UBD17BCT102	GENERAL HUMAN PHYSIOLOGY AND BIOCHEMISTRY

A) GOAL

The broad goal of teaching undergraduates students Human Physiology is to provide the student Comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the physiological basis of health and disease.

OBJECTIVES

a) KNOWLEDGE

At the end of the course, the student will be able to:

1. Explain the normal functioning of all organ systems and their interactions for well co-ordinated total body function.
2. Assess the relative contribution of each organ system towards the maintenance of the milieu interior.
3. List the physiological principles underlying the pathogenesis and treatment of disease.

b) SKILLS

At the end of the course, the student shall be able to:

1. Conduct experiments designed for the study of physiological phenomena.
2. Interpret experimental and investigative data
3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

c) INTEGRATION

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

2. HUMAN PHYSIOLOGY

SYLLABUS

1. GENERAL PHYSIOLOGY

1. **Homeostasis:** Basic concept, feedback mechanisms
2. Structure of cell membrane, transport across cell membrane
3. Membrane potentials

2. BLOOD

Composition & functions of blood.
Specific gravity, Packed cell volume, factors affecting & methods of determination. Plasma proteins – Types, concentration, functions & variations.
Erythrocyte – Morphology, functions & variations. Erythropoiesis & factors affecting erythropoiesis. ESR – Methods of estimation, factors affecting, variations & significance.
Haemoglobin – Normal concentration, method of determination & variation in concentration. Blood indices – MCV, MCH, MCHC – definition, normal values, variation.
Anaemia – Definition, classification, life span of RBC's destruction of RBC's, formation & fate of bile pigments, Jaundice – types.
Leucocytes: Classification, number, percentage, distribution morphology, properties, functions & variation. Role of lymphocytes in immunity, leucopoiesis life span & fate of leucocytes.
Thromobocytes – Morphology, number, variations, function & thrombopoiesis.
Haemostatsis – Role of vasoconstriction, platelet plug formation in haemostasis, coagulation factors, intrinsic & extrinsic pathways of coagulation, clot retraction.
Tests of haemostatic function, platelet count, clotting time, bleeding time, prothrombin time – normal values, method & variations. Anticoagulants – mechanism of action. Bleeding disorders.
Blood groups: ABO & Rh system, method of determination, importance, indications & dangers of blood transfusion, blood substitutes.
Blood volume: Normal values, variations.
Body fluids: distribution of total body water, intracellular & extracellular compartments, major anions & cations in intra and extra cellular fluid.
Tissue fluids & lymph: Formation of tissue fluid, composition, circulation & functions of lymph. Oedema
– causes.
Functions of reticulo endotrelial system.

3. MUSCLE AND NERVE

Classification of nerves, structure of skeletal muscle – Molecular mechanism of muscle contraction, neuromuscular transmission. Properties of skeletal muscle. Structure and properties of cardiac muscle & smooth muscle.

4. DIGESTIVE SYSTEM

Introduction to digestion: General structure of G.I. tract, Innervation.
Salivary glands: Structure of salivary glands, composition, regulation of secretion & functions of saliva **Stomach**: Composition and functions of gastric juice, mechanism and regulation of gastric secretion. **Exocrine Pancreas** – Structure, Composition of pancreatic juice, functions of each component, regulation of pancreatic secretion.

Liver: structure, composition of bile, functions of bile, regulation of secretion –

Gall bladder: structure, functions.
Small intestine – Composition, functions & regulation of secretion of intestinal juice.
Large intestine – Functions.
Motor functions of GIT: Mastication, deglutition, gastric filling & emptying, movement of small and large intestine, defecation.

5. EXCRETORY SYSTEM:
Structure & functions of kidney, functional unit of kidney & functions of different parts. Juxta glomerular apparatus, renal blood flow.
Formation of Urine: Glomerular filteration rate – definition, determination, normal values, factors influencing G.F.R. Tubular reabsorption – Reabsortion of sodium, glucose, water & other substances. Tubular secretion – secretion of urea, hydrogen and other substances. Mechanism of concentration & dilution of urine. Role of kidney in the regulation of pH of the blood.
Micturition: anatomy & innervations of Urinary bladder, mechanism of miturition & abnormalities.

6. BODY TEMPERATURE & FUNCTIONS OF SKIN

7. ENDOCRINOLOGY
General endocrinology – Enumeration of endocrine glands & hormones – General functions of endocrine system, chemistry, mechanism of secretion, transport, metabolism, regulation of secretion of hormones. Hormones of anterior pituitary & their actions, hypothamic regulation of anterior pituitary function.
Disorders of secretion of anterior pituitary hormones.
Posterior pituitary: Functions, regulation & disorders of secretion.
Thyroid: Histology, synthesis, secretion & transport of hormones, actions, of hormones, regulation of secretion & disorders, Thyroid function tests.
Adrenal cortex & Medulla – synthesis, secretion, action, metabolism, regulation of secretion of hormones & disorders.
Other hormones – Angiotensin, A.N.F.

8. REPRODUCTION
Sex differentiation, Physiological anatomy of male and female sex organs, Female reproductive system: Menstrual cycle, functions of ovary, actions of oestrogen & Progesterone, control of secretion of ovarian hormones, tests for ovulation, fertilization, implantation, maternal changes during pregnancy, pregnancy tests & parturition.
Lactation, composition of milk, factors controlling lactation, milk ejection, reflex, Male reproductive system: spermatogenesis, semen and contraception.

9. CARDIO VASCULAR SYSTEM
Functional anatomy and innervations of heart Properties of cardiac muscle Origin & propagation of cardiac impulse and heart block.
Electrocardiogram – Normal electrocardiogram. Two changes in ECG in myocardinal infarction. Cardiac cycle – Phases, Pressure changes in atria, ventricles & aorta. Volume changes in ventricles. Jugular venous pulse, arterial pulse
Heart sounds: Mention of murmurs.
Heart rate: Normal value, variation & regulation.
Cardiac output: Definition, normal values, one method of determination, variation, factors affecting heart rate and stroke volume.

Arterial blood pressure: Definition, normal values & variations, determinants, regulation & measurement of blood pressure.
Coronary circulation.
Cardio vascular homeostasis – Exercise & posture.

10. RESPIRATORY SYSTEM

Physiology of Respiration: External & internal respiration. Functional anatomy of respiratory passage & lungs.
Respiratory movements: Muscles of respiration, Mechanism of inflation & deflation of lungs. Intra pleural & intra pulmonary pressures & their changes during the phases of respiration.
Mechanics of breathing – surfactant, compliance & work of breathing.
Spirometry: Lung volumes & capacities definition, normal values, significance, factors affecting vital capacity, variations in vital capacity, FEV & its variations.
Pulmonary ventilation – alveolar ventilation & dead space – ventilation. Composition of inspired air, alveolar air and expired air.
Exchange of gases: Diffusing capacity, factors affecting it. Transport of Oxygen & carbon dioxide in the blood.
Regulation of respiration – neural & chemical. Hypoxia, cyanosis, dyspnoea, periodic breathing. Artificial respiration, pulmonary function tests.

11. CENTRAL NERVOUS SYSTEM

1. Organisation of central nervous system
2. Neuronal organization at spinal cord level
3. Synapse receptors, reflexes, sensations and tracts
4. Physiology of pain
5. Functions of cerebellum, thalamus, hypothalamus and cerebral cortex
6. Formation and functions of CSF
7. Autonomic nervous system

12. SPECIAL SENSES

Fundamental knowledge of vision, hearing, taste and smell.

PRACTICALS

The following list of practical is minimum and essential. All the practical have been categorized as procedures and demonstrations. The procedures are to be performed by the students during practical classes to acquire skills. All the procedures are to be included in the University practical examination. Those categorised as demonstrations are to be shown to the students during practical classes. However these demonstrations would not be included in the University examinations but question based on this would be given in the form of charts, graphs and calculations for interpretation by the students.

PROCEDURES

1. Enumeration of Red Blood Cells
2. Enumeration of White Blood Cells
3. Differential leucocyte counts
4. Determination of Haemoglobin
5. Determination of blood group
6. Determination of bleeding time and clotting time
7. Examination of pulse
8. Recording of blood pressure.

DEMONSTRATION:

1. Determination of packed cell volume and erythrocyte sedimentation rate
2. Determination of specific gravity of blood
3. Determination of erythrocyte fragility
4. Determination of vital capacity and timed vital capacity
5. Skeletal muscle experiments.
   Study of laboratory appliances in experimental physiology. Frog's gastrocneminus sciatic preparation. Simple muscle curve, effects of two successive stimuli, effects of increasing strength of stimuli, effects of temperature, genesis of fatigue and tetanus. Effect of after load and free load on muscle contraction, calculation of work done.
6. **Electrocardiography**: Demonstration of recording of normal Electro cardiogram
7. Clinical examination of cardiovascular and respiratory system.

UNIVERSITY PRACTICALS EXAM
– I BDS HUMAN PHYSIOLOGY
MARKS MAX.-50

S. No.	Procedures	Marks	Total
1.	Major Practicals WBC Counting, Recording of BP	1x25	25
2.	Minor Practicals Blood Grouping BT, CT, Estimation of Hb	1x15	15
3.	Practical Viva		5
	Internal Assessment		5
			50

TEXT BOOKS

Guyton; Text book of Physiology, 9th edition.
Ganong; Review of Medical Physiology, 19th edition Vander; Human physiology, 5th edition
Choudhari; Concise Medical Physiology, 2nd edition Chaterjee; Human Physiology, 10th edition
A.K. Jain; Human Physiology for BDS students, 1st edition

BOOKS FOR REFERENCE:

i) Berne & Levey; Physiology, 2nd edition

ii) West-Best & Taylor's, Physiological basis of Medical Practise, 11th edition

EXPERIMENTAL PHYSIOLOGY:

i) Rannade; Practical Physiology, 4th edition

ii) Ghai; a text book of practical physiology

iii) Hutchison's; Clinical Methods, 20th edition

BIOCHEMISTRY

AIMS AND SCOPE OF THE COURSE IN BIOCHEMISTRY

The major aim is to provide a sound but crisp knowledge on the biochemical basis of the life processes relevant to the human system and to dental/medical practice. The contents should be organised to build on the already existing information available to the students in the pre-university stage and reorienting. A mere rehash should be avoided.

The chemistry portion should strive towards providing information on the functional groups, hydrophobic and hydrophilic moieties and weak valence forces that organise macromolecules. Details on structure need not be emphasised.

Discussion on metabolic processes should put emphasis on the overall change, interdependence and molecular turnover. While details of the steps may be given, the student should not be expected to memorise them. An introduction to biochemical genetics and molecular biology is a must but details should be avoided. The exposure to anti-vitamins, anti-metabolites and enzyme inhibitors at this stage, will provide a basis for the future study of medical subjects. An overview of metabolic regulation is to be taught by covering hormonal action, second messengers and regulation of enzyme activities. Medical aspects of biochemistry should avoid describing innumerable functional tests, most of which are not in vogue. Cataloguing genetic disorders under each head of metabolism is unnecessary. A few examples which correlate genotype change to functional changes should be adequate.

At the end of the course the student would be able to acquire a useful core of information, which can be retained for a long time. Typical acid tests can be used to determine what is to be taught or what is to be learnt. A few examples are given below.

1. Need not know the structure of cholesterol. Should know why it cannot be carried free in plasma.
2. Mutarotation should not be taught. Student should know why amylase will not hydrolyse cellulose.
3. Need not know the details of alpha – helix and beta – pleats in proteins. Should know why haemoglobin is globular and keratin is fibrous.
4. Need not know mechanism of oxidative phosphorylation. Should know more than 90% of ATP is formed by this process.
5. Need not know details of the conversion of pepsinogen to pepsin. Should know hydrochloric acid cannot break a peptide bond at room temperature.
6. Need not remember the steps of glycogenesis. Should know that excess intake of carbohydrate will not increase glycogen level in liver or muscle.
7. Need not know about urea or cretinine clearance tests. Should know the basis of increase of urea and creatinine in blood in renal insufficiency.
8. Need not know the structure of insulin. Should know why insulin level in circulation is normal in most cases of maturity onset diabetes.
9. Need not know the structural details of ATP. Should know why about 10g of ATP in the body at any given time meets all the energy needs.
10. Need not know the mechanism of action of prolylhydroxylase. Should know why the gum bleeds in scurvy.
11. Need not know the structure of Vitamin K. Should know the basis of internal bleeding arising due to its deficiency.

