



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

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Sathyabama Dental College & Hospital

1.1.3 Courses having focus on Employability / Entrepreneurship / Skill Development

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ORTHODONTICS & DENTAL ORTHOPAEDICS

COURSE OBJECTIVE:

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures. The following basic instructional procedures will be adapted to achieve the above objectives.

1. Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And Need For Orthodontics Care.

2. Growth And Development: In General

a. Definition

b. Growth spurts and Differential growth

c. Factors influencing growth and Development

d. Methods of measuring growth

e. Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)

f. Genetic and epigenetic factors in growth

g. Cephalocaudal gradient in growth.

3. Morphologic Development Of Craniofacial Structures

a. Methods of bone growth

b. Prenatal growth of craniofacial structures

c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. Functional Development Of Dental Arches And Occlusion

a. Factors influencing functional development of dental arches and occlusion.

b. Forces of occlusion

c. Wolfe's law of transformation of bone

d. Trajectories of forces

5. Clinical Application Of Growth And Development

6. **Malocclusion - In General**

a. Concept of normal occlusion

b. Definition of malocclusion

c. Description of different types of dental, skeletal and functional malocclusion.

7. Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's,

Simon's, Lischer's and Ackerman and Proffitt's.

8. Normal And Abnormal Function Of Stomatognathic System

9. Etiology Of Malocclusion

a. Definition, importance, classification, local and general etiological factors.



b. Etiology of following different types of malocclusion:

1) Midline diastema

2) Spacing

3) Crowding

4) Cross-Bite: Anterior/Posterior

5) Class III Malocclusion

6) Class II Malocclusion

7) Deep Bite

8) Open bite

10. Diagnosis And Diagnostic Aids

a. Definition, Importance and classification of diagnostic aids

b. Importance of case history and clinical examination in orthodontics

c. Study Models: - Importance and uses - Preparation and preservation of study models

d. Importance of intraoral X-rays in orthodontics

e. Panoramic radiographs: - Principles, Advantages, disadvantages and uses

f. Cephalometrics: Its advantages, disadvantages

1. Definition

2. Description and use of cephalostat

3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis

4. Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line

g. Electromyography and its uses in orthodontics

h. Wrist X-rays and its importance in orthodontics

11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions

12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage

13. Biomechanical Principles In Orthodontic Tooth Movement

a. Different types of tooth movements

b. Tissue response to orthodontic force application

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c. Age factor in orthodontic tooth movement

14. Preventive Orthodontics

a. Definition

b. Different procedures undertaken in preventive orthodontics and their limitations.

15. Interceptive Orthodontics

a. Definition

b. Different procedures undertaken in interceptive orthodontics

c. Serial extractions: Definition, indications, contra-indication, technique, advantages and

disadvantages.

d. Role of muscle exercises as an interceptive procedure

16. Corrective Orthodontics

a. Definition, factors to be considered during treatment planning.

b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis

c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions

d. Extractions in Orthodontics - indications and selection of teeth for extraction.

17. Orthodontic Appliances: General

a. Requisites for orthodontic appliances

b. Classification, indications of Removable and Functional Appliances

c. Methods of force application

d. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antiluxes.

e. Preliminary knowledge of acid etching and direct bonding.

18. Ethics

REMOVABLE ORTHODONTIC APPLIANCES

1) Components of removable appliances

2) Different types of clasps and their uses

3) Different types of labial bows and their uses

4) Different types of springs and their uses

5) Expansion appliances in orthodontics:

i) Principles

ii) Indications for arch expansion

iii) Description of expansion appliances and different types of expansion devices and their uses.

iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

1. Definition, Indications & Contraindications

2. Component parts and their uses

3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

EXTRAORAL APPLIANCES

1. Headgears

2. chin cup

3. reverse pull headgears

MYOFUNCTIONAL APPLIANCES

1. Definition and principles



2. Muscle exercises and their uses in orthodontics

3. Functional appliances:

i) Activator, Oral screens, Frankels function regulator,

bionator twin blocks, lip bumper

ii) Inclined planes - upper and lower

18. Orthodontic Management Of Cleft Lip And Palate

19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:

a. Mandibular Prognathism and Retrognathism

b. Maxillary Prognathism and Retrognathism

c. Anterior open bite and deep bite

d. Cross bite

20. Principle, Differential Diagnosis & Methods Of Treatment Of:

1. Midline diastema

2. Cross bite

3. Open bite

4. Deep bite

5. Spacing

6. Crowding

7. Class II - Division 1, Division 2

8. Class III Malocclusion - True and Psuedo Class III

21. Retention And Relapse

Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention

devices, Duration of retention, Theories of retention.

CLINICALS AND PRACTICALS IN ORTHODONTICS

PRACTICAL TRAINING DURING II YEAR B.D.S.

I. Basic wire bending exercises Gauge 22 or 0.7mm

1. Straightening of wires (4 Nos.)

2. Bending of a equilateral triangle

3. Bending of a rectangle

4. Bending of a square

5. Bending of a circle

6. Bending of U.V.

II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm

1. 3/4 Clasp (C-Clasp)

2. Full Clasp (Jackson's Crib)

3. Adam's Clasp



4. Triangular Clasp

III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm

1. Finger Spring
2. Single Cantelever Spring
3. Double Cantelever Spring (Z-Spring)
4. T-Springs on premolars

IV. Construction of Canine retractors Gauge 23 or 0.6mm

1. U - Loop canine retractor

(Both sides on upper & lower)

2. Helical canine retractor

(Both sides on upper & lower)

3. Buccal canine retractor:

- Self supported buccal canine retractor

with

- a) Sleeve - 5mm wire or 24 gauge

- b) Sleeve - 19 gauge needle on any one side.

4. Palatal canine retractor on upper both sides

Gauge 23 or 0.6mm

V. Labial Bow

Gauge 22 or 0.7mm

One on both upper and lower

CLINICAL TRAINING DURING III YEAR B.D.S.

NO. EXERCISE

01. Making upper Alginate impression

02. Making lower Alginate impression

03. Study Model preparation

04. Model Analysis

- a. Pont's Analysis

- b. Ashley Howe's Analysis

- c. Carey's Analysis

- d. Bolton's Analysis

- e. Moyer's Mixed Dentition Analysis

CLINICAL TRAINING DURING FINAL YEAR B.D.S.

NO. EXERCISE

01. Case History taking

02. Case discussion

03. Discussion on the given topic



04. Cephalometric tracings

- a. Down's Analysis
- b. Steiner's Analysis
- c. Tweed's Analysis

PRACTICAL TRAINING DURING FINAL YEAR B.D.S.

- 1. Adam's Clasp on Anterior teeth Gauge 0.7mm
- 2. Modified Adam's Clasp on upper arch Gauge 0.7mm
- 3. High Labial bow with Apron spring on upper arch
(Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
- 4. Coffin spring on upper arch Gauge 1mm

Appliance Construction in Acrylic

- 1. Upper & Lower Hawley's Appliance
- 2. Upper Hawley's with Anterior bite plane
- 3. Upper Habit breaking Appliance

PERIODONTOLOGY

OBJECTIVES:

The student shall acquire the skill to perform dental scaling ,diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist’s care.

- 1. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
- 2. Development of perio-dontal tissues, micro-structural anatomy and biology of periodontal tissues in detail Gingiva. Junctional epithelium in detail, Epithelial-Mesenchymal interaction,Periodontal, ligament Cementum, Alveolar bone.
- 3. Defensive mechanisms in the oral cavity: Role of-Epithelium,Gingival fluid, Saliva and otherdefensive mechanisms in the oral environment.
- 4. Age changes in periodontal structures and their significance inGeriatric dentistry
- 5. Classification of periodontal diseases

- Periodontitis:
Adult periodontitis, Rapidly progressive periodontitis A&B, Juvenile periodontitis(localized, generalized, and post-juvenile), Prepubertal periodontitis, Refractory periodontitis
- 6. Gingival diseases Localized and generalized gingivitis, Papillary, marginal and diffuse 6 gingivitis
- 7 Epidemiology of periodontal diseases



8.	Extension of inflammation from gingiva	Etiology, pathogenesis, clinical signs, symptoms and management of i) Plaque associated gingivitis ii) Systemically aggravated gingivitis(sex hormones, drugs and systemic diseases) iii) ANUG iv) Desquamative gingivitis-Gingivitis associated with lichen planus, pemphigoid, pemphigus, and other vesiculobullous lesions v) Allergic gingivitis vi) Infective gingivitis-Herpetic, bacterial and candidial vii) Pericoronitis viii) Gingival enlargement (classification and differential diagnosis) - Definition of index, incidence, 2 prevalence,epidemiology,endemic, epidemic, and pandemic - Classification of indices(Irreversible and reversible) - Deficiencies of earlier indices used in Periodontics - Detailed understanding of Silness &Loe Plaque Index ,Loe&Silness Gingival Index, CPITN &CPI. - Prevalence of periodontal diseases in India and other countries. - Public health significance(All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be askedfrom the topics for examination Mechanism of spread of inflammation from gingival area to 1 deeper periodontal structures Factors that modify the spread
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9.	Pocket	Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket	2
10.	Etiology	- Dental Plaque (Biofilm) - Definition, New concept of biofilm - Types, composition, bacterial colonization, growth, maturation & disclosing agents - Role of dental plaque in periodontal diseases - Plaque microorganisms in detail and bacteria associated with periodontal diseases - Plaque retentive factors - Materia alba - Food debris - Calculus - Definition - Types, composition, attachment, theories of formation - Role of calculus in disease Food Impaction - Definition - Types, Etiology - Hirschfelds' classification - Signs ,symptoms & sequelae of treatment Trauma from occlusion - Definition, Types - Histopathological changes - Role in periodontal disease - Measures of management in brief Habits - Their periodontal significance - Bruxism & parafunctional habits, tongue thrusting ,lip biting, occupational habits IATROGENIC FACTORS Conservative Dentistry - Restorations - Contact point, marginal ridge, surface roughness, overhanging restorations, interface between restoration and teeth Prosthodontics - Interrelationship - Bridges and other prosthesis, pontics(types) ,surface contour, relationships of margins to the periodontium, Gingival protection theory, muscle action theory & theory of access to oral hygiene. Orthodontics - Interrelationship, removable appliances & fixed appliances - Retention of plaque, bacterial changes Systemic diseases - Diabetes, sex hormones, nutrition(Vit.C & proteins) - AIDS & periodontium - Hemorrhagic diseases, Leukemia, clotting factor disorders, PMN disorders	5
11.	Risk factors	Definition. Risk factors for periodontal diseases	1
12.	Host response diseases	- Mechanism of initiation and progression of periodontal - Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief - Stages in gingivitis-Initial, early, established & advanced - Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis	3
13.	Periodontitis diagnosis and treatment of adult periodontitis	- Etiology ,histopathology, clinical signs & symptoms, - Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment - Furcation involvement, Glickmans' classification, prognosis and management - Rapidly progressive periodontitis	6

		- Juvenile periodontitis: Localized and generalized - Post-juvenile periodontitis - Periodontitis associated with systemic diseases - Refractory periodontitis - Routine procedures, methods of probing, types of	2
14.	Diagnosis probes,(According to case history)		
-	Halitosis: Etiology and treatment. Mention advanced		
	diagnostic aids and their role in brief.		
15.	Prognosis	- Definition, types, purpose and factors to be taken into	1
	consideration		
16.	Treatment plan	- Factors to be considered	1
17.	Periodontal therapy	A. General principles of periodontal therapy. Phase I,II, III, IV	
18.	Pocket eradicationprocedures		
	therapy.	3	
	Definition of periodontal regeneration, repair, newattachment and reattachment.		
	B. Plaque control		
	i. Mechanical tooth brushes, interdental cleaning aids,dentifrices		
	ii. Chemical; classification and mechanism of action of each& pocket irrigation		
-	Scaling and root planing:	5	
-	Indications		
-	Aims & objectives		
-	Healing following root planning		
-	Hand instruments, sonic, ultrasonic &piezo-electric scalers		
-	Curettage &present concepts		
-	Definition		
-	Indications		
-	Aims &objectives		
-	Procedures & healing response		
-	Flap surgery		
-	Definition		
-	Types of flaps, Design of flaps, papilla preservation		
-	Indications & contraindications		
-	Surgical procedure & healingresponse	- Armamentarium	
9.	Osseous Surgery	Osseous defects in periodontal disease	2
		- Definition - Classification - Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts) - Healing responses - Other regenerative procedures; root conditioning - Guided tissue regeneration	
20.	Mucogingival surgery &periodontal plastic surgeries	Definition	3
		Mucogingival problems: etiology, classification of gingival recession (P.D.Miller Jr. and Sullivan and Atkins)	
		Indications & objectives	
		Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy	
		Crown lengthening procedures Periodontal microsurgery in brief	
21.	Splints	- Periodontal splints	1
		- Purpose & classification - Principles of splinting	
22.	Hypersensitivity	Causes, Theories & management	1
23.	Implants	Definition, types, scope &biomaterials used.	1
		Periodontal considerations: such as implant-bone interface, implant-gingiva intertace, implant failure, peri-implantitis & management	
24.	Maintenance phase (SPT)	- Aims, objectives, and principles	1
		- Importance - Procedures - Maintenance of implants	
25.	Pharmaco-therapy	- Periodontal dressings - Antibiotics & anti-inflammatory drugs - Local drug delivery systems	2

26.	Periodontal management of medically compromised patients	Topics concerning periodontal management of medically compromised patients	1
27.	Inter-disciplinary care	- Pulpo-periodontal involvement - Routes of spread of infection - Simons' classification - Management	1



28.	Systemic effects of periodontal diseases in brief Cardiovascular diseases, Low birth weight babies etc.1	
29.	Infection control protocol Sterilization and various aseptic procedures	1
30.	Ethics	

TUTORIALS DURING CLINICAL POSTING;

- 1. Infection control
- 2. Periodontal instruments
- 3. Chair position and principles of instrumentation
- 4. Maintenance of instruments (sharpening)
- 5. Ultrasonic, Piezoelectric and sonic scaling – demonstration of technique
- 6. Diagnosis of periodontal disease and determination of prognosis
- 7. Radiographic interpretation and lab investigations
- 8. Motivation of patients- oral hygiene instructions

Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling, root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures.

DEMONSTRATIONS:

- 1. History taking and clinical examination of the patients
- 2. Recording different indices
- 3. Methods of using various scaling and surgical instruments
- 4. Polishing the teeth
- 5. Bacterial smear taking
- 6. Demonstration to patients about different oral hygiene aids

Employability – Lasers in periodontics
Activity Based learning



PROSTHODONTICS AND CROWN & BRIDGE

Complete Dentures

- A. Applied Anatomy and Physiology.
 - 1. Introduction
 - 2. Biomechanics of the edentulous state.
 - 3. Residual ridge resorption.
- B. Communicating with the patient
 - 1. Understanding the patients.
 - Mental attitude.
 - 2. Instructing the patient.
- C. Diagnosis and treatment planning for patients-
 - 1. With some teeth remaining.
 - 2. With no teeth remaining.
 - a) Systemic status.
 - b) Local factor.
 - c) The geriatric patient.
 - d) Diagnostic procedures.
- D. Articulators- discussion
- E. Improving the patient’s denture foundation and ridge relation -an overview.
 - a) Pre-operative examination.
 - b) Initial hard tissue & soft tissue procedure.

- c) Secondary hard & soft tissue procedure.
- d) Implant procedure.
- e) Congenital deformities.
- f) Postoperative procedure.
- F. Principles of Retention, Support and Stability
- G. Impressions - detail.
 - a) Muscles of facial expression.
 - b) Biologic considerations for maxillary and mandibular impression including anatomylandmark and their interpretation.
 - c) Impression objectives.
 - d) Impression materials.
 - e) Impression techniques.
 - f) Maxillary and mandibular impression procedures.
 - i. Preliminary impressions.
 - ii. Final impressions.
 - g) Laboratory procedures involved with impression making (Beading & Boxing, and cast preparation).
- H. Record bases and occlusion rims- in detail.
 - a) Materials & techniques.
 - b) Useful guidelines and ideal parameters.
 - c) Recording and transferring bases and occlusal rims.
- I. Biological consideration in jaw relation & jaw movements - craniomandibular relations.
 - a) Mandibular movements.
 - b) Maxillo -mandibular relation including vertical and horizontal jaw relations.
 - c) Concept of occlusion- discuss in brief.
- J. Relating the patient to the articulator.
 - a) Face bow types & uses– discuss in brief.
 - b) Face bow transfer procedure - discuss in brief.
- K. Recording maxillo mandibular relation.
 - a) Vertical relations.
 - b) Centric relation records.
 - c) Eccentric relation records.
 - d) Lateral relation records.
- L. Tooth selection and arrangement.
 - a) Anterior teeth.
 - b) Posterior teeth.
 - c) Esthetic and functional harmony.
- M. Relating inclination of teeth to concept of occlusion- in brief.
 - a) Neutrocentric concept.
 - b) Balanced occlusal concept.
- N. Trial dentures.
- O. Laboratory procedures.
 - a) Wax contouring.
 - b) Investing of dentures.
 - c) Preparing of mold.
 - d) Preparing & packing acrylic resin.
 - e) Processing of dentures.
 - f) Recovery of dentures.
 - g) Lab remount procedures.
 - h) Recovering the complete denture from the cast.
 - i) Finishing and polishing the complete denture.
 - j) Plaster cast for clinical denture remount procedure.
- P. Denture insertion.
 - a) Insertion procedures.
 - b) Clinical errors.
 - c) Correcting occlusal disharmony.
 - d) Selective grinding procedures.
- R. Treating problems with associated denture use – discuss in brief (tabulation/flow-chart form).
- S. Treating abused tissues - discuss in brief.
- T. Relining and rebasing of dentures- discuss in brief.
- V. Immediate complete dentures construction procedure- discuss in brief.
- W. The single complete denture- discuss in brief.
- X. Overdentures denture- discuss in brief.
- Y. Dental implants in complete denture - discuss in brief.

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

1. Definition
2. Diagnosis (of the particular situation/patient selection/treatment planning)
3. Types / Classification
4. Materials
5. Methodology – Lab /Clinical
6. Advantages & disadvantages
7. Indications, contraindications
8. Maintenance Phase
9. Oral Implantology
10. Ethics

Removable Flexible Dentures

1. Introduction
 - Terminologies and scope
2. Classification.
3. Examination, Diagnosis & Treatment planning & evaluation of diagnostic data.
4. Components of a removable partial denture.
 - Major connectors,
 - minor connectors,
 - Rest and rest seats.
5. Components of a Removable Partial Denture.
 - Direct retainers,
 - Indirect retainers,
 - Tooth replacement.
6. Principles of Removable Partial Denture Design.
7. Survey and design – in brief.
 - Surveyors.
 - Surveying.
 - Designing.
8. Mouth preparation and master cast.
9. Impression materials and procedures for removable partial dentures.
10. Preliminary jaw relation and esthetic try-in for some anterior replacement teeth.
11. Laboratory procedures for framework construction-in brief.
12. Fitting the framework - in brief.
13. Try-in of the partial denture - in brief.
14. Completion of the partial denture - in brief.
15. Inserting the Removable Partial Denture - in brief.
16. Postinsertion observations.
17. Temporary Acrylic Partial Dentures.
18. Immediate Removable Partial Denture.
19. Removable Partial Dentures opposing Complete denture.

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1. Definition
2. Diagnosis (of the particular situation /patient selection /treatment planning)
3. Types / Classification
4. Materials
5. Methodology – Lab /Clinical
6. Advantages & disadvantages
7. Indications, contraindications
8. Maintenance Phase

Fixed Partial Dentures

Topics To Be Covered In Detail -

1. Introduction
2. Fundamentals of occlusion – in brief.
3. Articulators – in brief.
4. Treatment planning for single tooth restorations.
5. Treatment planning for the replacement of missing teeth including selection and choice of abutment teeth.
6. Fixed partial denture configurations.
7. Principles of tooth preparations.

8. Preparations for full veneer crowns – in detail.
9. Preparations for partial veneer crowns – in brief.
10. Provisional Restorations
11. Fluid Control and Soft Tissue Management
12. Impressions
13. Working Casts and Dies
14. Wax Patterns
15. Pontics and Edentulous Ridges
16. Esthetic Considerations
17. Finishing and Cementation

Topics To Be Covered In Brief -

1. Solder Joints and Other Connectors
2. All - Ceramic Restorations
3. Metal - Ceramic Restorations
4. Preparations of intracoronar restorations.
5. Preparations for extensively damaged teeth.
6. Preparations for periodontally weakened teeth
7. The Functionally Generated Path Technique
8. Investing and Casting
9. Resin - Bonded Fixed Partial Denture

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

1. Definition
2. Diagnosis(of the particular situation /patient selection /treatment planning)
3. Types / Classification
4. Materials
5. Methodology – Lab /Clinical
6. Advantages & disadvantages
7. Indications, contraindications
8. Maintenance Phase

RECOMMENDED BOOKS:

1. Syllabus of Complete denture by - Charles M. Heartwell Jr. and Arthur O. Rahn.
2. Boucher's "Prosthodontic treatment for edentulous patients"
3. Essentials of complete denture prosthodontics by – Sheldon Winkler.
4. Maxillofacial prosthetics by – Willam R.Laney.
5. McCracken's Removable partial prosthodontics
6. Removable partial prosthodontics by – Ernest L. Miller and Joseph E. Grasso.

CONSERVATIVE DENTISTRY AND ENDODONTICS

OBJECTIVES:

- A. Knowledge and understanding
- B. Skills and
- C. Attitudes

A). Knowledge and understanding:

The graduate should acquire the following knowledge during the period of training.

- i. To diagnose and treat simple restorative work for teeth.
- ii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
- iii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.
- iv. To carry out simple endodontic treatment.
- v. To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.

SKILLS:

He should attain following skills necessary for practice of dentistry

- i) To use medium and high speed hand pieces to carry out restorative work.
- ii) Possesses the skills to use and familiarise endodontic instruments and materials needed for carrying out simple endodontic treatment.
- iii) To achieve the skills to translate patients esthetic needs along with function.

ATTITUDES:

- i). Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- ii). Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.

- iii). To help and participate in the implementation of the national oral health policy.
- iv). He should be able to motivate the patient for proper dental treatment at the same time proper maintenance of oral hygiene should be emphasised which will help to maintain the restorative work and prevent future damage.

INTRODUCTION :

Definition aims objectives of Conservative Dentistry scope and future of Conservative Dentistry.

