

I BDS

Human Oral and Dental Anatomy, Embryology, Physiology and Histology

Theory - 105 Hrs.

I. DENTAL ANATOMY:	
1. Introduction, Dental Anthropology & Comparative Dental Anatomy	Sl.No. 1 To 4 - 3 HRS.
2. Function of teeth.	
3. Nomenclature.	
4. Tooth numbering systems (Different system) (Dental formula).	
5. Chronology of deciduous and permanent teeth. (First evidence of calcification, crown completion, eruption and root completion).	2 Hrs
6. Deciduous teeth - a. Nomenclature. b. Importance of deciduous teeth. c. Form & function, comparative dental, Anatomy, fundamental curvature.	4 Hrs.
7. Gross morphology of deciduous teeth.	5 Hrs.
8. General differences between deciduous and permanent teeth.	
9. Morphology of permanent teeth. - Chronology, measurements, description of individual surface and variations of each tooth.	3 Hrs.
10. Morphological differences between incisors, premolars and molars of same arch.	10 Hrs.
11. Morphological differences between maxillary and mandibular incisors, canines, premolars and molars of the opposite arch.	5 Hrs.
12. Internal Anatomy of Pulp.	1 Hr.
13. Occlusion: a. Development of occlusion. b. Dental arch form. c. Compensating curves of dental arches. d. Angulations of individual teeth in relation to various planes. e. Functional form of the teeth at their incisal and occlusal thirds. f. Facial relations of each tooth in one arch to its antagonist or antagonists in the opposing arch in centric occlusion. g. Occlusal contact and interscusp relations of all the teeth of one arch with those in the opposing arch in centric occlusion. h. Occlusal contact and interscusp relations of all the teeth during the various functional mandibular movements.	8 Hrs.

PULP : Anatomy, structural features, functions, pulp organs. - Developments. - Clinical consideration - Age changes.	5 hrs.
CEMENTUM: - Physical characteristics, chemical properties, structure. - Cementogenesis. - Clinical consideration - Age changes.	5 hrs.
PERIODONTAL LIGAMENT: - Cells and fibers - Functions - Development - Clinical Considerations. - Age Changes	5 hrs.
ALVEOLAR BONE: - Physical characteristics, chemical properties structure. - Structure - Development. - Internal reconstruction. - Clinical consideration.	5 hrs.
HISTOCHEMISTRY OF ORAL TISSUES. (Tissue processing) THEORIES OF ERUPTION AND SHEDDING. (Physiological tooth movement)	4 Hrs. 4 Hrs.

PRACTICAL : 250 Hours

Preparation of Ground sections, haematoxylin & Eosin sections & decalcified section - (Desirable to know).

DENTAL ANATOMY: Carving on wax blocks:- a. Cube, rectangle, cone and cylinder b. Individual tooth - Only permanent teeth of both arches. - Central, Incisors, Lateral, Canines, Premolars and 1st molar.	
HISTOLOGY: List of Histology slides: Development of tooth: 1. Bud stage of tooth development. 2. Cap stage of tooth development. 3. Early bell stage of tooth development. 4. Late Bell stage of tooth development. 5. Root formation.	
ENAMEL : 1. Enamel rod. 2. Hunter-Schreger Bands 3. Tufts, Lamellae, Spindles. 4. Incremental lines of Retzius. 5. Neonatal line. 6. Gnarled Enamel.	
DENTIN : 1. Dentino - Enamel junction. 2. Dentinal Tubules. 3. Incremental lines of Von Ebner. 4. Contour lines of Owen. 5. Neonatal line. 6. Tomes granular layer. 7. Interglobular Dentin. 8. Secondary Dentin. 9. Intratubular Dentin. 10. Intertubular Dentin. 11. Dead Tracts 12. Tertiary Dentin 13. Sclerotic Dentin	
CEMENTUM: 1. Cellular cementum. 2. Acellular cementum.	

<ul style="list-style-type: none"> 3. Cemento enamel junction <ul style="list-style-type: none"> - Type 1 - 60% type - Overlapping. - Type 2 - 30% type - Butt - Type 3 - 10% type - GAP type 4. Sharpey's fibers. 5. Hypercementosis. 6. Cementum 	
<p>PULP:</p> <ul style="list-style-type: none"> 1. Zones of Pulp. 2. Pulp stones. 	
<p>PERIODONTAL PRINCIPAL LIGAMENT:</p> <ul style="list-style-type: none"> 1. Principal fibers of Periodontal ligament <ul style="list-style-type: none"> - Apical, Horizontal, Oblique, Alveolar crest, Interradicular, Transeptal 	
<p>ALVEOLAR BONE:</p> <ul style="list-style-type: none"> 1. Haversian system. 2. Trabeculated bone. 3. Mature and immature bone. 	
<p>SALIVARY GLANDS:</p> <ul style="list-style-type: none"> 1. Mucous gland. 2. Serous gland. 3. Mixed gland. 	
<p>MAXILLARY SINUS:</p> <p>Sinus lining (Pseudostratified ciliated columnar) *(Desirable to know)</p>	
<p>ORAL MUCOUS MEMBRANE:</p> <ul style="list-style-type: none"> 1. Parakeratinised epithelium. 2. Orthokeratinised epithelium. 3. Palate - Anterolateral zone. 4. Palate - Posterolateral zone. 5. Alveolar mucosa. 6. Vermilion border of lip. 7. Tongue - Circumvallate Papillae. <ul style="list-style-type: none"> - Fungiform Papillae - Filiform Papillae 8. Dentogingival junction. 9. Skin 	
<p>Temporo Mandibular Joint (T.M.J.):</p> <ul style="list-style-type: none"> 1. Histological section (Desirable to know). 	

