3.	Identification of nonprotein nitrogen substance	4
4.	Normal constituents of urine	4
5.	Abnormal constituents of urine	4
6.	Analysis of saliva including amylase	2
7.	Analysis of milk Quantitative estimations	2
8.	Titrable acidity and ammonia in urine	2
9.	Free and total acidity in gastric juice	2
10.	Blood glucose estimation	2
11.	Serum total protein estimation	2
12.	Urine creatinine estimation Demonstration	2
13.	Paper electrophoresis charts/clinical data evaluation	2
14.	Glucose tolerance test profiles	2
15.	Serum lipid profiles	1
16.	Profiles of hypothyrodisim and hyperthyrodisim	1
17.	Profiles of hyper and hypoparathyrodism	1
18.	Profiles of liver function	1
19.	Urea, uric acid creatinine profile in kidney disorders	1
20.	Blood gas profile in acidosis/ alkalosis	1

RECOMMEDED BOOKS:

1. Concise text book of Biochemistry (3rd edition) 2001, T.N. Pattabiraman
2. Nutritional Biochemistry 1995, S. Ramakrishnan and S.V. Rao
3. lecture notes in Biochemistry 1984, J.K. Kandlish

Reference books:

1. Text book of Biochemistry with clinical correlations 1997, T.N. Devlin
2. Harper's Biochemistry, 1996., R.K. Murray et.al
3. Basic and applied Dental Biochemistry, 1979, R.A.D. Williams & J.C.Elliot

3. DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY

INTRODUCTION

Dental Anatomy including Embryology and Oral Histology – a composite of basic Dental Sciences & their clinical applications.

SKILLS

The student should acquire basic skills in :

1. Carving of crowns of permanent teeth in wax.
2. Microscopic study of Oral tissues.
3. Identification of Deciduous & Permanent teeth.
4. Age estimation by patterns of teeth eruption from plaster casts of different age groups.

OBJECTIVES

After a course on Dental Anatomy including Embryology and Oral Histology,

1. The student is expected to appreciate the normal development, morphology, structure & functions of oral tissues & variations in different pathological/non-pathological states.
2. The student should understand the histological basis of various dental treatment procedures and physiologic ageing process in the dental tissues.
3. The students must know the basic knowledge of various research methodologies.

I. TOOTH MORPHOLOGY

1. Introduction to tooth morphology:

♦ Human dentition, types of teeth, & functions, Palmer's & Binomial notation systems, tooth surfaces, their junctions - line angles & point angles, definition of terms used in dental morphology, geometric concepts in tooth morphology, contact areas & embrasures - Clinical significance.

2. Morphology of permanent teeth :

• Description of individual teeth, along with their endodontic anatomy & including a note on their chronology of development, differences between similar class of teeth & identification of individual teeth.
• Variations & Anomalies commonly seen in individual teeth.

3. Morphology of Deciduous teeth :

♦ Generalized differences between Deciduous & Permanent teeth.
♦ Description of individual deciduous teeth, including their chronology of development, endodontic anatomy, differences between similar class of teeth & identification of individual teeth.

4. Occlusion :

♦ Definition, factors influencing occlusion - basal bone, arch, individual teeth, external & internal forces & sequence of eruption.
♦ Inclination of individual teeth - compensatory curves.
♦ Centric relation & Centric occlusion - protrusive, retrusive & lateral occlusion.
♦ Clinical significance of normal occlusion.
♦ Introduction to & Classification of Malocclusion.

II. ORAL EMBRYOLOGY

1. Brief review of development of face, jaws, lip, palate & tongue, with applied aspects.
2. Development of teeth :

- Epithelial mesenchymal interaction, detailed study of different stages of development of crown, root & supporting tissues of tooth & detailed study of formation of calcified tissues.
- Applied aspects of disorders in development of teeth.

3. Eruption of deciduous & Permanent teeth :

- Mechanisms in tooth eruption, different theories & histology of eruption, formation of dentogingival junction, role of gubernacular cord in eruption of permanent teeth.
- Clinical or Applied aspects of disorders of eruption.

4. Shedding of teeth :

- Factors & mechanisms of shedding of deciduous teeth.
- Complications of shedding.

III. ORAL HISTOLOGY

1. Detailed microscopic study of Enamel, Dentine, Cementum & Pulp tissue. Age changes & Applied aspects (Clinical and forensic significance) of histological considerations - Fluoride applications, transparent dentine, dentine hypersensitivity, reaction of pulp tissue to varying insults to exposed dentine ; Pulp calcifications & Hypercementosis.
2. Detailed microscopic study of Periodontal ligament & alveolar bone, age changes, histological changes in periodontal ligament & bone in normal & orthodontic tooth movement, applied aspects of alveolar bone resorption.
3. Detailed microscopic study of Oral Mucosa, variation in structure in relation to functional requirements, mechanisms of keratinization, clinical parts of gingiva, Dentogingival & Mucocutaneous junctions & lingual papillae. Age changes & clinical considerations.
4. Salivary Glands :

- Detailed microscopic study of acini & ductal system.
- Age changes& clinical considerations.

5. TM Joint :

- Review of basic anatomical aspects & microscopiuc study & clinical considerations.

6. Maxillary Sinus :

- Microscopic study, anatomical variations, functions & clinical relevance of maxillary sinus in dental practice.

7. Processing of Hard & soft tissues for microscopic study :

- Ground sections, decalcified sections & routine staining procedures.

8. Basic histochemical staining patterns of oral tissues.

IV. ORAL PHYSIOLOGY

1. Saliva :

- Composition of saliva - variations, formation of saliva & mechanisms of secretion, salivary reflexes, brief review of secretomotor pathway, functions, role of saliva in dental caries & applied aspects of hyper & hypo salivation.

2. Mastication :

- Masticatory force & its measurement - need for mastication, peculiarities of masticatory muscles, masticatory cycle, masticatory reflexes & neural control of mastication.

3. Deglutition :

- Review of the steps in deglutition, swallowing in infants, neural control of deglutition & dysphagia.

4. Calcium, Phosphorous & fluoride metabolism :

- Source, requirements, absorption, distribution, functions & excretion, clinical considerations, hypo & hypercalcemia & hyper & hypo phosphatemia & fluorosis.

5. Theories of Mineralization :

- Definition, mechanisms, theories & their drawbacks.
- Applied aspects of physiology of mineralization, pathological considerations - calculus formation.

6. Physiology of Taste :

- Innervation of taste buds & taste pathway, physiologic basis of taste sensation, age changes & applied aspects - taste disorders.

7. Physiology of Speech :

- Review of basic anatomy of larynx & vocal cords.
- Voice production, resonators, production of vowels & different consonants - Role of palate, teeth & tongue.
- Effects of dental prosthesis & appliances on speech & basic speech disorders.

RECOMMENDED TEXT BOOKS

1. Orban's Oral Histology & Embryology - S.N.Bhaskar
2. Oral Development & Histology - James & Avery
3. Wheeler's Dental Anatomy, Physiology & Occlusion - Major.M.Ash
4. Dental Anatomy - its relevance to dentistry - Woelfel & Scheid
5. Applied Physiology of the mouth - Lavelle
6. Physiology & Biochemistry of the mouth - Jenkins