



# **Pakistan Medical & Dental Council**

## **National Registration Examination (NRE)**

*for*

## **Dental Graduates**

**(2023)**

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## SECTION I: PREAMBLE

Pakistan Medical & Dental Council (PM&DC) will be conducting professional exit examination – National Registration Examination (NRE) at a national level. This examination is being held under section 18 of the Pakistan Medical & Dental Council Act 2022.

## SECTION II: FORMAT AND STRUCTURE OF THE DENTAL NRE 2023

The Dental National Registration Examination (NRE) 2023 has been designed under Section 18 of PM&DC ACT 2022. It has been developed and will be administered to gauge the ability of BDS graduates' competence to practice independently. Passing the NRE (both the theory and clinical skills examination components) is mandatory for obtaining a full license to practice as General Practitioner.

### **Eligibility:**

Candidates who have successfully graduated from PM&DC approved Foreign medical colleges with an MBBS degree along with a provisional license issued by PM&DC are eligible to sit for NRE 2023.

### **Centres:**

Dental NRE 2023 will be conducted at multiple centres across Pakistan to facilitate the candidates.

**Frequency:**

The Dental NRE will be held at least twice a year.

**Number of attempts:**

There is no bar on the number of times a candidate can attempt the complete Dental NRE.

**Structure**

The Dental NRE will consist of (i) a theory component and (ii) a skill-based, clinical component – Clinical Skills Examination (CSE) that will have two parts.

- i. The theory component will consist of MCQs targeting higher cognition and will check a candidate's ability to apply knowledge. The theory component will have 200 MCQs and will be paper-based. Only candidates qualifying in the theory (MCQs) component of NRE will be eligible for the CSE.
- ii. The Clinical Skills Examination (CSE) is meant to assess essential clinical skills required for practice by a general dental practitioner. The format of CSE will be similar to that of an Objective Structured Clinical Examination (OSCE). It will have two sub-components:
  - a. CSE Session-1  
15 stations, up to 3-hour duration
  - b. CSE Session-2  
3 stations, 50 minutes per station, 3-hour duration

### **Passing criteria:**

Candidates will have to pass both the theory and the CSE components separately in order to be declared successful in Dental NRE.

The minimum pass percentage in the theory (MCQs) component is 70% and the minimum pass percentage in the CSE is 70%. Candidates have to obtain a combined score of 70% in CSE Session-1 & CSE Session-2 in order to be declared as pass. There will be no negative marking in any component of the Dental NRE.

Candidates will be required to pass the theory (MCQs) component to be eligible to attempt the CSE component. Candidates who pass the theory (MCQs) component but fail the CSE will have to re-appear in the CSE component only. Such candidates will re-register for the CSE only.

If a candidate fails in three consecutive attempts of the CSE, they will have to appear in both the theory (MCQs) and CSE components on the fourth attempt. That is, after every three failed attempts at the CSE, candidates will have to sit the entire Dental NRE.

### **Validity**

Passing of the theory (MCQs) component of Dental NRE will remain valid for five (5) years from the date of passing the theory (MCQs) component. CSE component must be passed within five (5) years of passing the theory (MCQs) component of Dental NRE. If a candidate fails the CSE in three consecutive attempts, they will have to reappear in both the theory and CSE components of the Dental NRE. That is, after every three failed attempts at the CSE, candidates will have to retake the entire Dental NRE.

### SECTION III: DISCIPLINES IN THE DENTAL NRE 2023

The theory (MCQs) component of the Dental NRE 2023 will comprise of the following disciplines:

1. Science of Dental Materials
2. Pharmacology including Dental Therapeutics
3. Community and Preventive Dentistry
4. General Surgery
5. General Medicine
6. Periodontology
7. Oral Medicine, Diagnosis, Radiology
8. Operative Dentistry including Paediatric Dentistry & Endodontics
9. Prosthodontics
10. Oral Surgery
11. Orthodontics

Applied clinical aspects of Preclinical disciplines and topics not explicitly stated will be assessed along with the relevant Clinical Science topics.

**SECTION IV: WEIGHTAGE OF DISCIPLINES IN THE THEORY (MCQS)  
COMPONENT OF THE DENTAL NRE 2023**

<b>Total MCQs: 200</b>	<b># of MCQs</b>
Science of Dental Materials	15
Pharmacology including Dental Therapeutics	10
Community and Preventive Dentistry	15
General Surgery	5
General Medicine	5
Periodontology	20
Oral Medicine, Diagnosis, Radiology	25
Operative Dentistry including Paediatric Dentistry & Endodontics	45
Prosthodontics	25
Oral Surgery	25
Orthodontics	10
<b>Total</b>	<b>200</b>

**Syllabus for the Dental NRE 2023:**

For details on the syllabus for the theory (MCQs) component of the Dental NRE 2023, please see Appendix 1

## SECTION V: CLINICAL SKILLS EXAMINATION (CSE)

CSE aims to assess the essential clinical skills that would include interpretation of clinical data, including the diagnostic data, formulation of diagnosis and development of management plans. CSE would also include clinical examination skills and key procedural skills.

The format of CSE will be similar to that of an Objective Structured Clinical Examination (OSCE).

The duration of CSE Session-1 shall be approximately 2-3 hours approximately (including the initial briefing) and will consist of 15 stations. Each CSE Session-1 station shall be assigned 6-10 minutes with 2 minutes for the changeover.

The duration of CSE Session-2 shall be approximately 3 hours (including the initial briefing) and will consist of 3 stations, 50 minutes per station.

The details about the content and conduct of CSE (duration, number of stations, pass percentage and the number and type of mandatory stations, if any) remain subject to change at the discretion of PM&DC. Provided, any such change is notified and displayed on the PM&DC website at least 6 weeks prior to the date of commencement of the CSE.



**Distribution of disciplines for CSE:**

Distribution of disciplines for stations for CSE will be as follows:

S. No.	Areas	CSE Session-1	CSE Session-2
1	Professional & Multidisciplinary Skills	5	
2	Periodontology	2	
3	Operative Dentistry, Endodontics & Paediatric Dentistry	2	2
4	Prosthodontics	2	1
5	Oral Surgery & Oral Medicine	2	
6	Orthodontics	1	
7	Medical & Dental Emergencies	1	
	<b>Total</b>	<b>15</b>	<b>3</b>

**Syllabus for CSE:**

For details on CSE syllabus for Dental NRE 2023, please see Appendix 2

## APPENDIX 1

### SYLLABUS FOR THE THEORY (MCQs) COMPONENT OF THE DENTAL NRE 2023

Applied clinical aspects of Preclinical disciplines and topics not explicitly stated will be assessed along with the relevant Clinical Sciences topics.