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Temporo Mandibular Joint (T.M.J.): 1. Histological section (Desirable to know).	

LECTURE DEMONSTRATION :

1. Identification of Individual teeth.
 - Deciduous.
 - Permanent.
2. Mixed dentition using study models.
3. Cross - Section & T.S. of mandible and maxilla with teeth present using study models.
Demonstration of preparation of ground section, Decalcification, Paraffin section & H & E Staining.

Scheme of Examination**A. Theory : 70 Marks****Distribution of Topics and Type of Questions**

Contents	Type of Questions and Marks	Marks
A. Dental anatomy - one question - 10 marks B. Dental histology - one question - 10 marks	Long Essays 2 x 10 marks	20
A. Oral histology - five questions - 25 marks B. Dental anatomy - two questions - 10 marks C. Oral physiology - one question - 05 marks	Short Essays 08 x 5 marks	40
A. Oral histology - two questions - 04 marks B. Dental anatomy - one question - 02 marks C. Oral physiology - one question - 02 marks D. Oral embryology - one question - 02 marks	Short Answers 05 x 2marks	10
	Total	70

B. Viva Voce : 20 Marks**C. Internal Assessment - Theory : 10 marks, Practicals : 10 marks****D. Practicals : 90 Marks**

1. Carving 30 marks 1 hour 15 min
2. Spotters 60 marks (20 spotter x 3 marks) 1 hour 15 min

- 13 histology and ground section slides
- 4 tooth identification
- 3 casts for identifications of teeth, numbering system and age assessment.

Text Books Recommended :

Name of the Book & Title	Author	Edn	Yr. of Publ.	Publ.'s Name Place of Publ.	Price
Orban's Oral Histology and Embryology	Orban's	10th	1990	American Publication Ontoria, Canada	Rs. 350/-
Oral Histology - Development, Structure and Functions	A. R. Tencate	5th	1998	Mosby A Harcourt Health Science Company USA	\$ 25.00
Dental Anatomy, P hysiology and Occlusion	Wheeler's	7th	1993	Prism Book Pvt. Ltd. Bangalore	Rs. 300/-

REFERENCE BOOK:

- Dental anatomy by Scoot & Simon.
- Oral Physiology by Lavelle.
- Oral Physiology by Jenkins.
- Dental Anatomy by Krauss.
- Dental Anatomy - It's relevance to dentistry 5th edition by Woelfel
- Illustrated Dental Embryology, Histology and Anatomy- 2nd editon By Bath- Balogh

**I BDS
DENTAL MATERIALS**

Sl. No.	Theory - 20 Hrs. Practical - 40 Hrs.	Total 60 Hrs.
1.	Introduction: a. Brief History of the development of the science of Dental Materials b. Aim of studying the subject of Dental Materials. c. Scope and requirements of Dental materials d. Spectrum of materials - Classification Clinical and laboratory applications	01
2.	Structure and behaviour of matter: a. Basic principles - Physical and mechanical properties, Chemical properties, biological properties, rheological properties, thermal properties, light, colour and esthetics. Tarnish and corrosion, surface properties and adhesion, biocompatibility allergy, toxicity, setting reactions. b. Enamel and Dentine and bone. c. Polymers d. Metals and alloys e. Ceramics f. Composites g. Standardisation and assessment of dental materials.	02
3.	Impression materials and duplicating materials: a. Requirements, classification. b. Desirable properties, composition, setting properties, advantages, disadvantages, indications and manipulation of inelastic and elastic materials. (Tray compound, impression compound, Low fusing compound, Impression plaster, Zinc oxide Eugenol impression paste, Non Eugenol paste, Alginate, Agar Elastomeric impression materials) Comparative studies between all.	03
4.	Gypsum products (Detail), die, cast and model materials (including brief account of electroformed dies):	02
5.	Waxes and baseplate materials - Contents, properties, manipulation and uses (Modeling wax, casting wax, boxing wax, utility wax, Sticky wax, impression wax, carding wax, preformed wax patterns	02
6.	Denture base resins a. Tray materials. b. Temporary base materials - contents, properties, manipulation, advantages and disadvantages.	02

