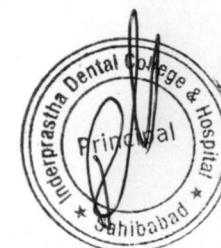
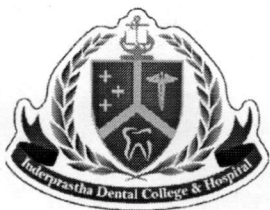


Key Indicator – 1.2 Academic Flexibility (30)

1.2.1 Percentage of interdisciplinary/interdepartmental courses/training across the Programmes offered by the college during the last five years

Year	Name of the pr	No. of courses where inter/transdisciplinary training/postings were built in the programme	
2021-22	M.D.S	18	Prosthodontics, Orthodontics, Paedodontics, Periodontics, Endodontics
2021-22	B.D.S	9	Human Anatomy, Human Physiology, Biochemistry, General Pathology, Microbiology, Pharmacology, General Medicine, General Surgery, Prosthodontics, Conservative, Paedodontics, Oral Surgery, Periodontics, Orthodontics, Oral Medicine and Radiology, Public Health Dentistry
2020-21	M.D.S	18	Prosthodontics, Orthodontics, Paedodontics, Periodontics, Endodontics
2020-21	B.D.S	9	Human Anatomy, Human Physiology, Biochemistry, General Pathology, Microbiology, Pharmacology, General Medicine, General Surgery, Prosthodontics, Conservative, Paedodontics, Oral Surgery, Periodontics, Orthodontics, Oral Medicine and Radiology, Public Health Dentistry
2019-20	M.D.S	18	Prosthodontics, Orthodontics, Paedodontics, Periodontics, Endodontics
2019-20	B.D.S	9	Human Anatomy, Human Physiology, Biochemistry, General Pathology, Microbiology, Pharmacology, General Medicine, General Surgery Prosthodontics, Conservative, Paedodontics, Oral Surgery, Periodontics, Orthodontics, Oral Medicine and Radiology, Public Health Dentistry
2018-19	M.D.S	18	Prosthodontics, Orthodontics, Paedodontics, Periodontics, Endodontics
2018-19	B.D.S	9	Human Anatomy, Human Physiology, Biochemistry, General Pathology, Microbiology, Pharmacology, General Medicine, General Surgery, Prosthodontics, Conservative, Paedodontics, Oral Surgery, Periodontics, Orthodontics, Oral Medicine and Radiology, Public Health Dentistry
2017-18	M.D.S	18	Prosthodontics, Orthodontics, Paedodontics, Periodontics, Endodontics
2017-18	B.D.S	9	Human Anatomy, Human Physiology, Biochemistry, General Pathology, Microbiology, Pharmacology, General Medicine, General Surgery, Prosthodontics, Conservative, Paedodontics, Oral Surgery, Periodontics, Orthodontics, Oral Medicine and Radiology, Public Health Dentistry





LIST OF INTERDEPARTMENTAL COURSES

Program Year	Program Name	Course code	Name of the course
2021-22	B.D.S	NA	HUMAN ANATOMY , EMBRYOLOGY, HISTOLOGY AND MEDICAL GENETICS
2021-22	B.D.S	NA	HUMAN PHYSIOLOGY
2021-22	B.D.S	NA	BIOCHEMISTRY
2021-22	B.D.S	NA	GENERAL PATHOLOGY
2021-22	B.D.S	NA	MICROBIOLOGY
2021-22	B.D.S	NA	GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS
2021-22	B.D.S	NA	GENERAL MEDICINE
2021-22	B.D.S	NA	GENERAL SURGERY
2021-22	B.D.S	NA	CLINICAL POSTING