12. Need not remember the structure of HMGCoA. Should know why it does not lead to increased cholesterol synthesis in starvation.

BIOCHEMISTRY AND NUTRITION SYLLABUS

1. CHEMISTRY OF BIOORGANIC MOLECULES

Carbohydrates: Definition, biological importance and classification. Monosaccharide's – Isomerism, anomerism. Sugar derivatives, Disaccharides, Polysaccharides, Structures of starch and glycogen. **Lipids**: Definition, biological importance and classification. Fats and fatty acids. Introduction to compound lipids. Hydrophobic and hydrophilic groups. Cholesterol. Bile salts. Micelle. Bimolecular leaflet.
Proteins: Biological importance.
Aminoacids: Classification. Introduction to peptides.
Proteins: Simple and conjugated; globular and fibrous. Charge properties. Buffer action Introduction to protein conformation. Denaturation.
Nucleic acids: Building units. Nucleotides. Outline structure of DNA and RNA.
High energy compounds: ATP, Phosphorylamidines, Thiolesters, Enol phosphates.

2. MACRONUTERIENTS AND DIGESTION

Energy needs: Basal metabolic rate. Dietary carbohydrates, fibres. Dietary lipids, essential fatty acids. Nitrogen balance. Essential amino acids. Protein quality and requirement (methods for evaluation of protein quality to be excluded). Protein calorie malnutrition. Balanced diet.
Enzymatic hydrolysis of dietary carbohydrates. Mechanism of uptake of monosaccharides. Digestion and absorption of triacylglycerols. Enzymatic hydrolysis of dietary proteins and uptake of amino acids.

3. MICRONUTRIENTS

Vitamins: Definition, classification, daily requirement, sources and deficiency symptoms. Brief account of water-soluble vitamins with biochemical functions. Vitamins A functions including visual process.
Vitamin D and its role in calcium metabolism. Vitamin E. Vitamin K and gamma carboxylation. Introduction to antivitamins and hypervitaminosis.
Minerals: Classification, daily requirement.
Calcium and phosphate: sources, uptake, excretion, function. Serum calcium regulation.
Iron: sources, uptake and transport.
Heme and nonheme iron functions; deficiency.
Iodine: Brief introduction to thyroxine synthesis. General functions of thyroxine.
Fluoride: function, deficiency and excess. Indications of role of other minerals.

4. ENERGY METABOLISM

Overview: Outlines of glycolysis, pyruvate oxidation and citric acid cycle. Beta oxidation of fatty acids. Electron transport chain and oxidative phosphyorylation. Ketone body formation and utilisation.
Introduction to glycogenesis, glycogenolysis, fatty acid synthesis, lipogenesis and lipolysis. Gluconeogenesis. Lactate metabolism. Protein utilisation for enery. Glucogenic and ketogenic amino acids. Integration of metabolism.

5. SPECIAL ASPECTS OF METABOLIMS

Importance of pentose phosphate pathway. Formation of glucuronic acid. Outlines of cholesterol synthesis and breakdown. Ammonia metabolism. Urea formation. Phosphocreatine formation.

Transmethylation. Amines. Introduction to other functions of amino acids including one carbon transfer. Detoxication: Typical reactions. Examples of toxic compounds. Oxygen toxicity.

6. BIOCHEMICAL GENETICS AND PROTEIN SYNTHESIS

Introduction to nucleotides; formation and degradation. DNA as genetic material. Introduction to replication and transcription. Forms and functions of RNA. Genetic code and mutation. Outline of translation process. Antimetabolites and antibiotics interfering in replication, transcription and translation. Introduction to cancer, viruses and oncogenes.

7. ENZYME AND METABOLIC REGULATION

Enzymes: Definition, classification, specificity and active site. Cofactors. Effect of pH, temperature and substrate concentration. Introduction to enzyme inhibitors, proenzymes and isoenzymes. Introduction to allosteric regulation, covalent modification and regulation by induction/repression.

Overview of hormones. Introduction to second messengers, cyclic AMP, calcium ion, inositol triphosphate. Mechanism of action of steroid hormones, epinephrine, glucagon and insulin in brief. Acid base regulation. Electrolyte balance.

8. STRUCTURAL COMPONENTS AND BLOOD PROTEINS

Connective tissue: Collagen and elastin. Glycosaminoglycans. Bone structure. Structure of membranes. Membrane associated processes in brief. Exocytosis and endocytosis. Introduction to cytoskeleton.

Myofibril and muscle contraction in brief.

Haemoglobin: functions. Introduction to heme synthesis and degradation.

Plasma proteins: classification and separation. Functions of albumin. A brief account of immunoglobulins. Plasma lipoproteins: Formation, function and turnover.

9. MEDICAL BIOCHEMISTRY

Regulation of blood glucose. Diabetes mellitus and related disorders. Evaluation of glycemic status. **Hyperthyroidism and hypothyroidism**: Biochemical evaluation. Hyperlipoproteinemias and atherosclerosis, Approaches to treatment.

Jaundice: Classification and evaluation.

Liver function tests: Plasma protein pattern, serum enzymes levels. Brief introduction to kidney function tests and gastric function tests. Acid base imbalance.

Electrolyte imbalance: evaluation. Gout. Examples of genetic disorders including lysosomal storage disorders, glycogen storage disorders, glucose 6- phosphate dehydrogenase deficiency, hemoglobinopathies, inborn errors of amino acid metabolism and muscular dystrophy (one or two examples with biochemical basis will be adequate). Serum enzymes in diagnosis.

PRACTICALS: Contact hours 50

1.	Qualitative analysis of carbohydrates	4
2.	Colour reactions of proteins and amino acids	4
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 hyperthyroidisim	1
17.	Profiles of hyper and hypoparathyroidism	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

UNIVERSITY PRACTICALS EXAM – I
BDS BIOCHEMISTRY
MARKS MAX.-50

S. No.	Procedures	Marks	Total
1.	Qualitative Analysis	1x20	20
2.	Quantitative Estimation	1x20	20
3.	Spotters	5x1	5
	Internal Assessment		5
			50

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

UBD17COCT426	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. Diagnose and treat simple restorative work for teeth.
ii. Gain knowledge about aesthetic restorative material and to translate the same to patients needs.
iii. Gain the knowledge about endodontic treatment on the basis of scientific foundation.
iv. Carry out simple endodontic treatment.
v. Carry out simple luexation of tooth and its treatment and to provide emergency endodontic treatment.

SKILLS:

He/she should attain the following skills necessary for practice of dentistry

i. Use medium and high speed hand – pieces to carry out restorative work.
ii. Use and be familiar with endodontic instruments and materials needed for carrying out simple endodontic treatment.
iii. Translate patients aesthetic 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 knowledge and professional skill from time to time
iii. Help and participate in the implementation of the national oral health policy.
iv. He/she 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 maintain the restorative work and prevent future damage.

CONSERVATIVE DENTISTRY AND ENDODONTICS SYLLABUS

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 and 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 Filed:
   Light source sterilisation field of operation control of moisture, rubber dam in detail, cotton rolls and anti sialogagues.
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 inomer 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 cohensive 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 procedures 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 and 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 of 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 Bevels used for Cast Restoration.
23. Control of Pain During Operative Procedures.
24. Treatment Planning for Operative Dentistry Detailed Clinical and 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 on the following materials, Dental cements, Zinc oxide euginol 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. Noble & non – noble metal alloys
    6. Investment and die materials
    7. Inlay casting waxes
    8. Dental porcelain
    9. Aesthetic Dentistry

    Undergraduate students should have an understanding of the philosophy and scientific knowledge of esthetic dentistry.
    1. Introduction and scope of esthetic dentistry.
    2. Anatomy and Physiology of smile.
    3. Role of colour in esthetic dentistry.
    4. Simple procedures [roundening of central incisors to enhance esthetic appearance]
    5. Bleaching of teeth.
    6. Veneers with various materials.
    7. Preventive and interceptive esthetics.
    8. Ceramics.
    9. Simple gingiveal contouring to enhance appesrance.
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 phoenix 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. Apexogenisis 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, standardization, colour – 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 gross mans paste, mummifying agents. Outline 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 endodontc 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 and contraindications, pre operative preparation. Pre medication surgical instruments and techniques apicectomy, retrograde filling, post operative sequale trephination hemisection, radisectomy techniques of tooth reimplantaion (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

PRACTICAL:

Exercise:

Student has to perform any one of the following procedure

1. Class II amalgam restoration
2. Class I amalgam restoration with buccal or palatal extension
3. Class I composite restoration
4. Anterior RCT

I) Practicals 90 marks

Mark distribution for Exercise 1 & 2

1. Case selection and diagnosis	-	10 marks
2. Cavity preparation	-	35 marks
3. Base and matrix band placement	-	20 marks
4. Restoration and finishing	-	25 marks
Total		90

Mark distribution for Exercise 3

1. Case selection and diagnosis	-	10 marks
2. Cavity preparation	-	35 marks
3. Acid Etching and bonding	-	20 marks
4. Restoration and finishing	-	25 marks
Total		90

Mark distribution for Exercise 4

1. Case selection and diagnosis	-	10 marks
2. Access cavity preparation	-	35 marks
3. Working length determination	-	20 marks
4. Master cone	-	25 marks
Total		90

- Competent to diagnose all carious lesions
- Competent to perform Class I and Class II cavities and their restoration with amalgam
- Restore class V and Class III cavities with glass ionomer cement
- Able to diagnose and appropriately treat pulpally involved teeth (pulp capping procedures)
- Able to perform RCT for anterior teeth
- Competent to carry out small composite restorations
- Understand the principles of aesthetic dental procedures

UBD17DACT103	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 students 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.

SYLLABUS

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:

- Generalised 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 gubemacular 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 keratinisation, clinical parts of gingiva, Dentogingival & Mucocutaneous junctions & Jingual 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 & microscopic 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 Mineralisation:

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

6. Physiology of Teste:

- 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.

UNIVERSITY PRACTICALS EXAM – I BDS
DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY MARKS MAX.–100

S. No.	Procedures	Marks	Total
1.	Slides	6x5	30
2.	Spotters	4x5	20
3.	Carving	1x40	40
	Internal Assessment		10
			100

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

UBD17DMCT209	DENTAL MATERIALS

The science of Dental Material has undergone tremendous changes over the years. Continued research has led to new material systems and changing concepts in the dental field. Interlinked with various specialised branches of chemistry. Practically all engineering applied sciences and biological characteristics, the science of dental material emerged as a basic sciences in itself with its own values and principles.

INTRODUCTI
ON AIMS:

Aim of the course is to present basic chemical and physical properties of Dental materials as they are related to its manipulation to give a sound educational background so that the practice of the dentistry emerged from art to empirical status of science as more information through further research becomes available. It is also the aim of the course of Dental materials to provide with certain criteria of selection and which will enable to discriminate between facts and propaganda with regards to claims of manufactures.

OBJECTIVES:

To understand the evolution and development of science of dental materials
To explain purpose of course in dental materials to personnel concerned with the profession of dentistry. Knowledge of physical and chemical properties. Knowledge of biomechanical requirements of particular restorative procedure. An intelligent compromise of the conflicting as well as co-ordinating factors into the desired ernest. Laying down standards or specifications of various materials to guide to manufacturers as well as to help professionals.
Search for newer and better materials which may answer our requirements with greater satisfaction. To understand and evaluate the claims made by manufacturers of dental materials.