## SCIENCE OF DENTAL MATERIALS

### 1. Impression materials

- Hydrocolloids
  - Alginate
- Elastomers
  - Silicone Rubbers
  - Polysulphide
  - Polyether
- Non-elastic impression materials
  - Impression Compound
  - Zinc-oxide eugenol impression paste

### 2. Gypsum products for Dental Casts

### 3. Dental Waxes

### 4. Casting

- Investment and Refractory Dies
- Steps of casting
- Faults in castings

### 5. Polymers

- Classification of denture base materials
- Properties of Acrylic Resin as a denture base material
- Acrylic Resin composition, manipulation and processing
- Alternative denture base materials
- Artificial teeth
- Tissue Conditioners

- Separating media
- Denture Lining materials (Hard and Soft liners)
- Denture Repair and Rebasing

## **6 Adhesion**

- Principles of Adhesion
- Acid-etch systems for bonding to enamel
- Applications of acid-etch technique
- Dentin conditioning, priming and bonding
- Smear Layer and Hybrid Layer
- Dentin bonding systems

## **7 Dental Composites**

- Classification
- Composition and manipulation
- Setting characteristics & Light Curing
- Properties including polymerization shrinkage

## **8 Dental Cements**

- Lining, Base and Luting materials
- Cavity varnish
- Properties, setting characteristics and uses of
  - Zinc Phosphate Cement
  - Zinc Oxide/Eugenol Cement
  - Ortho-ethoxy Benzoic Acid Cement
  - Polycarboxylate Cement
  - Glass Ionomer Cement (GIC)
  - Resin Modified Glass Ionomer Cement (RMGIC)
  - Calcium Hydroxide Cement

## **9 Dental Amalgam**

- Amalgamation process
- Properties and uses of amalgam
- Manipulation and handling (Including Mercury safety)

## **10 Metal and Alloys in Dentistry**

- Base metal casting alloys
- Wrought alloys (Steel and Stainless Steel)
- Gold and alloys of Noble metals
- Titanium

## **11 Ceramics**

- Classification of dental porcelain
- Porcelain veneers and Porcelain fused to metal (PFM) crowns
- CAD-CAM restorations
- Zirconia

## **12 Endodontic materials**

- Irrigants and Intra-canal medicaments
- Obturation materials e.g., Gutta Percha
- Endodontic Sealers & Temporary Restorative Materials

## **14 Abrasion and polishing materials**

# **PHARMACOLOGY INCLUDING DENTAL THERAPEUTICS**

1. Analgesics and Anti-Inflammatory Drugs
2. Antibacterial, Antifungal and Antiviral Drugs relevant to Dentistry
3. Antiseptics and disinfectants
4. Chemicals used in mouth rinses
5. Dentifrices and Fluoride
6. Drug Prescribing
7. Endodontic medicaments
8. Extraction socket medicaments
9. Local Anaesthesia and Vasoconstrictors: Use, Side Effects, Adverse effects and toxicity
10. Topical Haemostatics
11. Periodontal medicaments
12. Sedation & Anxiety Reduction Protocols in Dentistry

### 13. Therapeutics for medical emergencies in dental practice

## COMMUNITY AND PREVENTIVE DENTISTRY

### 1. Prevention of Oral and Dental Diseases:

- Levels of prevention
- Health promotion
- Specific protection
- Dental plaque and its role in the aetiology of dental diseases
- Diet, nutrition and dental health
- Water fluoridation
- Fluoride supplements
- Professionally and self-applied topical fluorides
- Fissure sealing
- Atraumatic Restorations
- Methods of plaque control
- Principles and strategies of dental health education and promotion
- Cross infection control
- Radiation Safety and mercury hazards in dental practice

### 2. Dental Health Care Delivery System:

- Dental care of people with special needs including the elderly, the handicapped and patients with infectious and communicable diseases
- Ethical issues in dental care

### 3. Behavioural Sciences:

- Dentist – patient communication
- Informed Consent, Breaking Bad News
- Management of stress, fear and anxiety in dentistry

## GENERAL SURGERY

1. Metabolic response to injury
2. Shock and blood transfusion
3. Wounds, tissue repair and scars
4. Surgical infections

## GENERAL MEDICINE

1. Hypertension
2. Ischemic Heart Disease & Angina
3. Infective Endocarditis
4. Cardiac Arrest
5. Syncope
6. Bronchial Asthma
7. Diabetes Mellitus
8. Blood Borne Disease including HIV, Hepatitis B and C
9. Anaemias
10. Bleeding & Clotting Disorders

## 1. Normal Periodontium

- Periodontium and its structures
  - Gingiva
  - Periodontal Ligaments
  - Alveolar bone
  - Cementum
- Periodontal anatomy in relation to periodontal and implant surgical procedures

## 2. Classification of Gingival and Periodontal Diseases:

- Gingivitis: Dental biofilm induced
- Gingivitis: Non - Dental biofilm induced
- Periodontitis (Chronic and Aggressive Periodontitis according to 1999 classification)
- Periodontitis as a manifestation of systemic diseases
- Necrotizing periodontal diseases
- Other conditions affecting periodontium
  - Systemic diseases/condition affecting periodontal supporting tissues
  - Periodontal abscesses and Perio-Endo lesions
  - Mucogingival deformities and conditions
  - Occlusal trauma
  - Prosthesis and tooth related factors
- Peri-Implant diseases and conditions

## 3. Aetiology of Gingival and Periodontal Diseases:

- Plaque Microbiology
- Plaque retentive factors
  - Calculus
  - Improper restorations
  - Improper crown margins
  - Orthodontic appliances
- Risk factors of periodontal disease

#### **4. Gingival and Periodontal Diseases:**

- Pathogenesis
- Host response
- Clinical features
- Histological features
- Radiographic features

#### **5. Periodontal examination, investigations and documentation:**

- Extra oral and intraoral examination
- Basic Periodontal Examination
- General dental charting
- Detailed periodontal charting
- Indices and classification of gingival/ periodontal parameters
  - Gingival inflammation
  - Periodontal disease
  - Gingival recession
  - Furcation
  - Mobility
- Sensibility tests
- Referral to physician and/or dental specialists

#### **6. Diagnosis & Treatment plan of periodontal disease:**

- Periodontal diagnosis according to 2017 classification
- Radiographic interpretations
- Prognosis of individual teeth
- Phases of treatment plan
- Patient education and motivation regarding proposed treatment plan
- Evidence based sequence of treatment planning

#### **7. Plaque control:**

- Plaque indices
- Plaque disclosing agents
- Oral hygiene tools
- Oral hygiene instructions



- Chemical plaque control methods
- Dentifrices
- Dietary counselling

### **8. Non-surgical Periodontal therapy**

- Goal of non-surgical therapy
- Instruments
- Scaling and prophylaxis
- Scaling and root surface debridement
- Healing response end outcomes expected from periodontal non-surgical therapy

### **9. Surgical Principles and Procedures**

- Goal of surgical therapy
- Principles of periodontal surgical therapy
- Basic principles of wound healing
- Periodontal surgical procedures for pocket depth reduction
- Gingivectomy
- Principles of Osseointegration
- Basic surgical principles of implant surgery
- Surgical assessment of implant cases
- Basic surgical procedure of implant surgery
- Instruments for perio and implant surgical procedures

### **10. Interdisciplinary Periodontics**

- Perio-Restorative interrelationship
- Endo-Perio Continuum
- Perio-Ortho interrelationship
- Perio-Medicine
  - Perio- Diabetes
  - Perio – CVD
  - Perio – Pregnancy
  - Bleeding/clotting disorders and blood thinners

### **11. Periodontology and Implant maintenance:**

- Importance
- Patient Compliance
- Choice of instruments for implant maintenance
- Periodontal risk assessment

## ORAL MEDICINE, DIAGNOSIS AND RADIOLOGY

### 1. The Oral Mucosa:

Normal Oral Mucosa:

- Structure
- Function
- Age changes

Abnormal oral mucosa

Oral mucosa in generalized disease

Periodontium in generalized disease

### 2. Principles of oral medicine: assessment and investigation of patients

Patient assessment

- History taking
- Examination

Investigations

- Blood examination
- Blood chemistry
- Endocrine function
- Urinalysis

Biopsy

Microbiological investigations

Imaging techniques

### 3. Infections of gingivae and oral mucosa

Bacterial infections

- Acute Necrotizing Ulcerative Disease
- Non-specific

## Fungal infections

### Primary Candidiasis

- Acute (Pseudomembranous and Erythematous)
- Chronic (Pseudomembranous, Erythematous and CHC)
- Candida associated lesions
  - Denture Induced Stomatitis
  - Angular Cheilitis
  - Median Rhomboid Glossitis
  - Secondary Candidiasis
  - Secondary Chronic Mucocutaneous Candidiasis syndrome