Sl. No.	Theory - 20 Hrs. Practical - 40 Hrs.	Total 60 Hrs.
	c. Permanent base resins - types, composition, properties and technical consideration (Flasking, packing, curing, deflasking and processing errors) d. Others - Tissue conditioners, soft liners and hard liners.	
7.	Tooth restorative materials - Classification and ideal properties : a. Dental cements - classification ideal requirements of liners, base and luting cements. Composition, properties, chemistry of setting, manipulation and uses of silicate and silico phosphate cements (in brief), zinc phosphate, zinc polycarbxylate, calcium hydroxide, glass ionomer, modified glass ionomer and resin cement. Comparative studies of mechanical, biological and esthetic properties of all cements.	10
8.	Metals and Alloys - Solidification and microstructure of metals, classification of alloys, relevant physical and mechanical properties, annealing, heat treatment, soldering, welding, fluxes and ant fluxes.	03

Practical Exercises : 40 Hours

II Exercises to be done by each student :

- a. Impression material - 20 hours
Manipulation and making impression and identifying setting time and defects.
(Comparative studies included)
- b. Gypsum products - 20 hours

Recommended Text Books

Name of the Book & Title	Author	Edn	Yr. of Publ.	Publ.'s Name Place of Publ.	Price
Science of Dental Materials	Kennet. J. Anusavice	11th	2007	W.B. Sunder's Company, USA	\$35.00
Notes on Dental Materials	E.C. Combe	06th	1992	Churchill Livingstone, UK	4.95 pounds
Applied Dental Material	John. F. Mc. Cabe	07th	1992	Oxford Blackwell Scientific pub. London	Rs. 320/-
Text Book of Dental Material	Craig. O. Brien	06th	1996	Mosby, USA	\$ 15.00
Restorative Dental Materials	Craig.	11th	2002	Mosby, USA	Rs. 675/-

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I BDS PRE-CLINICAL PROSTHODONTICS AND CROWN AND BRIDGE

Practical: 100 Hours

- Preparation of special trays
- Preparation of temporary and permanent denture bases
- Preparation of occlusion rims
- Orientation of occlusion rims on articulator
- Arrangement of teeth
- Processing of complete dentures

RECOMMENDED TEXT BOOKS

Author	Name of the Book & Title	Edition	Year. of Publ.	Publishers Name Place of Publ.	Price
Boucher	Prosthodontic Treatment of Edentulous Patients	XI	1997	Mosby St. Louis, Missouri, USA	\$ 76
Heartwell	Syllabus of Complete Denture	IV	1992	Varghese Publishing House	Rs 595
Tylman	Theory and Practice of Fixed Prosthodontics	VIII	1993	Ishiyaku Euro America Inc. 716, Hanley Industrial Court St. Louis Missouri, USA	\$ 69
McCracken	Removable Partial Denture	VIII	1989	CBS Publishers & Distributors Shadara, Delhi	Rs 350
Skinner	Science of Dental Materials	X	1996	W.B Saunders Company, Philadelphia, USA	\$ 35
Craig	Dental Materials, Properties & Manipulation	VI	1996	Mosby, St. Louis Missouri, USA	\$ 35

II Year - BDS DENTAL MATERIAL

	Theory - 60 Hrs. Practical - 200 Hrs.	
1.	Chemistry of synthetic resins used in dentistry.	02
2.	Dental porcelains - types, composition, role played by each ingredient, manipulation, advantages and disadvantages, aluminous, porcelain, castable porcelain, metal fused porcelain, and porcelain repair materials.	05
3.	Tooth restorative materials - Classification and ideal properties : b. Cavity bases, liners and varnishes. c. Restorative resins - Brief history of resins as tooth restorative materials, filled resins (composite resins) - classification, chemistry of setting, composition, properties, uses, manipulation advantages and disadvantages, acid etching, bonding agents (Enamel and dentin bonding systems), Pit and fissure sealants.	12
4.	Direct filling Gold - types, advantages, disadvantages, brief study of manipulation (cold welding).	03
5.	Silver amalgam alloy - Brief history, classification, composition, role played by each ingredient, setting reaction, properties, manipulation and uses, comparative study of all types of silver amalgams Mercury Hygiene and Toxicity	04
6.	Casting gold alloys - Classification, corrosion, contents and role played by each ingredient, indications, white gold, uses.	03
7.	Dental casting investments - (Refractory materials) Classification, composition, setting reaction, manipulation and technical consideration.	03
8.	Casting procedures and casting defects, in general	04
9.	Base metal casting alloys - properties, composition and uses of Co-Cr, St. steel.	04
10.	Materials used in orthodontia - Luting cements, direct bonding agents, St. Steel, properties and gauges of wires of gold, st. steel, Co-Cr and titanium alloys, brackets, sensitization.	06
11.	Abrasives and polishing agents - a. Clinical b. Laboratory.	04

Sl. No.	Theory - 20 Hrs. Practical - 40 Hrs.	Total 60 Hrs.
12.	Dental implant materials - History, biological properties and different designs.	02
13.	Miscellaneous - a. Infection control b. Artificial tooth material. c. Separating media d. Die spacers e. Tray adhesives f. Petroleum jelly g. Articulating paper h. Pressure indicating paste i. Endodontic materials j. Comparative studies between metallic and nonmetallic denture base. k. Bioglass l. Sprues m. Setting expansion, hygroscopic expansion, thermal expansion n. Dentifrices.	08

Practical Exercises : 200 Hours

I Demonstration of manipulation of all materials for a batch not more than 8 students.