NEED FOR THE COURSE:

The profession has to rise from an art to a science; the need for the dentist to possess adequate knowledge of materials to exercises his best through knowledge of properties of different types of materials. The growing concern of health hazards due to mercury toxicity, inhalation of certain vapour or dust materials, irritations and allergic reaction to skin due to contact of materials. Materials causing irritation of oral tissues, pH of restorative materials causing inflammation and necrosis of pulp which is a cause for the dentist to possess wider knowledge of physical, chemical and biological properties of materials being used. For the protection for the patient and his own protection certain criteria of selection are provided that will enable the dentist to discriminate between facts and propaganda, which will make a material biologically acceptable.

SCOPE:

DENTAL MATERIALS SYLLABUS

The dental materials are employed in mechanical procedures including restorative dentistry such as Prosthodontics, endodontics, periodontal, orthodontics and restorative materials. There is scarcely a dental procedure that does not make use of dental materials in one form or another and therefore the application of dental material is not limited to any one branch of dentistry. Branches such as minor surgery and periodontics require less use of materials but the physical and chemical characters of materials are important in these fields.
The toxic and tissue reaction of dental materials and their durability in the oral cavity where the temperature is between 32 & 37 degree centigrade, and the ingestion of hot or cold food ranges from 0- 70 degree centigrade. The acid and alkalinity of fluids show pH varies from 4 to 8.5. The load on 1 sq. mm of tooth or restorative materials can reach to a level as high as many kilograms. Thus the biological properties of dental materials cannot be separated from their physical and chemical properties.

2) STRUCTURE OF MATTER AND PRINCIPLES OF ADHESION.

Change of state, inter atomic primary bonds, inter atomic secondary bonds, inter atomic bond distance and bonding energy, thermal energy, crystalline structure, non crystalline structures, diffusion, adhesion and bonding and adhesion to tooth structures.

3) IMPORTANT PHYSICAL PROPERTIES APPLICABLE TO DENTAL MATERIALS

Physical properties are based on laws of mechanics, acoustics, optics, thermodynamics, electricity, magnetism, radiation, atomic structure or nuclear phenomena. Hue, value, chroma and translucency physical properties based on laws of optics, dealing with phenomena of light, vision and sight. Thermal conductivity & coefficient of thermal expansion are physical properties based on laws of thermodynamics. Stress, strain, proportional limit, elastic limit yield strength, modulus of elasticity, flexibility, resilience, impact, impact strength, permanent deformation, strength, flexure strength fatigue, static fatigue, toughness, brittleness, ductility & malleability, hardness, abrasion resistance, relaxation, rheology, Thixotropic, creep, static creep, dynamic creep, flow, colour, three dimensional colour – hue, values, chroma, Munsell system, metamersim, fluorescence, physical properties of tooth, stress during mastication

4) BIOLOGICAL CONSIDERATIONS IN USE OF DENTAL MATERIALS

Materials used are with the knowledge of appreciation of certain biological considerations for use in oral cavity. Requirement of materials with biological compatibility. Classification of materials from perspective of biological compatibility. eg. Contact with soft tissues, affecting vitality of pulp, used for root canal fillings, affecting hard tissues of teeth, laboratory materials that could accidentally be inhaled or ingested during handling. Hazards associated with materials: pH effecting pulp, polymers causing chemical irritation, mercury toxicity, etc. Microleakage, Thermal changes, Galvanism, toxic effect of materials. Biological evaluation for systemic toxicity, skin irritation, mutagenecity and carcinogenicity.
Disinfection of dental materials for infection control.

5) GYPSUM & GYPSUM PRODUCTS

Gypsum – its origin, chemical formula, Products manufactured from gypsum Dental plaster, Dental stone, Die stone, high strength, high expansion stone.

Application and manufacturing procedure of each, macroscopic and microscopic structure of each. Supplied as and Commercial names.
Chemistry of setting, setting reaction, theories of setting, gauging water, Microscopic structure of set material.
Setting time: working time and setting time, Measurement of setting time and factors controlling setting time.
Setting expansion, Hygroscopic setting expansion – factors affecting each Strength: wet strength, dry strength, factors affecting strength, tensile strength Slurry – need and use.
Care of cast.
ADA classification of gypsum products
Description of impression plaster and dental investment
Manipulation including recent methods or advanced methods. Disinfection: infection control, liquids, sprays, radiation Method of use of disinfectants
Storage of material – shelf life

6) IMPRESSION MATERIALS USED IN DENTISTRY

Impression plaster, Impression compound, Zinc oxide eugenol impression paste & bite registration paste incl., non eugenol paste, Hydrocolloids, reversible and irreversible, Elastomeric impression materials.
Polysulphide, Condensation silicones, Addition silicones, Polyether, Visible light cure polyether urethane dimethacrylate, Historical background & development of each impression material, Definition of impression, Purpose of making impression, Ideal properties required and application of material, Classification as per ADA specification, general & individual impression material.
Application and their uses in different disciplines, Marketed as and their commercial names, Mode of supply & mode of application bulk/wash impression. Composition, chemistry of setting, Control of setting time, Type of impression trays required, Adhesion to tray, manipulation, instruments & equipments required. Techniques of impression, storage of impression, (Compatibility with cast and die material). Any recent advancements in material and mixing devices. Study of properties: Working time, setting time, flow, accuracy, strength, flexibility, tear strength, dimensional stability, compatibility with cast & die materials incl., electroplating Biological properties: tissue reaction, Shelf life & storage of material, Infection control – disinfection, Advantages & disadvantages of each material.

7) SYNTHETIC RESINS USED IN DENTISTRY

Historical background and development of material, Denture base materials and their classification and requirement
Classification of resins
Dental resins – requirements of dental resins, applications, polymerisation, polymerisation mechanism stages in addition polymerisation, inhibition of polymerisation, co-polymerisation, molecular weight, crosslinking, plasticisers, Physical properties of polymers, polymer structures types of resins.

ACRYLIC RESINS:

Mode of polymerisation: Heat activated, Chemically activated, Light activated, Mode of supply, application, composition, polymerisation reaction of each. Technical considerations: Methods of manipulation for each type of resin. Physical properties of denture base resin. Miscellaneous resins & techniques: Repair resins, Relining and rebasing. Short term and long-term soft-liners, temporary crown

and bridge resins, Resin impression trays, Tray materials, Resin teeth, materials in maxillofacial prosthesis, Denture cleansers, Infection control in detail, Biological properties and allergic reactions.

RESTORATIVE RESINS:

Historical background, Resin based restorative materials, Unfilled & filled, Composite restorative materials, Mode of supply, Composition, Polymerisation mechanisms: Chemically activated, Light activated, Dual cure: Degree of conversion, Polymerisation shrinkage Classification of Composites: Application, composition and properties of each Composites of posterior teeth, Prosthodontics resins for veneering. Biocompatibility – microleakage, pulpal reaction, pulpal protection Manipulation of composites: Techniques of insertion of Chemically activated, light activated, dual cure Polymerisation, Finishing and polishing of restoration, Repair of composites Direct bonding Bonding: Need for bonding, Acid – etch technique, Enamel bonding, Dentin bonding agents. Mode of bonding, Bond strength, Sandwich technique its indication and procedure. Extended application for composites: Resins for restoring eroded teeth, Pit and fissure sealing, Resin inlay system – Indirect & direct, Core build up, Orthodontic applications.

8) METAL AND ALLOYS:

Structure and behaviour of metals, Solidification of metals, mechanism of crystallisation amorphous & crystalline. Classification of alloys, Solid solutions, Constitutes or equilibrium phase diagrams: Electric alloys, Physical properties, Peritectic alloys, Solid state reaction other binary systems: Metallography & Heat treatment. Tarnish and corrosion, Definition: causes of corrosion, protection against corrosion.
Corrosion of dental restorations, clinical significance of galvanic current. Dental Amalgam.

History:

Definition of dental amalgam, application, Alloy classification, manufacture of alloy powder composition
– available as.
Amalgamation: setting reaction & resulting structure, properties, Microleakage Dimensional stability, Strength, Creep, Clinical performance
Manipulation: Selection of alloy, proportioning, mechanism of trituration, condensation, carving & finishing. Effect of dimensional changes, Marginal deterioration. Repair of amalgam, mercury toxicity, mercury hygiene.

DIRECT FILLING GOLD:

Properties of pure gold, mode of adhesion of gold for restoration forms of direct filling gold for using as restorative material
Classification: Gold Foil, Electrolytic precipitate, powdered gold.
Manipulation: Removal of surface impurities and compaction of direct filling gold. Physical properties of compacted gold, Clinical performance.

DENTAL CASTING ALLOYS:

Historical background, desirable properties of casting alloys.
Alternatives to cast metal technology: direct filling gold, amalgam, mercury free condensable intermetallic compound – an alternative to metal casting process. CAD-CAM process for metal & ceramic in lays – without need for impression of teeth or casting procedure, pure titanium, most bio compatible metal which are difficult to cast can be made into crowns with the aid of CAD-CAM technology. Another method of making copings – by copy milling (without casting

Classification of casting alloys: By function & description.
Recent classification, High noble (HN), Noble (N) and predominantly base metal (PB) Alloys for crown & bridge, metal ceramic & removable partial denture. Composition, function, constituents and application, each alloy both noble and base metal. Properties of alloys: Melting range, mechanical properties, hardness, elongation, modulus of elasticity, tarnish and corrosion. Casting shrinkage and compensation of casting shrinkage. Biocompatability – Handling hazards & precautions of base metal alloys, casting investments used. Heat treatment: Softening & hardening heat treatment. Recycling of metals. Titanium alloys & their application, properties & advantages. Technical considerations In casting. Heat source, furnaces.

9) DENTAL WAXES INCLUDING INLAY CASTING WAX

Introduction and importance of waxes. Sources of natural waxes and their chemical nature. Classification of Waxes:
Properties: melting range, thermal expansion, mechanical properties, flow & residual stresses, ductility. Dental Wax: Inlay wax: Mode of supply: Classification & composition, Ideal requirements: Properties of inlay wax: Flow, thermal properties Wax distortion & its causes.
Manipulation of inlay wax: Instruments & equipment required, including electrically heated instruments metal tips and thermostatically controlled wax baths.
Other waxes: Applications, mode of supply & properties.
Casting Wax, Base plate wax, Processing wax, Boxing wax, Utility wax, Sticky wax, Impression wax for corrective impressions, Bite registration wax.

10) DENTAL CASTING INVESTMENTS

Definition, requirements, classification
Gypsum bonded – classification. Phosphate bonded, Silica bonded
Mode of Supply: Composition, application, setting mechanism, setting time & factors controlling it. Expansions: Setting expansion, Hygroscopic Setting expansion, & thermal expansion: factors affecting Properties: Strength, porosity, and fineness & storage. Technical considerations: For Casting procedure, Preparation of die, Wax pattern, spruing, investing control of shrinkage compensation, wax burnout, and heating the invested ring, casting. Casting machines, source of heat for melting the alloy. Defects in casting.

11) SOLDERING, BRAZING AND WELDING

Need of joining dental appliances, Terms & Definition
Solders: Definition, ideal requirement, types of solders – Soft & hard and their fusion temperature, application. Mode of supply of solders, Composition and selection, Properties. Tarnish & corrosion resistance mechanical properties, microstructure of soldered joint.
Fluxes & Anti fluxes: Definition, Function, Types, commonly used fluxes & their selection
Technique of Soldering & Brazing: free hand soldering and investment, steps and procedure.
Welding: Definition, application, requirements, procedure, weld decay – causes and how to avoid it. Laser welding.