### Viral infections

- Herpes simplex virus infections
- Varicella zoster virus infections
- Epstein-Barr virus infections
- Human papillomavirus infections
- Human immunodeficiency virus and AIDS

## 4. Oral Ulceration

### Traumatic ulceration

- Aetiology
- Clinical features
- Management

### Recurrent aphthous stomatitis (RAS)

- Clinical features
- Aetiology
- Histopathology and immunopathogenesis
- Systemic conditions and RAS like lesions

## 5. Diseases of the lips and tongue and disturbances of taste and halitosis

### Diseases of the lips

- Swelling of the lips
- Angular cheilitis (angular stomatitis, chelosis, perleche)
- Lip fissures

- Allergic cheilitis
- Actinic cheilitis (solar keratosis)
- Exfoliative cheilitis
- Perioral dermatitis
- Lip Lickers eczema
- Cheilocandidosis

#### Diseases of tongue

- Developmental abnormalities and Morphological variations
- Tongue fissures
- Coated tongue
- Hairy tongue
- Atrophy of the lingual epithelium
- Traumatic irritation of the tongue
- Enlargement of the foliate papillae
- Geographic tongue (Erythema Migrans, Benign Migratory Glossitis),
- Median Rhomboid Glossitis
- Disturbances of taste and halitosis

### **6. Swellings of the face and neck**

#### Facial swellings

- Differential diagnosis swellings in the neck

#### Cervical lymphadenopathy

- Differential diagnosis
- Examination of the lymph nodes
- Inflammatory causes of lymph node enlargement
- Neoplastic causes of lymph node enlargement

### **7. Salivary glands and saliva**

#### Saliva and salivary glands

- Saliva
- Salivary glands

#### Assessment of the salivary glands

- Measurement of the salivary flow

### Salivary gland diseases

- Sialadenitis
- Sialosis
- Necrotizing sialometaplasia
- HIV-associated salivary gland disease

### Salivary gland tumours

## **8. Inflammatory overgrowths, developmental and benign lesions, and pigmentation of the oral mucosa**

### Inflammatory overgrowths

- Epulides
- Fibroepithelial polyp
- Denture granuloma
- Focal epithelial hyperplasia (Heck's disease)

### Developmental white lesions

### Benign neoplasms

### Squamous cell papilloma

### Miscellaneous benign conditions

- Traumatic keratoses
- Nicotinic Stomatitis (pipe smokers' palate)
- Leukoedema
- Amalgam tattoos
- Melanotic pigmentation Oral melanoma

## **9. Precancerous Lesions and Conditions**

### Precancerous lesions

- Leukoplakia
- Erythroleukoplakia
- Speckled leukoplakia
- Candidal leukoplakia (chronic hyperplastic candidosis)
- Malignant transformation of precancerous lesions
- Management of precancerous lesions
- Precancerous conditions

- Oral Submucous Fibrosis (OSF)
- Lichen Planus

#### Oral carcinoma and carcinogenesis

- Aetiological factors for oral Squamous Cell Carcinoma
- Clinical features and diagnosis of oral carcinoma
- Staging systems for oral carcinoma
- The management of oral carcinoma
- Prevention of oral carcinoma
- Oral carcinoma as a genetic disease

### **10. Gastrointestinal diseases**

#### Coeliac disease (gluten sensitive enteropathy)

- Oral manifestation of Coeliac disease

#### Inflammatory bowel disease (IBD)

- Ulcerative colitis

#### Stomatosis and Inflammatory bowel disease

#### Gastro Oesophageal reflux disorder (GORD)

### **11. Blood and nutrition, endocrine disturbances, and renal disease**

#### Disorders of the blood

- Anaemias
- Oral signs and symptoms in anaemia
- Management of patients with anaemias and haematinic deficiencies
- Leukaemia
- Leukopenia
- Platelet abnormalities
- The selection of patients for haematological examination

#### Disorders of nutrition

- Nutritional deficiencies

#### Scurvy

#### Endocrine disturbances

- Normal endocrine changes

- Adrenocortical diseases
- Thyroid disease

Diabetic mellitus

Renal disease

- Chronic renal failure
- Renal patients undergoing dialysis Renal transplant patients

## **12. Immunodeficiency, hypersensitivity, autoimmunity and oral reactions to drug therapy**

Immunodeficiency

Hypersensitivity

Angioedema

Autoimmunity

Oral reactions to drug therapy

- Spectrum of adverse reactions
- Oral reactions of antibiotics
- Oral reactions to steroids
- Drug therapy and periodontal tissues
- Fixed drug eruptions

## **13. Facial Pain and neurological disturbances**

Facial pain: an overview

- The nerve supply of the face
- The evaluation of facial pain

Neuropathic pain

- Trigeminal neuralgia
- Glossopharyngeal neuralgia
- Postherpetic neuralgia
- Neuropathic pain secondary to other conditions

Migraine

Cluster headaches (periodic migrainous neuralgia/ migrainous neuralgia)

Tension type headache

Giant cell arteritis (temporal arteritis/cranial arteritis)

Neurological disturbances

- Facial nerve deficits
- Anaesthesia and paraesthesia
- Bell's palsy
- Multiple sclerosis

#### **14. Temporomandibular disorders**

Investigation of the stomatognathic system

- History
- Examination
- Imaging

Temporomandibular pain and dysfunction syndrome (TMPDS)

- Management

Internal derangement

- Disc displacement with reduction
- Disc displacement without reduction

Rheumatoid arthritis

Osteoarthrosis (osteoarthritis)

Masseteric Hypertrophy

Tumours

#### **15. Chronic and Psychogenic orofacial problems**

Chronic orofacial pain

- Atypical facial pain
- Atypical odontalgia
- Oral dysaesthesia (Burning mouth syndrome)
- Management of chronic orofacial pain

#### **16. Medical emergencies in dentistry**

The prevention of medical emergencies

Administration of drugs



- Routes of administration of drugs

Emergency drugs and equipment

Management of emergencies

- Fainting
- Hypoglycaemia / Hyperglycaemias
- Epileptic seizures
- Asthma
- Chest pain
- Hyperventilation
- Respiratory obstruction/foreign body aspiration
- Anaphylaxis
- Cerebrovascular accidents
- Local anaesthesia toxicity/ overdose
- Adrenal shock/ Addison's crisis
- Respiratory arrest
- Cardiac arrest

## ★ 17. Radiology

Radiation biology, hazards of radiation and radiation protection

General patient consideration including control of infection

Intraoral Periapical Radiographs

Intraoral Bitewing Radiographs

Intraoral Occlusal Radiographs

Lateral Cephalometric Radiographs

Panoramic Radiographs

Posterior view Skull

Imaging of Paranasal Sinuses

# OPERATIVE DENTISTRY INCLUDING PAEDIATRIC DENTISTRY & ENDODONTICS

## A. OPERATIVE DENTISTRY

### 1. Cross infection Control

- Universal/Standard Precautions
- Sterilization/Disinfection
- Critical Items, Semi Critical Items, Non-Critical Items
- Blood Borne Infections
- Hand Hygiene
- Vaccine/Immunization
- Personal Protective Equipment
- Needle Prick Injury Prevention and Immediate Management
- Sterilization of Handpieces, Burs and other restorative instruments
- Dental Unit Waterlines
- Waste Disposal
- Sharps Management