LIST OF INTERDEPARTMENTAL COURSES

Program Year	Program Name	Course code	Name of the course
2021-22	M.D.S	NA	APPLIED ANATOMY
2021-22	M.D.S	NA	PHYSIOLOGY
2021-22	M.D.S	NA	BIOCHEMISTRY
2021-22	M.D.S	NA	NUTRITION AND BIOCHEMISTRY
2021-22	M.D.S	NA	PATHOLOGY
2021-22	M.D.S	NA	MICROBIOLOGY
2021-22	M.D.S	NA	PHARMACOLOGY
2021-22	M.D.S	NA	RESEARCH METHODOLOGY AND BIOSTATISTICS
2021-22	M.D.S	NA	APPLIED DENTAL MATERIALS
2021-22	M.D.S	NA	ADULT AND GERIATRIC PSYCHOLOGY
2021-22	M.D.S	NA	GENETICS
2021-22	M.D.S	NA	ANTHROPOLOGY



2021-22	M.D.S	NA	APPLIED DENTAL ANATOMY AND HISTOLOGY
2021-22	M.D.S	NA	ORAL PATHOLOGY AND ORAL MICROBIOLOGY
2021-22	M.D.S	NA	GROWTH AND DEVELOPMENT AND DENTAL PLAQUE
2021-22	M.D.S	NA	IMMUNOLOGY
2021-22	M.D.S	NA	EMBRYOLOGY
2021-22	M.D.S	NA	VIROLOGY



DENTAL COUNCIL OF INDIA

BDS COURSE REGULATIONS 2007



DENTAL COUNCIL OF INDIA

Temple Lane, Kotla Road
New Delhi - 110 002



Mechanic																			
Dent. Hygst.											5								5
Radiographer											3								3
Photographer										1									
Artist										1									1
Programmer												1							1
Data Entry Operators												2							2
Physical Director																	1		1
Engineer								1											1
Electricians								4											4
Plumber								2											2
Carpenter								1											1
Mason								1											1
A.C. Tech.								1											1
Helpers Electrical								3											3
Sweepers & Scavengers							2	4				5			6				17
Attenders	3	1	1		1	2	2	3				5	1		6				25
Security Personal									6										6
Dept. Secretaries												8							8
Driver									5										5
Nurses												9							9
Lab. Technicians															5				5

Note:

The above staff pattern indicates minimum requirements for the stipulated admissions. However, the actual staff requirements may marginally vary depending upon the patients' flow, work culture and design of the building.

SYLLABUS OF STUDY

1. HUMAN ANATOMY, EMBRYOLOGY, HISTOLOGY & MEDICAL GENETICS

A) GOAL

The students should gain the knowledge and insight into, the functional anatomy of the normal human head and neck, functional histology and an appreciation of the genetic basis of inheritance and disease, and the embryological development of clinically important structures. So that relevant anatomical & scientific foundations are laid down for the clinical years of the BDS course.

B) OBJECTIVES :

a) KNOWLEDGE & UNDERSTANDING:

At the end of the 1st year BDS course in Anatomical Sciences the undergraduate student is Expected to:

1. Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
2. Know the anatomical basis of disease and injury.
3. Know the microscopic structure of the various tissues, a pre-requisite for understanding of the disease processes.
4. Know the nervous system to locate the site of lesions according to the sensory and or motor deficits encountered.
5. Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.
6. Know the sectional anatomy of head neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
7. Know the anatomy of cardio-pulmonary resuscitation.

b) SKILLS

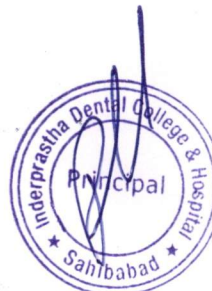
1. To locate various structures of the body and to mark the topography of the living anatomy.
2. To identify various tissues under microscope.
3. To identify the features in radiographs and modern imaging techniques.
4. To detect various congenital abnormalities.

C) INTEGRATION

By emphasising on the relevant information and avoiding unwanted details, the anatomy taught integrally with other basic sciences & clinical subjects not only keeps the curiosity alive in the learner but also lays down the scientific foundation for making a better doctor, a benefit to the society.

This insight is gained in a variety of ways:

- 1) Lectures & small group teaching
- 2) Demonstrations
- 3) Dissection of the human cadaver
- 4) Study of dissected specimens



- 5) Osteology
- 6) Surface anatomy on living individual
- 7) Study of radiographs & other modern imaging techniques.
- 8) Study of Histology slides.
- 9) Study of embryology models
- 10) Audio-visual aids

Throughout the course, particular emphasis is placed on the functional correlation, clinical application & on integration with teaching in other bio dental disciplines.