WROUGHT BASE METAL ALLOYS

Applications and different alloys used mainly for orthodontics purpose

1. Stainless steel
2. Cobalt chromium nickel
3. Nickel titanium
4. Beta titanium

Properties required for orthodontic wires, working range, springiness, stiffness, resilience, Formability, ductility, ease of joining, corrosion resistance, stability in oral environment, bio compatibility

Stainless steels: Description, type, composition & properties of each type. Sensitisation & stabilisation, Mechanical properties – strength, tensile, yield strength, KHN. Braided & twisted wires their need, Solders for stainless steel, Fluxes, Welding

1. Wrought cobalt chromium nickel alloys, composition, allocation, properties, heat treatment, physical properties Nickel – Titanium alloys, shape, memory & super elastic
2. Titanium alloys, application, composition, properties, welding, Corrosion resistance

12) DENTAL CEMENTS

Definition & Ideal requirements:

Cements: Silicate, Glass ionomer, metal modified glass ionomer, resin modified glass ionomer, zinc oxide eugenol, modified zinc oxide eugenol, zinc phosphate, zinc silico phosphate, zinc poly carboxylate, Cavity liners and cement bases, Varnishes Calcium hydroxide, Gutta percha

Application, classification (general and individual), setting mechanism, mode of supply, Properties, factors affecting setting, special emphasis on critical procedures of manipulation and protection of cement, mode of adhesion, biomechanism of caries inhibition.

Agents for pulpal protection. Modifications and recent advances, Principles of cementation. Special emphasis on cavity liners and cement bases and luting agents.

13) DENTAL CERAMICS

Historical background & General applications

Dental ceramics: definition, classification, application, mode of supply, manufacturing procedure, methods of strengthening. Properties of fused ceramic: Strength and factors affecting, modulus of elasticity, surface hardness, wear resistance, thermal properties, specific gravity, chemical stability, esthetic properties, biocompatibility, technical considerations.

Metal Ceramics (PFM): Alloys – Types and composition of alloys. Ceramic – Type and Composition. Metal Ceramic Bond – Nature of bond. Bonding using electro deposition, foil copings, bonded platinum foil, swaged gold alloy foil coping. Technical considerations for porcelain and porcelain fused metal restorations. Recent advances – all porcelain restorations, Manganese core, injection moulded, castable ceramics, glass infiltrated alumina core ceramic (In ceram), ceramic veners, inlays and onlays, and CAD – CAM ceramic. Chemical attack of ceramic by fluoride. Porcelain furnaces.

14) ABRASION & POLISHING AGENTS

Definition of abrasion and polishing. Need of abrasion and polishing. Types of abrasives: Finishing, polishing & cleaning. Types of abrasives: Diamond, Emery, aluminium oxides garnet, pumice, Kieselgurh, Tripoli, rouge, tin oxide, chalk, chromic oxide, sand carbides, diamond, zirconium sililcate, Zinc oxide

ABRASIVE ACTION:

Desirable characteristics of an abrasive, Rate of abrasion, Size of particle, pressure and speed. Grading of abrasive & polishing agents. Binder, Polishing materials & procedures used. Technical consideration – Material and procedure used for abrasion and polishing, Electrolytic polishing and burnishing.

15) DIE AND COUNTER DIE MATERIALS INCLUDING ELECTROFORMING AND ELECTROPLISHING.

Types – Gypsum products, Electroforming, Epoxy resin, Amalgam.

16) DENTAL IMPLANTS: Evolution of dental implants, types and materials.

17) MECHANICS OF CUTTING: Burs and points.

At the end of the course the student should have the knowledge about the composition, properties, manipulative techniques and their various commercial names. The student should also acquire skills to select and use the materials appropriately for laboratory and clinical use.

UNIVERSITY PRACTICALS EXAM – II BDS DENTAL MATERIALS MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Spotters	15x2	30
2.	Endodontics	30	30
3.	Prosthodontics	30	30
	Internal Assessment		10
			100

RECOMMENDED BOOKS:

1. Phillips Science of Dental Materials – 10th edn. – Kenneth J. Anusavice
2. Restorative Dental Materials – 10 edn. Robert G. Craig
3. Notes on Dental Materials – E.C. Combe

UBD17DPCT208	GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS

GOAL:

The broad goal of teaching undergraduate students in pharmacology is to inculcate rational and scientific basis of therapeutics keeping in view of dental curriculum and profession.

OBJECTIVES:

At the end of the course the students shall be able to:

i. Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs in general and in dentistry in particular.
ii. List the indications, contraindications; interactions, and adverse reactions of commonly used drugs with reason.
iii. Tailor the use of appropriate drugs in disease with consideration to its cost, efficacy, safety for individual and mass therapy needs.
iv. Indicate special care in prescribing common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal, hepatic damage and immune compromised patients.
v. Integrate the rational drug therapy in clinical pharmacology.
vi. Indicate the principles underlying the concepts of “Essential drugs”.

SKILLS:

At the end of the course the student shall be able to:

1) Prescribe drugs for common dental and medical ailments.
2) Appreciate adverse reactions and drug interactions of commonly used drugs.
3) Observe experiments designed for study of effects of drugs.
4) Critically evaluate drug formulations and be able to interpret the clinical pharmacology of marketed preparations commonly used in dentistry.
5) **INTEGRATION:** Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical departments.

LECTURE:

GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS SYLLABUS

I. GENERAL PHARMACOLOGY:

1. General principles of pharmacology; sources and nature of drugs dosage forms; prescription writing; pharmacokinetics (absorption, distribution, metabolism and excretion of drugs), mode of action of drugs, combined effects of drugs, receptor mechanism of drug action, factors modifying drug response, adverse drug reactions; drug interactions, implications of General Principles in clinical dentistry.
2. CNS drugs; General anaesthetics, hypnotics, analgesics psychotropic drugs, anti-epileptics, muscle relaxants, local anaesthetics, Implications of these drugs in clinical dentistry.
3. Autonomic drugs; sympathomimetics, antiadrenergic drugs parasympathomimetics and parasympatholytics, Implications of Autonomic drugs in clinical dentistry.
4. Cardiovascular drugs; Cardiac stimulants; antihypertensive drugs, vasopressor agents, treatment of shock, Antianginal agents and diuretics, Implications of these drugs in clinical dentistry.
5. Autocoids:
   Histamine, antihistamines, prostaglandins, leukotriens and bronchodilators, Implications of Autocoids in clinical dentistry.
6. Drugs acting on blood: coagulants and anticoagulants, hematinics, Implications of these drugs in clinical dentistry.
7. G.I.T. Drugs, Purgatives, anti-diarrhoeal, antacids, anti-emetics, Implications of these drugs in clinical dentistry.
8. Endocrines: Emphasis on treatment of diabetes and glucocorticoids, thyroid and anti-thyroid agents, drugs affecting calcium balance and anabolic steroids, Implications of these drugs in clinical dentistry.
9. Chemotherapy: Antimicrobial agents (against bacteria, anaerobic infections, fungi, virus and broad spectrum). Infection management in dentistry. Phamacotherapy of Tuberculosis, leprosy and chemotherapy of malignancy in general. Implications of Chemotherpy in clinical dentistry.
10. Vitamins: Water soluble vitamins, Vit. D, Vit. K. and Vit. E. Implications of Vitamins in clinical dentistry.
11. Pharmacotherapy of emergencies in dental office and emergency drugs tray Implications of Pharmacotherapy in clinical dentistry.
12. Chealating agents – BAL, EDTA and desferrioxamine,

II. DENTAL PHARMACOLOGY

1. Anti-septics, astringents, obtondents, mummifying agents, bleaching agents, styptics, disclosing agents, dentifrices, mouth washes, caries and fluorides.
2. Pharmacotherapy of common oral conditions in dentistry. Practicals and Demonstrations:
   To familiarise the student with the methodology: prescription writing and dispensing. Rationale of drug combinations of marketed drugs.

UNIVERSITY PRACTICALS EXAM – II BDS
GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS MARKS MAX. –100

S. No.	Procedures	Marks	Total
1.	Prescription writing	20	20
2.	Preparation	50	50
3.	Charts – Practical Based	20	20
	Internal Assessment		10
			100

LIST OF BOOKS RECOMMENDED FOR READING AND REFERENCE

1. R.S. Satoskar, Kale Bhandarkar's Pharmacology and Pharmacotherapentics, 10th Edition, Bombay Popular Prakashan 1991.
2. Bertam G. Katzung, Basic and Clinical pharmacology 6th ed. Appleton & Lange 1997.
3. Lauerence D.R. Clinical Pharmacology 8th ed. Churchill Livingston 1997.
4. Satoskar R.S. & Bhandarkar S.D., Pharmacology and Pharmacotherapeutics part I & part ii, 13th Popular Prakashan Bombay 1993.
5. Tripathi K.D., Essentials of Medical Pharmacology 4th ed. Jaypee Brothers 1999.

UBD17GMCT315	GENERAL MEDICINE

GUIDELINES:

Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry.

1. Special precautions/ contraindications of anaesthesia and various dental procedures in different systemic diseases.
2. Oral manifestations of systemic diseases.
3. Medical emergencies in dental practice.

A dental student should be taught in such a manner that he/she is able to record the arterial pulse, blood pressure and be capable of suspecting by sight and superficial examination of the body – diseases of the heart, lungs, kidneys, blood etc. He should be capable of handling medical emergencies encountered in dental practice.

GENERAL MEDICINE

THEORY SYLLABUS

	CORE TOPICS (Must Know)	COLLATERAL TOPICS (Desirable to Know)
1.	Aims of medicine Definitions of signs, symptoms, diagnosis, differential diagnosis treatment & prognosis.	
2.	Infections. fever, AIDS, herpes simplex, herpes zoster, syphilis diphtheria.	Infectious mononucleosis Enteric mumps, Measles, rubella, malaria.
3.	G.I.T. Stomatitis, gingival hyperplasia, dysphagia, acid peptic disease, jaundice, acute and chronic hepatitis, cirrhosis of liver ascites.	Diarrhoea Dysentery Amoebiasis Malabsorption
4.	CVS Acute rheumatic fever rheumatic valvular heart disease, hypertension, ischemic heart disease, infective endocarditis, common arrhythmias, congenital heart disease, congestive cardiac failure.	
5.	RS	Lung Abscess

Pneumonia, COPD, Pulmonary TB, Bronehial asthma	Pleural effusion Pheumothora x Bronchiectasi s
6. Haematology Anaemias, bleeding & clotting disorders, leukemias, lymphomas, agranulocytosis, splenomegaly, oral manifestations of haematologic disorders, generalised lymphadenopathy.	Lung cancers.
7. Renal System Acute nephritis Nephrotic syndrome	Renal failure
8. Nutrition Avitaminosis	Balanced diet PEM Avitaminosis
9. CNS Facial palsy, facial pain including trigeminal neuralgia, epilepsy, headache including migraine.	- Meningitis - Examination of comatose patient - Examination of cranial nerves.
10. Endocrines Diabetes Mellitus Acromegaly, Hypothyroidism, e Thyrotoxicosis, Calcium metabolism and parathyroids.	Addison's disease, Cushing's syndrom
11. Critical care Syncope, cardiac arrest, CPR, shock	Ac LVF ARDS

CLINICAL TRAINING:

The student must be able to take history, do general physical examination (including build, nourishment, pulse, BP, respiration, clubbing, cyanosis, jaundice, lymphadenopathy, oral cavity) and be able to examine CVS, RS and abdomen and facial nerve.

UNIVERSITY PRACTICALS EXAM
– III BDS GENERAL MEDICINE
MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Long Case (1)	45	45
2.	Short Case (1)	30	30
3.	X Rays, Drugs, Instruments	15	15
	Internal Assessment		10

UBD17GSCT316	GENERAL SURGERY

AIMS:

To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyse the history and be able to do a thorough physical examination of the patient. The diseases as related to head and neck region are to be given due importance, at the same time other relevant surgical have a good theoretical knowledge of various ailments, and be practically trained to differentiate benign and malignant diseases and be able to decide which patient requires further evaluation.

GENERAL SURGERY SYLLABUS

1. HISTORY OF SURGERY:
   The development of surgery as a speciality over the years, will give the students and opportunity to know the contributions made by various scientists, teachers and investigators. It will also enable the student to understand the relations of various specialities in the practice of modern surgery.