### 2. Evaluation & History Taking

- History Taking
- Comprehensive Dental Evaluation from Restorative Aspect
- Knowledge of Diagnostic Tests
- International Caries Detection & Assessment System
- ADA Caries Classification System
- Caries Risk Assessment above 6 years
- ADA Guidelines for Prescribing Dental Radiographs
- Differential Diagnosis, Provisional Diagnosis, Definitive Diagnosis
- Pulpal and Periapical Diagnosis (AAE)

### 3. Radiographs

- Bitewing, Periapical (Bisecting Angle and Parallax) (SLOB Rule)
- Occlusal Radiographs & Orthopantomogram
- Indications of Use of CBCT in Restorative Dentistry

#### 4. Cariology

- Define various Carious Lesion Terminologies
- Classify Carious Lesions
- Pathophysiology of Dental Caries in Enamel and Dentine
- Management of Caries by Medical Model
- Management of Caries based on Caries Risk
- Non-Operative Management of Dental Caries
- Operative Management of Dental Caries
- Management of Deep Caries
- Caries Control Restorations / ART
- Root Caries and its Management

#### 5. Amalgam

- Introduction to Amalgam Restorations
- Amalgam as a restorative material
- Indications for amalgam used as a restorative material
- Contraindications to the use of amalgam as a restorative material
- Advantages and disadvantages of amalgam as a restorative material
- Cavity preparation steps (initial and final)

##### Class I Amalgam Restorations

- Cavity preparation technique for Conservative Amalgam restorations
- Cavity preparation technique for Extensive Class I amalgam restoration
- Restorative technique for Class I amalgam placement

##### Class II Amalgam Restorations

- Cavity preparation technique for Small and Large Class II Amalgam restorations
- Restorative technique for Class II amalgam placement

##### Class III & V Amalgam Restorations

- Preparation and Restorative Techniques of Class III & Class V Restorations.

##### Complex Amalgam Restorations

- Indications, contraindications, advantages, and disadvantages of using amalgam in complex restorations
- Retention in Complex restorations. Dentine Pins

- Describe the possible modes of failure of a pin retained restoration
- Amalgam as a foundation restoration in Endodontically Treated Teeth

## **6. Dental Adhesion**

- Goals of Dental Adhesion
- Adhesive Classifications
- Fundamentals of Enamel Adhesion
- Smear Layer in Dentine Adhesion
- Hybrid Layer in Dentine Adhesion
- Common Adhesive Techniques
- Adhesion to Deeper Dentine

## **7. Composite**

- Colour and Shade Matching
- Dental Composite Resin
  - Classification of Dental Composite Resin
  - Dental Composite Resin as a material
  - Polymerization Shrinkage
- Light Curing in Dental Composite Resin
- Anterior Resin Composite Restorations
- Posterior Resin Composite Restoration
- Pits and Fissures Preventive Resin Restoration
- Resin Infiltration
- Class 1 Direct Composite Resin Restoration
- Class 2 Direct Composite Resin Restoration

## **8. Non-Carious Tooth Surface Loss**

- Attrition, Erosion, Abrasion and Abfraction, And Non-Carious Cervical Lesion
- Diagnosis, Prevention and Management

## **9. Ultra Conservative Aesthetic Procedures**

- Micro Abrasion
- Macro Abrasion
- Tooth Whitening
- Direct/Indirect Veneers

## 10. Indirect Partial Coverage Restorations

- Classification
- Advantages and Disadvantages
- Indications

## 11. Occlusal Adjustment in Single Tooth Restoration

- Confirmative vs Re-Organized Occlusion
- Occlusion Basics
- High Spot Identification and Adjustment

## 12. Trauma

- Tooth Structures Injuries:
  - Infraction
  - Enamel fracture
  - Enamel and dentine fracture
  - Enamel dentine involving pulp fracture
  - Crown root fracture
- Supporting Structures Injuries:
  - Root Fracture
  - Concussion
  - Sub Luxation, Lateral Luxation
  - Intrusion, Extrusion & Avulsion

## B. ENDODONTICS

1. Endodontic Case Difficulty Assessment
2. Diagnostic Clinical Tests required for endodontic evaluation.
3. Interpretation of Periapical Radiographs
4. Differentiation of Odontogenic radiolucency / radiopacity from Non-Odontogenic
5. Resorption
6. Endodontic-periodontic interrelationships.
7. Endodontic Emergencies and management.
8. Pain Management
9. Endodontic Microbiology & Histology

10. Endodontic Anatomy
11. Endodontic Access Opening
12. Chemo-Mechanical Preparation
13. Working Length
14. Manual ISO Instrumentation
15. Rotary NiTi Endodontics
16. Obturation
17. Inter Appointment Temporization
18. Coronal Seal in Endodontics
19. Procedural Errors in Endodontics
20. Regenerative Endodontics
21. Apexification
22. Pulp Therapy

### **C. PAEDIATRIC DENTISTRY**

#### **10. Patient Assessment**

- History Taking
- Treatment Planning
- Patient Education Counselling with parents/guardians
- Caries Risk Assessment in children under 6 years
- Caries Management according to Risk Assessment (CAMBRA)
- Intra Oral Radiology in children

#### **11. Early Childhood Caries (ECC)**

- Aetiology
- Risk Factors
- Diagnosis
- Prevention (Diet modification, Oral Hygiene, Fluoride & Non-Fluoride Agents)
- Non-Operative & Operative management strategies

## **12. Fluorides**

- Systemic Fluoride
- Topical Fluorides
- Fluoride Toxicity

## **13. Pit and Fissure Sealants**

- Indications
- GIC & Resin Based Sealers
- Procedure

## **14. Vital Pulp Therapy, Pulpectomy & Regenerative Endodontics**

- Primary & Immature Permanent Teeth
- Indirect Pulp Capping, Direct Pulp Capping,
- Partial Pulpotomy, Complete Pulpotomy
- Pulpectomy
- Pulpal Regeneration
- Apexification

## **15. Restorations**

- Direct Restorations
- Pre-Formed Crowns

## **16. Local Anaesthesia**

- Local Anaesthesia in children
- Topical Anaesthetics
- Local Anaesthesia Adverse Effects & Toxicity

## **17. Child Psychology & Behaviour Management**

- Pharmacological & Non-Pharmacological Behaviour Management
- Oral & Inhalation Sedation

## **18. Developmental Anomalies of the teeth and Acquired Disturbances**

- Diagnosis and Management of:
  - Individual tooth anomalies and Fluorosis
  - Molar Incisor Hypomineralisation
  - Amelogenesis Imperfecta
  - Dentinogenesis Imperfecta

- Dentine Dysplasia

## 19. Oral habits

## 20. Space maintenance in the primary dentition

# PROSTHODONTICS

## 1. Prosthodontic patient assessment: history, evaluation, diagnosis and treatment planning

- Recording general information
- Relevant medical and dental history
- Current medications
- Extraoral and intraoral examination
- Radiographic examination
- Referral for second opinion (when indicated)

## 2. Fixed partial dentures:

- Introduction to fixed prosthodontics
- Treatment planning for the replacement of missing teeth
- Fixed partial denture configurations
- Principles of tooth preparations for retainer units
- Preparations for full veneer crowns as retainer units
- Preparations for extensively damaged teeth
- Preparations for periodontally weakened teeth
- Provisional restorations
- Fluid control and soft tissue management
- Impressions for fixed prosthodontics
- Try-in, adjustments and cementation
- Aesthetic considerations
- All-ceramic restorations
- Metal-ceramic restorations
- Pontics and edentulous ridges
- Resin – Bonded fixed partials denture



### **3. Removable partial dentures:**

- Introduction: Terminologies and classification
- Components of a removable partial denture: Major connectors, Minor connectors, Rest and rest seats, Direct retainers, Indirect retainers, and tooth replacement
- Principles of Removable Partial Design
- Examination and evaluation of diagnostic data
- Different designs of removable partial denture
- Mouth preparation and Master Cast fabrication
- Impression materials and procedures for removable partial dentures
- Preliminary jaw relation and aesthetic try-in for anterior replacement teeth.
- Laboratory procedures for framework construction
- Trial of the framework
- Special impression procedures for tooth-tissue supported removable partial denture
- Established occlusal relationships
- Try-in and completion of the partial denture
- Delivering the removable partial denture
- Post insertion observations
- Temporary and immediate removable partial denture
- Complete denture opposing removable partial dentures
- Relining, rebasing, and repairing the removable partial dentures.