II Exercises to be done by each student:

- Manipulation and pouring impressions - identify setting time and working time and working time with reference to proportion, water temp, and spatulation time.
- Self-cure and heat cure acrylic resin manipulation and curing.
- Cements - manipulation and studying setting time and working time for luting, base & restoration.
- Silver Amalgam - manipulation, trituration.

II B.D.S PRE-CLINICAL PROSTHODONTICS

THEORY : 25 hrs, PRACTICALS -200 hrs 10 hrs/week]

I. Introduction to Prosthodontics - Scope and Definition	
A. Masticatory apparatus and function: <ol style="list-style-type: none"> 1. Maxillae & Mandible with & without teeth. 2. Muscles of mastication and accessory muscles of mastication. 3. Brief anatomy of TMJ. 4. Mandibular movements. 5. Functions of teeth. 	Must Know 2 hrs
B. Various branches of Prosthodontics and prosthesis: <ol style="list-style-type: none"> 1. Scope & limitation. 2. Appliances v/s prosthesis. 3. Dental prosthesis v/s non-dental prosthesis. 	Must Know 1 hr
C. Effect of loss of teeth: <ol style="list-style-type: none"> 1. On general health. 2. On masticatory apparatus. 3. Need of replace lost teeth. 	Must Know 1 hr
D. Outline of Prosthodontics: <ol style="list-style-type: none"> 1. Types of Prosthesis. 2. Requirements of prosthesis- Physical, biological, esthetic considerations. 	Must Know 1 hr
II. Introduction to components of Prosthesis	
A. Complete Denture Prosthesis: <ol style="list-style-type: none"> 1. Various surfaces (Border and surface anatomy). 2. Components - Base and Teeth. 	Must Know 1 hrs
B. Removable Partial Denture: <ol style="list-style-type: none"> 1. Classification. 2. Major and minor Connectors. 3. Direct retainers. 4. Rests. 5. Indirect retainers. 6. Denture base. 7. Artificial teeth. 	Must Know 2 hrs
C. Fixed Partial Denture: <ol style="list-style-type: none"> 1. Classification. 2. Retainers. 	Must Know 1 hr

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Introduction to jaw relation record 1. Definition and type 2. Temporary denture base - Indications, Advantages, Disadvantages, materials used 3. Occlusion rims - materials, shape, dimensions 4. Clinical procedures of jaw relation recording in brief	Must Know 2 hrs.
Articulators and face bow 1. Basic out line 2. Need for articulators 3. Definition, classification, parts, advantages, disadvantages of articulators 4. Definitions, classification, parts, advantages, disadvantages and purpose of face bow transfer 5. Demonstration of face bow transfer to an articulator on a dummy	Must Know 2 hrs.
Selection of Teeth 1. Various guidelines for selection of teeth including dentogenic concept 2. Arrangement of teeth in detail with various factors of esthetics, overjet, overbite etc	Must Know 1 hr
Occlusion 1. Balanced Occlusion - need and advantages 2. Various factors of balanced occlusion	Must Know 1 hrs
Try in Procedures 1. Anterior try - in 2. Posterior try - in 3. Waxing, carvin, polishing and final try - in	Must Know 1 hr
Processing Procedures • Flasking • Dewaxing • Packing • Curing • Finishing and polishing of acrylic dentures	Must Know 1 hr
VI. Casting Procedures • Preparation of die • Wax pattern • Investing • Burnout • Casting • Finishing and polishing	Desirable to Know 1 hrs

II BDS

PRACTICAL EXERCISES 200 hours

1. Arrangement of teeth - Must Know
2. Surveying of partially edentulous models and preparing modified master cast - Desirable to Know
3. Preparing of wax patterns spruing, casting and finishing (in batches of students not more than 8) - Desirable to Know
4. Preparation of plaster models of various preparation of teeth to receive retainers for FPD - Desirable to Know
5. Prepare wax patterns for minimum of 3 unit FPD and investing, casting and porcelain facing (for Batch of 8 students) - Desirable to Know

Note:

1. Students shall submit one processed denture mounted on an articulator to present on university practical exam along with record book.
2. Exercises of RPD and FPD to be submitted in groups along with the record book.