D) AN OUTLINE OF THE COURSE CONTENT:

1. General anatomy: Introduction of anatomical terms and brief outline of various systems of the body.
2. Regional anatomy of head & neck with osteology of bones of head & neck, with emphasis on topics of dental importance.
3. General disposition of thoracic, abdominal & pelvic organs.
4. The regional anatomy of the sites of intramuscular & intra vascular injections, & lumbar puncture.
5. General embryology & systemic embryology with respect to development of head & neck.
6. Histology of basic tissues and of the organs of gastrointestinal, respiratory, Endocrine, excretory systems & gonads.
7. Medical genetics.

E) FURTHER DETAILS OF THE COURSE.

I. INTRODUCTION TO :

1. Anatomical terms.
2. Skin, superficial fascia & deep fascia
3. Cardiovascular system, portal system collateral circulation and arteries.
4. Lymphatic system, regional lymph nodes
5. Osteology - Including ossification & growth of bones
6. Myology - Including types of muscle tissue & innervation.
7. Syndesmology - Including classification of Joints.
8. Nervous system

II. HEAD & NECK:

01. Scalp, face & temple, lacrimal apparatus
 02. Neck - Deep fascia of neck, posterior triangle, suboccipital triangle, anterior triangle, anterior median region of the neck, deep structures in the neck.
 03. Cranial cavity - Meninges, parts of brain, ventricles of brain, dural venous sinuses, cranial nerves attached to the brain, pituitary gland.
 04. Cranial nerves - III, IV, V, VI, VII, IX, XII in detail.
 05. Orbital cavity - Muscles of the eye ball, supports of the eye ball, nerves and vessels in the orbit.
 06. Parotid gland.
 07. Temporo mandibular joint, muscles of mastication, infratemporal fossa, pterygo - palatine fossa.
 08. Submandibular region
 09. Walls of the nasal cavity, paranasal air sinuses
 10. Palate
 11. Oral cavity, Tongue
 12. Pharynx (palatine tonsil and the auditory tube)
- Larynx. **OSTEOLOGY** - Foetal skull, adult skull, individual bones of the skull, hyoid bone and cervical vertebrae

III. THORAX : Demonstration on a dissected specimen of

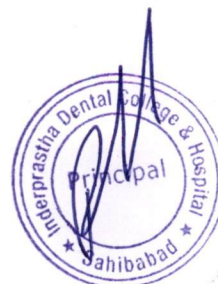
1. Thoracic wall
2. Heart chambers
3. Coronary arteries
4. Pericardium
5. Lungs - surfaces ; pleural cavity
6. Diaphragm

IV. ABDOMEN : Demonstration on a dissected specimen of

1. Peritoneal cavity
2. Organs in the abdominal & pelvic cavity.

V. CLINICAL PROCEDURES :

- a) Intramuscular injections: Demonstration on a dissected specimen and on a living person of the following sites of injection.
 1. Deltoid muscle and its relation to the axillary nerve and radial nerve.
 2. Gluteal region and the relation of the sciatic nerve.
 3. Vastus lateralis muscle.
- b) Intravenous injections & venesection: Demonstration of veins in the dissected specimen and on a living person.
 1. Median cubital vein
 2. Cephalic vein
 3. Basilic vein
 4. Long saphenous vein
- c) Arterial pulsations: Demonstration of arteries on a dissected specimen and feeling of pulsation of the following arteries on a living person.
 1. Superficial temporal
 2. Facial
 3. Carotid
 4. Axillary
 5. Brachial
 6. Radial
 7. Ulnar
 8. Femoral
 9. Popliteal
 10. Dorsalispedis



- d) Lumbar puncture: Demonstration on a dissected specimen of the spinal cord, cauda equina & epidural space and the inter vertebral space between L4 & L5.