### **4. Complete dentures**

- Basic Anatomy and Physiology: Biomechanics of the edentulous state, Residual ridge resorption.
- Communicating with the patient: Understanding the patients Instructing the patient. Diagnosis and treatment planning for patients, with some teeth remaining and with no teeth remaining:
- Mental attitude
- Systemic status. Local factors
- Patient evaluation procedures

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- Improving the patient's denture foundation and ridge relation
  - Pre-prosthetic examination and procedures including hard tissue & soft tissue procedures
  - Postinsertion complications and procedures
  - Rehabilitation of the edentulous patient
    - Various impression techniques, related clinical and laboratory procedures and materials
    - Muscles of facial expression
    - Biologic considerations for maxillary and mandibular impression including anatomical landmarks and their interpretation
  - Maxillomandibular relations
    - Biological consideration in jaw relation & jaw movements – craniomandibular relations
    - Mandibular movements
    - Maxillo-mandibular relation including vertical and horizontal jaw relations
    - Record bases and occlusion rims
    - Materials & techniques
    - Useful guidelines and ideal parameters
    - Recording and transferring bases and occlusal rims
    - Relating the patient to the articulator
    - Inter occlusal records different materials used and techniques employed
    - Articulation of casts on semi adjustable articulators
    - Face bow transfer procedures
  - Tooth selection and arrangement
    - Relating inclination of teeth to concept of occlusion
    - Neurocentric concept
    - Balanced occlusal concept
  - Denture Trial and trial dentures.

- Laboratory procedures included in construction of complete dentures and prescription for the technician
- Denture insertion
  - Insertion procedures
  - Clinical errors
  - Correcting occlusal disharmony
  - Selective grinding procedure
- Treating problems with associated denture use
- Treating abused tissues
- Relining and re-basing and Repair of dentures
- Immediate complete dentures construction procedure
- The single complete denture
- Tooth supported complete denture (Over Dentures)

#### **5. Gerodontology**

- Management strategies for the dental care of the elderly
- Dental and oral diseases and disorder in the elderly
- Range of psychological and social factors involved with geriatric patients.
- Distinguish between normal and abnormal consequences of aging
  - Malnutrition
- Excessive tooth wear
- Root dental caries
- Treatment options of removable and fixed prosthesis for the older adult in the context of Minimal intervention dentistry

#### **6. Implantology**

- Rationale for dental implants
- Science of osseointegration (factors affecting osseointegration)
- Indications and contraindications for dental implants
- Implant supported rehabilitation options for partially dentate and completely edentulous

## **7. Occlusion and articulators**

- Fundamentals of occlusion and occlusal concepts
- Determinants of occlusion
- Articulators, their types and classifications

## **8. Temporomandibular disorders**

- Functional anatomy and physiology of the temporomandibular structures
- Aetiology of the temporomandibular disorders
- Classification/types of temporomandibular disorders
- Diagnosis of temporomandibular disorders
- Management of temporomandibular disorders

## **9. Single tooth full coverage indirect restorations (Crowns)**

- Basic principles of preparation
- Types of crowns, indications and contraindications, advantages and disadvantages
- Ceramic/Porcelain crowns-indications and contraindications, clinical assessment and steps of preparation
- Cast Metal crown - indications and contraindications, clinical assessment and steps of preparation.
- Porcelain fused to metal crown - indications and contraindications, clinical assessment and steps of preparation.
- Temporary Crowns
- Post and core crowns
- Impression materials and techniques
- Try-in, adjustments and cementation
- Follow up and repair
- Endodontic considerations in crown

### Principles of Oral Surgery

1. Sterilization and cross infection control
2. Patient assessment
3. Informed consent
4. Principles of flap design, sutures, & suturing techniques
5. Techniques of biopsy
6. Use of antimicrobials in dentistry and oral surgery
7. Radiology for oral surgery
8. Treatment planning in oral surgery
9. Local anaesthesia (LA)
  - Indications and contraindication in oral surgery
  - Surgical anatomy of trigeminal nerve
  - Injection techniques for administration of local anaesthesia in oral surgery
  - Complication of LA
10. Management of medical emergencies in oral surgery
11. Management of medically compromised patients
  - The presentation of systemic disease in the mouth, oral surgical management of compromised patients with special emphasis on:
    - Cardiovascular diseases
    - Respiratory disorders
    - Diabetes mellitus
    - Immunosuppression
    - Blood dyscrasias
    - Radiation therapy of Head and Neck
    - Bisphosphonate-related osteonecrosis of the jaw
    - Prosthetic Implants
    - Renal disease and transplant
    - Osteoporosis
    - Blood borne diseases

## **Exodontia**

1. Indications and contraindications
2. Forceps extractions
3. Principles of use of surgical elevators
4. Surgical extraction
5. Complications of tooth extraction.
6. Impacted cuspids and wisdom teeth
  - Classification systems for impacted teeth
  - Radiographic assessment
  - Indication and contraindication for removal
  - Surgical techniques
  - Complications

## **Jaw Cysts**

1. Classification of jaw cysts including odontogenic and non-odontogenic cysts
2. Diagnosis
3. Treatment of jaw cysts (marsupialization and enucleation)

## **Periapical Surgery**

1. Indications and contraindication
2. Surgical Techniques
3. Complications

## **Pre-prosthetic Surgery**

1. Goals of pre-prosthetic surgery
2. Specific hard and soft tissue procedures including their indications, advantages and complications.
3. Dental implants
  - Patient assessment and options for implant placement
  - Surgical procedures for implant placement
  - Postoperative care & follow up

## **Maxillary Antrum**

1. Surgical anatomy
2. Oro-antral fistula

3. Common pathological lesions and their management

### **Spread of Oral Infection**

1. Periapical abscess and cellulitis
2. Spread of oral infection through tissue spaces of the jaws and neck & Ludwig's Angina
3. Intracranial complication of oral infection
4. Principles of management of odontogenic infections

### **Oral & Maxillofacial Trauma**

1. Surgical anatomy of the facial skeleton
2. Aetiology and presentation
3. Emergency management of maxillofacial trauma
  - Soft tissue injuries of the head & neck
  - Dental and dentoalveolar injuries/trauma
  - Fracture of mandible
  - Fractures of Mid-Face, especially LeFort & Zygomatic Complex
4. Complications of maxillofacial injuries

### **Temporomandibular Joint (TMJ)**

1. Pain & dysfunction
2. Internal derangement
3. Congenital and traumatic abnormalities especially ankylosis
4. Management principles

### **Oncology**

1. Oral neoplasia
  - Tumours of the oral cavity & jaws & associated tissues, including odontogenic tumours & squamous cell carcinoma. The principles of operative treatment of the above including reconstruction
  - The principles of Radiotherapy, Chemotherapy & their effects on orofacial tissues.