1. Nomenclature Of Dentition:
Tooth numbering systems A.D.A. Zsigmondy Palmer and F.D.I. systems.
2. Principles Of Cavity Preparation :
Steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors angles of cavities.
3. Dental Caries :
Aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.
4. Treatment Planning For Operative Dentistry:
Detailed clinical examination , radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet.
5. Gnathological Concepts Of Restoration:
Physiology of occlusion, normal occlusion, Ideal occlusion, mandibular movements and occlusal analysis. Occlusal rehabilitation and restoration.
6. Armamentarium For Cavity Preparation:
General classification of operative instruments, Hand cutting instruments design formula and sharpening of instruments. Rotary cutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instrument tray set up.
7. Control of Operating Field:
Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogues.
8. Amalgam Restoration :
Indication contraindication, physical and mechanical properties , clinical behaviour. Cavity preparation for Class I , II, V and III. Step wise procedure for cavity preparation and restoration. Failure of amalgam restoration.
9. Pulp Protection :
Liners, varnishes and bases, Zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass ionomer cements.
10. Anterior Restorations :
Selection of cases, selection of material, step wise procedures for using restorations , silicate (theory only) glass ionomers, composites, including sandwich restorations and bevels of the same with a note on status of the dentine bonding agents.
11. Direct Filling Gold Restorations :
Types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
12. Preventive Measures In Restorative Practice :
Plaque Control, Pit and fissure sealants dietary measures restorative procedure and periodontal health. Contact and contour of teeth and restorations matrices tooth separation and wedges.
13. Temporisation or Interim Restoration.
14. Pin Amalgam Restoration Indication Contra Indication :
Advantages disadvantages of each types of pin methods of placement use of auto matrix. Failure of pin amalgam restoration.
15. Management Of Deep Carious Lesions Indirect And Direct Pulp Capping.
16. Non Carious Destruction's Tooth Structures Diagnosis and Clinical Management
17. Hyper Sensitive Dentine And Its Management.
18. Cast Restorations
Indications, contra indications, advantages and disadvantages and materials used for same Class II and Class I cavity preparation for inlays fabrication of wax pattern spurring inverting and casting procedures & casting defects.
19. Die Materials And Preparation Of Dies.
20. Gingival Tissue Management For Cast Restoration And Impression Procedures
21. Recent Cavity Modification Amalgam Restoration.
22. Differences between Amalgam And Inlay Cavity preparation with note on all the types of Bawels used for Cast Restoration.
23. Control Of Pain During Operative Procedures.
24. Treatment Planning For Operative Dentistry Detailed Clinical Examination Radiographic Examination

- 25. Vitality Tests, Diagnosis And Treatment Planning And Preparation Of Case Sheet.
- 26. Applied Dental Materials.
 - 1. Biological Considerations.
Evaluation, clinical application and adverse effects of the following materials. Dental cements, Zinc oxide eugenol cements zinc phosphate cements, polycarboxylates glass ionomer cements, silicate cement calcium hydroxides varnishes.
 - 2. Dental amalgam, technical considerations mercury toxicity mercury hygiene.
 - 3. Composite, Dentine bonding agents, chemical and light curing composites
 - 4. Rubber base Imp. Materials
 - 5. Nobel metal alloys & non noble metal alloys
 - 6. Investment and die materials
 - 7. Inlay casting waxes
 - 8. Dental porcelain
 - 9. Aesthetic Dentistry
- 27. Endodontics: introduction definition scope and future of endodontics
- 28. Clinical diagnostic methods
- 29. Emergency endodontic procedures
- 30. Pulpal diseases causes, types and treatment .
- 31. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alveolar abscess granuloma cysts condensing osteits, external resorption.
- 32. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicaments used.
- 33. Apexogenesis and apexification or problems of open apex.
- 34. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
- 35. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments. Sterilisation of root canal instruments and materials rubber dam application.
- 36. Anatomy of the pulp cavity: root canals apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
- 37. Preparation of root canal space . Determination of working length, cleaning and shaping of root canals, irrigating solution chemical aids to instrumentation.
- 38. Disinfection of root canal space intracanal medicaments, poly antibiotic paste ross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.
- 39. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.
- 40. Methods of cleaning and shaping like step back crown down and conventional methods.
- 41. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment. Failures in endodontics.
- 42. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
- 43. post endodontic restoration fabrication and components of post core preparation.
- 44. smear layer and its importance in endodontics and conservative treatment.
- 45. discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.
- 46. traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
- 47. endodontic surgeries indication contraindications, pre operative preparation. Pre operative analgesia surgical instruments and techniques apicectomy, retrograde filling, post operative sequelae terphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
- 48. root resorption.
- 49. emergency endodontic procedures.
- 50. lasers in conservative endodontics (introduction only) practice management
- 51. professional association dentist act 1948 and its amendment 1993.
- 52. duties towards the govt. Like payments of professional tax, income tax.
- 53. financial management of practice
- 54. dental material and basic equipment management.
- 55. Ethics

MDS - CONSERVATIVE DENTISTRY & ENDODONTICS

- Health information systems – collection, compilation, presentation of data.
- Elementary statistical methods – presentation of statistical data, statistical averages – measures of central tendency, measures of dispersion.
- Normal distribution.
- Tests of significance – parametric and non – parametric tests (Fisher's t-test, Sign test, Median test, Mann Whitney test, Kruskal Wallis, One-way analysis, Friedman two-way analysis, Regression analysis).
- Correlation and regression.
- Use of Computers.

RESEARCH METHODOLOGY

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

APPLIED DENTAL MATERIALS

- Physical and mechanical properties of dental materials, biocompatibility.
- Impression materials, detailed study of various restorative materials, restorative resin and
- Recent advances in composite resins, bonding recent developments tarnish and corrosion,
- Dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments,
- Casting procedures, defects, dental cements for restoration and pulp protection (luting, liners, bases) cavity varnishes.
- Dental ceramics – recent advances, finishing and polishing materials.
- Dental bur – design and mechanics of cutting – other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

CLINICAL PHOTOGRAPHY , MEDICO LEGAL JURISPRUDENCE

PART II - PAPER I: CONSERVATIVE DENTISTRY

1. Examination, diagnosis and treatment plan
2. Occlusion as related to conservative dentistry, contact, contour, its significance.
3. Separation of teeth, matrices, used in conservative dentistry.
4. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology.
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5. Histopathology, diagnosis, caries activity tests, prevention of dental caries and management – recent methods.
6. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.
7. Dental bur and other modalities of tooth preparation – recent developments (air abrasion, Lasers etc)
8. Infection control procedures in conservative dentistry, isolation equipments etc.
9. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
10. Direct and indirect composite restorations.
11. Indirect tooth coloured restorations – ceramic, inlays and onlays, veneers, crowns, recent
12. Advances in fabrication and materials.
13. Tissue Management
14. Impression procedures used for indirect restorations.
15. Cast metal restorations, indications, contraindications, tooth preparation for class 2 inlay, onlay full crown restoration
16. Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and
17. Direct gold restorations.
18. Recent advances in restorative materials and procedures.
19. Management of non-carious lesion.
20. Advance knowledge of minimal intervention dentistry.
21. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth
22. Hypersensitivity, theories, causes and management
23. Lasers in Conservative Dentistry
24. CAD-CAM & CAD-CIM in restorative dentistry
25. Dental imaging and its applications in restorative dentistry (clinical photography)
26. Principles of esthetics

- a. Color
- b. Facial analysis
- c. Smile design
- d. Principles of esthetic integration
- e. Treatment planning in esthetic dentistry

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PART II- PAPER – III: ENDODONTICS

1. Rationale of endodontics
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology
5. Pathobiology of periapex
6. Diagnostic procedure – recent advances and various aids used for diagnosis
7. Orofacial dental pain emergencies: endodontic diagnosis and management
8. Case selection and treatment planning
9. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc)
10. Access cavity preparation – objectives and principles
11. Endodontic instruments and instrumentation – recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.,
12. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
13. Root canal irrigants and intra canal medicaments used including non – surgical Endodontics by calcium hydroxide.
14. Endodontic microbiology.
15. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
16. Traumatic injuries and management – endodontic treatment for young permanent teeth.
- a. Pediatric Endodontics – treatment of immature apex.
17. Endodontic surgeries, recent developments in techniques and devices, endoossous
- a. Endodontic implants – biology of bone and wound healing.
18. Endoperio interrelationship, endo + Perio lesion and management
19. Drugs and chemicals used in Endodontics
20. Endo emergencies and management.
21. Restoration of endodontically treated teeth, recent advances.
22. Geriatric Endodontics

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D: Distribution of marks:

Theory:

Part-I University Examinations:

PAPER I : APPLIED BASIC SCIENCES - Total of 100 Marks/3hrs

There shall be 10 questions of 10 marks each

Part-II University Examinations:- Total of 300 Marks (100 Marks /3hrs for each Paper)

(i) Paper-I: Conservative Dentistry – There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(ii) Paper-II: Endodontics -There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(iii) Paper III:Essay -Descriptive & Analyzing Type Questions -There shall be 2 out of 3 essay questions (50 x 2 = 100 Marks/3hrs)

CLINICAL AND PRACTICAL: Part-II University Examinations (Total marks 300)

(i) Practical and Clinical Examination: 200 Marks

(ii) Viva-voce and Pedagogy:100 Marks

CLINICAL: 200 MARKS

The duration of clinical and viva voce examination will be 2 days for a batch of 4 students. If the number of student exceeds 4, the programme can be extended to 3rd day

DAY 1

CLINICAL EXCERCISE 1 50 MARKS

- Cast core preparation
- Tooth preparation 10 mark
- Direct wax pattern 10 mark
- Casting 10 mark
- Cementations 10 mark
- Retraction & elastomeric impression 10 mark

CLINICAL EXCERSIE 2 50 MARK

Inlay exercise

21

D: Distribution of marks:

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CLINICAL EXERCISE 2 50 MARK

Inlay exercise

MDS

PEDIATRIC AND PREVENTIVE DENTISTRY

B) Pediatric Dentistry:

Child Psychology:

Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear, anxiety, apprehension & its management.

- Behavior Management: Non- pharmacological & Pharmacological methods
- Child Abuse & Dental Neglect:

Conscious Sedation:

- Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children)

Preventive Pedodontics:

Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries – Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling

Dental Plaque:

Definition, Initiation, Pathogenesis, Biochemistry, and Morphology & Metabolism.

Gingival & Periodontal diseases in Children:

- Normal Gingiva & Periodontium in children.
- Gingival & Periodontal diseases – Etiology, Pathogenesis, Prevention & Management

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Pediatric Operative Dentistry:

- Principle of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
- • Modifications required for cavity preparation in primary and young permanent teeth.
- • Various Isolation Techniques
- • Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)
- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems. •

Primary Dentition: - Diagnosis of pulpal diseases and their management – Pulp capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies & recent concepts.

- Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.

- Recent advances in Pediatric diagnosis and Endodontics.

Pediatric Endodontics:

Prosthetic consideration in Pediatric Dentistry.

Traumatic Injuries in Children:

- • Classifications & Importance.
- • Sequelae & reaction of teeth to trauma.
- • Management of Traumatized teeth with latest concepts.
- • Management of jaw fractures in children.

Interceptive Orthodontics:

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- • Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- • Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- • Biology of tooth movement: A comprehensive review of the principles of teeth movement. Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement.
- Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
- Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interceptive orthodontics.

Oral Habits in Children

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children

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Dental care of Children with special needs:

Definition, Etiology, Classification, Behavioral, Clinical features & Management of children with:

- Physically handicapped conditions
 - Mentally compromising conditions
 - Medically compromising conditions
 - Genetic disorders • Historical background
 - Definition, Aetiology & Pathogenesis
 - Caries pattern in primary, young permanent and permanent teeth in children.
 - Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
 - Role of diet and nutrition in Dental Caries
 - Dietary modifications & Diet counseling.
 - Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications
- Oral manifestations of Systemic Conditions in Children & their Management
- Management of Minor Oral Surgical Procedures in Children

Dental Radiology as related to Pediatric Dentistry

Cariology:

Historical background

- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.

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- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.

- Role of diet and nutrition in Dental Caries
- Dietary modifications & Diet counseling.
- Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications.

Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

Congenital Abnormalities in Children: Definition

Dental Emergencies in Children and their Management.

Dental Materials used in Pediatric Dentistry.

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C) Preventive Dentistry:

- Definition
- Principles & Scope
- Types of prevention
- Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

Dental Health Education & School Dental Health Programmes:

Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry

Fluorides:

- • Historical background
- • Systemic & Topical fluorides
- • Mechanism of action
- • Toxicity & Management.
- • Defluoridation techniques.

Medico legal aspects in Pediatric Dentistry with emphasis on informed consent.

Counseling in Pediatric Dentistry

Case History Recording: Outline of principles of examination, diagnosis & treatment

planning. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases.

MDS

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

c. Principles in the development, execution and interpretation of methodologies in Orthodontics

d. Critical Scientific appraisal of literature.

Applied Pharmacology

Definitions & terminologies used – Dosage and mode of administration of drugs.

Action and fate of drugs in the

body, Drug addiction, tolerance and hypersensitive reactions,

Drugs acting on the central nervous system, general anesthetics hypnotics, analeptics and tranquilizers.

Local anesthetics, Chemotherapeutics and antibiotics. Vitamins: A, D, B – complex group, C & K etc.

PART-II:

Paper-I: Basic Orthodontics

Orthodontic History:

- Historical perspective,
- Evolution of orthodontic appliances,
- Pencil sketch history of Orthodontic peers
- History of Orthodontics in India

Concepts of Occlusion and Esthetics:

- Structure and function of all anatomic components of occlusion,
- Mechanics of articulation,
- Recording of masticatory function,
- Diagnosis of Occlusal dysfunction,
- Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Etiology and Classification of Malocclusion:

- a. A comprehensive review of the local and systemic factors in the causation of malocclusion
- b. Various classifications of malocclusion

Dentofacial Anomalies:

- a. Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

Diagnostic Procedures and Treatment Planning in Orthodontics:

- a. Emphasis on the process of data gathering, synthesis and translating it into a treatment plan
- b. Problem cases – analysis of cases and its management
- c. Adult cases, handicapped and mentally retarded cases and their special problems
- d. Critique of treated cases.

Cephalometrics

- a. Instrumentation
- b. Image processing
- c. Tracing and analysis of errors and applications
- d. Radiation hazards
- e. Advanced Cephalometrics techniques including digital cephalometrics

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- f. Comprehensive review of literature
- g. Video imaging principles and application.

Practice Management in Orthodontics:

- a. Economics and dynamics of solo and group practices
- b. Personal management
- c. Materials management
- d. Public relations
- e. Professional relationship
- f. Dental ethics and jurisprudence
- g. Office sterilization procedures
- h. Community based Orthodontics.

Paper-II: Clinical Orthodontics

Myofunctional Orthodontics:

- a. Basic principles
- b. Contemporary appliances – design, manipulation and management
- c. Case selection and evaluation of the treatment results
- d. Review of the current literature.

Dentofacial Orthopedics:

- a. Principles
- b. Biomechanics
- c. Appliance design and manipulation
- d. Review of contemporary literature

Cleft lip and palate rehabilitation:

- a. Diagnosis and treatment planning
- b. Mechanotherapy
- c. Special growth problems of cleft cases
- d. Speech physiology, pathology and elements of therapy as applied to orthodontics
- e. Team rehabilitative procedures.

Biology of tooth movement:

- a. Principles of tooth movement-review
- b. Review of contemporary literature
- c. Applied histophysiology of bone, periodontal ligament
- d. Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

- a. Orthodontist's role in conjoint diagnosis and treatment planning
- b. Pre and post-surgical Orthodontics
- c. Participation in actual clinical cases, progress evaluation and post retention study
- d. Review of current literature

Ortho / Perio / Prostho/Endo inter relationship:

- a. Principles of interdisciplinary patient treatment
- b. Common problems and their management

Basic principles of mechanotherapy includes removable appliances and fixed appliances:

- a. Design
- b. Construction
- c. Fabrication
- d. Management

e. Review of current literature on treatment methods and results

Applied preventive aspects in Orthodontics:

- a. Caries and periodontal disease prevention
- b. Oral hygiene measures
- c. Clinical procedures

Interceptive Orthodontics:

- a. Principles
- b. Growth guidance
- c. Diagnosis and treatment planning
- d. Therapy emphasis on:

- Dento-facial problems
- Tooth material discrepancies
- Minor surgery for Orthodontics

Evidence Based Orthodontics:

Different types of fixed Mechanotherapy:

Orthodontic Management of TMJ problems, sleep-apnoea etc.:

Retention and relapse:

- a. Mechanotherapy – special reference to stability of results with various procedures
- b. Post retention analysis
- c. Review of contemporary literature

Recent Advances :

- a. Use of implants
- b. Lasers
- c. Application of F.E.M.
- d. Distraction Osteogenesis
- e. Invisible Orthodontics
- f. 3D imaging Digital Orthodontics, Virtual Treatment Planning
- g. CAD-CAM bracket Customization
- h. Robotic Wire Bending
- i. Accelerated Orthodontics
 - Surgical
 - Device assisted or mechanical stimulation
 - Biochemical Mediators
- j. Lingual Orthodontics

Paper-III: Essays (descriptive and analyzing type questions)

ORAL MEDICINE AND RADIOLOGY

AIMS:

(1) To train the students to diagnose the common disorders of Orofacial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.

(2) To train the students about the importance, role, use and techniques of radiographs/digital radiograph and other imaging methods in diagnosis.

(3) The principles of the clinical and radiographic aspects of Forensic Odontology.

The syllabus in ORAL MEDICINE & RADIOLOGY is divided into two main parts.

(I) Diagnosis, Diagnostic methods and Oral Medicine (II) Oral Radiology. Again the part ONE is subdivided into three sections. (A) Diagnostic methods (B) Diagnosis and differential diagnosis (C) Oral Medicine & Therapeutics.

COURSE CONTENT

(1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.

(2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition.

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Part-I ORAL MEDICINE AND DIAGNOSTIC AIDS

SECTION (A) – DIAGNOSTIC METHODS.

(1) Definition and importance of Diagnosis and various types of diagnosis

(2) Method of clinical examinations.

(a) General Physical examination by inspection.

(b) Oro-facial region by inspection, palpation and other means

(c) To train the students about the importance, role, use of saliva and techniques of diagnosis of saliva as part of oral disease

(d) Examination of lesions like swellings, ulcers, erosions, sinus, fistula, growths, pigmented lesions, white and red patches

(e) Examination of lymph nodes

(f) Forensic examination – Procedures for post-mortem dental examination; maintaining dental records and their use in dental practice and post-mortem identification; jurisprudence and ethics.

(3) Investigations

(a) Biopsy and exfoliative cytology

(b) Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTIAL DIAGNOSIS

While learning the following chapters, emphasis shall be given only on diagnostic aspects including differential diagnosis

(1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and discoloration of teeth

(2) Diseases of bone and Osteodystrophies: Development disorders: Anomalies, Exostosis and tori, infantile cortical hyperostosis, osteogenesis imperfecta, Marfans syndrome, osteopetrosis.

Inflammation – Injury, infection and spread of infection, fascial space infections, osteoradionecrosis.

Metabolic disorders – Histiocytosis

Endocrine – Acro-megaly and hyperparathyroidism

Miscellaneous – Paget's disease, Mono and polyostotic fibrous dysplasia, Cherubism.

(3) Temporomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Sub-luxation and luxation.

(4) Common cysts and Tumors:

CYSTS: Cysts of soft tissue: Mucocoele and Ranula

Cysts of bone: Odontogenic and nonodontogenic.

TUMORS:

Soft Tissue:

Epithelial: Papilloma, Carcinoma, Melanoma

Connective tissue: Fibroma, Lipoma, Fibrosarcoma

Vascular: Haemangioma, Lymphangioma

Nerve Tissue: Neurofibroma, Traumatic Neuroma, Neurofibromatosis

Salivary Glands: Pleomorphic adenoma, Adenocarcinoma, Warthin's Tumor, Adenoid cystic carcinoma.

Hard Tissue:

Non Odontogenic: Osteoma, Osteosarcoma, Osteoclastoma, Chondroma, Chondrosarcoma, Central giant cell tumor, and Central haemangioma

Odontogenic: Enameloma, Ameloblastoma, Calcifying Epithelial Odontogenic tumor, Adenomatoid

Odontogenic tumor, Periapical cemental dysplasia and odontomas

(5) Periodontal diseases: Gingival hyperplasia, gingivitis, periodontitis, pyogenic granuloma

(6) Granulomatous diseases: Tuberculosis, Sarcoidosis, Midline lethal granuloma, Crohn's Disease and Histiocytosis X

(7) Miscellaneous Disorders: Burkitt lymphoma, Sturge – Weber syndrome, CREST syndrome, Rendu – Osler-Weber disease

SECTION (C): ORAL MEDICINE AND THERAPEUTICS.

The following chapters shall be studied in detail including the etiology, pathogenesis, clinical features, investigations, differential diagnosis, management and prevention

(1) Infections of oral and paraoral structures:

Bacterial: Streptococcal, tuberculosis, syphilis, Vincent's, leprosy, actinomycosis, diphtheria and tetanus

Fungal: Candida albicans

Virus: Herpes simplex, herpes zoster, Ramsay Hunt syndrome, measles, herpangina, mumps, infectious mononucleosis, AIDS and hepatitis-B

(2) Important common mucosal lesions:

White lesions: Chemical burns, leukodema, leukoplakia, Fordyce spots, stomatitis nicotina palatinus, white sponge nevus, candidiasis, lichen planus, discoid lupus erythematosus

Vesiculo-bullous lesions: Herpes simplex, herpes zoster, herpangina, bullous lichen planus, pemphigus, cicatricial pemphigoid erythema multiforme.

Ulcers: Acute and chronic ulcers

Pigmented lesions: Exogenous and endogenous

Red lesions: Erythroplakia, stomatitis venenata and medicamentosa, erosive lesions and denture sore mouth.

(3) Cervico-facial lymphadenopathy

(4) Facial pain:

(i) Organic pain: Pain arising from the diseases of orofacial tissues like teeth, pulp, gingival, periodontal tissue, mucosa, tongue, muscles, blood vessels, lymph tissue, bone, paranasal sinus, salivary glands etc.,

(ii) Pain arising due to C.N.S. diseases:

(a) Pain due to intracranial and extracranial involvement of cranial nerves. (Multiple sclerosis, cerebrovascular diseases, Trotter's syndrome etc.)

(b) Neuralgic pain due to unknown causes: Trigeminal neuralgia, glossopharyngeal neuralgia,

sphenopalatine ganglion neuralgia, periodic migrainous neuralgia and atypical facial pain

(iii) Referred pain: Pain arising from distant tissues like heart, spine etc.,

(5) Altered sensations: Cacogeusia, halitosis

(6) Tongue in local and systemic disorders: (Aglossia, ankyloglossia, bifid tongue, fissured tongue, scrotal tongue, macroglossia, microglossia, geographic tongue, median rhomboid glossitis, depapillation of tongue, hairy tongue, atrophic tongue, reactive lymphoid hyperplasia, glossodynia, glossopyrosis, ulcers, white and red patches etc.)

(7) Oral manifestations of:

(i) Metabolic disorders:

(a) Porphyria

(b) Haemochromatosis

(c) Histocytosis X diseases

(ii) Endocrine disorders:

(a) Pituitary: Gigantism, acromegaly, hypopituitarism

(b) Adrenal cortex: Addison's disease (Hypofunction)

Cushing's syndrome (Hyperfunction)

(c) Parathyroid glands: Hyperparathyroidism.