VI. EMBRYOLOGY :

Oogenesis, Spermatogenesis, Fertilisation, Placenta, Primitive streak, Neural crest, Bilaminar and trilaminar embryonic disc, Intra embryonic mesoderm - formation and fate, notochord formation & fate, Pharyngeal arches, pouches & clefts, Development of face, tongue, palate, thyroid gland, pituitary gland, salivary glands, and anomalies in their development, Tooth development in brief.

VII. HISTOLOGY :

The Cell :

Basic tissues - Epithelium, Connective tissue including cartilage and bone, Muscle Tissue, Nervous tissue : Peripheral nerve, optic nerve, sensory ganglion, motor ganglion, Skin

Classification of Glands

Salivary glands (serous, mucous and mixed gland), Blood vessels, Lymphoid tissue Tooth, lip, tongue, hard palate, oesophagus, stomach, duodenum, ileum, colon, vermiform appendix Liver, Pancreas, Lung, Trachea, Epiglottis, Thyroid gland, para thyroid gland, supra renal gland and pituitary gland, Kidney, Ureter, Urinary bladder, Ovary and testis.

VIII. MEDICAL GENETICS :

Mitosis, meiosis, Chromosomes, gene structure, Mendelism, modes of inheritance

RECOMMENDED BOOKS:

1. SNELL (Richard S.) Clinical Anatomy for Medical Students, Ed. 5, Little Brown & company, Boston.
2. RJ LAST'S Anatomy - McMinn, 9th edition.
3. ROMANES(G.J.) Cunningham Manual of Practical Anatomy : Head & Neck & Brain Ed.15.Vol.III, Oxford Medical publication.
4. WHEATER,BURKITT & DANIELS, Functional Histology, Ed. 2, Churchill Livingstone.
5. SADLER, LANGMAN'S, Medical Embryology, Ed. 6.
6. JAMES E ANDERSON, Grant's Atlas of Anatomy. Williams & Wilkins.
7. WILLIAMS, Gray's Anatomy, Ed.38, Churchill Livingstone.
8. EMERY, Medical Genetics.

2. HUMAN PHYSIOLOGY

A) GOAL

The broad goal of the teaching undergraduate students in Human Physiology aims at providing 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 the 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.

B) COURSE CONTENTS THEORY

1. GENERAL PHYSIOLOGY

1. Homeostasis: Basic concept, Feed back 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.

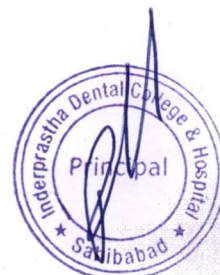
Plasma proteins - Types, concentration, functions & variations.

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.

Thrombocytes - Morphology, number, variations, function & thrombopoiesis.

Haemostasis - 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 endothelial 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, movements 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 filtration rate - definition, determination, normal values, factors influencing G.F.R. Tubular reabsorption - Reabsorption 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 & innervation of Urinary bladder, mechanism of micturition & 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, hypothalamic 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, fertilisation, implantation, maternal changes during pregnancy, pregnancy tests & parturition.

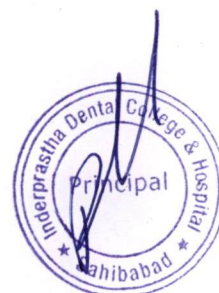
Lactation, composition of milk, factors controlling lactation, milk ejection, reflex, Male reproductive system : spermatogenesis, semen and contraception.

9. CARDIO VASCULAR SYSTEM

Functional anatomy and innervation of heart Properties of cardiac muscle

Origin & propagation of cardiac impulse and heart block.

Electrocardiogram - Normal electrocardiogram. Two changes in ECG in myocardial 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 organisation 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 categorised 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:

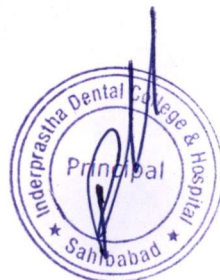
1. Determination of packed cell volume and erythrocyte sedimentation rate
2. Determination of specific gravity of blood
3. Determination of erythrocyte fragility
4. Determination of vital capacity and timed vital capacity
5. Skeletal muscle experiments.

Study of laboratory appliances in experimental physiology. Frog's gastrocnemius 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.

