications 4. Tooth preparation, impression
21	NEWER ADVANCEMENTS	<ol style="list-style-type: none"> 1. Introduction to CAD CAM technology 2. Additive manufacturing 3. Subtractive manufacturing 4. Various scanners 5. Softwares in CAD CAM 6. Comparison between Various techniques

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6. TEMPOROMANDIBULAR DISORDERS

Sr. No.	Topics	Learning objectives
1	Temporomandibular joint and its function	<ol style="list-style-type: none"> 1. Functional anatomy , neuroanatomy and physiology 2. Biomechanics 3. Occlusion and alignment , occlusal morphology 4. Optimum functional occlusion
2	Signs and symptoms of TMJ disorders.	<ol style="list-style-type: none"> 1. Pain and dysfunction 2. Pathophysiology 3. Predisposing factors 4. Other signs and symptoms associated with TMD
3	Examination and history of TMJ disorders	<ol style="list-style-type: none"> 1. History – pain, clicking, psychological aspects 2. Facial muscles and cranial nerve examination 3. joint examination 4. intra oral examination
4	Diagnosis of TMJ disorders	<ol style="list-style-type: none"> 1. Diagnostic criteria 2. Imaging 3. Other modalities like Bone scan , sonography, etc
5	Treatment of TMD	<ol style="list-style-type: none"> 1. General considerations 2. Various Treatment of muscle disorders

		<ol style="list-style-type: none"> 3. Various treatment of joint disorders 4. Treatment of hypomobility and growth disorders 5. Occlusal appliance 6. Treatment sequencing
6	Occlusal therapy	<ol style="list-style-type: none"> 1. General considerations in occlusal therapy 2. Use of articulators 3. Selective grinding and its importance 4. Restorative procedures

7. IMPLANTS

SR. No.	TOPICS	OBJECTIVES
1.	Rationale for dental implants and generic root component terminology	<ol style="list-style-type: none"> 1. To know rationale for dental implants 2. Generic and proprietary Terminology 3. Types of implants
2.	Diagnostic imaging and techniques in implant dentistry	<ol style="list-style-type: none"> 1. To know radiographic modalities used in oral implantology
3.	Medical evaluation of dental implant patient	<ol style="list-style-type: none"> 1. to know medical status before implant
4.	Stress treatment theorem for implant dentistry	<ol style="list-style-type: none"> 1. Biomechanical overload 2. Impact of occlusal overload on mechanical components 3. Marginal Bone loss

		4. Biomechanical stress effects on treatment planning
5.	Treatment planning: force factors related to patient conditions	<ol style="list-style-type: none"> 1. To know bite force 2. To assess effect of parafunctions on implants
6.	Prosthetic options and key implant positions	<ol style="list-style-type: none"> 1. Various fixed and removable implant prosthesis 2. Positions and rules in implant placement
7.	Implant body size : a biomechanical and esthetic rationale	<ol style="list-style-type: none"> 1. To know the various components of a dental implant 2. Available bone 3. Implant design
8.	Scientific rationale for dental implant design	<ol style="list-style-type: none"> 1. Introduction 2. Review of implant surfaces and designs 3. Biological responses and interactions with various implant designs 4. Force factors involved
9.	Pre implant prosthodontics	To know various designs
10.	Available bone and dental implant treatment plans	To know relation between available bone and implant size, location
11.	Diagnostic casts and surgical templates	Guided implant surgery

12.	Treatment plan for partially and completely edentulous arches	<ol style="list-style-type: none"> 1. History 2. Classification 3. Fixed and removable options for completely and partially edentulous maxilla and mandible
13.	Single tooth replacement: treatment options	<ol style="list-style-type: none"> 1. Immediate implants 2. Socket preservation techniques 3. Esthetics
14.	Treatment plans for completely edentulous mandible	<ol style="list-style-type: none"> 1. Classification 2. Fixed vs removable 3. overdentures and attachments
15.	Biomaterials for dental implants	<ol style="list-style-type: none"> 1. To know Compatibility of surgical biomaterials and role of synthetic materials 2. History of materials and designs 3. to know physical, chemical and mechanical requirements for implant materials
16.	Dental implant surfaces : A review	<ol style="list-style-type: none"> 1. Modified and unmodified surfaces 2. Role in osseointegration
17.	Second stage surgery : uncovering and treatment of healing complications	<ol style="list-style-type: none"> 1. Surgical aspects 2. Healing abutments 3. Suturing
18.	Impressions in implant	<ol style="list-style-type: none"> 1. Open tray closed tray 2. Tissue level implant level abutment level impressions
19.	Temporization	<ol style="list-style-type: none"> 1. Importance of temporization 2. Methods 3. occlusion

20.	Progressive loading; immediate loading and restoration in implant dentistry	<ol style="list-style-type: none"> 1. Advantages and disadvantages of immediate loading 2. To know prerequisites 3. Rationale for various loading protocols 4. Histologic evaluation of loading protocols 5. Factors decreasing risks 6. Protocols of loading in partially edentulous and completely edentulous arches
21.	Sinus augmentation	To know sinus anatomy, pathology and graft surgery
22.	Occlusal considerations	<p>Implant vs implant occlusion</p> <p>Implant vs natural teeth</p>
23.	Peri implantitis	To make diagnosis, classification, etiologies and therapies