Scheme of Examination

A. Practical Exercise: (Duration- 3 hrs) : 60 Marks

Arrangement of teeth in class I relation, Waxing, Carving, Polishing

B. University Viva-Voce : 20 Marks

C. Internal Assessment : 20 Marks

RECOMMENDED TEXT BOOKS

Author	Name of the Book & Title	Edn	Yr. of Publ.	Publ.'s Name Place of Publ.	Price
Boucher	Prosthodontic Treatment of Edentulous Patients	XI	1997	Mosby St.Louis, Missouri, USA	\$ 76
Heartwell	Syllabus of Complete Denture	IV	1992	Varghese Publishing House	Rs 595
Tylman	Theory and Practice of Fixed Prosthodontics	VIII	1993	Ishiyaku Euro America Inc. 716, Hanley Industrial Court St. Louis Missouri, USA	\$ 69
Mc Cracken	Removable Partial Denture	VIII	1989	CBS Publishers & Distributors Shadara, Delhi	Rs 350
Skinner	Science of Dental Materials	X	1996	W.B Saunders Company, Philadelphia, USA	\$ 35
Craig	Dental Materials, Properties & Manipulation	VI	1996	Mosby St. Louis Missouri, USA	\$ 35

II BDS PRE-CLINICAL CONSERVATIVE DENTISTRY

Theory : 25 Hours

Sl. No.		
1.	Introduction to Conservative Dentistry.	1 hour
2.	Definition, Aim & Scope of Conservative Dentistry & Endodontics	
3.	Classification of Cavities.	1 hour
4.	Nomenclature.	
5.	Various chair side positions.	1 hour
6.	Tooth Numbering.	
7.	Restoration - Definition & Objectives	
8.	Instruments - Classification, Nomenclature, Design, Formula of hand cutting instruments, Care, Grasps and Rests.	4 hours
9.	Rotary Cutting instruments - Burs, Design & use. Various speeds in Cavity preparation.	2 hours
10.	Principles of cavity /Tooth preparation for :	5 hours
	a. Silver Amalgam	
	b. Cast gold inlay	
	c. Composite resins.	
	d. Glass Ionomer	
11.	Matrices, Retainers, Wedges.	2 hours
12.	Separators - different methods of separation.	2 hours
13.	Finishing & polishing of restorations.	1 hours
14.	Management of deep carious lesions - pulp capping and pulpotomy.	3 hours
15.	Access cavity and brief introduction of root canal instruments.	3 hours

PRACTICAL EXERCISES - 200 Hours

Preparation of 1" cube in Plaster of paris - 6 Nos.

Preparation of geometric cavities in the above cubes.

Preparation of Tooth models in plaster and preparation of cavities and restoration with modeling wax.

a. Incisors - 4 Nos.

b. Pre-Molars - 2 Nos.

c. Molars - 8 Nos.

30 Hours

Preparation of Cavities on Typhodont and/or Extracted Natural Teeth

I. CAVITIES	PREPARATION	RESTORATION	
Class I	6 with 2 extensions	4	25 Hours
Class II	5 DO Conventional 5 MO	8	25 Hours
	5 Conservative	4	15 Hours
	2 MOD (1 Upper molar) (1 Lower Molar)	1	15 Hours
Class III	3	All	15 Hours
Class V	3 on Anteriors	All	15 Hours
	2 on Posteriors	All	15 Hours

II. INLAY PREPARATION :

Class I 1

Class II 2+1 MOD

Class V 1 (posterior)

To prepare Wax patterns 15 Hours
To prepare wax patterns
and one to be casted

III. CUSPAL PREPARATION : (Demonstration)

IV. a. Pulp capping : Direct/ Indirect on extracted teeth

b. Pulpotomy on extracted posterior teeth

c. Root canal access cavity opening on Upper Central incisor.
(Extracted Tooth)

V. Demonstration of Light cure composite and Glass Ionomer Restorations.

VI. Demonstration of Instrumentation and Obturation of root canal.

VII. Demonstration - Wax pattern, investing, casting, polishing and cementation of cast restoration.

NOTE: The II year student should complete the prescribed quota of work before appearing for final internal assessment for the subject. This should be certified by the Head of the department before the candidate takes up final internal assessment exam.

Scheme of Examination

A. University Practicals : 60 Marks

Practical Exercise No.1 : 10 Marks

Spotters : 10 Nos., Marks : 01 Each, Time : 02 Minutes Each

Spotters

a. Hand instruments used to prepare cavity and restoration

b. Identification of Root Canal Instruments

Practical Exercise No.2: 50 Marks

Preparation of Class II Conventional Cavity for Silver Amalgam in Maxillary or Mandibular I or II Molar tooth (Typhodont/Natural Tooth)