2. GENERAL PRINCIPLES OF SURGERY:
   Introduction to various aspects of surgical principles as related to orodental diseases. Classification of diseases in general. This will help the student to understand the various diseases, and their relevance to routine dental practice.

3. WOUNDS:
   Their classification, healing, repair, treatment, medico-legal aspects of accidental wounds and complications of wounds.

4. INFLAMMATION:
   Of soft and hard tissues. Causes in inflammation, varieties, treatment and sequelae.

5. INFECTIONS:
   Acute and chronic abscess skin infections, cellulitis, carbuncle, and Perysepelas. Specific infections such as tetanus, gangrene, syphilis, gonorrhoea, tuberculosis, Actinomycosis, Vincents angina, cancrum oris. Pyaemia, toxaemia and septicaemia.

6. TRANSMISSABLE VIRAL INFECTIONS:
   HIV and Hepatitis B with special reference to their prevention and precautions to be taken in treating patients in a carrier state.

7. SHOCK AND HAEMORRHAGE:
   Classification, causes, clinical features and management of various types of shock. Syncope, Circulatory collapse. Haemorrhage – different types, causes, clinical features and management. Blood group, blood transfusion, precautions and complications of blood and their products.

Hemophilias, their transmission, clinical features and management especially in relation to minor dental procedures.

8. TUMOURS, ULCERS, CYSTS, SINUS AND FISTULAE:
   Classification, clinical examination and treatment principles in various types of benign and malignant tumours, ulcers, cysts, sinus and fistulae.

9. DISEASES OF LYMPHATIC SYSTEM:
   Especially those occurring in head and neck region. Special emphasis on identifying diseases such as tubercular infection, lymphomas, leukaemias, metastatic lymph node diseases.

10. DISEASES OF THE ORAL CAVITY:
    Infective and malignant diseases of the oral cavity and oropharynx including salivary glands with special emphasis on preventive aspects of premalignant and malignant diseases of the oral cavity.

11. DISEASES OF LARYNX, NASOPHARYNX:
    Infections and tumours affecting these sites. Indications, procedure and complications of tracheostomy.

12. NERVOUS SYSTEM:
    Surgical problems associated with nervous system with special reference to the principles of peripheral nerve injuries, their regeneration and principles of treatment. Detailed description of afflictions of facial nerve and its management. Trigeminal neuralgia, its presentation and treatment.

13. FRACTURES:
    General principles of fractures, clinical presentation and treatment with additional reference to newer method of fracture treatment. Special emphasis on fracture healing and rehabilitation.

14. PRINCIPLES OF OPERATIVE SURGERY:
    Principles as applicable to minor surgical procedures including detailed description of asepsis, antiseptics, sterilisation, principles of anaesthesia and principles of tissue replacement.
    Knowledge of sutures, drains, diathermy, cryosurgery and use of Laser in surgery.

15. ANOMALIES OF DEVELOPMENT OF FACE:
    Surgical anatomy and development of face. Cleft lip and cleft palate – principles of management.

16. DISEASES OF THYROID AND PARATHYROID:
    Surgical anatomy, pathogenesis, clinical features and management of dysfunction of thyroid and parathyroid glands. Malignant diseases of the thyroid – classification, clinical features and management.

17. SWELLINGS OF THE JAW:
    Differential diagnosis and management of different types of swellings of the jaw.

18. BIOPSY:

Different types of biopsies routinely used in surgical practice.

Skills to be developed by the end of teaching is to examine a routine swelling, ulcer and other related diseases and to perform minor surgical procedures such as draining an abscess, taking a biopsy etc.

UNIVERSITY PRACTICALS EXAM
– III BDS GENERAL SURGERY
MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Long Case (1)	40	40
2.	Short Case (1)	30	30
3.	Instruments	10	10
4.	Viva		10
	Internal Assessment		10
			100

UBD17OMCT421	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.

Part – I ORAL MEDICINE AND DIAGNOSTIC AIDS

SYLLABUS

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) Haematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTAL 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 discolouration of teeth
(2) Diseases of bone and Osteodystrophies: Development disorders: Anomalies, Exostosis and tori, infantile cortical hyperostosis, osteogenisis imperfects, 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) Temparomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Sub-luxation and luxation.
(4) Common cysts and Tumors:
Cysts of soft tissue: Mucocele 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: Plemorphic 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 dysphasia and odontomas
(5) Periodontal diseases: Gingival hyperplasia, gingivitis, periodontitis, pyogenic granuloma
(6) Granulomatous diseases: Tuberculosis, Sarcoidosis, Midline lethal granuloma, Crohn's Disease and Histioicytosis 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 aetiology, pathogenesis, clinical features, investigations, differential diagnosis, management and prevention

(1) Infections of oral and paraoral structures:
Bacterial: Streptococcal, tuberculosis, syphilis, vincents, 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 muscosal lesions:
White lesions: Chemical burns, leukodema, leukoplakia, Fordyce spots, stomatitis nicotina palatines, white sponge nevus, candidiasis, lichenplanus, discoid lupus erythematosis

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 and 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

(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
(Hypofuntion) Cushing's syndrome
(Hyperfunction)

(c) Parathyroid glands: Hyperparathyroidism.

(d) Thyroid gland: Hypothyroidism) Cretinism, myxoedema

(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 anaemia) Haemolytic anaemias: (Thalassemia, sickle cell anaemia, erythroblastosis foetalis) Aplastic anaemia
Polycythemia

(b) White Blood cell diseases
Neutropenia, cyclic neutropenia, agranulocytosis, infectious mononeucleosis acid leukemias

(c) Haemorrhagic disorders:
Thrombocytopenia, purpura, haemophilia, Christmas disease and Von Willebrant'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 heerdfort's syndrome (Uveoparotid fever), Necrotising sialometaplasia
(iv) Cysts and tumors: Mucocele, ranula, plemorphic adenoma, mucoepidermoid carcinoma
(v) Miscellaneous: Sialolithiasis, Sjogren's syndrome, mikuliez's disease and sialosis

(9) Dermatological diseases with oral manifestations:
(a) Ectodermal dysplasia (b) Hyperkerotosis palmarplantaris with periodontoopathy (c) Scleroderma
(d) Lichen planus including ginspan's syndrome (e) Lupus erythematosus (f) Pemphigus (g) Erythema multiforme (h)Psoriasis

(10) Immunological diseases with oral manifestations
(a) Leukemia (b) Lymphomas (c) Multiple mycloma (d) AIDS clinical manifestations, opportunistic infections, neoplasms (e) Thrombcytopenia (f) Lupus erythematosus (g) Scleroderma (h) dermatomyositis (i) Submucous fibrosis (j) Rheumatoid arthritis (k) Recurrent oral ulcerations
including behcet'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) Neurotemesis (c) Neuritis (d) Facial nerve paralysis including Bell's palsy, Heerfordt's syndrome, Melkerson Rosenthel syndrome and Ramsay Hunt syndrome (e)
Neuroma (f) Neurofibromatosis (g) Frey 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, demelucents, 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 technics) (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 temperomandibular 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 M.A. 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 Odontoloy – 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

UNIVERSITY PRACTICALS EXAM – IV BDS ORAL MEDICINE AND RADIOLOGY MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Clinical diagnosis	15x2	30
2.	Clinical Viva	10x2	20
3.	Radiographic Technique	7x2	14
4.	Radiographic Interpretation	8x2	16
5.	Final Diagnosis	5x2	10
	Internal Assessment		10
			100

- Able to identify precancerous and cancerous lesions of the oral cavity and refer to the concerned speciality for their management
- Should have an adequate knowledge about common laboratory investigations and interpretation of their results.
- Should have adequate knowledge about medical complications that can arise while treating systemically compromised patients and take prior precautions/consent from the concerned medical specialist.
- Have adequate knowledge about radiation health hazards, radiation safety and protection.
- Competent to take intra – oral radiographs and interpret the radiographic findings
- Gain adequate knowledge of various extra – oral radiographic procedures, TMJ radiography and sialography.
- Be aware of the importance of intra – and extra – oral radiographs in forensic identification and age estimation
- Should be familiar with jurisprudence, ethics and understand the significance of dental records with respect to law.

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.,

c) Forensic Odontology

1. Derek H. Clark – Practical Forensic Odontology – Butterworth-Heinemann (1992)
2. C Michael Bowers, Gary Bell – Manual of Forensic Odontology – Forensic Pr (1995)

UBD17OPCT317	ORAL PATHOLOGY AND ORAL MICROBIOLOGY

OBJECTIVES:

At the end of the 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. The oral manifestations of systemic diseases to help in correlating with systemic physical signs & laboratory findings.
4. 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.

ORAL PATHOLOGY & ORAL MICROBIOLOGY SYLLABUS

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 is to be emphasised.

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 – Aetiopathogenesis, clinical features, radiological features & histopathological features as appropriate:-
  The size, shape, number, structure & eruption of teeth & clinical significance of the anomalies to be emphasised.
- Forensic Odontology.
- Developmental disturbances of jaws – size & shape of the jaws.
- Developmental disturbances of oral & paraoral soft tissues – lip & palate – clefts, tongue, gingival, mouth, salivary glands & face.

3. Dental Caries:

- Aetiopathogenesis, microbiology, clinical features, diagnosis, histopathology, immunology, prevention of dental caries & its sequelae.

4. Pulp & Periapical Pathology & Osteomyelitis.

- Aetiopathogenesis & 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:

- Aetiopathogenesis, 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, histopathogy 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. Apthous Ulcers.

7. Common non-inflammatory diseases involving the jaws:

- Aetiopathogenesis, 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 Aetiopathogenesis, 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.

d) Tumours of Disputed Origin – Congenital Epulis & Granular Cell Myoblastoma.

e) Metastatic tumours – Tumors metastasising to & from oral cavity & the routes of metastasis.

11. Traumatic, Reactive & Regressive lesions of Oral Cavity:

- Pyogenic & Giant cell granuloma, exostoses Fibrous Hyperplasia, Traumatic Ulcer & Traumatic Neuroma.
- Attrition, Abrasion, Erosion, Bruxism, Hypercementosis, Dentinal changes, Pulp calcifications & Resorption of teeth.
- Radiation effects of oral cavity, summary of Physical & Chemical injuries including allergic reactions of the oral cavity.
- Healing of Oral wounds & complications – Dry socket.

12. Non neoplastic Salivary Gland Diseases:

- Sialolithiasis, Sialosis, Sialadenitis, Xerostomia & Ptyalism.

13. Systemic Diseases involving Oral cavity:

- Brief review & oral manifestations, diagnosis & significance of common Blood, Nutritional, Hormonal & Metabolic diseases of Oral cavity.

14. Mucocutaneous Lesions:

- Aetiopathogenesis, clinical features & histopathology of the following common lesions. Lichen Planus, Lupus Erythematosus, Pemphigus & Pemphigoid lesions, Erythema Multiforme, Psoriasis, Scleroderma, Ectodermal Dysplasia, Epidermolysis bullosa & White sponge nevus.

15. Diseases of the Nerves:

- Facial neuralgias – Trigeminal & Glossopharyngeal. VII nerve paralysis, Causalgia.
- Psychogenic facial pain & Burning mouth syndrome.

16. Pigmentation of Oral & Paraoral region & Discolouration of teeth:

- Causes & clinical manifestations.

17. Diseases of Maxillary Sinus:

- Traumatic injuries to sinus, Sinusitis, Cysts & Tumours involving antrum.

18. a) ORAL PRECANCER – CANCER: Epidemiology, aetiology, clinical and histopatholotgical features, TNM classification. Recent advances in diagnosis, management and prevention.

b) Biopsy: Types of biopsy, value of biopsy, cytology, histo chemistry & frozen sections in diagnosis of oral diseases.

19. Principles of Basic Forensic Odontology (Pre-clinical Forensic Odontology):

- Introduction, definition, aims & scope.
- Sex and ethnic (racial) differences in tooth morphology and histological age estimation
- Determination of sex & blood groups from buccal mucosa / saliva.
- Dental DNA methods
- Bite marks, rugae patterns & lip prints.
- Dental importance of poisons and corrosives.
- Overview of forensic medicine and toxicology
- Personal identification.
- Basis for dental identification.
- Dental identification procedures.
- Comparative dental identification.