8. MAXILLOFACIAL PROSTHETICS

S. no	Topics	Objectives
1	Prosthetic management of mandibulectomy patient	<ol style="list-style-type: none"> 1. Mandibular Resections: Surgical Considerations 2. Mandibular Resections: Prosthetic Considerations 3. Reconstructed Mandibulectomy
2	Prosthetic management of edentulous maxillectomy patient	<ol style="list-style-type: none"> 1. Surgical Enhancements 2. Phases of Prosthetic Restoration 3. Surgical Obturator Prosthesis 4. interim Obturator Prosthesis 5. Definitive Obturator Prosthesis

		6. Troubleshooting the Obturator Prosthesis
3	Prosthetic management of dentulous maxillectomy patient	<ol style="list-style-type: none"> 1. Preoperative Consideration 2. The Surgical Obturator Prosthesis 3. The Postsurgical Obturator Prosthesis 4. The Definitive Obturator Prosthesis
4.	Colour matching in maxillofacial prosthetics	<ol style="list-style-type: none"> 1. Color Concepts 2. Lighting Considerations 3. Materials and Equipment 4. Procedure 5. Computerized Color Formulation
5.	Prosthetic management in cleft lip and palate	<ol style="list-style-type: none"> 1. Clinical Method for Correction of the Unilateral Oronasal Cleft Deformity 2. Clinical Method for Correcting the Bilateral Oronasal Cleft Deformity 3. Surgical Techniques of Nasoalveolar Molding and Columellar Elongation 4. Complications Associated with Presurgical Nasoalveolar Molding and Columellar Elongation
6.	Material in maxillofacial prosthetics	<ol style="list-style-type: none"> 1. History of materials used 2. Acrylic 3. Silicones 4. Methods of usage 5. Recent materials
7.	Modes of retention of maxillofacial prosthetics	<ol style="list-style-type: none"> 1. Mechanical retention 2. Adhesives 3. Retention through implants
8.	Management of soft palate defects	<ol style="list-style-type: none"> 1. Types of Prostheses 2. Technical Considerations for the Pharyngeal Obturator Prosthesis 3. Dental Considerations for the Adult Cleft Palate Patient 4. Evaluation of Effectiveness of Treatment

9.	Management of glossectomy patients	<ol style="list-style-type: none"> 1. Prosthodontic Treatment of Total Glossectomy 2. Construction of a Mandibular Total Tongue Prosthesis 3. Prosthetic Treatment of Partial Glossectomy
10.	Management of orbital/ocular defects	<ol style="list-style-type: none"> 1. Patient Evaluation 2. Impression and Wax Pattern Fabrication 3. Fitting the Scleral Wax Pattern 4. Custom Ocular Prosthesis Fabrication
11.	Management of facial defects	<ol style="list-style-type: none"> 1. Impression and Working-Cast Fabrication 2. Sculpture and Formation of the Prosthesis Pattern 3. Processing of the Prosthesis Material with Intrinsic and Extrinsic Coloration
12.	Treatment of upper airway sleep disorder patients	<ol style="list-style-type: none"> 1. Anatomy 2. Responsibilities and Limitations of the Dental Community 3. Treatment Options 4. Fabricating Different Oral Device Types
13.	Recent advancements in maxillofacial prosthetics	<ol style="list-style-type: none"> 1. Recent materials 2. Digital techniques of fabrication 3. Advantages and limitations

PROGRAM ASSESSMENTS:

1. Written Exams – Basic Sciences Exam in first year and Final exam (3 Papers)in third year.

2. Practical Exams – Clinical Exams in 3rd year- Include case presentation and clinical procedure (Complete denture and Fixed Partial denture cases), Chair-side and Grand Viva.
3. Student Self-Assessment by experiences obtained during daily clinical activity.
4. Internal assessment by faculty (performance based during clinical and Lab procedures and log book maintenance).
5. Formative assessment- Presentation assessment done after Individual seminar/ Journal club/ ATP presentation, timely test (Subjective/ objective)

BOOKS:

1. Phillips science of dental materials. (Kenneth J. Anusavice)
2. Craig's Restorative Dental Materials. (Ronald L. Sakaguchi and John M. Powers)
3. Prosthodontic Treatment for Edentulous Patients: Complete Dentures and Implant-Supported Protheses. (Zarb, Bolender)
4. Fundamentals of fixed prosthodontics. (Schillinberg)
5. Contemporary fixed prosthodontics (Rosenstiel, Land)
5. McCracken's Removable Partial Denture. (Alan Carr & David Brown)
6. Stewart's clinical removable partial prosthesis (Phenix)
7. Maxillofacial rehabilitation. (Beumer)
8. Denture implants : The art and science. (Charles A. Babbush)
9. Contemporary implant dentistry. (Carl E. Misch)
10. Implant Laboratory Procedures: A step by step guide (Carl Drago, Thomas Peterson)
11. Management of Temporomandibular disorders and Orofacial Pain. (Okeson)

12. Esthetics in dentistry. (Ronald E. Goldstein)
13. Geriatric dentistry: Caring for our aging population. (Paula K. Friedman)
14. Clinical maxillofacial prosthetics (Thomas D. Taylor)
15. Oral Rehabilitation: A Case-Based Approach (Iven Klineberg, Diana Kingston)