### **Salivary Glands**

1. Diseases of salivary glands including Sialoadenitis & Sialolithiasis
2. Benign & malignant tumours

## **Orofacial Pain**

1. Common causes of orofacial pain, their diagnosis & management with special emphasis on Trigeminal Neuralgia

## **Orthognathic Surgery**

1. Means of assessment
2. Diagnosis
3. Principles of surgical treatment
4. Postoperative care & follow-up

## **Development Anomalies**

1. Cleft lip and palate; head & neck deformity

# **ORTHODONTICS**

## **1. Introduction to orthodontics**

- Assessment of need for Orthodontic treatment

## **2. Growth & development**

- Basic terminologies and basic principles of growth
- Methods of assessment of skeletal growth for clinical interpretation
- Relevance of growth and development of facial bones to malocclusion, orthodontic diagnosis and management

## **3. Development of dentition**

- Process of development of dentition and its implications to establishment of final occlusion
- Dimensional changes in dental arches during different dentition periods
- Methods to assess dental growth and role of Nolla's Stages of Tooth Development
- Factors affecting transition from primary dentition to permanent dentition
- Features of primary, mixed and permanent dentition

## **4. Preventive orthodontics**

- Deleterious oral habits, clinical implications, diagnosis & their management



- Role of caries control, restorations & space management in development of malocclusion
- Patient & Parent counselling
- Exfoliation of deciduous teeth, eruption paths of permanent teeth and their relevance to clinical situations

#### **5. Interceptive orthodontics**

- Orthodontic Emergencies and their management/referrals
- Space maintenance protocols, appliances and their clinical applications
- Identify cases requiring Space regaining protocols, space supervision, serial extraction and timings/stage for referral
- Methodologies for correction of cross bite
- Removal of impediments in the Pathway of eruption
- Treatment of locked or impacted permanent first molar

#### **6. Occlusion & biological basis of orthodontics**

- Classification and diagnosis of occlusion and malocclusion
- Role of anchorage in clinical orthodontics
- Anchorage devices and their clinical uses
- Deleterious effects of orthodontic treatments and their prevention and management

#### **7. Orthodontic diagnosis & treatment planning**

- Stepwise approach in process of diagnosing an orthodontic case
- Orthodontic records, investigations and interpretation
- Formulation of management plan

#### **8. Malocclusion**

- Aetiology of Malocclusion
- Aetiology, Diagnosis & Management of Class I Malocclusions
- Aetiology, Diagnosis & Management of Class II Malocclusions
- Aetiology, Diagnosis & Management of Class III Malocclusions
- Transverse & Vertical Problems & their management

#### **9. Materials & instruments used in orthodontics**

- Identification and clinical uses of basic materials and instruments used in orthodontics

## **10. Removable appliances**

- Types of removable appliances, general principles, components and fabrication.
- Components & construction methods
- Indications & Contraindications
- Clinical Uses & handling

## **11. Orthodontic fixed appliances**

- Identification of all types of fixed orthodontic appliances
- Indications and clinical uses of orthodontic attachments, wires and auxiliaries
- Advantages and problems associated with fixed appliance treatment

## **12. Functional appliances & orthopaedic appliances**

- Identification, and troubleshooting with associated acute problems

## **13. Orthognathic surgery**

- Identification of borderline & Severe Cases
- Parameters to categorize camouflage treatment or referral to specialist centre

## **14. Cleft lip & palate**

- Baseline patient and parental counselling
- Referral pathways

## **15. Stability and retention**

- Concepts of stability, relapse and retention
- Type and need of retention in different clinical situations
- Types of retainers and their clinical uses

## **16. Dental radiology**

- Indications and uses of Peri-apical radiographs, OPG, Lateral Ceph and other necessary radiographs in orthodontic diagnosis
- Interpretation of these radiographs
- Radiation Hazards & their prevention

## APPENDIX 2

### **SYLLABUS FOR SKILLS AND COMPETENCIES REQUIRED OF A BDS GRADUATE AND A HOUSE OFFICER BY THE END OF THE HOUSE JOB / INTERNSHIP / FOUNDATION YEAR, FOR THE DENTAL NATIONAL REGISTRATION EXAMINATION 2023**

Each subject heading in the following section lists the required competencies (in italics), followed by associated learning objectives.

All objectives listed in the following section may be evaluated in both CSE Session-1 & CSE Session-2 stations. Objectives marked with an asterisk sign (\*) will be used as primary objectives for CSE Session-2 stations.



## 1. Professional and Multidisciplinary Skills

<b>1.1 Patient Assessment</b>	
<ul style="list-style-type: none"> <li>● <i>Obtain patient / medical data, including a thorough intra/extra oral examination, and record findings.</i></li> <li>● <i>Select and obtain diagnostic images for the individual patient.</i></li> </ul>	
<b>1.1.1</b>	Elicit, and record patient history.
<b>1.1.2</b>	Perform, and record intra and extra oral examination for diagnosis of problems presenting to all specialties of dentistry, including: caries, periodontal disease, malocclusion & dentofacial deformity, common oral cysts and benign lesions, oral cancer and potentially malignant lesions, odontogenic and facial infections, mucosal disorders, dentoalveolar & maxillofacial trauma, TMJ and facial pain/neurological disorders.
<b>1.1.3</b>	Perform, and record results of diagnostic investigations: transillumination test, pulp vitality test (heat, cold, electrical), articulated diagnostic casts
<b>1.1.4</b>	Select, and safely take the following intraoral radiographs using PNRA safety guidelines, for adults, children, and pregnant patients: periapical, bitewing, occlusal.
<b>1.2 Professionalism, Health Promotion, Behavioural Sciences &amp; Communication Skills</b>	
<ul style="list-style-type: none"> <li>● <i>Apply ethical standards in the provision of dental care.</i></li> <li>● <i>Practice within one's scope of competence and consult with or refer to professional colleagues when indicated.</i></li> <li>● <i>Apply principles of risk management, including informed consent and appropriate record keeping in patient care.</i></li> <li>● <i>Apply appropriate interpersonal and communication skills.</i></li> <li>● <i>Apply psychosocial and behavioural principles in patient-centred health care.</i></li> <li>● <i>Communicate effectively with individuals from diverse populations.</i></li> <li>● <i>Provide prevention, intervention, and educational strategies.</i></li> </ul>	
<b>1.2.1</b>	Explain diagnosis, investigations, and evidence-based treatment plan to patients and attendants involved in decision making.
<b>1.2.2</b>	Take and record informed consent for common procedures in dentistry.
<b>1.2.3</b>	Apply counselling skills in dentistry: advise patients on lifestyle and risk factors, habit breaking, diet, oral hygiene, oral health, caries prevention, smoking cessation, health promotion.
<b>1.2.4</b>	Give post-procedure instructions and counsel patients on home care after common procedures in dentistry.

<b>1.2.5</b>	Prescribe drugs for common dental indications, including pain and anxiety management, infectious diseases (bacterial, viral & fungal), periodontal and mucosal diseases including ulcers and Lichen Planus, dentin hypersensitivity, oral trauma & abrasions. Includes antibiotic stewardship and counselling patients on the safe use of prescribed medication.	
<b>1.2.6</b>	Communicate (face to face, electronic, phone, written) with patients, their relatives, colleagues, dental technicians, laboratory personnel, and wider health care professionals, including referral.	