- Oral autopsy.
- Obtaining dental records.
- Comparing post and antemortem dental data.
- Writing a report and drawing conclusions.
- Identification in disasters.
- Dental section.
- Post-mortem unit
- Antemortem unit
- Comparison and identification unit
- Dental profiling
- Identifying ethnic origin from teeth
- Sex differentiation
- Sex differences in tooth size
- Dental age estimation
- Crime investigation
- The dentist as an expert witness

UNIVERSITY PRACTICALS EXAM – III BDS ORAL PATHOLOGY AND MICROBIOLOGY
MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Slides – 10	10x5	50
2.	Spotters – 4	4x5	20
3.	Clinical Pathology 2 Cases	2x10	20
	Internal Assessment		10
			100

RECOMMENDED BOOKS

1. A Text Book of Oral Pathology - Shafer, Hine & Levy.
2. Oral Pathology – Clinical Pathologic correlations - Regezi & Sciubba.
3. Oral Pathology - Soames & Southam.
4. Oral Pathology in the Tropics - Prabhu, Wilson, Johnson & Daftary

UBD17ORCT423	ORTHODONTICS AND DENTOFACIAL 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 Orthodontic 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 Developement
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, Simon, Lischer and Ackerman and Proffitt.
8. Normal and Abnormal Function of Stomatognathic System
9. Aetiology Of Malocclusion
   a. Definition, importance, classification, local and general aetiological 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 use 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 Orthdodontics – indications and selection of teeth for extraction.
17. Orthodontic Applicances: 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 antifluxes.
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 use
3) Different types of labial bows and their use
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 straight wire.

EXTRAORAL APPLIANCES

1. Headgears
2. Chincup
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 Treament 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 YEARS 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. ¾ 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 & Lowe Hawley's Appliance
2. Upper Hawley's with Anterior bite plane
3. Upper Habit breaking Appliance
4. Upper Hawley's with Posterior bite plane with 'Z' Spring
5. Construction of Activator
6. Lower inclined plane/Catalan's Appliance
7. Upper Expansion plate with Expansion Screw

UNIVERSITY PRACTICALS EXAM – IV
BDS ORTHODONTICS & DENTAL ORTHOPAEDICS MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Diagnosis, Treatment Planning and Presentation of a Patient, presenting with an Orthodontics problem, with basic clinical records of OPG, CephalometricReadiographs and Clinical Models	40	40
2.	Wire Bending Demonstration of 3 components from Removable Appliances	30	30
3.	Spotters	10	10
4.	Viva Voce	10	10
	Internal Assessment		10
			100

- Understand about normal growth and development of facial skeleton and dentition.
- Pinpoint aberrations in growth process both dental and skeletal and plan necessary treatment.
- Diagnose the various categories of malocclusion
- Able to motivate and explain to the patient (and parent or guardian) about the necessity of treatment.
- Plan and execute preventive orthodontics (space maintainers or space regainers)
- Plan and execute interceptive orthodontics (habit breaking appliances)
- Manage treatment of simple malocclusion such as anterior spacing using removable appliances.
- Handle delivery and activation of removable orthodontics appliances.
- Diagnose and appropriately refer patients with complex malocclusion to the specialist

The behavioral sciences including sociology and psychology shall be included in the I year of the course. A stores should be made on national oral health policing frequently by the public health dentistry. The students must be expiring to CPR. Compiles. Must the involved in comprehensive oral health care or holistic approach and heart patient as a whole.

RECOMMENDED AND REFERENCE BOOKS

1. CONTEMPORARY ORTHODONTICS — WILLIAM R. PROFFIT
2. ORTHODONTICS FOR DENTAL STUDENTS — WHITE and GARDINER
3. HANDBOOK OF ORTHODONTICS — MOYERS
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

UBD17OSCT427	ORAL 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 into the in-patient management of maxillofacial problems.

OBJECTIVES:

a) Knowledge & Understanding:

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

1. Apply the knowledge gained in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problems.
2. Diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
3. Gain Knowledge of a range of surgical treatments.
4. Be able to decide the requirement of a patient to have oral surgical specialist opinion or treatment.
5. Understand the principles of in-patient management.
6. Understand the management of major oral surgical procedures and principles involved in patient management.
7. Know the ethical issues and have 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. Understand the management of major oral surgical problems and principles involved in inpatient management.

ORAL & MAXILLOFACIAL SURGERY 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 exodontias 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, Localisation, 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, Frenectemies 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 osseo integration 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, predisposing 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 odontogenetic 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 saliary 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 –
    Primary care of medical emergencies in dental practice particularly –
    (a) Cardio vascular (b) Respiratory (c) Endocrine
    (d) Anaphylactic reaction (e) Epilepsy
19. Emergency drugs, Intra muscular I.V. Injections –
    Applied anatomy, Ideal location for giving these injections, techniques etc.
20. Oral Implantology
    - History of implants, their design and surface characteristics and osseo – integration.
    - Scope of oral and maxillofacial implantology & terminologies.
    - Bone biology, morphology, classification of bone and its relevance to implant treatment & bone augmentation materials.
    - Soft tissue consideration in implant dentistry.
    - Diagnosis & treatment planning in implant surgery.
    - Pre-surgical preparation of patient.
    - Implant installation & armamentatarium for the branemark system as a role model.
    - First stage surgery-mandible-maxilla,
    - Healing period & second stage surgery
    - Management of surgical complications & failures.
    - Immediate implants.
    - Bone grafts and bone augmentation in sinus lift procedures.
21. Ethics

LOCAL ANAESTHESIA:

Introduction, concept of L.A., classification of local anaesthetic agents, ideal requirement, mode of action, types of local anaesthesia, complications.

Use of Vaso constrictors in local anaesthetic solution – Advantages, contra-indications, various vaso constrictors used. Anaesthesia of the mandible – Pterygomandibular space – boundaries, contents etc. Interior Dental Nerve Block – various techniques Complications
Mental foramen nerve block Anaesthesia of Maxilla – Intra – orbital nerve block.
Posterior superior alveolar nerve block Maxillary nerve block – techniques.

GENERAL ANAESTHESIA –

Concept of general anaesthesia.
Indications of general anaesthesia in dentistry. Pre-anaesthetic evaluation of the patient.
Pre-anaesthetic medication – advantages, drugs used. Commonly used anaesthetic agents.
Complication during and after G.A.
I.V. sedation with Diazepam and Medozolam. Indications, mode of action, technique etc. Cardiopulmonary resuscitation
Use of oxygen and emergency drugs. Tracheostomy.

UNIVERSITY PRACTICALS EXAM
– IV BDS ORAL &
MAXILLOFACIAL SURGERY
MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Case History	25	25
2.	Extraction	25	25
3.	Spotters	10	10
4.	Spot Viva	20	20
5.	Practical Viva	10	10
	Internal Assessment		10
			100

- Able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients with surgical problems

- Able to diagnose, manage and treat patients with basic oral surgical problems
- Have a broad knowledge of maxillofacial surgery and oral implantology
- Should be familiar with legal, ethical and moral issues pertaining to the patient care and communication skills
- Should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner
- Understand and practice the basic principles of asepsis and sterilization
- Should be competent in the extraction of the teeth under both local and general anaesthesia
- Competent to carry out certain minor oral surgical procedure under LA like trans-alveolar extraction, frenectomy, dento alveolar procedures, simple impaction, biopsy, etc.
- Competent to assess, prevent and manage common complications that arise during and after minor oral surgery
- Able to provide primary care and manage medical emergencies in the dental office
- Familiar with the management of major oral surgical problems and principles involved in in-patient management

RECOMMENDED BOOKS:

1. Impacted teeth; Alling John F et al.
2. Principles of oral and maxillofacial surgery; Vol. 1, 2 & 3 Peterson LJ et al.
3. Text book of oral and maxillofacial suregery; Srinivasan B.
4. Handbook of medical emergencies in the dental office, Malamed SF.
5. Killeys Fractures of the mandible; Banks P.
6. Killeys fractures of the middle 3rd of the facial skeleton; Banks P.
7. The maxillary sinus and its dental implications; McGovanda
8. Killey and Kays outline of oral suregery – Part – 1; Seward GR et al
9. Essentials of safe dentistry for the medically compromised patients; Mc Carthy FM
10. Oral & maxillofacial surgery, Vol 2; Laskin DM
11. Extraction of teeth; Howe, GL
12. Minor Oral Surgery; Howe. GL
13. Contemporary oral and maxillofacial surgery; Peterson I.J. et al
14. Oral and maxillofacial infections; Topazian RG & Goldberg MH

UBD17PACT422	PAEDIATRIC AND PREVENTIVE DENTISTRY

THEORY:

1. INTRODUCTION TO PAEDODONTICS & PREVENTIVE DENTISTRY
   - Definition, Scope, Objectives and Importance.
2. GROWTH & DEVELOPMENT:
   - Importance of study of growth and development in Paedodontics.
   - 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 PAEDODONTICS.
6. ORAL SURGICAL PROCEDURES IN CHILDREN.
   - Indications and contraindications of extractions of primary and permanent teeth in children.
   - Knowledge of Local and General Anaesthesia.
   - 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 counselling.
   - Caries activity, tests, caries prediction, caries susceptibility & their clinical application.
8. GINGIVAL & PERIODONTAL DISEASES IN CHILDREN.
   - Normal gingival & 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. PAEDIATRIC OPERATIVE DENTISTRY:
- Principles of Paediatric 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 lonomer, Composites & Silver Amalgam. Stainless steel, Polycarbonate & Resin Crowns.

12. PAEDIATRIC 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 Traumatised 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. CONGENTIAL ABNORMALITIES IN CHILDREN:
    - Definition, Classification, Clinical features & Management.
18. DENTAL EMERGENCIES IN CHILDREN & THEIR MANAGEMENT.
19. DENTAL MATERIALS USED IN PAEDIATRIC DENTISTRY.
20. PREVENTIVE DENTISTRY:
    - Definition.
    - Principles & Scope.
    - Types of prevention.
    - Different preventive measures used in Paediatric 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 PAEDODONTIC CLINIC.
25. ETHICS.

B. PRACTICALS:

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

UNIVERSITY PRACTICALS EXAM
– IV BDS PAEDIATRIC &
PREVENTIVE DENTISTRY MARKS
MAX. – 100

S. No.	Procedures	Marks	Total
1.	Chief Complaint & History taking	15	15
2.	Clinical Examination	15	15
3.	Tooth Identification	15	15
4.	Investigation & Diagnosis	15	15
5.	Treatment Plan	15	15
6.	Treatment Done	15	15
	Internal Assessment		10
			100

- Able to instill a positive attitude and behavior in children towards oral health and understand the principles of prevention and preventive dentistry right from birth to adolescence.
- Able to guide and counsel the guardian/Parents with regard to various treatment modalities including different facets of preventive dentistry
- Able to treat dental diseases occurring in the child patient
- Able to manage to physically and mentally challenged / disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

BOOKS RECOMMENDED & REFERENCES:

1. Paediatric Dentistry (Infancy through Adolescences) – Pinkham.
2. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon.
3. Occlusal guidance in Paediatric Dentistry – Stephen H. Wei.
4. Clinical Use of Fluorides – Stephen H. Wei.
5. Paediatric Oral & Maxillofacial Surgery – Kaban.
6. Paediatric Medical Emergencies – P. S. Whatt.
7. Understanding of Dental Caries – Niki Foruk.
8. An Atlas of Glass Ionomer cements – G. J. Mount.
9. Clinical Pedodontics – Finn.
10. Textbook of Pediatric Dentistry – Braham Morris.
11. Primary Preventive Dentistry – Norman O. Harris.
12. Handbook of Clinical Pedodontics – Kenneth. D.
13. Preventive Dentistry – Forrester.
14. The Metabolism and Toxicity of Fluoride – Garry M. Whitford.
15. Dentistry for the Child and Adolescent – Mc. Donald.
16. Pediatric Dentistry – Damle S. G.
17. Behaviour Management – Wright.
18. Pediatric Dentistry – Mathewson.
19. Traumatic Injuries – Andreason.