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
 Chatterjee; 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 antivitamins, antimetabolites 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 creatinine 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 10 g 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

1. CHEMISTRY OF BIOORGANIC MOLECULES

Carbohydrates: Definition, biological importance and classification. Monosaccharides - 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, Thioesters, Enol phosphates.

2. MACRONUTRIENTS 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 phosphorylation. Ketone body formation and utilisation. Introduction to glycogenesis, glycogenolysis, fatty acid synthesis, lipogenesis and lipolysis. Gluconeogenesis. Lactate metabolism . Protein utilisation for energy. Glucogenic and ketogenic amino acids. Integration of metabolism.

5. SPECIAL ASPECTS OF METABOLISM

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. Color 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 hypothyroidism and hyperthyroidism	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

RECOMMENDED BOOKS:

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

Reference books:

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

3. DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY

INTRODUCTION

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

SKILLS

The student should acquire basic skills in :

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

OBJECTIVES

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

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

1. TOOTH MORPHOLOGY

1. Introduction to tooth morphology:
 - ♦ Human dentition, types of teeth, & functions, Palmer's & Binomial notation systems, tooth surfaces, their junctions - line angles & point angles, definition of terms used in dental morphology, geometric concepts in tooth morphology, contact areas & embrasures - Clinical significance.
2. Morphology of permanent teeth :
 - ♦ Description of individual teeth, along with their endodontic anatomy & including a note on their chronology of development, differences between similar class of teeth & identification of individual teeth.
 - ♦ Variations & Anomalies commonly seen in individual teeth.
3. Morphology of Deciduous teeth :
 - ♦ Generalized differences between Deciduous & Permanent teeth.
 - ♦ Description of individual deciduous teeth, including their chronology of development, endodontic anatomy, differences between similar class of teeth & identification of individual teeth.
4. Occlusion :
 - ♦ Definition, factors influencing occlusion - basal bone, arch, individual teeth, external & internal forces & sequence of eruption.
 - ♦ Inclination of individual teeth - compensatory curves.
 - ♦ Centric relation & Centric occlusion - protrusive, retrusive & lateral occlusion.
 - ♦ Clinical significance of normal occlusion.
 - ♦ Introduction to & Classification of Malocclusion.



4. GENERAL PATHOLOGY

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

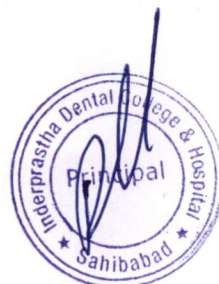
COURSE CONTENT

A. General Pathology -

1. Introduction to Pathology
 - Terminologies
 - The cell in health
 - The normal cell structure
 - The cellular functions
2. Etiology and Pathogenesis of Disease
 - Cell Injury
 - Types - congenital
 - Acquired
 - Mainly Acquired causes of disease
(Hypoxic injury, chemical injury, physical injury, immunological injury)
3. Degenerations
 - Amyloidosis
 - Fatty change
 - Cloudy swelling
 - Hyaline change, mucoid degeneration
4. Cell death & Necrosis
 - Apoptosis
 - 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
 - Granulomatous 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 & autoimmunity
- 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. Etiology and pathogenesis of neoplasia, Carcinogenesis
 - f. Tumour biology
 - g. Oncogenes and anti-oncogenes
 - h. Diagnosis
 - i. Precancerous lesions
 - j. Common specific tumours, Sq papilloma & Ca, Basal cell Ca, 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, Sq cell Ca, Dental caries, Dentigerous 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 Tetralogy



- Infective Endocarditis
 - Atherosclerosis
 - Ischaemic heart Disease
29. Haemorrhagic Disorders
Coagulation cascade
Coagulation disorders
- Platelet function
 - Platelet disorders
- Practicals
1. Urine – Abnormal constituents
 - 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, Actinomycosis, 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

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 Haematology Lee, Bithell, Foerster, Athens, Lukens

MICROBIOLOGY

AIM:

To introduce the students to the exciting world of microbes. To make the students aware of various branches of microbiology, importance, significance and contribution of each branch to mankind and other fields of medicine. The objectives of teaching microbiology can be achieved by various teaching techniques such as :

- a) Lectures
- b) Lecture Demonstrations
- c) Practical exercises
- d) Audio visual aids
- e) Small group discussions with regular feed back from the students.