### **1.3 Infection Control**

*Utilize universal infection control guidelines for all clinical procedures.*

<b>1.3.1</b>	Demonstrate hand hygiene, respiratory etiquette, and donning and doffing of PPE for non-aerosol generating, and for aerosol generating procedures.	
<b>1.3.2</b>	Aseptically set up an instrument tray and equipment for a general dental procedure.	
<b>1.3.3</b>	Perform sterile setup of instruments and equipment for a minor oral surgery procedure, including sterile set up of handpiece and suction, and application of sterile barriers.	
<b>1.3.4</b>	Follow standard infection control precautions for handling of equipment, instruments and materials during dental procedures, including: material dispensing & manipulation & transfer to dentist, curing light use, oral radiology, dental unit water lines purging and treatment, use of intra oral cameras.	
<b>1.3.5</b>	Disinfect impressions and prosthetic/orthodontic appliances and devices before dispatch to the laboratory, and delivery to the patient.	
<b>1.3.6</b>	Segregate and dispose contaminated waste and sharp items generated in dental procedures.	
<b>1.3.7</b>	Perform dental unit disinfection in between patients, and at the start of the day.	
<b>1.3.8</b>	Disinfect, wash/clean, & package contaminated dental instruments for autoclaving.	
<b>1.3.9</b>	Run, monitor and record an autoclave cycle.	
<b>1.3.10</b>	Remove and store sterile packs from an autoclave.	
<b>1.3.11</b>	Demonstrate cleaning and disinfection of blood or saliva spillage.	
<b>1.3.12</b>	Demonstrate initial management of a needle prick injury.	

### **1.4 Pain & Anxiety Management**

*Prevent, diagnose, and manage pain and anxiety in the dental patient.*

<b>1.4.1</b>	Select and safely prescribe drugs for the management of preoperative, operative and postoperative pain and anxiety. Counsel patients on the safe use of prescribed medication.	
<b>1.4.2</b>	Identify landmarks for maxillary and mandibular infiltration local anaesthesia, and inferior alveolar nerve block.	

<b>1.4.3</b>	Select and safely administer the following local anaesthesia techniques for the practice of dentistry: infiltration for maxilla and mandible (including intrapulpal, intraligamentary), and the following nerve blocks: inferior alveolar, lingual, long buccal, greater palatine & nasopalatine.	
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### **1.5 Ergonomics**

<b>1.5.1</b>	Demonstrate different operator positions, instrument grips, and patient positions required to perform common procedures in dentistry.	
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### **1.6 Oral Hygiene Instructions**

<b>1.6.1</b>	Deliver oral hygiene instructions i.e. instruct patients in appropriate oral hygiene methods compatible with oral health.	
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## **2. PERIODONTICS**

*Prevent, diagnose, and manage periodontal diseases.*

### **2.1 Patient Education and Motivation**

<b>2.1.1</b>	Educate patients regarding the aetiology of periodontal disease and encourage them to assume responsibility for their oral health.	
<b>2.1.2</b>	Instruct the patients on when and how to use chemical plaque control agents in periodontal disease management.	
<b>2.1.3</b>	Discuss the outcome of periodontal therapy and carry out any further procedures required to maintain (supportive periodontal therapy) or improve the obtained treatment outcome.	
<b>2.1.4</b>	Discuss local, systemic and acquired risk factors of periodontal disease with patients, discuss the role of perio-systemic inter-relationship and its influence on periodontal treatment strategies.	
<b>2.1.5</b>	Demonstrate the use of plaque disclosing agents.	

### **2.2 Management of Painful Conditions**

<b>2.2.1</b>	Provide symptomatic relief to patients presenting with painful conditions such as necrotizing ulcerative conditions, periodontal abscess, food impactions, dentine hypersensitivity.	
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### **2.3 Techniques for Plaque, Calculus and Stain removal**

<b>2.3.1</b>	Demonstrate periodontal instrumentation techniques for plaque, calculus and stain removal using manual and ultrasonic instruments.	
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2.3.2	Demonstrate instrument sharpening techniques and identification of worn-down periodontal instruments.	
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### 3. OPERATIVE DENTISTRY, ENDODONTICS & PAEDIATRIC DENTISTRY

*Select and execute the most appropriate intra-coronal, extra-coronal, direct or indirect restoration for adult and paediatric patients based on knowledge of their indications, advantages and disadvantages.*

*Manage pulpal and periradicular diseases.*

<b>3.1 Amalgam Restorations</b>		
3.1.1	Perform all classes of amalgam restorations	*
3.1.2	Demonstrate knowledge of oral anatomy and morphology in performing intracoronal restorations	*
3.1.3	Demonstrate principles of minimal invasive dentistry during tooth preparation.	*
3.1.4	Demonstrate application of lining, bases, dentine sealers and execute vital pulp therapies if required	*
3.1.5	Demonstrate matrix and wedge application to recreate tooth contours	*
3.1.6	Demonstrate Amalgam condensation and carving to achieve static and dynamic occlusal harmony for restorations, prostheses and appliances.	*
3.1.7	Select and use restorative materials based upon location, size and shape of cavity, oral environment, and occlusal load	*
3.1.8	Select and use burs and other materials for preparation, finishing and polishing of restorations	*
3.1.9	Handle and dispose dental mercury waste.	*
<b>3.2 Dental Composite Restorations</b>		
3.2.1	Perform all classes of Dental Composite restorations	*
3.2.2	Demonstrate knowledge of oral anatomy and morphology in performing intra-coronal restorations	*
3.2.3	Demonstrate principles of minimal invasive dentistry during tooth preparation.	*
3.2.4	Demonstrate application of lining, bases, dentine sealers and execute vital pulp therapies if required	*
3.2.5	Demonstrate matrix and wedge application to recreate tooth contours	*
3.2.6	Demonstrate the use of Enamel and Dentine adhesive techniques (Total Etch, Selective Etch, Self Etch)	*
3.2.7	Demonstrate composite build up techniques to reduce the effect of polymerisation stress (incremental build up, use of flowable composites, bulk-fill composites)	*
3.2.8	Demonstrate occlusal contouring and adjustment to achieve static and dynamic occlusal harmony for restorations	*

3.2.9	Select and use restorative materials based upon location, size and shape of cavity, oral environment, and occlusal load	*
3.2.10	Select and use burs and other materials for preparation, finishing and polishing of restorations	*
<b>3.3 Glass Ionomer Restorations</b>		
3.3.1	Perform Glass Ionomer and Resin Modified Glass Ionomer restorations	*
3.3.2	Demonstrate knowledge of oral anatomy and morphology in performing intra-coronal restorations	*
3.3.3	Demonstrate principles of minimal invasive dentistry during tooth preparation.	*
3.3.4	Demonstrate application of lining, bases, dentine sealers and execute vital pulp therapies if required	*
3.3.5	Demonstrate matrix and wedge application to recreate tooth contours	*
3.3.6	Demonstrate occlusal contouring and adjustment to achieve static and dynamic occlusal harmony for restorations	*
3.3.7	Select and use restorative materials based upon location, size and shape of cavity, oral environment, and occlusal load	*
3.3.8	Select and use burs and other materials for preparation, finishing and polishing of restorations	*
3.3.9	Demonstrate the use of Glass Ionomer materials to preform Atraumatic Restorative Treatment (ART) and Caries control restorations	*
<b>3.4 Rubber Dam Application</b>		
3.4.1	Apply rubber dam for performing restorative and endodontic procedures. (Single and multiple teeth)	*
<b>3.5 Preventive Procedures</b>		
3.5.1	Demonstrate use of pit and fissure sealants.	
3.5.2	Demonstrate use of fluoride & non-fluoride caries preventive therapy and use of desensitizing agents for dentine hypersensitivity.	
<b>3.7 Pulpotomy</b>		
3.7.1	Demonstrate the technique for pulpotomy in deciduous and young permanent teeth.	*
<b>3.8 Non-Surgical Endodontic Therapy</b>		
3.8.1	Perform non-surgical endodontic therapy on teeth with single or multiple canals: access opening, chemomechanical preparation, working length estimation, & obturation. Select, manipulate, and use materials for endodontic treatment.	*