III BDS ORAL MEDICINE AND RADIOLOGY

Radiology
III YEAR THEORY : 8 Hours

1. Introduction to Oral Radiology -History, origin, Definitions, scope & limitations.	1 hour
2. Basic physics in radiology - Radiographic equipment - Radiographic accessories (film holders, beam directional devices, intensifying screens, extra oral cassettes, grids etc.) - Radiographic image receptors Factors responsible for ideal radiographs: i. KvP and ma of X-ray machine ii. Filters iii. Collimations iv. Intensifying screens v. Grids Faulty radiographs and artefacts in radiographs.	1 hour
- Production of X rays (dark room procedures, composition of developer fixer, safe lighting, processing technique- manual/ automatic, storage of films)	1 hour
- Properties of X rays - Sources of radiation. - Electromagnetic spectrum & types of radiation - Electro physical factors - Collimation, Filtration - Films - Principles of Shadow Casting - Projection Geometry - Object localization techniques	2 hour
3. Principles of Intra oral Radiography, techniques, indications of - IOPA Bitewing, Occlusal radiography - lecture	1 hour
4. Radiographic interpretation - I - Principles, procedures. - Normal radiographic landmarks of jaws & adjacent structures. - Radiographic interpretations & differential diagnosis in dental caries periodontal diseases, periapical disease	2 hour

III BDS ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

Course Details - III Year B.D.S and IV Year B.D.S

TEACHING HOURS:

Mode of Teaching	III Year B.D.S	IV Year B.D.S
Theory	20 Hours	30 Hours
Clinical	70 Hours	130 Hours
Total	90 Hours	160 Hours

III YEAR B.D.S - COURSE SYLLABUS:

Subject	Hours
1. Introduction, Definition, Historical Background, Aims and Objectives of Orthodontics and Need for Orthodontic care.	1 Hour
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 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	6 Hours
3. Functional Development of Dental Arches and Occlusion a. Factors influencing functional development of dental arches & occlusion b. Forces of occlusion c. Wolfe's law of transformation of bone d. Trajectories of forces Clinical Application of Growth and Development	2 Hours
4. Malocclusion - In General a. Concept of normal occlusion	3 Hours

<ul style="list-style-type: none"> b. Definition of malocclusion c. Description of different types of Dental, skeletal and functional malocclusion <p>Classification of Malocclusion Principle, description, advantages and disadvantages of classification of malocclusion by Angle and modification, Simon, Lischer and Ackerman and Proffit.</p>	
5. Normal and Abnormal Function of Stomatognathic System	1 Hour
6. Aetiology of Malocclusion <ul style="list-style-type: none"> a. Definition, importance, classification, local & general aetiological factors b. Etiology of following different types of malocclusion <ul style="list-style-type: none"> i. Midline diastema ii. Spacing iii. Crowding iv. Cross-Bite: Anterior / Posterior v. Class III Malocclusion vi. Class II Malocclusion vii. Deep Bite viii. Open Bite 	3 Hours
7. Diagnosis and Diagnostic Aids <ul style="list-style-type: none"> 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 and disadvantages <ul style="list-style-type: none"> i. Definition ii. Description and use of cephalostat iii. Description and uses of anatomical landmarks lines and angles used in cephalometric and analysis iv. Analysis - Steiner's, Down's, Tweed's, Ricket's E-line g. Electromyography and its use in orthodontics h. Wrist X-rays and its importance in orthodontics 	4 Hours

CLINICALS AND PRATICALS IN ORTHODONTICS DURING III B.D.S - 70 Hours

PRATICAL TRAINING DURING III B.D.S

1. Basic wire bending exercises Gauge 22 or 0.7mm
 - a. Straightening of wires (4 Nos)
 - b. Bending of equilateral triangle
 - c. Bending of a rectangle
 - d. Bending of a square
 - e. Bending of a circle

- f. Bending of U.V.
2. Construction of Clasps (upper / lower) Gauge 22 or 0.7mm
 - a. $\frac{3}{4}$ clasp (C-Clasp)
 - b. Full clasp (Jackson's Crib)
 - c. Adam's Clasp
 - d. Triangular Clasp
3. Construction of Springs (On upper both sides) Gauge 24 or 0.5mm
 - a. Finger Spring
 - b. Single Cantilever Spring
 - c. Double Cantilever Spring (Z-Spring)
 - d. T-Springs on premolars
4. Construction of Canine retractors Gauge 23 or 0.6mm
 - e. U-loop canine retractor (Upper and lower)
 - f. Helical canine retractor (Upper and lower)
 - g. Buccal canine retractor: - Self supported Buccal canine retractor with
 - i. Sleeve - 5mm wire of 24 Gauge
 - ii. Sleeve - 19 Gauge needle on any one side
 - h. Palatal canine retractor on upper both sides - Gauge 23 or 0.6mm
5. Labial Bow
 - i. Gauge 22 or 0.7mm
 - j. One on both upper and lower

CLINICAL TRAINING DURING III B.D.S

1. Making upper Alginate impression
2. Making lower Alginate impression
3. Study model preparation
4. 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
 - f. Hakhoba's Analysis