OBJECTIVES:

A. KNOWLEDGE AND UNDERSTANDING

At the end of the Microbiology course the student is expected to :

1. Understand the basics of various branches of microbiology and able to apply the knowledge relevantly.
2. Apply the knowledge gained in related medical subjects like General Medicine and General Surgery and Dental subjects like Oral Pathology, Community Dentistry, Periodontics, Oral Surgery, Pedodontics, Conservative Dentistry and Oral medicine in higher classes.
3. Understand and practice various methods of Sterilisation and disinfection in dental clinics.
4. Have a sound understanding of various infectious diseases and lesions in the oral cavity.

A. SKILLS

1. Student should have acquired the skill to diagnose, differentiate various oral lesions.
2. Should be able to select, collect and transport clinical specimens to the laboratory.
3. Should be able to carry out proper aseptic procedures in the dental clinic.



A brief syllabus of Microbiology is given as follows:

A. GENERAL MICROBIOLOGY:

1. History, Introduction, Scope, Aims and Objectives.
2. Morphology and Physiology of bacteria.
3. Detail account of Sterilisation and Disinfection.
4. Brief account of Culture media and Culture techniques.
5. Basic knowledge of selection, collection, transport, processing of clinical Specimens and identification of bacteria.
6. Bacterial Genetics and Drug Resistance in bacteria.

B. IMMUNOLOGY:

1. Infection - Definition, Classification, Source, Mode of transmission and types of Infectious disease.
2. Immunity
3. Structure and functions of Immune system
4. The Complement System
5. Antigen
6. Immunoglobulins - Antibodies - General structure and the role played in defense mechanism of the body.
7. Immune response
8. Antigen - Antibody reactions - with reference to clinical utility.
9. Immuno deficiency disorders - a brief knowledge of various types of immuno deficiency disorders - A sound knowledge of immuno deficiency disorders relevant to dentistry.
10. Hypersensitivity reactions
11. Autoimmune disorders - Basic knowledge of various types - sound knowledge of autoimmune disorders of oral cavity and related structures.
12. Immunology of Transplantation and Malignancy
13. Immune haematology

C. SYSTEMATIC BACTERIOLOGY:

1. Pyogenic cocci - Staphylococcus, Streptococcus, Pneumococcus, Gonococcus, Meningococcus - brief account of each coccus - detailed account of mode of spread, laboratory diagnosis, Chemo therapy and prevention - Detailed account of Cariogenic Streptococci.
2. Corynebacterium diphtheriae - mode of spread, important clinical feature, Laboratory diagnosis, Chemotherapy and Active immunisation.
3. Mycobacteria - Tuberculosis and Leprosy
4. Clostridium - Gas gangrene, food poisoning and tetanus.
5. Non-sporing Anaerobes - in brief about classification and morphology, in detail about dental pathogens - mechanism of disease production and prevention.
6. Spirochaetes - Treponema pallidum - detailed account of Oral Lesions of syphilis, Borrelia vincentii.
7. Actinomycetes.

D. VIROLOGY:

1. Introduction
2. General properties, cultivation, host - virus interaction with special reference to Interferon.
3. Brief account of Laboratory diagnosis, Chemotherapy and immuno prophylaxis in general.
4. A few viruses of relevance to dentistry.
 - Herpes Virus
 - Hepatitis B Virus - brief about other types
 - Human Immunodeficiency Virus (HIV)
 - Mumps Virus
 - Brief - Measles and Rubella Virus
5. Bacteriophage - structure and Significance

E. MYCOLOGY

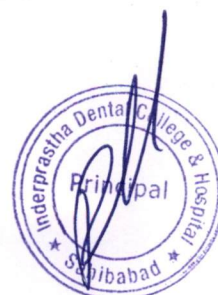
1. Brief Introduction
2. Candidosis - in detail
3. Briefly on oral lesions of systemic mycoses.