(d) Thyroid gland: (Hypothyroidism) Cretinism, myxedema

(e) Pancreas: Diabetes

(iii) Nutritional deficiency: Vitamins: riboflavin, nicotinic acid, folic acid Vitamin B12, Vitamin C (Scurvy)

(iv) Blood disorders:

(a) Red blood cell diseases

Deficiency anemias: (Iron deficiency, Plummer – Vinson syndrome, pernicious anemia)

Haemolytic anemias: (Thalassemia, sickle cell anemia, erythroblastosis fetalis)

Aplastic anemia

Polycythemia

(b) White Blood cell diseases

Neutropenia, cyclic neutropenia, agranulocytosis, infectious mononucleosis and leukemias

(c) Haemorrhagic disorders:

Thrombocytopenia, purpura, hemophilia, Christmas disease and von Willebrand's disease

(8) Disease of salivary glands:

(i) Developmental disturbances: Aplasia, atresia and aberration

(ii) Functional disturbances: Xerostomia, ptyalism

(iii) Inflammatory conditions: Nonspecific sialadenitis, mumps, sarcoidosis Heerfordt's syndrome (Uveoparotid fever), Necrotising sialometaplasia

(iv) Cysts and tumors: Mucocele, ranula, pleomorphic adenoma, mucoepidermoid carcinoma

(v) Miscellaneous: Sialolithiasis, Sjögren's syndrome, Mikulicz's disease and sialosis

(9) Dermatological diseases with oral manifestations:

(a) Ectodermal dysplasia (b) Hyperkeratosis palmarplantaris with periodontopathy (c)

Scleroderma (d) Lichen planus including Gianotti's syndrome (e) Lupus erythematosus (f)

Pemphigus (g) Erythema multiforme (h) Psoriasis

(10) Immunological diseases with oral manifestations

(a) Leukemia (b) Lymphomas (c) Multiple myeloma (d) AIDS clinical manifestations,

opportunistic infections, neoplasms (e) Thrombocytopenia (f) Lupus erythematosus (g) Scleroderma

(h) dermatomyositis (i) Submucous fibrosis (j) Rheumatoid arthritis (k) Recurrent oral ulcerations including Behçet's syndrome and Reiter's syndrome

(11) Allergy: Local allergic reactions, anaphylaxis, serum sickness (local and systemic allergic manifestations to food drugs and chemicals)

(12) Foci of oral infection and their ill effects on general health

(13) Management of dental problems in medically compromised persons:

(i) Physiological changes: Puberty, pregnancy and menopause

(ii) The patients suffering with cardiac, respiratory, liver, kidney and bleeding disorders, hypertension, diabetes and AIDS. Post-irradiated patients.

(14) Precancerous lesions and conditions

(15) Nerve and muscle diseases:

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(i) Nerves: (a) Neuropraxia (b) Neurotmesis (c) Neuritis (d) Facial nerve paralysis including Bell's palsy, Heerfordt's syndrome, Melkersson-Rosenthal syndrome and Ramsay Hunt syndrome (e)

Neuroma (f) Neurofibromatosis (g) Frey's syndrome

(ii) Muscles: (a) Myositis ossificans (b) Myofascial pain dysfunction syndrome (c) Trismus

(16) Forensic odontology:

(a) Medicolegal aspects of orofacial injuries

(b) Identification of bite marks

(c) Determination of age and sex

(d) Identification of cadavers by dental appliances, Restorations and tissue remnants

(17) Therapeutics: General therapeutic measures – drugs commonly used in oral medicine viz., antibiotics, chemotherapeutic agents, anti-inflammatory and analgesic drugs, astringents, mouth washes, styptics, demulcents, local surface anaesthetic, sialogogues, antisialogogues and drugs used in the treatment of malignancy

Part – II BEHAVIOURAL SCIENCES AND ETHICS.

Part – III ORAL RADIOLOGY

(1) Scope of the subject and history of origin

(2) Physics of radiation: (a) Nature and types of radiations (b) Source of radiations (c) Production of X-rays (d) Properties of X-rays (e) Compton effect (f) Photoelectric effect (g) Radiation measuring units

(3) Biological effects of radiation

(4) Radiation safety and protection measures

(5) Principles of image production

(6) Radiographic techniques:

(i) Intra-Oral: (a) Periapical radiographs (Bisecting and parallel techniques) (b) Bite wing radiographs

(c) Occlusal radiographs

(ii) Extra-oral: (a) Lateral projections of skull and jaw bones and paranasal sinuses (c)

Cephalograms (d) Orthopantomograph (e) Projections of temporomandibular joint and

condyle of mandible (f) Projections for Zygomatic arches

(iii) Specialised techniques: (a) Sialography (b) Xeroradiography (c) Tomography

(7) Factors in production of good radiographs:

(a) K.V.P. and mA. of X-ray machine (b) Filters (c) Collimations (d) Intensifying screens (e)

Grids (f) X-ray films (g) Exposure time (h) Techniques (i) Dark room (j) Developer and fixer

solutions (k) Film processing

(8) Radiographic normal anatomical landmarks

(9) Faculty radiographs and artefacts in radiographs

(10) Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues

(11) Principles of radiotherapy of oro-facial malignancies and complications of radiotherapy

(12) Contrast radiography and basic knowledge of radio-active isotopes

(13) Radiography in Forensic Odontology - Radiographic age estimation and post-mortem radiographic methods

PRACTICALS / CLINICALS:

1. Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of the orofacial region. Training is also imparted in management wherever possible. Training also shall be imparted on saliva diagnostic procedures. Training also shall be imparted in various radiographic procedures and interpretation of radiographs.

2. In view of the above each student shall maintain a record of work done, which shall be evaluated for marks at the time of university examination

3. The following is the minimum of prescribed work for recording

(a) Recording of detailed case histories of interesting cases 10

(b) Intra-oral radiographs (Periapical, bitewing, occlusal) 25

(c) Saliva diagnostic check as routine procedure

BOOKS RECOMMENDED:

a) Oral Diagnosis, Oral Medicine & Oral Pathology

1. Burkit – Oral Medicine – J.B. Lippincott Company

2. Coleman – Principles of Oral Diagnosis – Mosby Year Book

3. Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company

4. Mitchell – Oral Diagnosis & Oral Medicine

5. Kerr – Oral Diagnosis

6. Miller – Oral Diagnosis & Treatment

7. Hutchinson – clinical Methods

8. Oral Pathology – Shafers

9. Sonis, S.T., Fazio, R.C. and Fang, L. - Principles and practice of Oral Medicine

b) Oral Radiology

1. White & Goaz – Oral Radiology – Mosby year Book

2. Weahrman – Dental Radiology – C.V. Mosby Company

3. Stafne – Oral Roentgenographic Diagnosis – W.B. Saunders Co.,

ORTHODONTICS & DENTAL ORTHOPAEDICS

COURSE OBJECTIVE:

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures. The following basic instructional procedures will be adapted to achieve the above objectives.

1. Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And

Need For Orthodontics Care.

2. Growth And Development: In General

- a. Definition
- b. Growth spurts and Differential growth
- c. Factors influencing growth and Development
- d. Methods of measuring growth
- e. Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)
- f. Genetic and epigenetic factors in growth
- g. Cephalocaudal gradient in growth.

3. Morphologic Development Of Craniofacial Structures

- a. Methods of bone growth
- b. Prenatal growth of craniofacial structures
- c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. Functional Development Of Dental Arches And Occlusion

- a. Factors influencing functional development of dental arches and occlusion.
- b. Forces of occlusion
- c. Wolfe's law of transformation of bone
- d. Trajectories of forces

5. Clinical Application Of Growth And Development

6. Malocclusion - In General

- a. Concept of normal occlusion
- b. Definition of malocclusion
- c. Description of different types of dental, skeletal and functional malocclusion.

7. Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.

8. Normal And Abnormal Function Of Stomatognathic System

9. Etiology Of Malocclusion

- a. Definition, importance, classification, local and general etiological factors.
- b. Etiology of following different types of malocclusion:

- 1) Midline diastema
- 2) Spacing
- 3) Crowding
- 4) Cross-Bite: Anterior/Posterior
- 5) Class III Malocclusion
- 6) Class II Malocclusion
- 7) Deep Bite
- 8) Open bite

10. Diagnosis And Diagnostic Aids

- a. Definition, Importance and classification of diagnostic aids
- b. Importance of case history and clinical examination in orthodontics
- c. Study Models: - Importance and uses - Preparation and preservation of study models
- d. Importance of intraoral X-rays in orthodontics
- e. Panoramic radiographs: - Principles, Advantages, disadvantages and uses
- f. Cephalometrics: Its advantages, disadvantages
1. Definition
2. Description and use of cephalostat
3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
4. Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line
- g. Electromyography and its uses in orthodontics
- h. Wrist X-rays and its importance in orthodontics

11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions

12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage

13. Biomechanical Principles In Orthodontic Tooth Movement

a. Different types of tooth movements

b. Tissue response to orthodontic force application

- c. Age factor in orthodontic tooth movement

14. Preventive Orthodontics

- a. Definition
- b. Different procedures undertaken in preventive orthodontics and their limitations.

15. Interceptive Orthodontics

- a. Definition
- b. Different procedures undertaken in interceptive orthodontics
- c. Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.
- d. Role of muscle exercises as an interceptive procedure

16. Corrective Orthodontics

- a. Definition, factors to be considered during treatment planning.
- b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis
- c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions
- d. Extractions in Orthodontics - indications and selection of teeth for extraction.

17. Orthodontic Appliances: General

- a. Requisites for orthodontic appliances

- b. Classification, indications of Removable and Functional Appliances
- c. Methods of force application
- d. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antiluxes.
- e. Preliminary knowledge of acid etching and direct bonding.

18. Ethics

REMOVABLE ORTHODONTIC APPLIANCES

- 1) Components of removable appliances
- 2) Different types of clasps and their uses
- 3) Different types of labial bows and their uses
- 4) Different types of springs and their uses
- 5) Expansion appliances in orthodontics:
 - i) Principles
 - ii) Indications for arch expansion
 - iii) Description of expansion appliances and different types of expansion devices and their uses.
 - iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

- 1. Definition, Indications & Contraindications
- 2. Component parts and their uses
- 3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

EXTRAORAL APPLIANCES

- 1. Headgears
- 2. chin cup
- 3. reverse pull headgears

MYOFUNCTIONAL APPLIANCES

- 1. Definition and principles
- 2. Muscle exercises and their uses in orthodontics
- 3. Functional appliances:
 - i) Activator, Oral screens, Frankel's function regulator, bionator twin blocks, lip bumper
 - ii) Inclined planes - upper and lower

18. Orthodontic Management Of Cleft Lip And Palate

19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:

- a. Mandibular Prognathism and Retrognathism
- b. Maxillary Prognathism and Retrognathism
- c. Anterior open bite and deep bite
- d. Cross bite

20. Principle, Differential Diagnosis & Methods Of Treatment Of:

- 1. Midline diastema
- 2. Cross bite
- 3. Open bite
- 4. Deep bite
- 5. Spacing
- 6. Crowding
- 7. Class II - Division 1, Division 2
- 8. Class III Malocclusion - True and Pseudo Class III

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21. Retention And Relapse

Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention.

CLINICALS AND PRACTICALS IN ORTHODONTICS

PRACTICAL TRAINING DURING II YEAR B.D.S.

I. Basic wire bending exercises Gauge 22 or 0.7mm

- 1. Straightening of wires (4 Nos.)
- 2. Bending of an equilateral triangle
- 3. Bending of a rectangle
- 4. Bending of a square
- 5. Bending of a circle
- 6. Bending of U.V.

II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm

- 1. 3/4 Clasp (C-Clasp)
- 2. Full Clasp (Jackson's Crib)
- 3. Adam's Clasp
- 4. Triangular Clasp

III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm

- 1. Finger Spring
- 2. Single Cantilever Spring
- 3. Double Cantilever Spring (Z-Spring)
- 4. T-Springs on premolars

IV. Construction of Canine retractors Gauge 23 or 0.6mm

- 1. U - Loop canine retractor (Both sides on upper & lower)
- 2. Helical canine retractor (Both sides on upper & lower)



- 3. Buccal canine retractor:
 - Self supported buccal canine retractor with
 - a) Sleeve - 5mm wire or 24 gauge
 - b) Sleeve - 19 gauge needle on any one side.
 - 4. Palatal canine retractor on upper both sides
- Gauge 23 or 0.6mm

V. Labial Bow
Gauge 22 or 0.7mm
One on both upper and lower

CLINICAL TRAINING DURING III YEAR B.D.S.

NO. EXERCISE

- 01. Making upper Alginate impression
- 02. Making lower Alginate impression
- 03. Study Model preparation
- 04. Model Analysis
 - a. Pont's Analysis
 - b. Ashley Howe's Analysis
 - c. Carey's Analysis
 - d. Bolton's Analysis
 - e. Moyer's Mixed Dentition Analysis

CLINICAL TRAINING DURING FINAL YEAR B.D.S.

NO. EXERCISE

- 01. Case History taking
- 02. Case discussion
- 03. Discussion on the given topic
- 04. Cephalometric tracings
 - a. Down's Analysis
 - b. Steiner's Analysis
 - c. Tweed's Analysis

PRACTICAL TRAINING DURING FINAL YEAR B.D.S.

- 1. Adam's Clasp on Anterior teeth Gauge 0.7mm
- 2. Modified Adam's Clasp on upper arch Gauge 0.7mm
- 3. High Labial bow with Apron spring on upper arch
(Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
- 4. Coffin spring on upper arch Gauge 1mm

Appliance Construction in Acrylic

- 1. Upper & Lower Hawley's Appliance
- 2. Upper Hawley's with Anterior bite plane
- 3. Upper Habit breaking Appliance

PERIODONTOLOGY

OBJECTIVES:

The student shall acquire the skill to perform dental scaling ,diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist’s care.

- 6. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
- 7. Development of perio-dontal tissues, micro-structural anatomy and biology of periodontal tissues in detail Gingiva. Junctional epithelium in detail, Epithelial-Mesenchymal interaction,Periodontal, ligament Cementum, Alveolar bone.
- 8. Defensive mechanisms in the oral cavity: Role of-Epithelium,Gingival fluid, Saliva and otherdefensive mechanisms in the oral environment.
- 9. Age changes in periodontal structures and their significance inGeriatric dentistry
- 10. Classification of periodontal diseases
 - Periodontitis:
 - Adult periodontitis, Rapidly progressive periodontitis A&B, Juvenile periodontitis(localized, generalized, and post-juvenile), Prepubertal periodontitis,
 - Refractory periodontitis
- 6. Gingival diseases
 - Localized and generalized gingivitis, Papillary, marginal and diffuse 6 gingivitis

		Etiology, pathogenesis, clinical signs, symptoms and management of	
		i) Plaque associated gingivitis	
		ii) Systemically aggravated gingivitis(sex hormones, drugs and systemic diseases)	
		iii) ANUG	
7	Epidemiology of periodontal diseases	iv) Desquamative gingivitis-Gingivitis associated with lichen planus, pemphigoid, pemphigus, and other vesiculobullous lesions	
		v) Allergic gingivitis	
		vi) Infective gingivitis-Herpetic, bacterial and candidial	
		vii) Pericoronitis	
		viii) Gingival enlargement (classification and differential diagnosis)	
		- Definition of index, incidence, prevalence, epidemiology, endemic, epidemic, and pandemic	2
		- Classification of indices(Irreversible and reversible)	
		- Deficiencies of earlier indices used in Periodontics	
		- Detailed understanding of Silness & Loe Plaque Index ,Loe&Silness Gingival Index, CPITN & CPI.	
19.	Extension of inflammation from gingiva	- Prevalence of periodontal diseases in India and other countries.	
		- Public health significance(All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination	
		Mechanism of spread of inflammation from gingival area to deeper periodontal structures	1
		Factors that modify the spread	
20.	Pocket	Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket	2
21.	Etiology	- Dental Plaque (Biofilm)	5
		- Definition, New concept of biofilm	
		- Types, composition, bacterial colonization, growth, maturation & disclosing agents	
		- Role of dental plaque in periodontal diseases	
		- Plaque microorganisms in detail and bacteria associated with periodontal diseases	
		- Plaque retentive factors	
		- Materia alba	
		- Food debris	
		- Calculus	
		- Definition	
		- Types, composition, attachment, theories of formation	
		- Role of calculus in disease	
		Food Impaction	
		- Definition	
		- Types, Etiology	
		- Hirschfelds' classification	
		- Signs ,symptoms & sequelae of treatment	
		Trauma from occlusion	
		- Definition, Types	
		- Histopathological changes	
		- Role in periodontal disease	
		- Measures of management in brief	
		Habits	
		- Their periodontal significance	
		- Bruxism & parafunctional habits, tongue thrusting ,lip biting, occupational habits	
		IATROGENIC FACTORS	

Conservative Dentistry	
- Restorations	
- Contact point, marginal ridge, surface roughness,overhanging restorations, interface between restoration and teeth	
Prosthodontics	
- Interrelationship	
- Bridges and other prosthesis, pontics(types) ,surface contour, relationships of margins to the periodontium, Gingival protection theory, muscle action theory& theory of access to oral hygiene.	
Orthodontics	
- Interrelationship, removable appliances &fixed appliances	
- Retention of plaque, bacterial changes	
Systemic diseases	
- Diabetes, sex hormones, nutrition(Vit.C &proteins)	
- AIDS & periodontium	
- Hemorrhagic diseases, Leukemia, clotting factor disorders,PMN disorders	
22. Risk factors	Definition. Risk factors for periodontal diseases1
23. Host response diseases	- Mechanism of initiation and progression of periodontal3
	- Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief
	- Stages in gingivitis-Initial, early, established & advanced
	- Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis
24. Periodontitis diagnosis and treatment of adult periodontitis	- Etiology ,histopathology, clinical signs & symptoms,6
	- Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment
	- Furcation involvement, Glickmans’ classification, prognosis and management
	- Rapidly progressive periodontitis
	- Juvenile periodontitis: Localized and generalized
	- Post-juvenile periodontitis
	- Periodontitis associated with systemic diseases
	- Refractory periodontitis
25. Diagnosis probes,(According to case history)	- Routine procedures, methods of probing, types of2
- Halitosis:	Etiology and treatment. Mention advanced
diagnostic aids and their role in brief.	
26. Prognosis consideration	- Definition, types, purpose and factors to be taken into1
27. Treatment plan	- Factors to be considered1
28. Periodontal therapy	A. General principles of periodontal therapy. Phase I,II, III, IV3
	therapy.
	Definition of periodontal regeneration, repair, new attachment and reattachment.
	C. Plaque control
	i. Mechanical tooth brushes, interdental cleaning aids, dentifrices
	ii. Chemical; classification and mechanism of action of each & pocket irrigation
29.Pocket eradication procedures	- Scaling and root planing:5
	- Indications
	- Aims & objectives
	- Healing following root planning
	- Hand instruments, sonic, ultrasonic &piezo-electric scalers
	- Curettage &present concepts
	- Definition
	- Indications
	- Aims &objectives
	- Procedures & healing response
	- Flap surgery
	- Definition

- Types of flaps, Design of flaps, papilla preservation

-	Indications & contraindications	- Armamentarium	
-	Surgical procedure & healing response		
	30. Osseous Surgery	Osseous defects in periodontal disease	2
		- Definition	
		- Classification	
		- Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts)	
		- Healing responses	
		- Other regenerative procedures; root conditioning	
		- Guided tissue regeneration	
31.	Mucogingival surgery & periodontal plastic surgeries	Definition	3
		Mucogingival problems: etiology, classification of gingival recession (P.D. Miller Jr. and Sullivan and Atkins)	
		Indications & objectives	
		Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy	
		Crown lengthening procedures	
		Periodontal microsurgery in brief	
32.	Splints	- Periodontal splints	1
		- Purpose & classification	
		- Principles of splinting	
33.	Hypersensitivity	Causes, Theories & management	1
34.	Implants	Definition, types, scope & biomaterials used.	1
		Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management	
35.	Maintenance phase (SPT)	- Aims, objectives, and principles	1
		- Importance	
		- Procedures	
		- Maintenance of implants	
36.	Pharmaco-therapy	- Periodontal dressings	2
		- Antibiotics & anti-inflammatory drugs	
		- Local drug delivery systems	
37.	Periodontal management of medically compromised patients	Topics concerning periodontal management of medically compromised patients	1
38.	Inter-disciplinary care	- Pulpo-periodontal involvement	1
		- Routes of spread of infection	
		- Simons' classification	
		- Management	
39.	Systemic effects of periodontal diseases in brief	Cardiovascular diseases, Low birth weight babies etc.	1



40. Infection control protocol Sterilization and various aseptic procedures
41. Ethics

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TUTORIALS DURING CLINICAL POSTING;

9. Infection control
10. Periodontal instruments
11. Chair position and principles of instrumentation
12. Maintenance of instruments (sharpening)
13. Ultrasonic, Piezoelectric and sonic scaling – demonstration of technique
14. Diagnosis of periodontal disease and determination of prognosis
15. Radiographic interpretation and lab investigations
16. Motivation of patients- oral hygiene instructions

Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling, root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures.

DEMONSTRATIONS:

7. History taking and clinical examination of the patients
8. Recording different indices
9. Methods of using various scaling and surgical instruments
10. Polishing the teeth
11. Bacterial smear taking
12. Demonstration to patients about different oral hygiene aids

Employability – Lasers in periodontics



PROSTHODONTICS AND CROWN & BRIDGE

Complete Dentures

- Q. Applied Anatomy and Physiology.
 1. Introduction
 2. Biomechanics of the edentulous state.
 3. Residual ridge resorption.
- R. Communicating with the patient
 1. Understanding the patients.
 - Mental attitude.
 2. Instructing the patient.
- S. Diagnosis and treatment planning for patients-
 1. With some teeth remaining.

Employability

Entrepreneurship

Skill Development

- 2. With no teeth remaining.
- e) Systemic status.
- f) Local factor.
- g) The geriatric patient.
- h) Diagnostic procedures.
- T. Articulators- discussion
- U. Improving the patient's denture foundation and ridge relation -an overview.
 - g) Pre-operative examination.
 - h) Initial hard tissue & soft tissue procedure.
 - i) Secondary hard & soft tissue procedure.
 - j) Implant procedure.
 - k) Congenital deformities.
 - l) Postoperative procedure.
- V. Principles of Retention, Support and Stability
- W. Impressions - detail.
 - h) Muscles of facial expression.
 - i) Biologic considerations for maxillary and mandibular impression including anatomylandmark and their interpretation.
 - j) Impression objectives.
 - k) Impression materials.
 - l) Impression techniques.
 - m) Maxillary and mandibular impression procedures.
 - iii. Preliminary impressions.
 - iv. Final impressions.
 - n) Laboratory procedures involved with impression making (Beading & Boxing and castpreparation).
- X. Record bases and occlusion rims- in detail.
 - d) Materials & techniques.
 - e) Useful guidelines and ideal parameters.
 - f) Recording and transferring bases and occlusal rims.
- Y. Biological consideration in jaw relation & jaw movements - craniomandibular relations.
 - d) Mandibular movements.
 - e) Maxillo -mandibular relation including vertical and horizontal jaw relations.
 - f) Concept of occlusion- discuss in brief.
- Z. Relating the patient to the articulator.
 - c) Face bow types & uses– discuss in brief.
 - d) Face bow transfer procedure - discuss in brief.
- AA. Recording maxillo mandibular relation.
 - e) Vertical relations.
 - f) Centric relation records.
 - g) Eccentric relation records.
 - h) Lateral relation records.
- BB. Tooth selection and arrangement.
 - d) Anterior teeth.
 - e) Posterior teeth.
 - f) Esthetic and functional harmony.
- CC. Relating inclination of teeth to concept of occlusion- in brief.
 - c) Neurocentric concept.
 - d) Balanced occlusal concept.
- DD. Trial dentures.
- EE. Laboratory procedures.
 - k) Wax contouring.
 - l) Investing of dentures.
 - m) Preparing of mold.
 - n) Preparing & packing acrylic resin.