20. Occlusal guidance in Pediatric Dentistry – Nakata.
21. Pediatric Drug Therapy – Tomare
22. Contemporary Orhtodontics – Profitt.
23. Preventive Dentistry – Depaola.
24. Metabolism & Toxicity of Fluoride – Whitford. G. M.
25. Endodontic Practice – Grossman.
26. Principles of Endodontics – Munford.
27. Endodontics – Ingle.
28. Pathways of Pulp – Cohen.
29. Management of Traumatized anterior Teeth – Hargreaves.

UBD17PCCP213	PRE - CLINICAL CONSERVATIVE DENTISTRY

1. Identification and study of handcutting instruments chisles, gingival margin trimmers, excavators and hatchet.
2. Identification and use of rotary cutting instruments in contra angle hand pieces burs (Micromotor)
3. Preparation class I and extended class I and class II and MOD's and class V amounting to 10 exercises in plaster models.
4. Ten exercises in mounted extracted teeth of following: class I, 4 in number; class I extended cavities 2; class II 4 in number and Class V 2 in number. Cavity preparation base application, matrix and wedge placement restoration with amalgam.
5. Exercises on phantom head models which includes cavity preparation base and varnish application matrix and wedge placement followed by amalgam restoration.

Class I	5
Class I with extension	2
Class II	10
Class II Mods	2
Class V and III for glass ionomers	4
Class V for amalgam	2

6. Polishing of above restorations.
7. Demonstration of Class III and Class V cavity preparation. For composites on extracted tooth completing the restoration.
8. Polishing and finishing of the restoration of composites.
9. Identification and manipulation of varnish bases like Zinc Phosphate, Poly carboxylate, Glass Ionomers, Zinc Oxide, Euginol cements.
10. Identification and manipulation of various matrices, tooth separators and materials like composites and modified glass ionomer cements.
11. Cast Restoration
    1. Preparation of Class II inlay cavity
    2. Fabrication of wax pattern
    3. Sprue for inner attachment investing
    4. Investing of wax pattern
    5. Finishing and cementing of class II inlay in extracted tooth.
12. Endodontics
    1. Identification of basic endodontic instruments
    2. Coronal access cavity preparation on extracted upper central incisiors
    3. Determination of working length.
    4. Biomechanical preparation of root canal space of central incisor
    5. Obturation of root canal spaces. Absence of coronal access cavity.
    6. Closure of acess cavity

UNIVERSITY PRACTICALS EXAM
– II BDS PRECLINICAL
CONSERVATIVE
MARKS MAX. – 60

S. No.	Procedures	Marks	Total
1.	Cavity preparation	25	25
2.	Base & matrix placement	15	15
3.	Restoration	20	20
			60

Practical and Viva Voce Only in University Examination:

Pre-clinical Prosthodontics

Pre-clinical Conservative Dentistry…….

Internal Assessment	-	20
Practical	-	60
Viva Voce	-	20
		100

UBD17PECT424	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 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 periodontal 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 influence, 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 (localised, generalised, and post- juvenile), Prepubertal periodontitis, Refractory periodontitis
6. Gingival diseases — Localised and generalised gingivitis, Papillary, marginal and diffuse gingivitis
   Aetiology, 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 prevalence, periodontal diseases	-	Definition of index, incidence, 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 gingival inflammation from gingival	Mechanism of spread of inflammation from area to deeper periodontal structures Factors that modify the spread	
9. Pocket	Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket	
10.	Etiology - Dental Plaque (Biofilm) - Definition, New concept of biofilm - Types, composition, bacterial colonisation, 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 debria - Calculus	

- Definition
- Types, composition, attachment, theories of formation
- Role of calculus in disease Food Impaction
- Definition
- Types, Aetiology
- 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
- Haemorrhagic diseases, Leukemia, clotting factor disorders, PMN disorders

11. Risk factors Definition. Risk factors for periodontal diseases

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 - Aetiology 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: Localised and generalised
- 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: Aetiology 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

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 - Scaling and root planning: Procedures - 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 - Indication & contraindications - Armamentarium - Surgical procedure & healing response
19.	Osseous Surgery	Osseous defects in periodontal disease - Definition - Classification - Surgery: respective, additive osseous surgery (osseous grafts with classification of grafts) - Healing responses - Other regenerative procedures; root conditioning - Guided tissue regeneration
20.	Mucogingival surgery & periodontal plastic classification of surgeries	Definition Mucogingival problems: etiology, 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 - Purpose & classification - Principles of splinting
22.	Hypersensitivity	Causes, Theories & management
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 objectives, and principles (SPT)	- Aims, - Importance - Procedures - Maintenance of implants
25.	Pharmaco-therapy	- Periodontal dressings - Antibiotics & anti-inflammatory drugs - Local drug delivery systems
26.	Periodontal management of patients medically compromised patients	Topics concerning periodontal management of medically compromised
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.
29. Infection control — Sterilisation and various aseptic procedures Protocol
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 investigation
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
7) Surgical procedures – gingivectomy, gingivoplasty, and flap operations
8) Follow up procedures, post operative care and supervision

REQUIREMENTS:

1) Diagnosis, treatment planning and discussion and total periodontal treatment – 25 cases
2) Dental scaling, oral hygiene instruction – 50 complete cases / equivalent
3) Assistance in periodontal surgery – 5 cases
4) A work record should be maintained by all the students and should be submitted at the time of examination after due certification from the head of the department.

Student should have to complete the work prescribed by the concerned department from time to time and submit a certified record for evaluation.

UNIVERSITY PRACTICALS EXAM
– IV BDS PERIODONTOLOGY
Marks Max.- 100

S. No.	Procedures	Marks	Total
1.	Scaling	50	50
2.	Clinical Viva	20	20
3.	Grand Viva	20	20
	Internal Assessment		10
			100

- Diagnose the patients periodontal problem, plan and perform appropriate periodontal treatment
- Competent to educate and motivate the patient
- Competent to perform thorough oral prophylaxis, subgingival scaling, root planning and minor periodontal surgical procedures
- Give proper post treatment instructions and do periodic recall and evaluation
- Familiar with concepts of osseointegration and basic surgical aspects of implantology

PRESCRIBED BOOK:

1) Glickman's Clinical Periodontology – Carranza

REFERENCE BOOKS

1) Essentials of Periodontology and periodontics - Torquil MacPhee
2) Contemporary periodontics – Cohen
3) Periodontal therapy – Goldman
4) Orbans' periodontics – Orban
5) Oral Health Survey – W.H.O.
6) Preventive Periodontics – Young and Stiffler
7) Public Health Dentistry – Slack
8) Advanced Periodontal Disease – John Prichard
9) Preventive Dentistry – Forrest
10) Clinical Periodontology – Jan Lindhe
11) Periodontics – Baer & Morris

UBD17PHCT428	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

Skill and Attitude:

At the conclusion of the course the students shall acquire 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

PUBLIC HEALTH DENTISTRY

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. Behavioural science: Definition of sociology, anthropology and psychology and their relevance in dental practice and community.
x. Health care delivery system: Centre 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.
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.

ENVIRONMENT STUDIES

Unit 1: Introduction to environmental studies

- Multidisciplinary nature of environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

Unit 2: Ecosystems

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems:
  a) Forest ecosystem
  b) Grassland ecosystem
  c) Desert ecosystem
  d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 3: Natural Resources: Renewable and Non-renewable Resources

- Land resources and landuse change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forest, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

Unit 4: Biodiversity and Conservation

- Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

Unit 5: Environmental Pollution

- Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.

Unit 6: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 7: Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit 8: Field work

- Visit to an area to document environmental assets: river/forest/flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river, Delhi Ridge, etc.

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, bind trials 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 PROGRAMME IN COMMUNITY DENTISTRY:

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

1. Understand the community aspects of dentistry
2. 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 centre-to acquaint with activities and primary health care delivery
g) Visit to water purification plant/public health laboratory/centre for treatment of waste 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 patients 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 familiarise 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

a) Oral hygiene indices simplified – Green and Vermilion

b) Silness and Loe index for Plaque

c) Loe and Silness index for gingival

d) CPI

e) DME: T and S, Df: t and s

f) Deans fluoride index

II. Health Education

1. Make one – Audio visual aid
2. Make a health talk

III. Practical work

1. Pit and fissure sealant
2. Topical fluoride application

UNIVERSITY PRACTICALS EXAM – IV BDS PUBLIC HEALTH DENTISTRY

MARKS MAX.- 100

S. No.	Procedures	Marks	Total
1.	Case History	50	50
2.	Chair Side (Viva)	20	20
3.	Grand Viva	20	20
	Internal Assessment		10
			100

- Apply the principles of health promotion and disease prevention
- Have knowledge of the organization and provision of health care in community and in the hospital service
- Have knowledge of the prevalence of common dental conditions in India.

- Have knowledge of community based preventive measures
- Have knowledge of the social, cultural and environmental factors which contribute to health or illness.
- Administer oral hygiene instructions, topical fluoride therapy and fissure sealing.
- Educate patients about the aetiology and prevention of oral disease and encourage them to assure responsibility for their oral health.

BOOKS RECOMMENDED & REFERENCE:

1. Dentistry Dental Practice and Community by David F. Striffler and Brian A. Burt, Edn. – 1983, W. B. Saunders Company
2. Principles of Dental Public Health by James Morse Dunning, IV Edition, 1986, Harvard University Press.
3. Dental Public Health and Community Dentistry Ed by Anthony Jong Publication by The C. V. Mosby Company 1981
4. Community Oral Health-A system approach by Pactricia P. Cormier and Joyce I. Levy published by Appleton-Century-Crofts/New York, 1981
5. Community Dentistry-A problem oriented approach by P.C. Dental Hand Book series Vol 8 by Stephen L. Silverman and Ames F. Tryon, Series editor-Alvin F. Gardner, PSG Publishing company Inc. Littleton Massachusetts, 1980.
6. Dental Public Health- An Introduction to Community Dentistry. Editted by Geoffrey L. Slack and Brian Burt, Published by John Wright and sons Bristol, 1980
7. Oral Health Surveys- Basic Methods, 4th edition, 1997, published by W. H. O. Geneva Available at the regional office New Delhi.
8. Preventive Medicine and Hygiene-By Maxcy and Rosenau, published by Appleton Century Crofts, 1986.
9. Preventive Dentistry-by J. O. Forrest published by John Wright and sons Bristol, 1980.
10. Preventive Dentistry by Murray, 1997.
11. Text Book of Preventive and Social Medicine by Park and Park, 14th edition.
12. Community Dentistry by Dr. Soben Peter.
13. Introduction to Bio-statistics by B. K. Mahajan
14. Research methodology and Bio-statistics
15. Introduction to Statistical Methods by Grewal

UBD17PMCT207	GENERAL PATHOLOGY AND MICROBIOLOGY

AIM:

At the end of the course the student should be competent to:
Apply the scientific study of disease processes, which result in morphological and functional alterations in cells, tissues and organs to the study of pathology and the practice of dentistry.

OBJECTIVES:

Enabling the student

1. To demonsts and analyze pathological changes at macroscopically and microscopical levels and explain their observations in terms of disease processes.
2. To Integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of Pathology.
3. To demonstrate understanding of the capabilities and limitations of morphological pathology in its contribution to medicine, dentistry and biological research.
4. To demonstrate ability to consult resource materials outside lectures, laboratory and tutorial classes.