F. PARASITOLOGY:

1. Brief introduction - protozoans and helminths
2. Brief knowledge about the mode of transmission and prevention of commonly seen parasitic infection in the region.

RECOMMENDED BOOKS FOR REGULAR READING:

1. Text book of Microbiology - R. Ananthanarayan & C.K. Jayaram Paniker.
2. Medical Microbiology - David Greenwood et al.



BOOKS FOR FURTHER READING/REFERENCE.

- i) Microbiology – Prescott, etal.
- ii) Microbiology – Bernard D. Davis , etal.
- iii) Clinical & Pathogenic Microbiology – Barbara J Howard, etal.
- iv) Mechanisms of Microbial diseases – Moselio Schaechter, etal.
- v) Immunology an Introduction – Tizard
- vi) Immunology 3rd edition – Evan Roitt , etal.

5. GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS**GOAL:**

The broad goal of teaching under graduate 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 student 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 immuno 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) To 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:**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 parasymphomimetics and parasympholytics, 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 antithyroid 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 Chemotherapy 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 - septic, astringents, obtundents, 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.

LIST OF BOOKS RECOMMENDED FOR READING AND REFERENCE

1. R.S.Satoskar, Kale Bhandarkar's Pharmacology and Pharmacotherapeutics, 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 Livingstone 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.

6. 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.

INTRODUCTION

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 material.

To explain purpose of course in dental materials to personnels concerned with the profession of the 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 manufactures of dental materials

NEEDS 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 posses 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 accept.

SCOPE:

The dental materials is 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 an alkalinity of fluids shown 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.



- d) Tumours of Disputed Origin - Congenital Epulis & Granular Cell Myoblastoma.
 e) Metastatic tumours - Tumors metastasizing 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 :
 - ♦ Etiopathogenesis, 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 histopathological 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

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 |

9. GENERAL MEDICINE

GUIDELINES:

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

1. Special precautions/ contraindication 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 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.

THEORY SYLLABUS

CORE TOPICS (Must Know)

1. Aims of medicine Definitions of signs, symptoms, diagnosis, differential diagnosis treatment & prognosis.

2. Infections.

Enteric fever, AIDS, herpes simplex, herpes zoster, syphilis diphtheria.

COLLATERAL TOPICS (Desirable to Know)

Infectious mononucleosis mumps, measles, rubella, malaria.



3. G.I.T.

Stomatitis, gingival hyperplasia, dysphagia, acid peptic disease, jaundice, acute and chronic hepatitis, cirrhosis of liver ascites.

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

Pneumonia, COPD, Pulmonary TB, Bronchial asthma

Diarrhea

Dysentery

Amoebiasis

Malabsorption

Lung Abscess

Pleural effusion

Pneumothorax

Bronchiectasis

Lung cancers.

6. Hematology

Anemias, bleeding & clotting disorders, leukemias, lymphomas, agranulocytosis, splenomegaly, oral manifestations of hematologic disorders, generalized Lymphadenopathy.

7. Renal System

Acute nephritis

Nephrotic syndrome

8. Nutrition

Avitaminosis

Renal failure

Balanced diet

PEM

Avitaminosis

- Meningitis

- Examination of comatose patient

- Examination of cranial nerves.

Addison's disease, Cushing's syndrome.

9. CNS

Facial palsy, facial pain including trigeminal neuralgia, epilepsy, headache including migraine.

10. Endocrines

Diabetes Mellitus Acromegaly, Hypothyroidism, Thyrotoxicosis, Calcium metabolism and parathyroids.

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.

10. GENERAL SURGERY**AIMS:**

To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyze 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 problems are also to be addressed. At the end of one year of study the student should 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.

1. HISTORY OF SURGERY:

The development of surgery as a speciality over the years, will give the students an 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, their relevance to routine dental practice.

3. WOUNDS:

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

4. INFLAMMATION:

Of soft and hard tissues. Causes of inflammation, varieties, treatment and sequelae.

5. INFECTIONS:

Acute and chronic abscess skin infections, cellulitis, carbuncle, and erysipelas. Specific infections such as tetanus, gangrene, syphilis, gonorrhoea, tuberculosis, Actinomycosis, Vincents angina, cancrum oris. Pyaemia, toxemia and septicemia.