- o) Processing of dentures.
- p) Recovery of dentures.
- q) Lab remount procedures.
- r) Recovering the complete denture from the cast.
- s) Finishing and polishing the complete denture.
- t) Plaster cast for clinical denture remount procedure.

- FF. Denture insertion.
 - e) Insertion procedures.
 - f) Clinical errors.
 - g) Correcting occlusal disharmony.
 - h) Selective grinding procedures.
- U. Treating problems with associated denture use – discuss in brief (tabulation/flow-chart form).
- V. Treating abused tissues - discuss in brief.
- W. Relining and rebasing of dentures- discuss in brief.
- Z. Immediate complete dentures construction procedure- discuss in brief.
- AA. The single complete denture- discuss in brief.
- BB. Overdentures denture- discuss in brief.
- CC. Dental implants in complete denture - discuss in brief.

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

11. Definition
12. Diagnosis (of the particular situation/patient selection/treatment planning)
13. Types / Classification
14. Materials
15. Methodology – Lab /Clinical
16. Advantages & disadvantages
17. Indications, contraindications
18. Maintenance Phase
19. Oral Implantology
20. Ethics

Removable Flexible Dentures

20. Introduction
 - Terminologies and scope
21. Classification.
22. Examination, Diagnosis & Treatment planning & evaluation of diagnostic data.
23. Components of a removable partial denture.
 - Major connectors,
 - minor connectors,
 - Rest and rest seats.
24. Components of a Removable Partial Denture.
 - Direct retainers,
 - Indirect retainers,
 - Tooth replacement.
25. Principles of Removable Partial Denture Design.
26. Survey and design – in brief.
 - Surveyors.
 - Surveying.
 - Designing.
27. Mouth preparation and master cast.
28. Impression materials and procedures for removable partial dentures.
29. Preliminary jaw relation and esthetic try-in for some anterior replacement teeth.
30. Laboratory procedures for framework construction-in brief.
31. Fitting the framework - in brief.
32. Try-in of the partial denture - in brief.

33. Completion of the partial denture - in brief.
34. Inserting the Removable Partial Denture - in brief.
35. Postinsertion observations.
36. Temporary Acrylic Partial Dentures.
37. Immediate Removable Partial Denture.
38. Removable Partial Dentures opposing Complete denture.

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

9. Definition
10. Diagnosis (of the particular situation /patient selection /treatment planning)
11. Types / Classification
12. Materials
13. Methodology – Lab /Clinical
14. Advantages & disadvantages
15. Indications, contraindications
16. Maintenance Phase

Fixed Partial Dentures

Topics To Be Covered In Detail -

18. Introduction
19. Fundamentals of occlusion – in brief.
20. Articulators – in brief.
21. Treatment planning for single tooth restorations.
22. Treatment planning for the replacement of missing teeth including selection and choice of abutment teeth.
23. Fixed partial denture configurations.
24. Principles of tooth preparations.
25. Preparations for full veneer crowns – in detail.
26. Preparations for partial veneer crowns – in brief.
27. Provisional Restorations
28. Fluid Control and Soft Tissue Management
29. Impressions
30. Working Casts and Dies
31. Wax Patterns
32. Pontics and Edentulous Ridges
33. Esthetic Considerations
34. Finishing and Cementation

Topics To Be Covered In Brief -

10. Solder Joints and Other Connectors
11. All - Ceramic Restorations
12. Metal - Ceramic Restorations
13. Preparations of intracoronal restorations.
14. Preparations for extensively damaged teeth.
15. Preparations for periodontally weakened teeth
16. The Functionally Generated Path Technique
17. Investing and Casting
18. Resin - Bonded Fixed Partial Denture

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

9. Definition
10. Diagnosis (of the particular situation /patient selection /treatment planning)
11. Types / Classification
12. Materials

13. Methodology – Lab /Clinical
14. Advantages & disadvantages
15. Indications, contraindications
16. Maintenance Phase

RECOMMENDED BOOKS:

7. Syllabus of Complete denture by - Charles M. Heartwell Jr. and Arthur O. Rahn.
8. Boucher's "Prosthodontic treatment for edentulous patients"
9. Essentials of complete denture prosthodontics by – Sheldon Winkler.
10. Maxillofacial prosthetics by – William R. Laney.
11. McCracken's Removable partial prosthodontics
12. Removable partial prosthodontics by – Ernest L. Miller and Joseph E. Grasso.

CONSERVATIVE DENTISTRY AND ENDODONTICS

OBJECTIVES:

- D. Knowledge and understanding
- E. Skills and
- F. Attitudes

A). Knowledge and understanding:

The graduate should acquire the following knowledge during the period of training.

- vi. To diagnose and treat simple restorative work for teeth.
- vii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
- viii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.
- ix. To carry out simple endodontic treatment.
- x. To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.

SKILLS:

He should attain following skills necessary for practice of dentistry

- iv) To use medium and high speed hand pieces to carry out restorative work.
- v) Possesses the skills to use and familiarise endodontic instruments and materials needed for carrying out simple endodontic treatment.
- vi) To achieve the skills to translate patients esthetic needs along with function.

ATTITUDES:

- v). Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- vi). Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.
- vii). To help and participate in the implementation of the national oral health policy.
- viii). He should be able to motivate the patient for proper dental treatment at the same time proper maintenance of oral hygiene should be emphasised which will help to maintain the restorative work and prevent future damage.

INTRODUCTION :

Definition aims objectives of Conservative Dentistry scope and future of Conservative Dentistry.

1. Nomenclature Of Dentition:
Tooth numbering systems A.D.A. Zsigmondy Palmer and F.D.I. systems.
2. Principles Of Cavity Preparation :
Steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors angles of cavities.
3. Dental Caries :
Aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.

4. Treatment Planning For Operative Dentistry:
Detailed clinical examination , radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet.
5. Gnathological Concepts Of Restoration:
Physiology of occlusion, normal occlusion, Ideal occlusion, mandibular movements and occlusal analysis. Occlusal rehabilitation and restoration.
6. Aramamentarium For Cavity Preparation:
General classification of operative instruments, Hand cutting instruments design formula and sharpening of instruments. Rotary cutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instrument tray set up.
7. Control of Operating Filed:
Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogagues.
8. Amalgam Restoration :
Indication contra indication, physical and mechanical properties , clinical behaviour. Cavity preparation for Class I , II, V and III. Step wise procedure for cavity preparation and restoration. Failure of amalgam restoration.
9. Pulp Protection :
Linners, varnishes and bases, Zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass ionomer cements.
10. Anterior Restorations :
Selection of cases, selection of material, step wise procedures for using restorations , silicate (theory only) glass ionomers, composites, including sandwich restorations and bevels of the same with a note on status of the dentine bonding agents.
11. Direct Filling Gold Restorations :
Types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
12. Preventive Measures In Restorative Practice :
Plaque Control, Pit and fissure sealants dietary measures restorative procedure and periodontal health. Contact and contour of teeth and restorations matrices tooth separation and wedges.
13. Temporisation or Interim Restoration.
14. Pin Amalgam Restoration Indication Contra Indication :
Advantages disadvantages of each types of pin methods of placement use of auto matrix. Failure of pin amalgam restoration.
15. Management Of Deep Carious Lesions Indirect And Direct Pulp Capping.
16. Non Carious Destruction's Tooth Structures Diagnosis and Clinical Management
17. Hyper Sensitive Dentine And Its Management.
18. Cast Restorations
Indications, contra indications, advantages and disadvantages and materials used for same Class II and Class I cavity preparation for inlays fabrication of wax pattern spurring inverting and casting procedures & casting defects.
19. Die Materials And Preparation Of Dies.
20. Gingival Tissue Management For Cast Restoration And Impression Procedures
21. Recent Cavity Modification Amalgam Restoration.
22. Differences between Amalgam And Inlay Cavity preparation with note on all the types of Jewels used for Cast Restoration.
23. Control Of Pain During Operative Procedures.
24. Treatment Planning For Operative Dentistry Detailed Clinical Examination Radiographic Examination
25. Vitality Tests, Diagnosis And Treatment Planning And Preparation Of Case Sheet.
26. Applied Dental Materials.
 - a. Biological Considerations.
Evaluation, clinical application and adverse effects of the following materials.
Dental cements, Zinc oxide eugenol cements zinc phosphate cements,

- polycarboxylates glass ionomer cements, silicate cement calcium hydroxides varnishes.
- b. Dental amalgam, technical considerations mercury toxicity mercury hygiene.
- c. Composite, Dentine bonding agents, chemical and light curing composites
- d. Rubber base Imp. Materials
- e. Nobel metal alloys & non noble metal alloys
- f. Investment and die materials
- g. Inlay casting waxes
- h. Dental porcelain
- i. Aesthetic Dentistry
- 27. Endodontics: introduction definition scope and future of endodontics
- 28. Clinical diagnostic methods
- 29. Emergency endodontic procedures
- 30. Pulpal diseases causes, types and treatment .
- 31. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alveolar abscess granuloma cysts condensing osteitis, external resorption.
- 32. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicaments used.
- 33. Apexogenesis and apexification or problems of open apex.
- 34. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
- 35. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments. Sterilisation of root canal instruments and materials rubber dam application.
- 36. Anatomy of the pulp cavity: root canals apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
- 37. Preparation of root canal space . Determination of working length, cleaning and shaping of root canals, irrigating solution chemical aids to instrumentation.
- 38. Disinfection of root canal space intracanal medicaments, poly antibiotic paste ross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.
- 39. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.
- 40. Methods of cleaning and shaping like step back crown down and conventional methods.
- 41. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment. Failures in endodontics.
- 42. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
- 43. post endodontic restoration fabrication and components of post core preparation.
- 44. smear layer and its importance in endodontics and conservative treatment.
- 45. discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.
- 46. traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
- 47. endodontic surgeries indication contraindications, pre operative preparation. Premedication surgical instruments and techniques apicectomy, retrograde filling, post operative sequele terphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
- 48. root resorption.
- 49. emergency endodontic procedures.
- 50. lasers in conservative endodontics (introduction only) practice management
- 51. professional association dentist act 1948 and its amendment 1993.

52. duties towards the govt. Like payments of professional tax, income tax.
53. financial management of practice
54. dental material and basic equipment management.

Ethics

ORAL & MAXILLOFACIAL SURGERY

AIMS:

To produce a graduate who is competent in performing extraction of teeth under both local and general anaesthesia, prevent and manage related complications, acquire a reasonable knowledge and understanding of the various diseases, injuries, infections occurring in the Oral & Maxillofacial region and offer solutions to such of those common conditions and has an exposure in to the in-patient management of maxillofacial problems.

OBJECTIVES:

a) Knowledge & Understanding:

At the end of the course and the clinical training the graduate is expected to -

1. Able to apply the knowledge gained in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.
2. Able to diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
3. Knowledge of range of surgical treatments.
4. Ability to decide the requirement of a patient to have oral surgical specialist opinion or treatment.
5. Understand the principles of in-patient management.
6. Understanding of the management of major oral surgical procedures and principles involved in patient management.
7. Should know ethical issues and communication ability.

b) Skills:

1. A graduate should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner. Be able to understand requisition of various clinical and laboratory investigations and is capable of formulating differential diagnosis.
2. Should be competent in the extraction of teeth under both local and general anaesthesia.
3. Should be able to carry out certain minor oral surgical procedures under L.A. like frenectomy, alveolar procedures & biopsy etc.
4. Ability to assess, prevent and manage various complications during and after surgery.
5. Able to provide primary care and manage medical emergencies in the dental office.
6. Understanding of the management of major oral surgical problems and principles involved in inpatient management.

DETAILED SYLLABUS

1. Introduction, definition, scope, aims and objectives.
2. Diagnosis in oral surgery:
 - (A) History taking
 - (B) Clinical examination
 - (C) Investigations.
3. Principles of infection control and cross-infection control with particular reference to HIV/AIDS and Hepatitis.
4. Principles of Oral Surgery -
 - a) Asepsis: Definition, measures to prevent introduction of infection during surgery.
 1. Preparation of the patient
 2. Measures to be taken by operator
 3. Sterilisation of instruments - various methods of sterilisation etc.
 4. Surgery set up.
 - b) Painless Surgery:
 1. Pre-anaesthetic considerations. Pre-medication: purpose, drugs used
 2. Anaesthetic considerations -
 - a) Local b) Local with IV sedations
 3. Use of general anaesthetic
 - c) Access:
 - Intra-oral: Mucoperiosteal flaps, principles, commonly used intra oral incisions.
 - Bone Removal: Methods of bone removal.
 - Use of Burs: Advantages & precautions
 - Bone cutting instruments: Principles of using chisel & osteotome.
 - Extra-oral: Skin incisions - principles, various extra-oral incision to expose facial skeleton.
 - a) Submandibular

- b) Pre auricular
- c) Incision to expose maxilla & orbit
- d) Bicoronal incision
- d) Control of haemorrhage during surgery
- Normal Haemostasis
- Local measures available to control bleeding
- Hypotensive anaesthesia etc.
- e) Drainage & Debridement
- Purpose of drainage in surgical wounds
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- Types of drains used
- Debridement: purpose, soft tissue & bone debridement.
- f) Closure of wounds
- Suturing: Principles, suture material, classification, body response to various materials etc.
- g) Post operative care
- Post operative instructions
- Physiology of cold and heat
- Control of pain - analgesics
- Control of infection - antibiotics
- Control of swelling - anti-inflammatory drugs
- Long term post operative follow up - significance.
- 5. Exodontia: General considerations
- Ideal Extraction.
- Indications for extraction of teeth
- Extractions in medically compromised patients.
- Methods of extraction -
- (a) Forceps or intra-alveolar or closed method.
- Principles, types of movement, force etc.
- (b) Trans-alveolar, surgical or open method, Indications, surgical procedure.
- Dental elevators: uses, classification, principles in the use of elevators, commonly used elevators.
- Complications of Exodontia -
- Complications during exodontia
- Common to both maxilla and mandible.
- Post-operative complications -
- Prevention and management of complications.
- 6. Impacted teeth:
- Incidence, definition, aetiology.
- (a) Impacted mandibular third molar.
- Classification, reasons for removal,
- Assessment - both clinical & radiological
- Surgical procedures for removal.
- Complications during and after removal,
- Prevention and management.
- (b) Maxillary third molar,
- Indications for removal, classification,
- Surgical procedure for removal.
- (c) Impacted maxillary canine
- Reasons for canine impaction,
- Localization, indications for removal,
- Methods of management, labial and palatal approach,
- Surgical exposure, transplantation, removal etc.
- 7. Pre-prosthetic Surgery:
- Definition, classification of procedures
- (a) Corrective procedures: Alveoloplasty,
- Reduction of maxillary tuberosities,
- Frenectomies and removal of tori.
- (b) Ridge extension or Sulcus extension procedures
- Indications and various surgical procedures
- (c) Ridge augmentation and reconstruction.
- Indications, use of bone grafts, Hydroxyapatite
- Implants - concept of osseointegration
- Knowledge of various types of implants and

surgical procedure to place implants.

8. Diseases of the maxillary sinus

Surgical anatomy of the sinus.

Sinusitis both acute and chronic

Surgical approach of sinus - Caldwell-Luc procedure

Removal of root from the sinus.

Oro-antral fistula - aetiology, clinical features and various surgical methods for closure.

9. Disorders of T.M. Joint

Applied surgical anatomy of the joint.

Dislocation - Types, aetiology, clinical features and management.

Ankylosis - Definition, aetiology, clinical features and management

Myo-facial pain dysfunction syndrome, aetiology, clinical features, management-

Non surgical and surgical.

Internal derangement of the joint.

Arthritis of T.M. Joint.

10. Infections of the Oral cavity

Introduction, factors responsible for infection, course of odontogenic infections, spread of odontogenic infections through various facial spaces.

Dento-alveolar abscess - aetiology, clinical features and management.

Osteomyelitis of the jaws - definition, aetiology, pre-disposing factors, classification, clinical features and management.

Ludwigs angina - definition, aetiology, clinical features, management and complications.

11. Benign cystic lesions of the jaws -

Definition, classification, pathogenesis.

Diagnosis - Clinical features, radiological, aspiration biopsy, use of contrast media and histopathology.

Management - Types of surgical procedures, Rationale of the techniques, indications, procedures, complications etc.

12. Tumours of the Oral cavity -

General considerations

Non odontogenic benign tumours occurring in oral cavity - fibroma, papilloma, lipoma, ossifying fibroma, myxoma etc.

Ameloblastoma - Clinical features, radiological appearance and methods of management.

Carcinoma of the oral cavity -

Biopsy - types

TNM classification.

Outline of management of squamous

Cell carcinoma: surgery, radiation and chemotherapy

Role of dental surgeons in the prevention and early detection of oral cancer.

13. Fractures of the jaws -

General considerations, types of fractures, aetiology, clinical features and general principles of management.

mandibular fractures - Applied anatomy, classification.

Diagnosis - Clinical and radiological

Management - Reduction closed and open

Fixation and immobilisation methods

Outline of rigid and semi-rigid internal fixation.

Fractures of the condyle - aetiology, classification, clinical features, principles of management.

Fractures of the middle third of the face.

Definition of the mid face, applied surgical anatomy, classification, clinical features and outline of management.

Alveolar fractures - methods of management

Fractures of the Zygomatic complex

Classification, clinical features, indications for treatment, various methods of reduction and fixation.

Complications of fractures - delayed union, non-union and malunion.

14. Salivary gland diseases -

Diagnosis of salivary gland diseases'

Sialography, contrast media, procedure.

Infections of the salivary glands

Sialolithiasis - Sub mandibular duct and gland and parotid duct.

Clinical features, management.

Salivary fistulae

Common tumours of salivary glands like Pleomorphic adenoma including minor salivary glands.

15. Jaw deformities -

Basic forms - Prognathism, Retrognathism and open bite.

Reasons for correction.

Outline of surgical methods carried out on mandible and maxilla.

16. Neurological disorders -

Trigeminal neuralgia - definition, aetiology, clinical features and methods of management including surgical.

Facial paralysis - Aetiology, clinical features.

Nerve injuries - Classification, neurorhaphy etc.

17. Cleft Lip and Palate -

Aetiology of the clefts, incidence, classification, role of dental surgeon in the management of cleft patients. Outline of the closure procedures.

18. Medical Emergencies in dental practice

Activity Based Learning



PUBLIC HEALTH DENTISTRY

GOAL:

To prevent and control oral diseases and promote oral health through organized community efforts

OBJECTIVES:

Knowledge:

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

Skill and Attitude:

At the conclusion of the course the students shall have require at the skill of identifying health problems affecting the society, conducting health surveys, conducting health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

Communication abilities:

At the conclusions of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

Syllabus:

1. Introduction to Dentistry: Definition of Dentistry, History of dentistry, Scope, aims and objectives of Dentistry.

2. Public Health:

i. Health & Disease: - Concepts, Philosophy, Definition and Characteristics

ii. Public Health: - Definition & Concepts, History of public health

Employability

Entrepreneurship

Skill Development

- iii. General Epidemiology: - Definition, objectives, methods
- iv. Environmental Health: - Concepts, principles, protection, sources, purification environmental sanitation of water disposal of waste sanitation, then role in mass disorder
- v. Health Education: - Definition, concepts, principles, methods, and health education aids
- vi. Public Health Administration: - Priority, establishment, manpower, private practice management, hospital management.
- vii. **Ethics and Jurisprudence: Professional liabilities, negligence, malpractice, consents, evidence, contracts, and methods of identification in forensic dentistry.**
- viii. Nutrition in oral diseases
- ix. Behavioral science: Definition of sociology, anthropology and psychology and their in dental practice and community.
- x. Health care delivery system: Center and state, oral health policy, primary health care, national programmes, health organizations.

Dental Public Health:

- 1. Definition and difference between community and clinical health.
- 2. Epidemiology of dental diseases-dental caries, periodontal diseases, malocclusion, dental fluorosis and oral cancer.
- 3. Survey procedures: Planning, implementation and evaluation, WHO oral health survey methods 1997, indices for dental diseases.

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- 4. Delivery of dental care: Dental auxiliaries, operational and non-operational, incremental and comprehensive health care, school dental health.
- 5. Payments of dental care: Methods of payments and dental insurance, government plans
- 6. Preventive Dentistry- definition, Levels, role of individual , community and profession, fluorides in dentistry, plaque control programmes.

Research Methodology and Dental Statistics

- 1. Health Information: - Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes
- 2. Research Methodology: -Definition, types of research, designing a written protocol
- 3. Bio-Statistics: - Introduction, collection of data, presentation of data, Measures of Central tendency, measures of dispersion, Tests of significance, Sampling and sampling techniques □ types, errors, bias, blind trails and calibration.

Practice Management

- 1. Place and locality**
- 2. Premises & layout**
- 3. Selection of equipments**
- 4. Maintenance of records/accounts/audit.**

Dentist Act 1948 with amendment.

Dental Council of India and State Dental Councils

Composition and responsibilities.

Indian Dental Association

Head Office, State, local and branches.

PRACTICALS/CLINICALS/FIELD PROGEAMME IN COMMUNITY DENTISTRY:

These exercises designed to help the student in IV year students:

- 1. Understand the community aspects of dentistry
- 2. To take up leadership role in solving community oral health programme

Exercises:

- a) Collection of statistical data (demographic) on population in India, birth rates, morbidity and mortality, literacy, per capita income
- b) Incidence and prevalence of common oral diseases like dental caries, periodontal disease, oral cancer, fluorosis at national and international levels
- c) Preparation of oral health education material posters, models, slides, lectures, play acting skits etc.
- d) Oral health status assessment of the community using indices and WHO basic oral health survey methods
- e) Exploring and planning setting of private dental clinics in rural, semi urban and urban

locations, availment of finances for dental practices-preparing project report.

f) Visit to primary health center-to acquaint with activities and primary health care delivery

g) Visit to water purification plant/public health laboratory/ center for treatment of western and sewage water

h) Visit to schools-to assess the oral health status of school children, emergency treatment and health education including possible preventive care at school (tooth brushing technique demonstration and oral rinse programme etc.)

i) Visit to institution for the care of handicapped, physically, mentally, or medically compromised patients

j) Preventive dentistry: in the department application of pit and fissure sealants, fluoride gel application procedure, A. R. T., Comprehensive health for 5 pts at least 2 patients

The colleges are encouraged to involve in the N.S.S. programme for college students for carrying out social work in rural areas

SUGGESTED INTERNSHIP PROGRAMME IN COMMUNITY DENTISTRY:

I. AT THE COLLEGE:

Students are posted to the department to get training in dental practice management.