I BDS PEDIATRIC AND PREVENTIVE DENTISTRY

Learning hours: Theory: 65 Hours,
Pedodontics and Preventive Dentistry Lectures

Practicals/Clinics: 200 Hours

Workshop: 70 Hours

Simulation: 130 Hours

Self-learning: 20 Hours

Assessment: 45 Hours

EARLY CHILDHOOD PEDODONTICS AND PREVENTIVE DENTISTRY: 20 HOURS

<ul style="list-style-type: none"> Introduction to Pediatric and Preventive Dentistry <ul style="list-style-type: none"> Definition, Scope, Objectives and Importance 	1 hours
<ul style="list-style-type: none"> Growth and Development (will be covered by department of orthodontics also) <ul style="list-style-type: none"> Importance of study of growth and development in Pedodontics Prenatal and postnatal factors in growth and development Theories of growth and development Methods to measure growth Development of maxilla and mandible and age related changes 	2 hours
<ul style="list-style-type: none"> Development of Occlusion from birth to adolescence <ul style="list-style-type: none"> Mouth of neonate, gumpads Primary dentition period Mixed dentition period Establishment of occlusion Study of variations and abnormalities 	2 hours
<ul style="list-style-type: none"> Dental Anatomy and Histology <ul style="list-style-type: none"> Chronology of eruption of teeth Differences between primary and permanent teeth Eruption disorders and their management including teething, ectopic eruption, ankylosis Importance of first permanent molar 	2 hours
<ul style="list-style-type: none"> Dental Caries <ul style="list-style-type: none"> Diagnostic procedures and caries detection Caries pattern in primary, young permanent and permanent teeth Early childhood caries, rampant caries-definition, classification, etiology, pathogenesis, clinical features, complications and management 	3 hours

- Role of diet and
- Diet counselling
- Caries activity application

6. Dental materials (revision)

7. Case history recording
- Principles of history taking and treatment planning

8. Pediatric operative dentistry
- Principles of operative dentistry
- Isolation-importance of rubber dam
- Modifications in restorative techniques for primary and young permanent teeth
- Atraumatic/Alternative restorative techniques
- Other methods of caries removal
- Restoration of carious teeth using various restorative materials (silver amalgam, composite, etc.)
- Preformed crowns

9. Gingival and periodontal health
- Normal gingival anatomy and physiology
- Definition, Classification of gingivitis and periodontitis
- Aetiology, pathogenesis and clinical conditions seen in gingivitis and periodontitis

10. Dental radiology as related to pediatric dentistry

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	
6. 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 - use 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	2 Hours
7. Removable Orthodontic Appliance a. Components of removable appliances b. Different type of clasps and their use c. Different type of labial bows and their use d. Different types of springs and their use e. Expansion appliances in orthodontics i. Principles ii. Indication for arch expansion iii. Description of expansion appliances and different types of expansion devices and their uses iv. Rapid maxillary expansion	2 Hours
8. Fixed Orthodontic Appliances a. Definition, Indication and Contraindications b. Component parts and their uses c. Basic principles of different techniques: Edgewise, Begg straight wire	2 Hours
9. Extraoral Appliances a. Headgears b. Chincup c. Reverse pull headgears	1 Hour
10. Myofunctional Appliances a. Definition and principles b. Muscle exercises and their uses in orthodontics c. Functional appliances: i. Activator, Oral Screens, Frankels function regulator, bionator twin blocks, lip bumper ii. Inclined planes - upper and lower	3 Hours
11. Orthodontic Management of Cleft Lip and Palate	2 Hours
12. Principles of Surgical Orthodontics a. Maxillary Prognathism and Retrognathism b. Mandibular Prognathism and Retrognathism	2 Hours

c. Anterior open bite and deep bite d. Cross bite	
13. Principle, Differential Diagnosis and Methods of Treatment of: a. Midline diastema b. Cross bite c. Open bite d. Deep bite e. Spacing f. Crowding g. Class II - Division 1, Division 2 h. Class III - Malocclusion - True and Pseudo Class III	3 Hours
14. Retention and Relapse Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention	2 Hours
15. Ethics	1 Hour
16. Genetic in Orthodontics	1 Hour
17. Computers in Orthodontics	1 Hour
18. Adult Orthodontics in brief	1 Hour

CLINICALS AND PRATICALS IN ORTHODONTICS DURING IV B.D.S - 130 Hours

CLINICAL TRAINING DURING IV B.D.S

1. Case History Training
2. Case Discussion
3. Discussion on the given topic
4. Cephalometric tracings
 - a. Down's Analysis
 - b. Steiner's Analysis
 - c. Tweed's Analysis

PRATICAL TRAINING DURING IV 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
5. Appliance Construction in Acrylic
 - a. Upper and lower Hawley's Appliance
 - b. Upper Hawley's with Anterior bite plane
 - c. Upper Habit breaking Appliance

- d. Upper Hawley's with Posterior bite plane with 'Z' spring
- e. Lower inclined plane / Catalan's Appliance
- f. Upper Expansion plate with Expansion Screw
- g. Construction of Activator