#### 4. PROSTHODONTICS

*Manage & rehabilitate the replacement of teeth for grossly damaged teeth and the partially or completely edentulous patient.*



<b>4.1 Full Coverage Crowns</b>		
<b>4.1.1</b>	Perform anterior and posterior full coverage crown preparations for full metal, porcelain fused to metal, or all ceramic crowns.	*
<b>4.1.2</b>	Demonstrate knowledge of oral anatomy and morphology in performing extracoronal restorations	*
<b>4.1.3</b>	Fabricate chair-side temporary crowns using direct and indirect techniques	*
<b>4.1.4</b>	Achieve static and dynamic occlusal harmony for temporary and permanent crowns	*
<b>4.1.5</b>	Select and manipulate dental cements and luting agents based on biological and mechanical clinical requirements.	*
<b>4.1.6</b>	Select and use burs and other materials for preparation, finishing and polishing of restorations	*
<b>4.1.7</b>	Select and manipulate impression materials for recording impressions	*
<b>4.1.8</b>	Select and use occlusal relation registration materials.	*
<b>4.1.9</b>	Perform shade selection and mapping for aesthetic restorations.	*
<b>4.2 Temporary Crowns</b>		
<b>4.2.1</b>	Fabricate chair-side temporary crowns using direct and indirect techniques	*
<b>4.2.2</b>	Achieve static and dynamic occlusal harmony for temporary crowns	*
<b>4.2.3</b>	Select and manipulate dental cements and luting agents based on biological and mechanical clinical requirements.	*
<b>4.2.4</b>	Select and use burs and other materials for preparation, finishing and polishing of restorations	*
<b>4.3 Removable Partial Dentures</b>		
<b>4.3.1</b>	Design, fabricate, and deliver removable partial dentures: impressions, maxillomandibular relationship, denture trial & insertion	
<b>4.3.2</b>	Achieve static and dynamic occlusal harmony for prostheses	
<b>4.3.3</b>	Select and use burs and other materials for finishing and polishing of prosthesis	

4.3.4	Perform lab procedures in fabrication of partial dentures.	
4.3.5	Perform wire bending for C-clasps for dentures	
4.3.6	Select and manipulate impression materials for recording impressions partially dentate jaws	
4.3.7	Select and use occlusal relation registration materials.	
4.3.8	Demonstrate manipulation of waxes wax rim adjustment, denture trial setup readjustment	
4.3.9	Perform shade selection and mapping	
<b>4.4 Removable Complete Dentures</b>		
4.4.1	Design, fabricate, and deliver conventional complete dentures: Primary and secondary impressions, post-dam area marking, maxillomandibular relationship, denture trial and insertion.	
4.4.2	Achieve static and dynamic occlusal harmony for prostheses	
4.4.3	Select and use burs and other materials for finishing and polishing of prosthesis	
4.4.4	Perform lab procedures in fabrication of complete dentures.	
4.4.5	Select and manipulate impression materials for recording impressions edentulous jaws	
4.4.6	Select and use occlusal relation registration materials and techniques	
4.4.7	Demonstrate manipulation of waxes wax rim adjustment, denture trial setup readjustment	
4.4.8	Perform shade selection and mapping	

<b>4.5 Diagnostic Casts</b>	
<b>4.5.1</b>	Produce diagnostic casts, and mount with inter-occlusal records.
<b>4.5.2</b>	Perform the laboratory procedures of pouring, removal and trimming of a gypsum cast from an alginate impression.
<b>4.5.3</b>	Select and manipulate different types of plaster of paris to: pour dental models for study, and prosthesis fabrication; mount casts/models on an articulator.
<b>4.5.4</b>	Select and use occlusal relation registration materials.
<b>4.6 Setup of Teeth</b>	
<b>4.6.1</b>	Perform segmental tooth setup for upper and lower arches, complete or partial, followed by finishing and festooning.
<b>4.7 Pre and Post Delivery Problems</b>	
<b>4.7.1</b>	Identify errors in fixed and removable prosthesis delivered from the laboratory and suggest corrections.
<b>4.7.2</b>	Manage post-insertion (post-delivery) complaints of the patient using removable prostheses.
<b>4.8 Removable Prosthesis Servicing</b>	
<b>4.8.1</b>	Demonstrate techniques for servicing removable prostheses when necessary i.e.: relining, rebasing, repair.
<b>4.9.8</b>	Select and use occlusal relation registration materials.
<b>4.9.9</b>	Perform shade selection and mapping for aesthetic restorations.

## **5. ORAL SURGERY, AND ORAL MEDICINE**

<i>Manage oral surgical treatment needs</i>	
<b>5.1 Simple Extraction</b>	
<b>5.1.1</b>	Perform simple extraction of erupted deciduous and permanent teeth, under local anaesthesia.
<b>5.1.2</b>	Identify, landmarks for maxillary and mandibular infiltration anaesthesia, and inferior alveolar nerve block.
<b>5.1.3</b>	Give post procedure instructions and counsel patients on care after dental extractions

<b>5.1.4</b>	Safely prescribe drugs for post-extraction pain.	
<b>5.3 Suturing</b>		
<b>5.3.1</b>	Place sutures: simple interrupted sutures for closure of intraoral incisions, and intra or extra-oral lacerations; “figure of 8” suture over an extraction socket.	
<b>5.4 Minor Oral Surgery Complications</b>		
<b>5.4.1</b>	Manage common intra-operative and post-operative minor oral surgery complications.	
<b>5.6 TMJ Dislocation</b>		
<b>5.6.1</b>	Reduce TMJ dislocation.	

## 6. ORTHODONTICS

<i>Diagnose and plan preventive and interceptive orthodontics.</i>		
<b>6.1</b>	Insert and adjust active removable appliances to move a single tooth or to correct a crossbite	
<b>6.2</b>	Insert, adjust or remove different types of removable retainers	
<b>6.3</b>	Insert, adjust or remove a wire, ligature or separator	
<b>6.4</b>	Manage orthodontic post-operative complaints requiring orthodontic first aid.	
<b>6.5</b>	Demonstrate use of wax to manage abrasion and injuries due to orthodontic fixtures	
<b>6.6</b>	Perform wire bending for Labial bow and Adam's clasp for Orthodontic appliances	

## 7. Medical & Dental Emergencies

<i>Prevent, recognize, and manage medical and dental emergencies</i>		
<b>7.1</b>	Prevent, recognize, and manage dental emergencies, including: uncontrolled bleeding, abscess (local swelling/pain), cellulitis, severe dental pain from pulpal inflammation, acute periodontitis, pericoronitis, alveolar osteitis, tooth fracture, tooth avulsion/luxation, caries/defective restorations causing pain, denture/ortho appliance adjustment if impeding function/painful, acute myofascial pain dysfunction with trismus, endodontic hypochlorite accident.	

7.2	Prevent, recognize, and perform preliminary management of medical emergencies in a dental clinic, including impairment or loss of consciousness, chest pain, and respiratory obstruction/distress, panic/anxiety.	
7.3	Record blood pressure, pulse & respiratory rate, perform basic life support (BLS, including cardiopulmonary resuscitation)	





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