(a) Total oral health care approach- in order to prepare the new graduates in their approach to diagnosis, treatment planning, cost of treatment, prevention of treatment on schedule, recall maintenance of records etc. at least 10 patients (both children and adults of all types posting for at least one month).

(b) The practice of chair side preventive dentistry including oral health education

II. AT THE COMMUNITY ORAL HEALTH CARE CENTRE (ADOPTED BY THE DENTAL COLLEGE IN RURAL AREAS)

Graduates posted for at least on month to familiarize in:

(a) Survey methods, analysis and presentation of oral health assessment of school children and community independently using WHO basic oral health survey methods.

(b) Participation in rural oral health education programmes

(c) Stay in the village to understand the problems and life in rural areas

III. DESIRABLE: Learning use of computers-at least basic programme.

Examination Pattern

I. Index: Case History

MDS - CONSERVATIVE DENTISTRY & ENDODONTICS

- Health information systems – collection, compilation, presentation of data.
- Elementary statistical methods – presentation of statistical data, statistical averages – measures of central tendency, measures of dispersion.
- Normal distribution.
- Tests of significance – parametric and non – parametric tests (FisherExtract test, Sign test, Median test, Mann Whitney test, Kruskal Wallis, One-way analysis, friedmann two-way analysis, Regression analysis).
- Correlation and regression.
- Use of Computers.

RESEARCH METHODOLOGY

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

APPLIED DENTAL MATERIALS

- Physical and mechanical properties of dental materials, biocompatibility.
- Impression materials, detailed study of various restorative materials, restorative resin and
- Recent advances in composite resins, bonding recent developments tarnish and corrosion,
- Dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments,
- Casting procedures, defects, dental cements for restoration and pulp protection

(luting, liners, bases) cavity varnishes.

- Dental ceramics – recent advances, finishing and polishing materials.
- Dental bur – design and mechanics of cutting – other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

CLINICAL PHOTOGRAPHY , MEDICO LEGAL JURISPRUDENCE

PART II - PAPER I: CONSERVATIVE DENTISTRY

1. Examination, diagnosis and treatment plan
2. Occlusion as related to conservative dentistry, contact, contour, its significance.
3. Separation of teeth, matrices, used in conservative dentistry.
4. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology.
5. Histopathology, diagnosis, caries activity tests, prevention of dental caries and management – recent methods.
6. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.
7. Dental bur and other modalities of tooth preparation – recent developments (air abrasion, Lasers etc)
8. Infection control procedures in conservative dentistry, isolation equipments etc.
9. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
10. Direct and indirect composite restorations.
11. Indirect tooth coloured restorations – ceramic, inlays and onlays, veneers, crowns, recent
12. Advances in fabrication and materials.
13. Tissue Management
14. Impression procedures used for indirect restorations.
15. Cast metal restorations, indications, contraindications, tooth preparation for class 2 inlay, onlay full crown restoration
16. Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials
17. Direct gold restorations.
18. Recent advances in restorative materials and procedures.
19. Management of non-carious lesion.
20. Advance knowledge of minimal intervention dentistry.
21. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth
22. Hypersensitivity, theories, causes and management
23. Lasers in Conservative Dentistry
24. CAD-CAM & CAD-CIM in restorative dentistry
25. Dental imaging and its applications in restorative dentistry (clinical photography)
26. Principles of esthetics
 - a. Color
 - b. Facial analysis
 - c. Smile design
 - d. Principles of esthetic integration
 - e. Treatment planning in esthetic dentistry

PART II- PAPER – III: ENDODONTICS

1. Rationale of endodontics
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology
5. Pathobiology of periapex
6. Diagnostic procedure – recent advances and various aids used for diagnosis
7. Orofacial dental pain emergencies: endodontic diagnosis and management
8. Case selection and treatment planning

9. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc)
10. Access cavity preparation – objectives and principles
11. Endodontic instruments and instrumentation – recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.,
12. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
13. Root canal irrigants and intra canal medicaments used including non – surgical Endodontics by calcium hydroxide.
14. Endodontic microbiology.
15. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
16. Traumatic injuries and management – endodontic treatment for young permanent teeth.
- a. Pediatric Endodontics – treatment of immature apex.
17. Endodontic surgeries, recent developments in techniques and devices, endoosseous
- a. Endodontic implants – biology of bone and wound healing.
18. Endoperio interrelationship, endo + Perio lesion and management
19. Drugs and chemicals used in Endodontics
20. Endo emergencies and management.
21. Restoration of endodontically treated teeth, recent advances.
22. Geriatric Endodontics

D: Distribution of marks:

Theory:

Part-I University Examinations:

PAPER I : APPLIED BASIC SCIENCES - Total of 100 Marks/3hrs

There shall be 10 questions of 10 marks each

Part-II University Examinations:- Total of 300 Marks (100 Marks /3hrs for each Paper)

(i) Paper-I: Conservative Dentistry – There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(ii) Paper-II: Endodontics -There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(iii) Paper III: Essay -Descriptive & Analyzing Type Questions -There shall be 2 out of 3 essay questions (50 x 2 = 100 Marks/3hrs)

CLINICAL AND PRACTICAL: Part-II University Examinations (Total marks 300)

(i) Practical and Clinical Examination: 200 Marks

(ii) Viva-voce and Pedagogy: 100 Marks

CLINICAL: 200 MARKS

The duration of clinical and viva voce examination will be 2 days for a batch of 4 students. If the number of student exceeds 4, the programme can be extended to 3rd day

DAY 1

CLINICAL EXERCISE 1 50 MARKS

- Cast core preparation
- Tooth preparation 10 mark
- Direct wax pattern 10 mark
- Casting 10 mark
- Cementations 10 mark
- Retraction & elastomeric impression 10 mark

CLINICAL EXERCISE 2 50 MARK

Inlay exercise

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D: Distribution of marks:

Theory:

Part-I University Examinations:

PAPER I : APPLIED BASIC SCIENCES - Total of 100 Marks/3hrs

There shall be 10 questions of 10 marks each

Part-II University Examinations:- Total of 300 Marks (100 Marks /3hrs for each Paper)

(i) Paper-I: Conservative Dentistry – There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(ii) Paper-II: Endodontics -There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(iii) Paper III: Essay -Descriptive & Analyzing Type Questions -There shall be 2 out of 3 essay questions (50 x 2 = 100 Marks/3hrs)

CLINICAL AND PRACTICAL: Part-II University Examinations (Total marks 300)

(i) Practical and Clinical Examination: 200 Marks

(ii) Viva-voce and Pedagogy: 100 Marks

CLINICAL: 200 MARKS

The duration of clinical and viva voce examination will be 2 days for a batch of 4 students. If the number of student exceeds 4, the programme can be extended to 3rd day

DAY 1

CLINICAL EXERCISE 1 50 MARKS

- Cast core preparation
- Tooth preparation 10 mark
- Direct wax pattern 10 mark
- Casting 10 mark
- Cementations 10 mark
- Retraction & elastomeric impression 10 mark

CLINICAL EXERCISE 2 50 MARK

Inlay exercise

MDS

PEDIATRIC AND PREVENTIVE DENTISTRY

B) Pediatric Dentistry:

Child Psychology:

Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear, anxiety, apprehension & its management.

- Behavior Management: Non- pharmacological & Pharmacological methods
- Child Abuse & Dental Neglect:

Conscious Sedation:

- Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children

Preventive Pedodontics:

Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries – Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling Dental Plaque:

Definition, Initiation, Pathogenesis, Biochemistry, and Morphology & Metabolism.

Gingival & Periodontal diseases in Children:

- Normal Gingiva & Periodontium in children.
- Gingival & Periodontal diseases – Etiology, Pathogenesis, Prevention & Management

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Pediatric Operative Dentistry:

- Principle of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
- • Modifications required for cavity preparation in primary and young permanent teeth.
- • Various Isolation Techniques
- • Restorations of decayed primary, young permanent and permanent teeth in

children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)

- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems. •
- Primary Dentition: - Diagnosis of pulpal diseases and their management – Pulp capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies & recent concepts.
- Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.
- Recent advances in Pediatric diagnosis and Endodontics.

Pediatric Endodontics:

Prosthetic consideration in Pediatric Dentistry.

Traumatic Injuries in Children:

- • Classifications & Importance.
- • Sequelae & reaction of teeth to trauma.
- • Management of Traumatized teeth with latest concepts.
- • Management of jaw fractures in children.

Interceptive Orthodontics:

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- • Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- • Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- • Biology of tooth movement: A comprehensive review of the principles of teeth movement. Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement.
- Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
- Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interceptive orthodontics.

Oral Habits in Children

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children

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Dental care of Children with special needs:

Definition, Etiology, Classification, Behavioral, Clinical features & Management of children with:

- Physically handicapped conditions
- Mentally compromising conditions
- Medically compromising conditions
- Genetic disorders • Historical background
- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
- Role of diet and nutrition in Dental Caries

- Dietary modifications & Diet counseling.
 - Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications
- Oral manifestations of Systemic Conditions in Children & their Management
 Management of Minor Oral Surgical Procedures in Children
 Dental Radiology as related to Pediatric Dentistry

Cariology:

Historical background

- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.

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- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
 - Role of diet and nutrition in Dental Caries
 - Dietary modifications & Diet counseling.
 - Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications.
- Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

Congenital Abnormalities in Children: Definition

Dental Emergencies in Children and their Management.

Dental Materials used in Pediatric Dentistry.

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C) Preventive Dentistry:

- Definition
- Principles & Scope
- Types of prevention
- Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

Dental Health Education & School Dental Health Programmes:

Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry

Fluorides:

- Historical background
- Systemic & Topical fluorides
- Mechanism of action
- Toxicity & Management.
- Defluoridation techniques.

Medico legal aspects in Pediatric Dentistry with emphasis on informed consent.

Counseling in Pediatric Dentistry

Case History Recording: Outline of principles of examination, diagnosis & treatment planning.

Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases.

MDS

**ORTHODONTICS AND DENTOFACIAL
ORTHOPEDICS**

c. Principles in the development, execution and interpretation of methodologies in Orthodontics

d. Critical Scientific appraisal of literature.

Applied Pharmacology

Definitions & terminologies used – Dosage and mode of administration of drugs.

Action and fate of drugs in the

body, Drug addiction, tolerance and hypersensitive reactions,

Drugs acting on the central nervous system, general anesthetics hypnotics, analeptics and tranquilizers. Local anesthetics, Chemotherapeutics and antibiotics. Vitamins: A, D, B – complex group, C & K etc.

PART-II:

Paper-I: Basic Orthodontics

Orthodontic History:

- a. Historical perspective,
- b. Evolution of orthodontic appliances,
- c. Pencil sketch history of Orthodontic peers
- d. History of Orthodontics in India

Concepts of Occlusion and Esthetics:

- a. Structure and function of all anatomic components of occlusion,
- b. Mechanics of articulation,
- c. Recording of masticatory function,
- d. Diagnosis of Occlusal dysfunction,
- e. Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Etiology and Classification of Malocclusion:

- a. A comprehensive review of the local and systemic factors in the causation of malocclusion
- b. Various classifications of malocclusion

Dentofacial Anomalies:

- a. Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

Diagnostic Procedures and Treatment Planning in Orthodontics:

- a. Emphasis on the process of data gathering, synthesis and translating it into a treatment plan
- b. Problem cases – analysis of cases and its management
- c. Adult cases, handicapped and mentally retarded cases and their special problems
- d. Critique of treated cases.

Cephalometrics

- a. Instrumentation
- b. Image processing
- c. Tracing and analysis of errors and applications
- d. Radiation hazards
- e. Advanced Cephalometrics techniques including digital cephalometrics

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- f. Comprehensive review of literature
- g. Video imaging principles and application.

Practice Management in Orthodontics:

- a. Economics and dynamics of solo and group practices
- b. Personal management
- c. Materials management
- d. Public relations
- e. Professional relationship
- f. Dental ethics and jurisprudence
- g. Office sterilization procedures
- h. Community based Orthodontics.

Paper-II: Clinical Orthodontics

Myofunctional Orthodontics:

- a. Basic principles
- b. Contemporary appliances – design, manipulation and management
- c. Case selection and evaluation of the treatment results

d. Review of the current literature:

Dentofacial Orthopedics:

- a. Principles
- b. Biomechanics
- c. Appliance design and manipulation
- d. Review of contemporary literature

Cleft lip and palate rehabilitation:

- a. Diagnosis and treatment planning
- b. Mechanotherapy
- c. Special growth problems of cleft cases

d. Speech physiology, pathology and elements of therapy as applied to orthodontics

e. Team rehabilitative procedures.

Biology of tooth movement:

- a. Principles of tooth movement-review
- b. Review of contemporary literature
- c. Applied histophysiology of bone, periodontal ligament
- d. Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

- a. Orthodontist's role in conjoint diagnosis and treatment planning
- b. Pre and post-surgical Orthodontics
- c. Participation in actual clinical cases, progress evaluation and post retention study
- d. Review of current literature

Ortho / Perio / Prostho/Endo inter relationship:

- a. Principles of interdisciplinary patient treatment
- b. Common problems and their management

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Basic principles of mechanotherapy includes removable appliances and fixed appliances:

- a. Design
- b. Construction
- c. Fabrication
- d. Management
- e. Review of current literature on treatment methods and results

Applied preventive aspects in Orthodontics:

- a. Caries and periodontal disease prevention
- b. Oral hygiene measures
- c. Clinical procedures

Interceptive Orthodontics:

- a. Principles
- b. Growth guidance
- c. Diagnosis and treatment planning
- d. Therapy emphasis on:

- Dento-facial problems
- Tooth material discrepancies
- Minor surgery for Orthodontics

Evidence Based Orthodontics:

Different types of fixed Mechanotherapy:

Orthodontic Management of TMJ problems, sleep-apnoea etc.:

Retention and relapse:

- a. Mechanotherapy – special reference to stability of results with various procedures
- b. Post retention analysis
- c. Review of contemporary literature

Recent Advances :

- a. Use of implants

- b. Lasers
 - c. Application of F.E.M.
 - d. Distraction Osteogenesis
 - e. Invisible Orthodontics
 - f. 3D imaging Digital Orthodontics, Virtual Treatment Planning
 - g. CAD-CAM bracket Customization
 - h. Robotic Wire Bending
 - i. Accelerated Orthodontics
 - Surgical
 - Device assisted or mechanical stimulation
 - Biochemical Mediators
 - j. Lingual Orthodontics
- Paper-III: Essays (descriptive and analyzing type questions)

SKILL DEVELOPMENT ORAL PATHOLOGY & ORAL MICROBIOLOGY

OBJECTIVES:

At the end of Oral Pathology & Oral Microbiology course, the student should be able to comprehend -

1. The different types of pathological processes, that involve the oral cavity.
2. The manifestations of common diseases, their diagnosis & correlation with clinical pathological processes.
3. An understanding of the oral manifestations of systemic diseases should help in correlating with the systemic physical signs & laboratory findings.
4. The student should understand the underlying biological principles governing treatment of oral diseases.
5. The principles of certain basic aspects of Forensic Odontology.

SKILLS:

1. Microscopic study of common lesions affecting oral tissues through microscopic slides & projection slides.
2. Study of the disease process by surgical specimens.
3. Study of teeth anomalies/polymorphisms through tooth specimens & plaster casts.
4. Microscopic study of plaque pathogens.
5. Study of haematological preparations (blood films) of anaemias & leukemias.
6. Basic exercises in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.

1. INTRODUCTION:

- ☐ A bird's eye view of the different pathological processes involving the oral cavity & oral cavity involvement in systemic diseases to be brought out. Interrelationship between General Medicine & General Surgery & Oral pathology to be emphasized.
- 2. Developmental disturbances of teeth, jaws and soft tissues of oral & paraoral region :
 - ☐ Introduction to developmental disturbances - Hereditary, Familial mutation, Hormonal etc. causes to be highlighted.
 - ☐ Developmental disturbances of teeth - Etiopathogenesis, clinical features, radiological features & histopathological features as appropriate :-
The size, shape, number, structure & eruption of teeth & clinical significance of the anomalies to be emphasized.
 - ☐ Forensic Odontology.
 - ☐ Developmental disturbances of jaws - size & shape of the jaws.
 - ☐ Developmental disturbances of oral & paraoral soft tissues - lip & palate - clefts, tongue, gingiva, mouth, salivary glands & face.
- 3. Dental Caries :
 - ☐ Etiopathogenesis, microbiology, clinical features, diagnosis, histopathology, immunology, prevention

of dental caries & its sequelae.

4. Pulp & Periapical Pathology & Osteomyelitis.

- Etiopathogenesis & interrelationship, clinical features, microbiology, histopathology & radiological features (as appropriate) of pulp & periapical lesions & osteomyelitis.
- Sequelae of periapical abscess - summary of space infections, systemic complications & significance.

5. Periodontal Diseases :

- Etiopathogenesis, microbiology, clinical features, histopathology & radiological features (as appropriate) of gingivitis, gingival enlargements & periodontitis. Basic immunological mechanisms of periodontal disease to be highlighted.

6. Microbial infections of oral soft tissues :

- Microbiology, defence mechanisms including immunological aspects, oral manifestations, histopathology and laboratory diagnosis of common bacterial, viral & fungal infections namely :-

Bacterial : Tuberculosis, Syphilis, ANUG & its complications - Cancrum Oris.

Viral : Herpes Simplex, Varicella zoster, Measles, Mumps & HIV infection.

Fungal : Candidal infection. Aphthous Ulcers.

7. Common non- inflammatory diseases involving the jaws :

- Etiopathogenesis, clinical features, radiological & laboratory values in diagnosis of :
Fibrous dysplasia, Cherubism, Osteogenesis Imperfecta, Paget's disease, Cleidocranial dysplasia, Rickets, Achondroplasia, Marfan's syndrome & Down's syndrome.

8. Diseases of TM Joint :

- Ankylosis, summary of different types of arthritis & other developmental malformations, traumatic injuries & myofascial pain dysfunction syndrome.

9. Cysts of the Oral & Paraoral region :

- Classification, etiopathogenesis, clinical features, histopathology, laboratory & radiological features (as appropriate) of Odontogenic cysts, Non-Odontogenic cysts, Pseudocysts of jaws & soft tissue cysts of oral & paraoral region.

10. Tumours of the Oral Cavity :

- Classification of Odontogenic, Non-Odontogenic & Salivary Gland Tumours. Etiopathogenesis, clinical features, histopathology, radiological features & laboratory diagnosis (as appropriate) of the following common tumours :-

a) Odontogenic - all lesions.

b) Non-odontogenic

- Benign Epithelial - Papilloma, Keratoacanthoma & Naevi.

- Benign Mesenchymal - Fibroma, Aggressive fibrous lesions, Lipoma, Haemangioma, Lymphangioma, Neurofibroma, Schwannoma, Chondroma, Osteoma & Tori.

- Malignant Epithelial - Basal Cell Carcinoma, Verrucous Carcinoma, Squamous Cell carcinoma & Malignant Melanoma.

- Malignant Mesenchymal - Fibrosarcoma, Osteosarcoma, Giant cell tumour, Chondrosarcoma, Angiosarcoma, Kaposi's sarcoma, Lymphomas, Ewing's sarcoma &

Other Reticuloendothelial tumours.

c) Salivary Gland

- Benign Epithelial neoplasms - Pleomorphic Adenoma, Warthin's tumour, & Oncocytoma.

- Malignant Epithelial neoplasms - Adenoid Cystic Carcinoma, Mucoepidermoid Carcinoma,

Acinic Cell Carcinoma & Adenocarcinomas.

ORAL MEDICINE AND RADIOLOGY

AIMS:

- (1) To train the students to diagnose the common disorders of Orofacial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.
 - (2) To train the students about the importance, role, use and techniques of radiographs/digital radiograph and other imaging methods in diagnosis.
 - (3) The principles of the clinical and radiographic aspects of Forensic Odontology.
- The syllabus in ORAL MEDICINE & RADIOLOGY is divided into two main parts.

(I) Diagnosis, Diagnostic methods and Oral Medicine (II) Oral Radiology. Again the part ONE is subdivided into three sections. (A) Diagnostic methods (B) Diagnosis and differential diagnosis (C) Oral Medicine & Therapeutics.

COURSE CONTENT

(1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.

(2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition.

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Part-I ORAL MEDICINE AND DIAGNOSTIC AIDS

SECTION (A) – DIAGNOSTIC METHODS.

(1) Definition and importance of Diagnosis and various types of diagnosis

(2) Method of clinical examinations.

(a) General Physical examination by inspection.

(b) Oro-facial region by inspection, palpation and other means

(c) To train the students about the importance, role, use of saliva and techniques of diagnosis of saliva as part of oral disease

(d) Examination of lesions like swellings, ulcers, erosions, sinus, fistula, growths, pigmented lesions, white and red patches

(e) Examination of lymph nodes

(f) Forensic examination – Procedures for post-mortem dental examination; maintaining dental records and their use in dental practice and post-mortem identification; jurisprudence and ethics.

(3) Investigations

(a) Biopsy and exfoliative cytology

(b) Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTIAL DIAGNOSIS

While learning the following chapters, emphasis shall be given only on diagnostic aspects including differential diagnosis

(1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and discoloration of teeth

(2) Diseases of bone and Osteodystrophies: Development disorders: Anomalies, Exostosis and tori, infantile cortical hyperostosis, osteogenesis imperfecta, Marfans syndrome, osteopetrosis.

Inflammation – Injury, infection and spread of infection, fascial space infections, osteoradionecrosis.

Metabolic disorders – Histiocytosis

Endocrine – Acro-megaly and hyperparathyroidism

Miscellaneous – Paget's disease, Mono and polyostotic fibrous dysplasia, Cherubism.

(3) Temporomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Sub-luxation and luxation.

(4) Common cysts and Tumors:

CYSTS: Cysts of soft tissue: Mucocoele and Ranula

Cysts of bone: Odontogenic and nonodontogenic.

TUMORS:

Soft Tissue:

Epithelial: Papilloma, Carcinoma, Melanoma

Connective tissue: Fibroma, Lipoma, Fibrosarcoma

Vascular: Haemangioma, Lymphangioma

Nerve Tissue: Neurofibroma, Traumatic Neuroma, Neurofibromatosis

Salivary Glands: Pleomorphic adenoma, Adenocarcinoma, Warthin's Tumor, Adenoid cystic carcinoma.