RECOMMENDED AND REFERENCE BOOKS

1. Contemporary Orthodontics - William R Proffit
2. Orthodontics for Dental Students - White and Gradiner
3. Handbook for Dental Students - Movers
4. Orthodontics - Principles and Practice - Graber
5. Design, Construction and Use of Removable Orthodontic Appliances - C. Philip Adams
6. Clinical Orthodontics: Vol 1 & 2 - Salzmann
7. Orthodontics - Graber and Swine

SCHEME OF EXAMINATION OF B.D.S (ORTHODONTICS)

Total Theory Marks - 100 Marks

Theory Written Examination -	70 Marks
Vivavoce -	20 Marks
Internal Assessment -	10 Marks
Total	100 Marks

Theory Written Examination- 70 Marks

Type of Questions	Marks	Total
Long Essays - 2	2 x 10	20
Short Essays - 8	8 x 5	40
Short Answers - 5	5 x 2	10
Total		70

Clinical Examination - 100 Marks

University Clinical Examination	90 Marks
Internal Assessment -	10 Marks
Total	100 Marks

University Clinical Examination - 90 Marks

Clinical Work	Marks	Total
Spotters - 10 Nos	10 x 3	30
Wire Bending - 3 Exercises	15 Marks	40
a. Labial Bow -	15 Marks	
b. Adams Clasp	10 Marks	
c. Fingers Spring / Z Spring		
Clinical Case Discussion		20
Total		90

IV BDS PEDIATRIC AND PREVENTIVE DENTISTRY

Lectures
Theory
IV Year: 45 Hours

Practicals/Clinics:
IV Year: 130 Hours

IV YEAR PEDODONTICS AND PREVENTIVE DENTISTRY: 45 HOURS

Sl. No.	Subjects	Hours
1.	Child Psychology Definition Importance of understanding child psychology in pedodontics Theories Psychological development from birth through adolescence Dental fear, anxiety and their management, types of cry Application of psychology principles in dental management Psychological disorders including anorexia, bulimia Child Abuse and Neglect	4 hours
2.	Behaviour Management Definition Classification and types of behaviour Factors influencing child behaviour Non-pharmacological management of behaviour Pharmacological management of behaviour: Pharmacological principles in pediatric dentistry-drug dosage formulae Analgesics, anti inflammatory and antibiotics commonly prescribed for children Conscious sedation including nitrous oxide-oxygen inhalation anaesthesia	5 hours
3.	Fluorides Historical background Systemic fluorides-availability, agents, concentrations, advantages and disadvantages Topical fluorides-agents, composition, methods of application both for professional and home use, advantages and disadvantages Mechanism of action and its anti cariogenic effect Fluoride toxicity and its management De fluoridation techniques	4 hours

4. Pediatric Endodontics Principles and diagnosis Classification of pulp pathology Management of pulpally involved primary, young permanent and permanent teeth including materials used and techniques followed Pulp capping Pulpotomy Pulpectomy Apexogenesis Apexification	4 hours
5. Traumatic injuries to teeth Definition Classification Etiology and incidence Management of trauma to primary teeth Sequelae and reaction following trauma to primary teeth Management of trauma to young permanent teeth Prevention of trauma: mouth protectors	5 hours
6. Preventive and Interceptive Orthodontics Definitions Problems seen during primary and mixed dentition periods and their management Mixed dentition analysis Serial extraction Space management	4 hours
7. Oral Habits in children Definition, classification and aetiology of all habits Clinical features of deleterious oral habits including non-nutritive sucking, mouth breathing, non functional grinding, masochistic and occupational habits Management of oral habits in children	4 hours
8. Dental management of children with special needs Definition, classification, aetiology, clinical features, special considerations in the dental management of: Physically handicapping conditions Mentally handicapping conditions Medically compromising conditions Genetic disorders and importance of genetic counselling	5 hours
9. Oral surgical procedures in children Indications and contra indications for extraction Minor surgical procedures in children Knowledge of local and general anaesthesia	2 hours
10. Preventive dentistry Definition, principles and scope	3 hours

Levels and types of prevention Preventive measures: Minimal Intervention Pit and fissure sealants Preventive resin restorations (PRR, CARR) Newer agents available for caries prevention and re mineralization Caries vaccine	
11. Nanodentistry- introduction, principles and technique -an outline	1 hour
12. Dental health education and school dental health programmes	1 hour
13. Importance of Dental Home	1 hour
14. Dental emergencies in children and their management	1 hour
15. Setting up of Paediatric dental practice including ethics	1 hour

PRACTICALS / CLINICS

1. Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of orofacial region. Training is also imparted in management whenever possible.
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 prescribed work:

Pre-clinical (III Year)

Drawing of individual primary teeth morphology
Preparation of various cavity designs on typhodont teeth and extracted primary and permanent teeth
Fabrication of habit breaking appliances
Clinical exercises (IV Year)
Case History Recording and Treatment Planning
Communication and Management of child patient
Preventive measures - oral prophylaxis, topical fluoride application
Restoration of carious teeth using different materials
Extraction of primary teeth