GENERAL PATHOLOGY SYLLABUS

A. General Pathology –

1. Introduction to
   Pathology
   Terminologies
   The cell in health
   The normal cell
   structure The cellular
   functions
2. Aetiology and Pathogenesis of
   Disease Cell Injury
   Types – Congenital
   Acquired
   Mainly Acquired causes of disease
   (Hypoxic injury, chemical injury, physical injury, immunological injury)
3. Degeneration
   s Amyloidosis
   Fatty change
   Cloudy
   swelling
   Hyaline change, mucoid degeneration
4. Cell death &
   Necrosis Apoptasis
   Def, causes, features and types of necrosis

Gangrene – Dry, wet,
gas Pathological
Calcifications (Dystrophic
and metastatic)

5. Inflammation
   - Definition, causes types, and features
   - Acute inflammation
   a. The vascular response
   b. The cellular response
   c. Chemical mediators
   d. The inflammatory cells
   e. Fate
   - Chronic inflammation
     Granulomations
     inflammation
6. Healing
   - Regeneration
   - Repair
   a. Mechanisms
   b. Healing by primary intention
   c. Healing by secondary intention
   d. Fracture healing
   e. Factors influencing healing process
   f. Complications
7. Tuberculosis
   - Epidemiology
   - Pathogenesis (Formation of tubercle)
   - Pathological features of Primary and secondary TB
   - Complications and Fate
8. Syphilis
   - Epidemiology
   - Types and stages of syphilis
   - Pathological features
   - Diagnostic criterias
   - Oral lesions
9. Typhoid
   - Epidemiology
   - Pathogenesis
   - Pathological features
   - Diagnostic criterias
10. Thrombosis
    - Definition, Pathophysiology
    - Formation, complications & Fate of a thrombus
11. Embolism
    - Definition
    - Types
    - Effects
12. Ischaemia and Infraction

- Definition, etiology, types
- Infraction of various organs

13. Derangements of body fluids
    - Oedema – pathogenesis
      Different types
14. Disorders of circulation
    - Hyperaemia
    - Shock
15. Nutritional Disorders
    - Common Vitamin Deficiencies
16. Immunological mechanisms in disease
    - Humoral & cellular immunity
    - Hypersensitivity & autommunity
17. AIDS and Hepatitis.
18. Hypertension
    - Definition, classification
    - Pathophysiology
    - Effects in various organs
19. Diabetes Mellitus
    - Def, Classification, Pathogenesis, Pathology in different organs
20. Adaptive disorders of growth
    - Atrophy & Hypertrophy, Hyperplasia, Metaplasia and Dysplasia
21. General Aspects of neoplasia
    a. Definition, terminology, classification
    b. Differences between benign and malignant neoplasms
    c. The neoplastic cell
    d. Metastasis
    e. Aetiology and pathogenesis of neoplasia, Carcinogenesis
    f. Tumour biology
    g. Oncogenes and anti-oncogenes
    h. Diagnosis
    i. Precancerous lesions
    j. Common specific tumours, Squamous papilloma & Carcinoma, Basal cell Carcinoma, Adenoma & Adenoca, Fibroma & Fibrosarcoma, Lipoma and liposarcoma

B. Systemic Pathology –

22. Anaemias
    - Iron Deficiency anaemia, Megaloblastic anaemia
23. Leukaemias
    - Acute and chronic leukaemias, Diagnosis and clinical features
24. Diseases of Lymph nodes
    - Hodgkin’s disease, Non Hodgkins lymphoma, Metastatic carcinoma
25. Diseases of oral cavity
    - Lichen planus, Stomatitis, Leukoplakia, Squamous cell Carcinoma, Dental caries, Dentigerious cyst, Ameloblastoma

26. Diseases of salivary glands
    - Normal structure, Sialadenitis, Tumours
27. Common diseases of Bones
    - Osteomyelitis, Metabolic bone diseases, Bone Tumours, Osteosarcoma, Osteocalstoma, Giant cell Tumour, Ewing's sarcoma, Fibrous dysplasia, Aneurysmal bone cyst
28. Diseases of Cardiovascular system
    - Cardiac failure
    - Congenital heart disease – ASD, VSD, PDA Fallot's Tetrology
    - Infective Endocarditis
    - Atherosclerosis
    - Ischaemic heart Disease
29. Haemorrhagic Disorders
    Coagulation cascade
    Coagulation disorders
    - Platelet function
    - Platelet disorders

PRACTICALS

1. Urine – Abnormal constitutients
    - Sugar, albumin, ketone bodies
2. Urine – Abnormal constituents
    - Blood, bile salts, bile pigments
3. Haemoglobin (Hb) estimation
4. Total WBC count
5. Differential WBC count
6. Packed cell volume (PCV,) Erythrocyte Sedimentation Rate (ESR)
7. Bleeding Time & Clotting Time
8. Histopathology
    Tissue
    Processing
    Staining
9. Histopathology slides
    - Acute appendicitis, Granulation tissue, fatty liver
10. Histopathology slides
    CVC lung, CVC liver, Kidney amyloidosis
11. Histopathology slides
    Tuberculosis, Actionomycosis, Rhinosporidiosis
12. Histopathology slides
    Papilloma, Basal cell Ca, Sq cell Ca
13. Histopathology slides
    Osteosarcoma, osteoclastoma, fibrosarcoma
14. Histopathology slides
    Malignant melanoma, Ameloblastoma, Adenoma
15. Histopathology slides
    Mixed parotid tumour,
    metastatic Carcinoma in lymph
    node

UNIVERSITY PRACTICALS EXAM
– II BDS GENERAL PATHOLOGY
MARKS MAX. – 50

S. No.	Experiments	Marks	Total
1.	Blood Differential Count	15	15
2.	Urine analysis	20	20
3.	Spotters	10	10
	Internal Assessment		5
			50

List of Textbooks

1. Robbins – Pathologic Basis of Disease Cotran, Kumar, Robbins
2. Anderson's Pathology Vol 1 & 2 Editors – Ivan Damjanov & James Linder
3. Wintrobe's clinical Haematolog Lee, Bithell, Foerster, Athens, Lukens

UBD17PRCT425	PROSTHODONTICS & CROWN AND BRIDGE

1. Introduction to Prosthodontics
    - Aim and scope of Prosthodontics
    - Brabches of Prosthodontics
2. Anatomcal landmarks
    - Microscopic and Macroscopic
    - Anatomy of maxilla and mandible
3. Steps in complete denture facbrication
    - Impression – theories, objectives, material
    - Diagnostic impression
    - Diagnostic cast
    - Special tray
    - Border moulding
    - Secondary impression
    - Beading and boxing
    - Master cast
    - Occlusal rims
    - Jaw relation
    - Articulators
    - Teeth arrangement
    - Wax try in
    - Processing-flasking and Packing
    - Finishing and polishing the dentures.
4. Requirements of cast beading and boxing
    - Difference between primary and master cast
    - Requirements of an ideal cast
    - Uses of beading and boxing
    - Materials and techniques used for beading and boxing
    - Standard dimensions of the cast
5. Special trays
    - Definition of special tray, tissue stop and spacer
    - Uses of special tray
    - Other names
    - Materials used for making special tray Spacer designs
    - Techniques of fabricating special trays
6. Record Bases
    - What are record bases?
    - Definition, Uses and Requirements material used and technique.
7. Occlusal rims
    - What are occlusal rims?
    - Definition, Uses of occlusal rims,
    - Materials used to fabricate Occlusal rims
    - Dimensions of Occlusal rims method of fabrication

8. Articulators
    - Basic information
    - Definition
    - Basic and additional requirements Classification
    - Uses
    - Purpose of articulation
    - Method of articulation
9. Artifical teeth arrangement
    - Basic principles of arrangement, compensating curves ideal occlusion-Molar and canine occlusion
    - Over jet and Overbite
    - Arrangement of anterior teeth individual tooth orientation
    - Arrangement of posterior teeth
10. Processing of complete denture
    - Flasking
    - Dewaxing
    - Packing
    - Curing
    - Finishing and Polishing.

FIXED PARTIAL DENTURE

1. **I**ntroduction and classification
    - Definition
    - Types
    - Parts
2. Impressions
    - Mouth Preparation
    - Impressions
3. Clinical procedures
    - Principles of preparations
    - Geometry
    - Finish lines
4. Materials
    - Metal
    - Metal ceramic
    - All ceramic
5. Lab procedures
    - Definitive case and dies
    - Wax pattern
    - Investing
    - Casting
    - Colours
    - Glazing

6. Clinical procedures
    - Cementation
    - Post-operative care

REMOVABLE PARTIAL DENTURE

1. Introduction and Classification
    - Definition
    - Indications
    - Contra-indications
    - Advantages
    - Disadvantages
    - Kennedy's Classification
    - Applegate's Rule
2. Components of RPD
    - Definition
    - Classification
    - Difference between tissue supported and tooth supported
3. Major Connectors
    - Maxillary major connectors
    - Mandibular Major connectors
    - Types
    - Indication and contraindication
4. Minor connectors
    - Definition
    - Types
5. Rest and Rest Seat
    - Definition
    - Types
    - Indication
6. Direct Retainers
    - Definition
    - Classification
    - Types
    - Parts
    - Principles
    - Indication
7. Indirect Retainers
    - Definition
    - Classification
    - Uses
8. RPD designing
    - Principles of designing

9. Surveyor
    - Definition
    - Types, Parts and tools
    - Need of surveying
    - Colour coding
10. Impression in RPD
    - Impression techniques and materials
    - Anatomic impression
    - Functional impression
    - Hindel's / Mclean / Altered cast technique

MAXILLO FACIAL PROSTHESIS

1. Introduction
    - Definition
    - Types
2. Classification
    - Maxillary defects
    - Mandibular defects
    - Acquired defects
    - Surgical defects
3. Material
    - Acrylic
    - Silicone
    - Pigementation and colours
4. Retention
    - Bandages
    - Implants
    - Cyanoacrylates
    - Other retentive aids
5. Obturators
    - Types
    - Defect
6. Sleep apnea
    - Etiology
    - Management
7. Lab procedures
    - Ear, eyes, limbs, facial, fingers
8. Impression procedures
    - Facial moulage
    - Impression techniques
    - Impression materials

Total number of hours required for Preclinical – 51 hours

UNIVERSITY PRACTICALS EXAM
– II BDS PRE CLINICAL
PROSTHODONTICS MARKS
MAX.- 60

S. No.	Procedures	Marks	Total
1.	Occlusal rim	5	5
2.	Articultion	5	5
3.	Teeth Setting	40	40
4.	Finishing	10	10
			60

Practical and Viva Voce Only in University Examination:

Pre-clinical Prosthodontics

Pre-clinical Conservative Dentistry…….

Internal Assessment - 20
Practical - 60
Viva Voce - 20

100

UBD17PRCT425	PROSTHODONTICS & CROWN AND 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 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 factors.
   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 madibular impression including anatomy landmark and their interpretation.
   c) Impression objectives.
   d) Impression materials.
   e) Impression techniques.
   f) Maxillary and mandibular impression procedures.
   i) Preliminary impressions.
   j) 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 maxilla 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/flowchart form).

S. Tresting abused tissues – discuss in brief.

T. Relining and rebasing of dentures – discuss in brief.

V. Immediate complete denture construction procedure – discuss in brief.

W. The single complete denture – discuss in brief.

X. Overdentures – discuss in brief.

Y. Dential 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 aesthetic 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. Post-insertion observations.
17. Temporary Acrylic Partial Dentures.
18. Immediate Removable Partial Denture.
19. 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 –

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. Aesthetic 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 Partials 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

UNIVERSITY PRACTICALS EXAM – IV BDS PROSTHODONTICS AND CROWN & BRIDGE MARKS MAX. – 100

S. No.	Procedures	Marks	Total
1.	Case History Sheet	10	10
2.	Border molding	25	25
3.	Final Impression	25	25
4.	Tooth Preparation	30	30
	Internal Assessment		10
			100

- Able to understand and use various dental materials
- Competent to carry out treatment of conventional complete and partial removable dentures and fabricate fixed partial dentures
- Able to carry out treatment of routine prosthodontic procedures.
- Familiar with the concept of osseointegration and the value of implant-supported Prosthodontc procedures

RECOMMENDED BOOKS:

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