Hard Tissue:

Non Odontogenic: Osteoma, Osteosarcoma, Osteoclastoma, Chondroma, Chondrosarcoma, Central giant cell tumor, and Central haemangioma

Odontogenic: Enameloma, Ameloblastoma, Calcifying Epithelial Odontogenic tumor, Adenomatoid

Odontogenic tumor, Periapical cemental dysplasia and odontomas

(5) Periodontal diseases: Gingival hyperplasia, gingivitis, periodontitis, pyogenic granuloma

(6) Granulomatous diseases: Tuberculosis, Sarcoidosis, Midline lethal granuloma, Crohn's Disease and Histiocytosis X

(7) Miscellaneous Disorders: Burkitt lymphoma, sturge – Weber syndrome, CREST syndrome, Rendu-Osler-Weber disease

SECTION (C): ORAL MEDICINE AND THERAPEUTICS.

The following chapters shall be studied in detail including the etiology, pathogenesis, clinical features, investigations, differential diagnosis, management and prevention

(1) Infections of oral and paraoral structures:

Bacterial: Streptococcal, tuberculosis, syphilis, Vincent's, leprosy, actinomycosis, diphtheria and tetanus

Fungal: Candida albicans

Virus: Herpes simplex, herpes zoster, Ramsay Hunt syndrome, measles, herpangina, mumps, infectious mononucleosis, AIDS and hepatitis-B

(2) Important common mucosal lesions:

White lesions: Chemical burns, leukodema, leukoplakia, Fordyce spots, stomatitis nicotina palatinus, white sponge nevus, candidiasis, lichen planus, discoid lupus erythematosus

Vesiculo-bullous lesions: Herpes simplex, herpes zoster, herpangina, bullous lichen planus, pemphigus, cicatricial pemphigoid erythema multiforme.

Ulcers: Acute and chronic ulcers

Pigmented lesions: Exogenous and endogenous

Red lesions: Erythroplakia, stomatitis venenata and medicamentosa, erosive lesions and denture sore mouth.

(3) Cervico-facial lymphadenopathy

(4) Facial pain:

(i) Organic pain: Pain arising from the diseases of orofacial tissues like teeth, pulp, gingival, periodontal tissue, mucosa, tongue, muscles, blood vessels, lymph tissue, bone, paranasal sinus, salivary glands etc.,

(ii) Pain arising due to C.N.S. diseases:

(a) Pain due to intracranial and extracranial involvement of cranial nerves. (Multiple sclerosis, cerebrovascular diseases, Trotter's syndrome etc.)

(b) Neuralgic pain due to unknown causes: Trigeminal neuralgia, glossopharyngeal neuralgia, sphenopalatine ganglion neuralgia, periodic migrainous neuralgia and atypical facial pain

(iii) Referred pain: Pain arising from distant tissues like heart, spine etc.,

(5) Altered sensations: Cacogeusia, halitosis

(6) Tongue in local and systemic disorders: (Aglossia, ankyloglossia, bifid tongue, fissured tongue, scrotal tongue, macroglossia, microglossia, geographic tongue, median rhomboid glossitis, depapillation of tongue, hairy tongue, atrophic tongue, reactive lymphoid hyperplasia, glossodynia, glossopyrosis, ulcers, white and red patches etc.)

(7) Oral manifestations of:

(i) Metabolic disorders:

(a) Porphyria

(b) Haemochromatosis

(c) Histiocytosis X diseases

(ii) Endocrine disorders:

(a) Pituitary: Gigantism, acromegaly, hypopituitarism

(b) Adrenal cortex: Addison's disease (Hypofunction)
Cushing's syndrome (Hyperfunction)

(c) Parathyroid glands: Hyperparathyroidism.

(d) Thyroid gland: (Hypothyroidism) Cretinism, myxedema

(e) Pancreas: Diabetes

(iii) Nutritional deficiency: Vitamins: riboflavin, nicotinic acid, folic acid Vitamin B12, Vitamin C (Scurvy)

(iv) Blood disorders:

(a) Red blood cell diseases

Deficiency anemias: (Iron deficiency, Plummer – Vinson syndrome, pernicious anemia)

Haemolytic anemias: (Thalassemia, sickle cell anemia, erythroblastosis fetalis)

Aplastic anemia

Polycythemia

(b) White Blood cell diseases

Neutropenia, cyclic neutropenia, agranulocytosis, infectious mononucleosis and leukemias

(c) Haemorrhagic disorders:

Thrombocytopenia, purpura, hemophilia, Christmas disease and von Willebrand's disease

(8) Disease of salivary glands:

(i) Development disturbances: Aplasia, atresia and aberration

(ii) Functional disturbances: Xerostomia, ptyalism

(iii) Inflammatory conditions: Nonspecific sialadenitis, mumps, sarcoidosis, Heerfordt's syndrome (Uveoparotid fever), Necrotising sialometaplasia

(iv) Cysts and tumors: Mucocele, ranula, pleomorphic adenoma, mucoepidermoid carcinoma

(v) Miscellaneous: Sialolithiasis, Sjögren's syndrome, Mikulicz's disease and sialosis

(9) Dermatological diseases with oral manifestations:

(a) Ectodermal dysplasia (b) Hyperkeratosis palmarplantaris with periodontopathy (c)

Scleroderma (d) Lichen planus including gingivitis (e) Lupus erythematosus (f)

Pemphigus (g) Erythema multiforme (h) Psoriasis

(10) Immunological diseases with oral manifestations

(a) Leukemia (b) Lymphomas (c) Multiple myeloma (d) AIDS clinical manifestations, opportunistic infections, neoplasms (e) Thrombocytopenia (f) Lupus erythematosus (g) Scleroderma

(h) dermatomyositis (i) Submucous fibrosis (j) Rheumatoid arthritis (k) Recurrent oral ulcerations including Behçet's syndrome and Reiter's syndrome

(11) Allergy: Local allergic reactions, anaphylaxis, serum sickness (local and systemic allergic manifestations to food drugs and chemicals)

(12) Foci of oral infection and their ill effects on general health

(13) Management of dental problems in medically compromised persons:

(i) Physiological changes: Puberty, pregnancy and menopause

(ii) The patients suffering with cardiac, respiratory, liver, kidney and bleeding disorders, hypertension, diabetes and AIDS. Post-irradiated patients.

(14) **Precancerous lesions and conditions**

(15) Nerve and muscle diseases:

(i) Nerves: (a) Neuropraxia (b) Neurotmesis (c) Neuritis (d) Facial nerve paralysis including Bell's palsy, Heerfordt's syndrome, Melkersson-Rosenthal syndrome and Ramsay Hunt syndrome (e)

Neuroma (f) Neurofibromatosis (g) Frey's syndrome

(ii) Muscles: (a) Myositis ossificans (b) Myofascial pain dysfunction syndrome (c) Trismus

(16) **Forensic odontology:**

(a) **Medicolegal aspects of orofacial injuries**

(b) **Identification of bite marks**

(c) **Determination of age and sex**

(d) **Identification of cadavers by dental appliances, Restorations and tissue remnants**

(17) Therapeutics: General therapeutic measures – drugs commonly used in oral medicine viz., antibiotics, chemotherapeutic agents, anti-inflammatory and analgesic drugs, astringents, mouth washes, styptics, demulcents, local surface anaesthetic, sialogogues, antisialogogues and drugs used in the treatment of malignancy

Part – II BEHAVIOURAL SCIENCES AND ETHICS.

Part – III ORAL RADIOLOGY

(1) Scope of the subject and history of origin

(2) Physics of radiation: (a) Nature and types of radiations (b) Source of radiations (c) Production of X-rays (d) Properties of X-rays (e) Compton effect (f) Photoelectric effect (g) Radiation measuring units

(3) Biological effects of radiation

(4) Radiation safety and protection measures

(5) Principles of image production

(6) Radiographic techniques:

(i) Intra-Oral: (a) Periapical radiographs (Bisecting and parallel techniques) (b) Bite wing radiographs

(c) Occlusal radiographs

- (ii) Extra-oral: (a) Lateral projections of skull and jaw bones and paranasal sinuses (c) Cephalograms (d) Orthopantomograph (e) Projections of temporomandibular joint and condyle of mandible (f) Projections for Zygomatic arches
- (iii) Specialised techniques: (a) Sialography (b) Xeroradiography (c) Tomography
- (7) Factors in production of good radiographs:
 - (a) K.V.P. and mA. of X-ray machine (b) Filters (c) Collimations (d) Intensifying screens (e) Grids (f) X-ray films (g) Exposure time (h) Techniques (i) Dark room (j) Developer and fixer solutions (k) Film processing
- (8) Radiographic normal anatomical landmarks
- (9) Faculty radiographs and artefacts in radiographs
- (10) Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues
- (11) Principles of radiotherapy of oro-facial malignancies and complications of radiotherapy
- (12) Contrast radiography and basic knowledge of radio-active isotopes
- (13) Radiography in Forensic Odontology - Radiographic age estimation and post-mortem radiographic methods

PRACTICALS / CLINICALS:

1. Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of the orofacial region. Training is also imparted in management wherever possible. Training also shall be imparted on saliva diagnostic procedures. Training also shall be imparted in various radiographic procedures and interpretation of radiographs.

2. In view of the above each student shall maintain a record of work done, which shall be evaluated for marks at the time of university examination

3. The following is the minimum of prescribed work for recording

- (a) Recording of detailed case histories of interesting cases 10
- (b) Intra-oral radiographs (Periapical, bitewing, occlusal) 25
- (c) Saliva diagnostic check as routine procedure

BOOKS RECOMMENDED:

a) Oral Diagnosis, Oral Medicine & Oral Pathology

- 1. Burkit – Oral Medicine – J.B. Lippincott Company
- 2. Coleman – Principles of Oral Diagnosis – Mosby Year Book
- 3. Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company
- 4. Mitchell – Oral Diagnosis & Oral Medicine
- 5. Kerr – Oral Diagnosis
- 6. Miller – Oral Diagnosis & Treatment
- 7. Hutchinson – clinical Methods
- 8. Oral Pathology – Shafers
- 9. Sonis.S.T., Fazio.R.C. and Fang.L - Principles and practice of Oral Medicine

b) Oral Radiology

- 1. White & Goaz – Oral Radiology – Mosby year Book
- 2. Wearman – Dental Radiology – C.V. Mosby Company
- 3. Stafne – Oral Roentgenographic Diagnosis – W.B.Saunders Co.,

ORTHODONTICS & DENTAL ORTHOPAEDICS

COURSE OBJECTIVE:

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures. The following basic instructional procedures will be adapted to achieve the above objectives.

1. Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And

Need For Orthodontics Care.

2. Growth And Development: In General

- a. Definition
- b. Growth spurts and Differential growth
- c. Factors influencing growth and Development
- d. Methods of measuring growth
- e. Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)
- f. Genetic and epigenetic factors in growth
- g. Cephalocaudal gradient in growth.

3. Morphologic Development Of Craniofacial Structures

- a. Methods of bone growth
- b. Prenatal growth of craniofacial structures
- c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. Functional Development Of Dental Arches And Occlusion

- a. Factors influencing functional development of dental arches and occlusion.
- b. Forces of occlusion
- c. Wolfe's law of transformation of bone
- d. Trajectories of forces

5. Clinical Application Of Growth And Development

6. Malocclusion - In General

- a. Concept of normal occlusion
- b. Definition of malocclusion
- c. Description of different types of dental, skeletal and functional malocclusion.

7. Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.

8. Normal And Abnormal Function Of Stomatognathic System

9. Etiology Of Malocclusion

- a. Definition, importance, classification, local and general etiological factors.
- b. Etiology of following different types of malocclusion:
 - 1) Midline diastema
 - 2) Spacing

- 3) Crowding
- 4) Cross-Bite: Anterior/Posterior
- 5) Class III Malocclusion
- 6) Class II Malocclusion
- 7) Deep Bite
- 8) Open bite
10. Diagnosis And Diagnostic Aids
 - a. Definition, Importance and classification of diagnostic aids
 - b. Importance of case history and clinical examination in orthodontics
 - c. Study Models: - Importance and uses - Preparation and preservation of study models
 - d. Importance of intraoral X-rays in orthodontics
 - e. Panoramic radiographs: - Principles, Advantages, disadvantages and uses
 - f. Cephalometrics: Its advantages, disadvantages
 1. Definition
 2. Description and use of cephalostat
 3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
 4. Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line
 - g. Electromyography and its uses in orthodontics
 - h. Wrist X-rays and its importance in orthodontics
11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions
12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage
13. Biomechanical Principles In Orthodontic Tooth Movement
 - a. Different types of tooth movements
 - b. Tissue response to orthodontic force application
- 69
- c. Age factor in orthodontic tooth movement
14. Preventive Orthodontics
 - a. Definition
 - b. Different procedures undertaken in preventive orthodontics and their limitations.
15. Interceptive Orthodontics
 - a. Definition

- b. Different procedures undertaken in interceptive orthodontics
- c. Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.
- d. Role of muscle exercises as an interceptive procedure

16. Corrective Orthodontics

- a. Definition, factors to be considered during treatment planning.
- b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis
- c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions
- d. Extractions in Orthodontics - indications and selection of teeth for extraction.

17. Orthodontic Appliances: General

- a. Requisites for orthodontic appliances
- b. Classification, indications of Removable and Functional Appliances
- c. Methods of force application
- d. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antfluxes.
- e. Preliminary knowledge of acid etching and direct bonding.

18. Ethics

REMOVABLE ORTHODONTIC APPLIANCES

- 1) Components of removable appliances
- 2) Different types of clasps and their uses
- 3) Different types of labial bows and their uses
- 4) Different types of springs and their uses
- 5) Expansion appliances in orthodontics:
 - i) Principles
 - ii) Indications for arch expansion
 - iii) Description of expansion appliances and different types of expansion devices and their uses.
 - iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

- 1. Definition, Indications & Contraindications
- 2. Component parts and their uses

3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

EXTRAORAL APPLIANCES

1. Headgears

2. chin cup

3. reverse pull headgears

MYOFUNCTIONAL APPLIANCES

1. Definition and principles

2. Muscle exercises and their uses in orthodontics

3. Functional appliances:

i) Activator, Oral screens, Frankel's function regulator,

bionator twin blocks, lip bumper

ii) Inclined planes - upper and lower

18. Orthodontic Management Of Cleft Lip And Palate

19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:

a. Mandibular Prognathism and Retrognathism

b. Maxillary Prognathism and Retrognathism

c. Anterior open bite and deep bite

d. Cross bite

20. Principle, Differential Diagnosis & Methods Of Treatment Of:

1. Midline diastema

2. Cross bite

3. Open bite

4. Deep bite

5. Spacing

6. Crowding

7. Class II - Division 1, Division 2

8. Class III Malocclusion - True and Pseudo Class III

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21. Retention And Relapse

Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention.

CLINICALS AND PRACTICALS IN ORTHODONTICS

PRACTICAL TRAINING DURING II YEAR B.D.S.

I. Basic wire bending exercises Gauge 22 or 0.7mm

1. Straightening of wires (4 Nos.)
2. Bending of a equilateral triangle
3. Bending of a rectangle
4. Bending of a square
5. Bending of a circle
6. Bending of U.V.

II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm

1. 3/4 Clasp (C-Clasp)
2. Full Clasp (Jackson's Crib)
3. Adam's Clasp
4. Triangular Clasp

III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm

1. Finger Spring
2. Single Cantelever Spring
3. Double Cantelever Spring (Z-Spring)
4. T-Springs on premolars

IV. Construction of Canine retractors Gauge 23 or 0.6mm

1. U - Loop canine retractor

(Both sides on upper & lower)

2. Helical canine retractor

(Both sides on upper & lower)

3. Buccal canine retractor:

- Self supported buccal canine retractor

with

- a) Sleeve - 5mm wire or 24 gauge
- b) Sleeve - 19 gauge needle on any one side.
4. Palatal canine retractor on upper both sides

Gauge 23 or 0.6mm

V. Labial Bow

Gauge 22 or 0.7mm

One on both upper and lower

CLINICAL TRAINING DURING III YEAR B.D.S.

NO. EXERCISE

01. Making upper Alginate impression

02. Making lower Alginate impression

03. Study Model preparation

04. Model Analysis

a. Pont's Analysis

b. Ashley Howe's Analysis

c. Carey's Analysis

d. Bolton's Analysis

e. Moyer's Mixed Dentition Analysis

CLINICAL TRAINING DURING FINAL YEAR B.D.S.

NO. EXERCISE

01. Case History taking

02. Case discussion

03. Discussion on the given topic

04. Cephalometric tracings

a. Down's Analysis

b. Steiner's Analysis

c. Tweed's Analysis

PRACTICAL TRAINING DURING FINAL YEAR B.D.S.

1. Adam's Clasp on Anterior teeth Gauge 0.7mm

2. Modified Adam's Clasp on upper arch Gauge 0.7mm

3. High Labial bow with Apron spring on upper arch

(Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)

4. Coffin spring on upper arch Gauge 1mm

Appliance Construction in Acrylic

1. Upper & Lower Hawley's Appliance

2. Upper Hawley's with Anterior bite plane

3. Upper Habit breaking Appliance

PAEDIATRIC & PREVENTIVE DENTISTRY

THEORY:

1. INTRODUCTION TO PEDODONTICS & PREVENTIVE DENTISTRY.

- Definition, Scope, Objectives and Importance.

2. GROWTH & DEVELOPMENT:

- Importance of study of growth and development in Pedodontics.
- Prenatal and Postnatal factors in growth & development.
- Theories of growth & development.

- Development of maxilla and mandible and related age changes.

3. DEVELOPMENT OF OCCLUSION FROM BIRTH THROUGH ADOLESCENCE.

- Study of variations and abnormalities.

4. DENTAL ANATOMY AND HISTOLOGY:

- Development of teeth and associated structures.
- Eruption and shedding of teeth.
- Teething disorders and their management.
- Chronology of eruption of teeth.
- Differences between deciduous and permanent teeth.
- Development of dentition from birth to adolescence.
- Importance of first permanent molar.

5. DENTAL RADIOLOGY RELATED TO PEDODONTICS.

6. ORAL SURGICAL PROCEDURES IN CHILDREN.

- Indications and contraindications of extractions of primary and permanent teeth in children.
- Knowledge of Local and General Anesthesia.
- Minor surgical procedures in children.

7. DENTAL CARIES:

- Historical background.
- Definition, aetiology & pathogenesis.
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries:
 - Definition, aetiology, Pathogenesis, Clinical features, Complications & Management
- Role of diet and nutrition in Dental Caries.
- Dietary modifications & Diet counseling.
- Caries activity, tests, caries prediction, caries susceptibility & their clinical application.

8. GINGIVAL & PERIODONTAL DISEASES IN CHILDREN.

- Normal gingiva & periodontium in children.
- Definition, aetiology & Pathogenesis.
- Prevention & Management of gingival & Periodontal diseases.

9. CHILD PSYCHOLOGY:

- Definition.
- Theories of child psychology.
- Psychological development of children with age.
- Principles of psychological growth & development while managing child patient.
- Dental fear and its management.
- Factors affecting child's reaction to dental treatment.

10. BEHAVIOUR MANAGEMENT:

- Definitions.
- Types of behaviour encountered in the dental clinic.
- Non-pharmacological & pharmacological methods of Behaviour Management.

11. PEDIATRIC OPERATIVE DENTISTRY:

- Principles of Pediatric Operative Dentistry.
- Modifications required for cavity preparation in primary and young permanent teeth.
- Various Isolation Techniques.
- Restorations of decayed primary, young permanent and permanent teeth in children using

various restorative materials like Glass Ionomer, Composites & Silver Amalgam. Stainless steel, Polycarbonate & Resin Crowns.

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12. PEDIATRIC ENDODONTICS

- Principles & Diagnosis.
- Classification of Pulpal Pathology in primary, young permanent & permanent teeth.
- Management of Pulpally involved primary, young permanent & permanent teeth.
 - ☐ Pulp capping – direct & indirect.
 - ☐ Pulpotomy
 - ☐ Pulpectomy
 - ☐ Apexogenesis
 - ☐ Apexification
- Obturation Techniques & material used for primary, young permanent & Permanent teeth in children.

13. TRAUMATIC INJURIES IN CHILDREN:

- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth.

14. PREVENTIVE & INTERCEPTIVE ORTHODONTICS:

- Definitions.
- Problems encountered during primary and mixed dentition phases & their management.
- Serial extractions.
- Space management.

15. ORAL HABITS IN CHILDREN:

- Definition, Aetiology & Classification.
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children.

16. DENTAL CARE OF CHILDREN WITH SPECIAL NEEDS:

- Definition, Aetiology, Classification, Behavioural and Clinical features & Management of children with:
 - ☐ Physically handicapping conditions.
 - ☐ Mentally compromising conditions.
 - ☐ Medically compromising conditions.
 - ☐ Genetic disorders.

17. CONGENITAL ABNORMALITIES IN CHILDREN:

- Definition, Classification, Clinical features & Management.

18. DENTAL EMERGENCIES IN CHILDREN & THEIR MANAGEMENT.

19. DENTAL MATERIALS USED IN PEDIATRIC DENTISTRY.

20. PREVENTIVE DENTISTRY:

- Definition.
- Principles & Scope.
- Types of prevention.
- Different preventive measures used in Pediatric Dentistry including pit and fissure sealants and caries vaccine.

21. DENTAL HEALTH EDUCATION & SCHOOL DENTAL HEALTH PROGRAMMES.

22. FLUORIDES:

- Historical background.
- Systemic & Topical fluorides.
- Mechanism of action.
- Toxicity & Management.
- Defluoridation techniques.

23. CASE HISTORY RECORDING:

- Outline of principles of examination, diagnosis & treatment planning.

24. SETTING UP OF PEDODONTIC CLINIC.

25. ETHICS.

B. PRACTICALS:

Following is the recommended clinical quota for under-graduate students in the subject of pediatric & preventive dentistry.

1. Restorations – Class I & II only : 45
2. Preventive measures e.g. Oral Prophylaxis – 20.
3. Fluoride applications – 10
4. Extractions – 25
5. Case History Recording & Treatment Planning – 10
6. Education & motivation of the patients using disclosing agents. Educating patients about oral hygiene measures like tooth brushing, flossing etc.

BOOKS RECOMMENDED & REFERENCE:

1. Pediatric Dentistry (Infancy through Adolescence) – Pinkham.
2. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon.
3. Occlusal guidance in Pediatric Dentistry – Stephen H. Wei.
4. Clinical Use of Fluorides – Stephen H. Wei.

PERIODONTOLOGY**OBJECTIVES:**

The student shall acquire the skill to perform dental scaling ,diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist's care.

1. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
2. Development of perio-dontal tissues, micro-structural anatomy and biology of periodontal tissues in detail Gingiva. Junctional epithelium in detail, Epithelial-Mesenchymal interaction, Periodontal, ligament Cementum, Alveolar bone.
3. Defensive mechanisms in the oral cavity: Role of-Epithelium, Gingival fluid, Saliva and other defensive mechanisms in the oral environment.
4. Age changes in periodontal structures and their significance in Geriatric dentistry
Age changes in teeth and periodontal structures and their association with periodontal diseases
5. Classification of periodontal diseases
Need for classification, Scientific basis of classification
Classification of gingival and periodontal diseases as described in World Workshop 1989
Gingivitis:
Plaque associated, ANUG, steroid hormone influenced, Medication influenced, Desquamative gingivitis, other forms of gingivitis as in nutritional deficiency, bacterial and viral infections etc.
Periodontitis:
Adult periodontitis, Rapidly progressive periodontitis A&B, Juvenile periodontitis (localized, generalized, and post-juvenile), Prepubertal periodontitis, Refractory periodontitis
6. Gingival diseases Localized and generalized gingivitis, Papillary, marginal and diffuse gingivitis

Etiology, pathogenesis, clinical signs, symptoms and management of

- i) Plaque associated gingivitis
- ii) Systemically aggravated gingivitis (sex hormones, drugs and systemic diseases)
- iii) ANUG
- iv) Desquamative gingivitis-Gingivitis associated with lichen planus, pemphigoid, pemphigus, and other vesiculobullous lesions
- v) Allergic gingivitis
- vi) Infective gingivitis-Herpetic, bacterial and candidial
- vii) Pericoronitis
- viii) Gingival enlargement (classification and differential diagnosis)

7 Epidemiology of periodontal diseases

- Definition of index, incidence, prevalence, epidemiology, endemic, epidemic, and pandemic
- Classification of indices (Irreversible and reversible)
- Deficiencies of earlier indices used in Periodontics
- Detailed understanding of Silness & Loe Plaque Index, Loe & Silness Gingival Index, CPITN & CPI.
- Prevalence of periodontal diseases in India and other countries.
- Public health significance (All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination)

8. Extension of inflammation from gingiva

Mechanism of spread of inflammation from gingival area to deeper periodontal structures

Factors that modify the spread

1

9. Pocket Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket

2

10. Etiology - Dental Plaque (Biofilm)

- Definition, New concept of biofilm
- Types, composition, bacterial colonization, growth, maturation & disclosing agents
- Role of dental plaque in periodontal diseases
- Plaque microorganisms in detail and bacteria associated with periodontal diseases
- Plaque retentive factors
- Materia alba
- Food debris
- Calculus
- Definition
- Types, composition, attachment, theories of formation
- Role of calculus in disease

Food Impaction

- Definition
- Types, Etiology
- Hirschfelds' classification
- Signs, symptoms & sequelae of treatment

Trauma from occlusion

- Definition, Types
- Histopathological changes
- Role in periodontal disease
- Measures of management in brief

Habits

- Their periodontal significance
- Bruxism & parafunctional habits, tongue thrusting, lip biting, occupational habits

IATROGENIC FACTORS

Conservative Dentistry

- Restorations
- Contact point, marginal ridge, surface roughness, overhanging restorations, interface between restoration and teeth

Prosthodontics

- Interrelationship
- Bridges and other prosthesis, pontics(types), surface contour, relationships of margins to the periodontium, Gingival protection theory, muscle action theory & theory of access to oral hygiene.

Orthodontics

- Interrelationship, removable appliances & fixed appliances
- Retention of plaque, bacterial changes

Systemic diseases

- Diabetes, sex hormones, nutrition (Vit.C & proteins)
- AIDS & periodontium
- Hemorrhagic diseases, Leukemia, clotting factor disorders, PMN disorders

11. Risk factors Definition. Risk factors for periodontal diseases 1

12. Host response - Mechanism of initiation and progression of periodontal diseases

- Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief
- Stages in gingivitis-Initial, early, established & advanced
- Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis

13. Periodontitis - Etiology, histopathology, clinical signs & symptoms, diagnosis and treatment of adult periodontitis

- Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment
- Furcation involvement, Glickmans' classification, prognosis and management
- Rapidly progressive periodontitis
- Juvenile periodontitis: Localized and generalized
- Post-juvenile periodontitis
- Periodontitis associated with systemic diseases
- Refractory periodontitis

14. Diagnosis - Routine procedures, methods of probing, types of probes, (According to case history)

- Halitosis: Etiology and treatment. Mention advanced diagnostic aids and their role in brief.

15. Prognosis - Definition, types, purpose and factors to be taken into consideration

16. Treatment plan - Factors to be considered 1

17. Periodontal therapy A. General principles of periodontal therapy. Phase I, II, III, IV therapy.

Definition of periodontal regeneration, repair, new attachment and reattachment.

B. Plaque control

- i. Mechanical tooth brushes, interdental cleaning aids, dentifrices
- ii. Chemical; classification and mechanism of action of each & pocket irrigation

18. Pocket eradication procedures

- Scaling and root planing:
- Indications
- Aims & objectives
- Healing following root planning
- Hand instruments, sonic, ultrasonic & piezo-electric scalers
- Curettage & present concepts
- Definition
- Indications
- Aims & objectives
- Procedures & healing response
- Flap surgery
- Definition
- Types of flaps, Design of flaps, papilla preservation
- Indications & contraindications
- Armamentarium
- Surgical procedure & healing response

19. Osseous Surgery Osseous defects in periodontal disease

- Definition
- Classification
- Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts)
- Healing responses
- Other regenerative procedures; root conditioning
- Guided tissue regeneration

20. Mucogingival surgery

& periodontal plastic surgeries

Definition

Mucogingival problems: etiology, classification of gingival recession (P.D. Miller Jr. and Sullivan and Atkins)

Indications & objectives

Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy

Crown lengthening procedures

Periodontal microsurgery

21. Splints - Periodontal splints

- Purpose & classification
- Principles of splinting

22. Hypersensitivity Causes, Theories & management 1

23. Implants Definition, types, scope & biomaterials used.

Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management

24. Maintenance phase

(SPT)

- Aims, objectives, and principles

- Importance
- Procedures
- Maintenance of implants
- 25. Pharmaco-therapy - Periodontal dressings
- Antibiotics & anti-inflammatory drugs
- Local drug delivery systems
- 26. Periodontal management of medically compromised patients
- Topics concerning periodontal management of medically compromised patients
- 27. Inter-disciplinary care - Pulpo-periodontal involvement
- Routes of spread of infection
- Simons' classification
- Management
- 28. Systemic effects of periodontal diseases in brief
- Cardiovascular diseases, Low birth weight babies etc. 1
- 29. Infection control protocol Sterilization and various aseptic procedures 1
- 30. Ethics

TUTORIALS DURING CLINICAL POSTING;

1. Infection control
2. Periodontal instruments
3. Chair position and principles of instrumentation
4. Maintenance of instruments (sharpening)
5. Ultrasonic, Piezoelectric and sonic scaling – demonstration of technique
6. Diagnosis of periodontal disease and determination of prognosis
7. Radiographic interpretation and lab investigations
8. Motivation of patients- oral hygiene instructions

Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling, root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures.

DEMONSTRATIONS:

1. History taking and clinical examination of the patients
2. Recording different indices
3. Methods of using various scaling and surgical instruments
4. Polishing the teeth
5. Bacterial smear taking
6. Demonstration to patients about different oral hygiene aids

PROSTHODONTICS AND CROWN & BRIDGE

Complete Dentures

1. Applied Anatomy and Physiology.
 1. Introduction
 2. Biomechanics of the edentulous state.
 3. Residual ridge resorption.
- GG. Communicating with the patient
 1. Understanding the patients.
 - Mental attitude.
 2. Instructing the patient.
- HH. Diagnosis and treatment planning for patients-

1. With some teeth remaining.
 2. With no teeth remaining.
 - i) Systemic status.
 - j) Local factor.
 - k) The geriatric patient.
 - l) Diagnostic procedures.
- II. Articulators- discussion
- JJ. Improving the patient's denture foundation and ridge relation -an overview.
- m) Pre-operative examination.
 - n) Initial hard tissue & soft tissue procedure.
 - o) Secondary hard & soft tissue procedure.
 - p) Implant procedure.
 - q) Congenital deformities.
 - r) Postoperative procedure.
- KK. Principles of Retention, Support and Stability
- LL. Impressions - detail.
- o) Muscles of facial expression.
 - p) Biologic considerations for maxillary and mandibular impression including anatomylandmark and their interpretation.
 - q) Impression objectives.
 - r) Impression materials.
 - s) Impression techniques.
 - t) Maxillary and mandibular impression procedures.
 - v. Preliminary impressions.
 - vi. Final impressions.
 - u) Laboratory procedures involved with impression making (Beading & Boxing, and castpreparation).
- MM. Record bases and occlusion rims- in detail.
- g) Materials & techniques.
 - h) Useful guidelines and ideal parameters.
 - i) Recording and transferring bases and occlusal rims.
- NN. Biological consideration in jaw relation & jaw movements - craniomandibular relations.
- g) Mandibular movements.
 - h) Maxillo -mandibular relation including vertical and horizontal jaw relations.
 - i) Concept of occlusion-
- OO. Relating the patient to the articulator.
- e) Face bow types & uses– discuss in brief.
 - f) Face bow transfer procedure - discuss in brief.
- PP. Recording maxillo mandibular relation.
- i) Vertical relations.
 - j) Centric relation records.
 - k) Eccentric relation records.
 - l) Lateral relation records.
- QQ. Tooth selection and arrangement.
- g) Anterior teeth.
 - h) Posterior teeth.
 - i) Esthetic and functional harmony.
- RR. Relating inclination of teeth to concept of occlusion- in brief.
- e) Neutrocentric concept.
 - f) Balanced occlusal concept.
- SS. Trial dentures.
- TT. Laboratory procedures.
- u) Wax contouring.
 - v) Investing of dentures.
 - w) Preparing of mold.

- x) Preparing & packing acrylic resin.
- y) Processing of dentures.
- z) Recovery of dentures.
- aa) Lab remount procedures.
- bb) Recovering the complete denture from the cast.
- cc) Finishing and polishing the complete denture.
- dd) Plaster cast for clinical denture remount procedure.
- UU. Denture insertion.
 - i) Insertion procedures.
 - j) Clinical errors.
 - k) Correcting occlusal disharmony.
 - l) Selective grinding procedures.
- X. Treating problems with associated denture use – discuss in brief (tabulation/flow-chart form).
- Y. Treating abused tissues -
- DD. Relining and rebasing of dentures
- EE. Immediate complete dentures construction procedure
- FF. The single complete denture
- GG. Overdentures denture
- HH. Dental implants in complete denture - discuss in brief.

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

21. Definition
22. Diagnosis (of the particular situation/patient selection/treatment planning)
23. Types / Classification
24. Materials
25. Methodology – Lab /Clinical
26. Advantages & disadvantages
27. Indications, contraindications
28. Maintenance Phase
29. Oral Implantology
30. Ethics

Removable Flexible Dentures

1. Introduction
 - Terminologies and scope
2. Classification.
- Examination, Diagnosis & Treatment planning & evaluation of diagnostic data.
3. Components of a removable partial denture.
 - a. Major connectors,
 - b. minor connectors,
 - c. Rest and rest seats.
4. Components of a Removable Partial Denture.
 - a. Direct retainers,
 - b. Indirect retainers,
 - c. Tooth replacement.
5. Principles of Removable Partial Denture Design.
6. Survey and design – in brief.
 - a. Surveyors.
 - b. Surveying.
 - c. Designing.
7. Mouth preparation and master cast.
8. Impression materials and procedures for removable partial dentures.
9. Preliminary jaw relation and esthetic try-in for some anterior replacement teeth.
10. Laboratory procedures for framework construction-in brief.
11. Fitting the framework - in brief.

12. Try-in of the partial denture - in brief.
13. Completion of the partial denture - in brief.
14. Inserting the Removable Partial Denture - in brief.
15. Postinsertion observations.
16. Temporary Acrylic Partial Dentures.
17. Immediate Removable Partial Denture.
18. Removable Partial Dentures opposing Complete denture.

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

17. Definition
18. Diagnosis (of the particular situation /patient selection /treatment planning)
19. Types / Classification
20. Materials
21. Methodology – Lab /Clinical
22. Advantages & disadvantages
23. Indications, contraindications

24. Maintenance Phase

Fixed Partial Dentures

Topics To Be Covered In Detail -

1. Introduction
2. Fundamentals of occlusion – in brief.
3. Articulators – in brief.
4. Treatment planning for single tooth restorations.
5. Treatment planning for the replacement of missing teeth including selection and choice of abutment teeth.
6. Fixed partial denture configurations.
7. Principles of tooth preparations.
8. Preparations for full veneer crowns – in detail.
9. Preparations for partial veneer crowns – in brief.
10. Provisional Restorations
11. Fluid Control and Soft Tissue Management
12. Impressions
13. Working Casts and Dies
14. Wax Patterns
15. Pontics and Edentulous Ridges
16. Esthetic Considerations
17. Finishing and Cementation

Topics To Be Covered In Brief -

1. Solder Joints and Other Connectors
2. All - Ceramic Restorations
3. Metal - Ceramic Restorations
4. Preparations of intracoronal restorations.
5. Preparations for extensively damaged teeth.
6. Preparations for periodontally weakened teeth
7. The Functionally Generated Path Technique
8. Investing and Casting
9. Resin - Bonded Fixed Partial Denture

Note : It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –

10. Definition
11. Diagnosis (of the particular situation /patient selection /treatment planning)
12. Types / Classification
13. Materials
14. Methodology – Lab /Clinical

15. Advantages & disadvantages
16. Indications, contraindications
17. Maintenance Phase

RECOMMENDED BOOKS:

1. Syllabus of Complete denture by - Charles M. Heartwell Jr. and Arthur O. Rahn.
2. Boucher's "Prosthodontic treatment for edentulous patients"
3. Essentials of complete denture prosthodontics by – Sheldon Winkler.
4. Maxillofacial prosthetics by – William R. Laney.
5. McCracken's Removable partial prosthodontics
6. Removable partial prosthodontics by – Ernest L. Miller and Joseph E. Grasso.

CONSERVATIVE DENTISTRY AND ENDODONTICS

OBJECTIVES:

- G. Knowledge and understanding
- H. Skills and
- I. Attitudes

A). Knowledge and understanding:

The graduate should acquire the following knowledge during the period of training.

- xi. To diagnose and treat simple restorative work for teeth.
- xii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
- xiii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.
- xiv. To carry out simple endodontic treatment.
- xv. To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.

SKILLS:

He should attain following skills necessary for practice of dentistry

- vii) To use medium and high speed hand pieces to carry out restorative work.
- viii) Possesses the skills to use and familiarise endodontic instruments and materials needed for carrying out simple endodontic treatment.
- ix) To achieve the skills to translate patients esthetic needs along with function.

ATTITUDES:

- ix). Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- x). Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.
- xi). To help and participate in the implementation of the national oral health policy.
- xii). He should be able to motivate the patient for proper dental treatment at the same time proper maintenance of oral hygiene should be emphasised which will help to maintain the restorative work and prevent future damage.

INTRODUCTION :

Definition aims objectives of Conservative Dentistry scope and future of Conservative Dentistry.

1. Nomenclature Of Dentition:
Tooth numbering systems A.D.A. Zsigmondy Palmer and F.D.I. systems.
2. Principles Of Cavity Preparation :
Steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors angles of cavities.
3. Dental Caries :
Aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.
4. Treatment Planning For Operative Dentistry:
Detailed clinical examination , radiographic examination, tooth vitality tests, diagnosis

- and treatment planning, preparation of the case sheet.
5. Gnathological Concepts Of Restoration:
Physiology of occlusion, normal occlusion, Ideal occlusion, mandibular movements and occlusal analysis. Occlusal rehabilitation and restoration.
 6. Aramamentarium For Cavity Preparation:
General classification of operative instruments, Hand cutting instruments design formula and sharpening of instruments. Rotary cutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instrument tray set up.
 7. Control of Operating Filed:
Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogagues.
 8. Amalgam Restoration :
Indication contra indication, physical and mechanical properties , clinical behaviour. Cavity preparation for Class I , II, V and III. Step wise procedure for cavity preparation and restoration. Failure of amalgam restoration.
 9. Pulp Protection :
Linners, varnishes and bases, Zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass ionomer cements.
 10. Anterior Restorations :
Selection of cases, selection of material, step wise procedures for using restorations , silicate (theory only) glass ionomers, composites, including sand witch restorations and bevels of the same with a note on status of the dentine bonding agents.
 11. Direct Filling Gold Restorations :
Types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
 12. Preventive Measures In Restorative Practice :
Plaque Control, Pit and fissure sealants dietary measures restorative procedure and periodontal health. Contact and contour of teeth and restorations matrices tooth separation and wedges.
 13. Temporisation or Interim Restoration.
 14. Pin Amalgam Restoration Indication Contra Indication :
Advantages disadvantages of each types of pin methods of placement use of auto matrix. Failure of pin amalgam restoration.
 15. Management Of Deep Carious Lesions Indirect And Direct Pulp Capping.
 16. Non Carious Destruction's Tooth Structures Diagnosis and Clinical Management
 17. Hyper Sensitive Dentine And Its Management.
 18. Cast Restorations
Indications, contra indications, advantages and disadvantages and materials used for same Class II and Class I cavity preparation for inlays fabrication of wax pattern spurring inverting and casting procedures & casting defects.
 19. Die Materials And Preparation Of Dies.
 20. Gingival Tissue Management For Cast Restoration And Impression Procedures
 21. Recent Cavity Modification Amalgam Restoration.
 22. Differences between Amalgam And Inlay Cavity preparation with note on all the types of Bewels used for Cast Restoration.
 23. Control Of Pain During Operative Procedures.
 24. Treatment Planning For Operative Dentistry Detailed Clinical Examination Radiographic Examination
 25. Vitality Tests, Diagnosis And Treatment Planning And Preparation Of Case Sheet.
 26. Applied Dental Materials.
 - a. Biological Considerations.
Evaluation, clinical application and adverse effects of the following materials. Dental cements, Zinc oxide eugenol cements zinc phosphate cements, polycarboxylates glass ionomer cements, silicate cement calcium hydroxides varnishes.

- b. Dental amalgam, technical considerations mercury toxicity mercury hygiene.
- c. Composite, Dentine bonding agents, chemical and light curing composites
- d. Rubber base Imp. Materials
- e. Nobel metal alloys & non noble metal alloys
- f. Investment and die materials
- g. Inlay casting waxes
- h. Dental porcelain
- i. Aesthetic Dentistry
- 27. Endodontics: introduction definition scope and future of endodontics
- 28. Clinical diagnostic methods
- 29. Emergency endodontic procedures
- 30. Pulpal diseases causes, types and treatment .
- 31. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alveolar abscess granuloma cysts condensing osteits, external resorption.
- 32. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicamentsused.
- 33. Apexogenesis and apexification or problems of open apex.
- 34. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
- 35. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments. Sterilisation of root canal instruments and materials rubber dam application.
- 36. Anatomy of the pulp cavity: root canals apical foramen. Anomalies of pulp cavities access cavitypreparation of anterior and premolar teeth.
- 37. Preparation of root canal space . Determination of working length, cleaning and shaping of root canal space.
- 38. Disinfection of root canal space intracanal medicaments, poly antibiotic paste ross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.
- 39. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.
- 40. Methods of cleaning and shaping like step back crown down and conventional methods.
- 41. Obturation of the root canal system. Requirements of an ideal root canal filling materialob
- 42. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
- 43. post endodontic restoration fabrication and components of post core preparation.
- 44. smear layer and its importance in endodontics and conservative treatment.
- 45. discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.
- 46. traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
- 47. endodontic surgeries indication contraindications, pre operative preparation. Premedication surgical instruments and techniques apicectomy, retrograde filling, post operative sequele terphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
- 48. root resorption.
- 49. emergency endodontic procedures.
- 50. lasers in conservative endodontics (introduction only) practice management
- 51. professional association dentist act 1948 and its amendment 1993.
- 52. duties towards the govt. Like payments of professional tax, income tax.
- 53. financial management of practice
- 54. dental material and basic equipment management.

Ethics

ORAL & MAXILLOFACIAL SURGERY

AIMS:

To produce a graduate who is competent in performing extraction of teeth under both local and general anaesthesia, prevent and manage related complications, acquire a reasonable knowledge and understanding of the various diseases, injuries, infections occurring in the Oral & Maxillofacial region and offer solutions to such of those common conditions and has an exposure in to the in-patient management of maxillofacial problems.

OBJECTIVES:

a) Knowledge & Understanding:

At the end of the course and the clinical training the graduate is expected to -

1. Able to apply the knowledge gained in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.
2. Able to diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
3. Knowledge of range of surgical treatments.
4. Ability to decide the requirement of a patient to have oral surgical specialist opinion or treatment.
5. Understand the principles of in-patient management.
6. Understanding of the management of major oral surgical procedures and principles involved in patient management.
7. Should know ethical issues and communication ability.

b) Skills:

1. A graduate should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner. Be able to understand requisition of various clinical and laboratory investigations and is capable of formulating differential diagnosis.
2. Should be competent in the extraction of teeth under both local and general anaesthesia.
3. Should be able to carry out certain minor oral surgical procedures under L.A. like frenectomy, alveolar procedures & biopsy etc.
4. Ability to assess, prevent and manage various complications during and after surgery.
5. Able to provide primary care and manage medical emergencies in the dental office.
6. Understanding of the management of major oral surgical problems and principles involved in inpatient management.

DETAILED SYLLABUS

1. Introduction, definition, scope, aims and objectives.
2. Diagnosis in oral surgery:
 - (A) History taking
 - (B) Clinical examination
 - (C) Investigations.
3. Principles of infection control and cross-infection control with particular reference to HIV/AIDS and Hepatitis.
4. Principles of Oral Surgery -
 - a) Asepsis: Definition, measures to prevent introduction of infection during surgery.
 1. Preparation of the patient
 2. Measures to be taken by operator
 3. Sterilisation of instruments - various methods of sterilisation etc.
 4. Surgery set up.
 - b) Painless Surgery:
 1. Pre-anaesthetic considerations. Pre-medication: purpose, drugs used
 2. Anaesthetic considerations -
 - a) Local b) Local with IV sedations
 3. Use of general anaesthetic
 - c) Access:
 - Intra-oral: Mucoperiosteal flaps, principles, commonly used intra oral incisions.
 - Bone Removal: Methods of bone removal.
 - Use of Burs: Advantages & precautions
 - Bone cutting instruments: Principles of using chisel & osteotome.
 - Extra-oral: Skin incisions - principles, various extra-oral incision to expose facial skeleton.
 - a) Submandibular
 - b) Pre auricular
 - c) Incision to expose maxilla & orbit
 - d) Bicoronal incision
 - d) Control of haemorrhage during surgery
 - Normal Haemostasis

Local measures available to control bleeding

Hypotensive anaesthesia etc.

e) Drainage & Debridement

Purpose of drainage in surgical wounds

Types of drains used

Debridement: purpose, soft tissue & bone debridement.

f) Closure of wounds

Suturing: Principles, suture material, classification, body response to various materials etc.

g) Post operative care

Post operative instructions

Physiology of cold and heat

Control of pain - analgesics

Control of infection - antibiotics

Control of swelling - anti-inflammatory drugs

Long term post operative follow up - significance.

5. Exodontia: General considerations

Ideal Extraction.

Indications for extraction of teeth

Extractions in medically compromised patients.

Methods of extraction -

(a) Forceps or intra-alveolar or closed method.

Principles, types of movement, force etc.

(b) Trans-alveolar, surgical or open method, Indications, surgical procedure.

Dental elevators: uses, classification, principles in the use of elevators, commonly used elevators.

Complications of Exodontia -

Complications during exodontia

Common to both maxilla and mandible.

Post-operative complications -

Prevention and management of complications.

6. Impacted teeth:

Incidence, definition, aetiology.

(a) Impacted mandibular third molar.

Classification, reasons for removal,

Assessment - both clinical & radiological

Surgical procedures for removal.

Complications during and after removal,

Prevention and management.

(b) Maxillary third molar,

Indications for removal, classification,

Surgical procedure for removal.

(c) Impacted maxillary canine

Reasons for canine impaction,

Localization, indications for removal,

Methods of management, labial and palatal approach,

Surgical exposure, transplantation, removal etc.

7. Pre-prosthetic Surgery:

Definition, classification of procedures

(a) Corrective procedures: Alveoloplasty,

Reduction of maxillary tuberosities,

Frenectomies and removal of tori.

(b) Ridge extension or Sulcus extension procedures

Indications and various surgical procedures

(c) Ridge augmentation and reconstruction.

Indications, use of bone grafts, Hydroxyapatite

Implants - concept of osseointegration

Knowledge of various types of implants and

surgical procedure to place implants.

8. Diseases of the maxillary sinus

Surgical anatomy of the sinus.

Sinusitis both acute and chronic

Surgical approach of sinus - Caldwell-Luc procedure

Removal of root from the sinus.

Oro-antral fistula - aetiology, clinical features and various surgical methods for closure.

9. Disorders of T.M. Joint

Applied surgical anatomy of the joint.

Dislocation - Types, aetiology, clinical features and management.

Ankylosis - Definition, aetiology, clinical features and management

Myo-facial pain dysfunction syndrome, aetiology, clinical features, management-

Non surgical and surgical.

Internal derangement of the joint.

Arthritis of T.M. Joint.

10. Infections of the Oral cavity

Introduction, factors responsible for infection, course of odontogenic infections, spread of odontogenic infections through various facial spaces.

Dento-alveolar abscess - aetiology, clinical features and management.

Osteomyelitis of the jaws - definition, aetiology, pre-disposing factors, classification, clinical features and management.

Ludwigs angina - definition, aetiology, clinical features, management and complications.

11. Benign cystic lesions of the jaws -

Definition, classification, pathogenesis.

Diagnosis - Clinical features, radiological, aspiration biopsy, use of contrast media and histopathology.

Management - Types of surgical procedures, Rationale of the techniques, indications, procedures, complications etc.

12. Tumours of the Oral cavity -

General considerations

Non odontogenic benign tumours occurring in oral cavity - fibroma, papilloma, lipoma, ossifying fibroma, myxoma etc.

Ameloblastoma - Clinical features, radiological appearance and methods of management.

Carcinoma of the oral cavity -

Biopsy - types

TNM classification.

Outline of management of squamous

Cell carcinoma: surgery, radiation and chemotherapy

Role of dental surgeons in the prevention and early detection of oral cancer.

13. Fractures of the jaws -

General considerations, types of fractures, aetiology, clinical features and general principles of management.

mandibular fractures - Applied anatomy, classification.

Diagnosis - Clinical and radiological

Management - Reduction closed and open

Fixation and immobilisation methods

Outline of rigid and semi-rigid internal fixation.

Fractures of the condyle - aetiology, classification, clinical features, principles of management.

Fractures of the middle third of the face.

Definition of the mid face, applied surgical anatomy, classification, clinical features and outline of management.

Alveolar fractures - methods of management

Fractures of the Zygomatic complex

Classification, clinical features, indications for treatment, various methods of reduction and fixation.

Complications of fractures - delayed union, non-union and malunion.

14. Salivary gland diseases -

Diagnosis of salivary gland diseases'

Sialography, contrast media, procedure.

Infections of the salivary glands

Sialolithiasis - Sub mandibular duct and gland and parotid duct.

Clinical features, management.

Salivary fistulae

Common tumours of salivary glands like Pleomorphic adenoma including minor salivary glands.

15. Jaw deformities -

Basic forms - Prognathism, Retrognathism and open bite.

Reasons for correction.

Outline of surgical methods carried out on mandible and maxilla.

16. Neurological disorders -

Trigeminal neuralgia - definition, aetiology, clinical features and methods of management including surgical.

Facial paralysis - Aetiology, clinical features.

Nerve injuries - Classification, neurorrhaphy etc.

17. Cleft Lip and Palate -

Aetiology of the clefts, incidence, classification, role of dental surgeon in the management of cleft patients. Outline of the closure procedures.

18. Medical Emergencies in dental practice

PUBLIC HEALTH DENTISTRY

GOAL:

To prevent and control oral diseases and promote oral health through organized community efforts

OBJECTIVES:

Knowledge:

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

Skill and Attitude:

At the conclusion of the course the students shall have require at the skill of identifying health problems affecting the society, conducting health surveys, conducting health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

Communication abilities:

At the conclusions of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

Syllabus:

1. Introduction to Dentistry: Definition of Dentistry, History of dentistry, Scope, aims and objectives of Dentistry.

2. Public Health:

i. Health & Disease: - Concepts, Philosophy, Definition and Characteristics

ii. Public Health: - Definition & Concepts, History of public health

iii. General Epidemiology: - Definition, objectives, methods

iv. Environmental Health: - Concepts, principles, protection, sources, purification

environmental sanitation of water disposal of waste sanitation, then role in mass disorder

v. Health Education: - Definition, concepts, principles, methods, and health education aids

vi. Public Health Administration: - Priority, establishment, manpower, private practice management, hospital management

vii. Ethics and Jurisprudence: Professional liabilities, negligence, malpractice, consents, evidence, contracts, and methods of identification in forensic dentistry.

viii. Nutrition in oral diseases

ix. Behavioral science: Definition of sociology, anthropology and psychology and their in dental practice and community.

x. Health care delivery system: Center and state, oral health policy, primary health care, national programmes, health organizations.

Dental Public Health:

1. Definition and difference between community and clinical health.

2. Epidemiology of dental diseases-dental caries, periodontal diseases, malocclusion, dental fluorosis and oral cancer.

3. Survey procedures: Planning, implementation and evaluation, WHO oral health survey methods 1997, indices for dental diseases.

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4. Delivery of dental care: Dental auxiliaries, operational and non-operational, incremental and

comprehensive health care, school dental health.

5. Payments of dental care: Methods of payments and dental insurance, government plans

6. Preventive Dentistry- definition, Levels, role of individual , community and profession, fluorides in dentistry, plaque control programmes.

Research Methodology and Dental Statistics

1. Health Information: - Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes

2. Research Methodology: -Definition, types of research, designing a written protocol

3. Bio-Statistics: - Introduction, collection of data, presentation of data, Measures of Central tendency, measures of dispersion, Tests of significance, Sampling and sampling techniques □types, errors, bias, blind trails and calibration.

Practice Management

1. Place and locality

2. Premises & layout

3. Selection of equipments

4. Maintenance of records/accounts/audit.

Dentist Act 1948 with amendment.

Dental Council of India and State Dental Councils

Composition and responsibilities.

Indian Dental Association

Head Office, State, local and branches.

PRACTICALS/CLINICALS/FIELD PROGEAMME IN COMMUNITY DENTISTRY:

These exercises designed to help the student in IV year students:

1. Understand the community aspects of dentistry

2. To take up leadership role in solving community oral health programme

Exercises:

a) Collection of statistical data (demographic) on population in India, birth rates, morbidity and mortality, literacy, per capita income

b) Incidence and prevalence of common oral diseases like dental caries, periodontal disease, oral cancer, fluorosis at national and international levels

c) Preparation of oral health education material posters, models, slides, lectures, play acting skits etc.

d) Oral health status assessment of the community using indices and WHO basic oral health survey methods

e) Exploring and planning setting of private dental clinics in rural, semi urban and urban locations, availment of finances for dental practices-preparing project report.

f) Visit to primary health center-to acquaint with activities and primary health care delivery

g) Visit to water purification plant/public health laboratory/ center for treatment of western and sewage water

h) Visit to schools-to assess the oral health status of school children, emergency treatment and health education including possible preventive care at school (tooth brushing technique demonstration and oral rinse programme etc.)

i) Visit to institution for the care of handicapped, physically, mentally, or medically compromised patients

j) Preventive dentistry: in the department application of pit and fissure sealants, fluoride gel application procedure, A. R. T., Comprehensive health for 5 pts at least 2 patients

The colleges are encouraged to involve in the N.S.S. programme for college students for carrying out social work in rural areas

SUGGESTED INTERNSHIP PROGRAMME IN COMMUNITY DENTISTRY:

I. AT THE COLLEGE:

Students are posted to the department to get training in dental practice management.

(a) Total oral health care approach- in order to prepare the new graduates in their approach to diagnosis, treatment planning, cost of treatment, prevention of treatment on schedule, recall maintenance of records etc. at least 10 patients (both children and adults of all types posting for at least one month).

(b) The practice of chair side preventive dentistry including oral health education

II. AT THE COMMUNITY ORAL HEALTH CARE CENTRE (ADOPTED BY THE DENTAL COLLEGE IN RURAL AREAS)

Graduates posted for at least one month to familiarize in:

- (a) Survey methods, analysis and presentation of oral health assessment of school children and community independently using WHO basic oral health survey methods.
- (b) Participation in rural oral health education programmes
- (c) Stay in the village to understand the problems and life in rural areas

III. DESIRABLE: Learning use of computers-at least basic programme.

Examination Pattern

- I. Index: Case History

MDS - CONSERVATIVE DENTISTRY & ENDODONTICS

- Health information systems – collection, compilation, presentation of data.
- Elementary statistical methods – presentation of statistical data, statistical averages – measures of central tendency, measures of dispersion.
- Normal distribution.
- Tests of significance – parametric and non – parametric tests (Fisher's Exact test, Sign test, Median test, Mann Whitney test, Kruskal Wallis, One-way analysis, Friedman two-way analysis, Regression analysis).
- Correlation and regression.
- Use of Computers.

RESEARCH METHODOLOGY

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

APPLIED DENTAL MATERIALS

- Physical and mechanical properties of dental materials, biocompatibility.
- Impression materials, detailed study of various restorative materials, restorative resin and
- Recent advances in composite resins, bonding recent developments tarnish and corrosion,
- Dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments,
- Casting procedures, defects, dental cements for restoration and pulp protection (luting, liners, bases) cavity varnishes.
- Dental ceramics – recent advances, finishing and polishing materials.
- Dental bur – design and mechanics of cutting – other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

CLINICAL PHOTOGRAPHY , MEDICO LEGAL JURISPRUDENCE

PART II - PAPER I: CONSERVATIVE DENTISTRY

1. Examination, diagnosis and treatment plan
2. Occlusion as related to conservative dentistry, contact, contour, its significance.
3. Separation of teeth, matrices, used in conservative dentistry.
4. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology.
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5. Histopathology, diagnosis, caries activity tests, prevention of dental caries and management – recent methods.
6. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.
7. Dental bur and other modalities of tooth preparation – recent developments (air abrasion, Lasers etc)
8. Infection control procedures in conservative dentistry, isolation equipments etc.
9. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
10. Direct and indirect composite restorations.

11. Indirect tooth coloured restorations – ceramic, inlays and onlays, veneers, crowns, recent
12. Advances in fabrication and materials.
13. Tissue Management
14. Impression procedures used for indirect restorations.
15. Cast metal restorations, indications, contraindications, tooth preparation for class 2 inlay, onlay full crown restoration
16. Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and

17. Direct gold restorations.
18. Recent advances in restorative materials and procedures.
19. Management of non-carious lesion.
20. Advance knowledge of minimal intervention dentistry.
21. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth
22. Hypersensitivity, theories, causes and management
23. Lasers in Conservative Dentistry
24. CAD-CAM & CAD-CIM in restorative dentistry
25. Dental imaging and its applications in restorative dentistry (clinical photography)
26. Principles of esthetics
 - a. Color
 - b. Facial analysis
 - c. Smile design
 - d. Principles of esthetic integration
 - e. Treatment planning in esthetic dentistry

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PART II- PAPER – III: ENDODONTICS

1. Rationale of endodontics
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology
5. Pathobiology of periapex
6. Diagnostic procedure – recent advances and various aids used for diagnosis
7. Orofacial dental pain emergencies: endodontic diagnosis and management
8. Case selection and treatment planning
9. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc)
10. Access cavity preparation – objectives and principles
11. Endodontic instruments and instrumentation – recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.,
12. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
13. Root canal irrigants and intra canal medicaments used including non – surgical Endodontics by calcium hydroxide.
14. Endodontic microbiology.
15. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
16. Traumatic injuries and management – endodontic treatment for young permanent teeth.
 - a. Pediatric Endodontics – treatment of immature apex.
17. Endodontic surgeries, recent developments in techniques and devices, endoossous
 - a. Endodontic implants – biology of bone and wound healing.

18. Endoperio interrelationship, endo + Perio lesion and management
19. Drugs and chemicals used in Endodontics
20. Endo emergencies and management.
21. Restoration of endodontically treated teeth, recent advances.
22. Geriatric Endodontics

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D: Distribution of marks:

Theory:

Part-I University Examinations:

PAPER I : APPLIED BASIC SCIENCES - Total of 100 Marks/3hrs

There shall be 10 questions of 10 marks each

Part-II University Examinations:- Total of 300 Marks (100 Marks /3hrs for each Paper)

(i) Paper-I: Conservative Dentistry – There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(ii) Paper-II: Endodontics -There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(iii) Paper III: Essay -Descriptive & Analyzing Type Questions -There shall be 2 out of 3 essay questions (50 x 2 = 100 Marks/3hrs)

CLINICAL AND PRACTICAL: Part-II University Examinations (Total marks 300)

(i) Practical and Clinical Examination: 200 Marks

(ii) Viva-voce and Pedagogy: 100 Marks

CLINICAL: 200 MARKS

The duration of clinical and viva voce examination will be 2 days for a batch of 4 students. If the number of student exceeds 4, the programme can be extended to 3rd day

DAY 1

CLINICAL EXERCISE 1 50 MARKS

- Cast core preparation
- Tooth preparation 10 mark
- Direct wax pattern 10 mark
- Casting 10 mark
- Cementations 10 mark
- Retraction & elastomeric impression 10 mark

CLINICAL EXERCISE 2 50 MARK

Inlay exercise

D: Distribution of marks:

Theory:

Part-I University Examinations:

PAPER I : APPLIED BASIC SCIENCES - Total of 100 Marks/3hrs

There shall be 10 questions of 10 marks each

Part-II University Examinations:- Total of 300 Marks (100 Marks /3hrs for each Paper)

(i) Paper-I: Conservative Dentistry – There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(ii) Paper-II: Endodontics -There shall be 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks/3hrs)

(iii) Paper III: Essay -Descriptive & Analyzing Type Questions -There shall be 2 out of 3 essay questions (50 x 2 = 100 Marks/3hrs)

CLINICAL AND PRACTICAL: Part-II University Examinations (Total marks 300)

(i) Practical and Clinical Examination: 200 Marks

(ii) Viva-voce and Pedagogy: 100 Marks

CLINICAL: 200 MARKS

The duration of clinical and viva voce examination will be 2 days for a batch of 4 students. If the number of student exceeds 4, the programme can be extended to 3rd day

DAY 1

CLINICAL EXERCISE 1

- Cast core preparation
- Tooth preparation

- Direct wax pattern
- Casting
- Cementations
- Retraction & elastomeric impression

CLINICAL EXERCISE 2

Inlay exercise

MDS

PEDIATRIC AND PREVENTIVE DENTISTRY

B) Pediatric Dentistry:

Child Psychology:

Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear, anxiety, apprehension & its management.

- Behavior Management: Non- pharmacological & Pharmacological methods
- Child Abuse & Dental Neglect:

Conscious Sedation:

- Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children

Preventive Pedodontics:

Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries – Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling
Dental Plaque:

Definition, Initiation, Pathogenesis, Biochemistry, and Morphology & Metabolism.

Gingival & Periodontal diseases in Children:

- Normal Gingiva & Periodontium in children.
- Gingival & Periodontal diseases – Etiology, Pathogenesis, Prevention & Management

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Pediatric Operative Dentistry:

- Principle of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
- Modifications required for cavity preparation in primary and young permanent teeth.
- Various Isolation Techniques
- Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)
- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems.
- Primary Dentition: - Diagnosis of pulpal diseases and their management – Pulp capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies & recent concepts.
- Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.
- Recent advances in Pediatric diagnosis and Endodontics.

Pediatric Endodontics:

Prosthetic consideration in Pediatric Dentistry.

Traumatic Injuries in Children:

- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth with latest concepts.
- Management of jaw fractures in children.

Interceptive Orthodontics:

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- • Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- • Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- • Biology of tooth movement: A comprehensive review of the principles of teeth movement. Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement.
- Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
- Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interceptive orthodontics.

Oral Habits in Children

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children

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Dental care of Children with special needs:

Definition, Etiology, Classification, Behavioral, Clinical features & Management of children with:

- Physically handicapped conditions
- Mentally compromising conditions
- Medically compromising conditions
- Genetic disorders • Historical background
- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
- Role of diet and nutrition in Dental Caries
- Dietary modifications & Diet counseling.
- Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications

Oral manifestations of Systemic Conditions in Children & their Management

Management of Minor Oral Surgical Procedures in Children

Dental Radiology as related to Pediatric Dentistry

Cariology:

Historical background

- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.

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- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
- Role of diet and nutrition in Dental Caries
- Dietary modifications & Diet counseling.
- Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications.

Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

Congenital Abnormalities in Children: Definition

Dental Emergencies in Children and their Management.

Dental Materials used in Pediatric Dentistry.

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C) Preventive Dentistry:

- Definition
- Principles & Scope
- Types of prevention
- Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

Dental Health Education & School Dental Health Programmes:

Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry

Fluorides:

- • Historical background
- • Systemic & Topical fluorides
- • Mechanism of action
- • Toxicity & Management.
- • Defluoridation techniques.

Medico legal aspects in Pediatric Dentistry with emphasis on informed consent.

Counseling in Pediatric Dentistry

Case History Recording: Outline of principles of examination, diagnosis & treatment

planning. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases.

MDS - ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

c. Principles in the development, execution and interpretation of methodologies in Orthodontics

d. Critical Scientific appraisal of literature.

Applied Pharmacology

Definitions & terminologies used – Dosage and mode of administration of drugs.

Action and fate of drugs in the

body, Drug addiction, tolerance and hypersensitive reactions,

Drugs acting on the central nervous system, general anesthetics hypnotics, analeptics and tranquilizers.

Local anesthetics, Chemotherapeutics and antibiotics. Vitamins: A, D, B – complex group, C & K etc.

PART-II:

Paper-I: Basic Orthodontics

Orthodontic History:

- a. Historical perspective,
- b. Evolution of orthodontic appliances,
- c. Pencil sketch history of Orthodontic peers
- d. History of Orthodontics in India

Concepts of Occlusion and Esthetics:

- a. Structure and function of all anatomic components of occlusion,
- b. Mechanics of articulation,
- c. Recording of masticatory function,
- d. Diagnosis of Occlusal dysfunction,
- e. Relationship of TMJ anatomy and pathology and related neuromuscular

physiology.

Etiology and Classification of Malocclusion:

- a. A comprehensive review of the local and systemic factors in the causation of malocclusion
- b. Various classifications of malocclusion

Dentofacial Anomalies:

- a. Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

Diagnostic Procedures and Treatment Planning in Orthodontics:

- a. Emphasis on the process of data gathering, synthesis and translating it into a treatment plan
- b. Problem cases – analysis of cases and its management
- c. Adult cases, handicapped and mentally retarded cases and their special problems
- d. Critique of treated cases.

Cephalometrics

- a. Instrumentation
- b. Image processing
- c. Tracing and analysis of errors and applications
- d. Radiation hazards
- e. Advanced Cephalometrics techniques including digital cephalometrics
- f. Comprehensive review of literature
- g. Video imaging principles and application.

Practice Management in Orthodontics:

- a. Economics and dynamics of solo and group practices
- b. Personal management
- c. Materials management
- d. Public relations
- e. Professional relationship
- f. Dental ethics and jurisprudence
- g. Office sterilization procedures
- h. Community based Orthodontics.

Paper-II: Clinical Orthodontics

Myofunctional Orthodontics:

- a. Basic principles
- b. Contemporary appliances – design, manipulation and management
- c. Case selection and evaluation of the treatment results
- d. Review of the current literature.

Dentofacial Orthopedics:

- a. Principles
- b. Biomechanics
- c. Appliance design and manipulation
- d. Review of contemporary literature

Cleft lip and palate rehabilitation:

- a. Diagnosis and treatment planning
- b. Mechanotherapy
- c. Special growth problems of cleft cases
- d. Speech physiology, pathology and elements of therapy as applied to orthodontics
- e. Team rehabilitative procedures.

Biology of tooth movement:

- a. Principles of tooth movement-review
- b. Review of contemporary literature
- c. Applied histophysiology of bone, periodontal ligament
- d. Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

- a. Orthodontist's role in conjoint diagnosis and treatment planning
- b. Pre and post-surgical Orthodontics

- c. Participation in actual clinical cases, progress evaluation and post retention study
- d. Review of current literature

Ortho / Perio / Prostho/Endo inter relationship:

- a. Principles of interdisciplinary patient treatment
- b. Common problems and their management

Basic principles of mechanotherapy includes removable appliances and fixed appliances:

- a. Design
- b. Construction
- c. Fabrication
- d. Management
- e. Review of current literature on treatment methods and results

Applied preventive aspects in Orthodontics:

- a. Caries and periodontal disease prevention
- b. Oral hygiene measures
- c. Clinical procedures

Interceptive Orthodontics:

- a. Principles
- b. Growth guidance
- c. Diagnosis and treatment planning
- d. Therapy emphasis on:

- Dento-facial problems
- Tooth material discrepancies
- Minor surgery for Orthodontics

Evidence Based Orthodontics:

Different types of fixed Mechanotherapy:

Orthodontic Management of TMJ problems, sleep-apnoea etc.:

Retention and relapse:

- a. Mechanotherapy – special reference to stability of results with various procedures
- b. Post retention analysis
- c. Review of contemporary literature

Recent Advances :

- a. Use of implants
- b. Lasers
- c. Application of F.E.M.
- d. Distraction Osteogenesis
- e. Invisible Orthodontics
- f. 3D imaging Digital Orthodontics, Virtual Treatment Planning
- g. CAD-CAM bracket Customization
- h. Robotic Wire Bending
- i. Accelerated Orthodontics
- Surgical
- Device assisted or mechanical stimulation
- Biochemical Mediators
- j. Lingual Orthodontics

Paper-III: Essays (descriptive and analyzing type questions)