6. TRANSMISSIBLE 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 groups, blood transfusion, precautions and complications of blood and their products. Hemophilia's, 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 methods 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. **ANOMOLIES 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.

11. CONSERVATIVE DENTISTRY AND ENDODONTICS

OBJECTIVES:

- A. Knowledge and understanding
 - B. Skills and
 - C. Attitudes
- A). Knowledge and understanding:
- The graduate should acquire the following knowledge during the period of training.
- i. To diagnose and treat simple restorative work for teeth.
 - ii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.
 - iii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.
 - iv. To carry out simple endodontic treatment.
 - v. To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.



Subjects	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
General Human Anatomy Including Embryology, Osteology and Histology.	100	175		275
General Human Physiology	120	60		180
Biochemistry	70	60		130
Dental Materials	80	240		320
Dental Anatomy Embryology, and Oral Histology	105	250		355
Dental Pharmacology & Therapeutics	70	20		90
General Pathology Microbiology	55	55		110
	65	50		115
General Medicine	60		9	150
General Surgery	60		90	150
Oral Pathology & Microbiology	145	130		275
Oral Medicine & Radiology	65		170	235
Paediatric & Preventive Dentistry	65		170	235
Orthodontics & dental orthopaedics	50		170	220
Periodontology	80		170	250
Oral & Maxillofacial Surgery	70		270	340
Conservative Dentistry & Endodontics	135	200	370	705
Prosthodontics & Crown & Bridge	135	300	370	805
Public Health Dentistry including Lectures on Tobacco Control & Habit Cessation	60		200	260
Total	1590	1540	1989	5200

Note:

There should be a minimum of 240 teaching days each academic year consisting of 8 working hours, including one hour of lunch break.

Internship – 240x8 hours-1920 clinical hours

MINIMUM WORKING HOURS FOR EACH SUBJECT OF STUDY
(B.D.S COURSE)

I B.D.S

Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
General Human Anatomy Including Embryology, Osteology and Histology	100	175		275
General Human Physiology	120	60		180
Biochemistry.	70	60		130
Dental Anatomy Embryology, and Oral Histology	105	250		355
Dental Materials	20	40		60
Pre clinical Prosthodontics & Crown & Bridge	-	100		100
Total	415	685		1100

II B.D.S

Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
General & Dental Pharmacology and therapeutics	70	20		90
General Pathology	55	55		110
Microbiolog	65	50		115
Dental Materials	60	200		260
Oral Pathology and Oral Microbiology	25	50		75
Pre Clinical Prosthodontics & Crown & Bridge	25	200		225
Pre Clinical Conservative Dentistry	25	200		225
Total	325	775		1100

III B.D.S



Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
General Medicine	60		90	150
General Surgery	60		90	150
Oral Pathology and Oral Microbiology	120	80		200
Oral Medicine and Radiology	20		70	90
Paediatric and Preventive Dentistry	20		70	90
Orthodontics & Dentofacial Orthopaedics	20		70	90
Periodontology	30		70	100
Oral & Maxillofacial Surgery.	20		70	90
Conservative Dentistry & Endodontics.	30		70	100
Prosthodontics and Crown & Bridge	30		70	100
Total	410		750	1160

IV B.D.S

The following has been substituted in terms of (3rd Amendment) notification published on 25th August, 2011 in the Gazette of India and the same is as under:-

Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
Oral Medicine and Radiology	45		130	175
Paediatric and Preventive Dentistry	45		130	175
Orthodontics & Dentofacial Orthopaedics	30		130	160
Periodontology	50		130	180
Oral & Maxillofacial Surgery.	20		90	110
Conservative Dentistry & Endodontics.	30		90	120
Prosthodontics and Crown & Bridge	30		90	120
Public Health Dentistry	30		90	120
Total	280		880	1160

Subjects	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
Prosthodontics	80		300	380
Oral Medicine	45		100	145
Periodontics	50		100	150
Public Health	60		200	260
Conservative Dentistry	80		300	380
Oral Surgery	50		200	250
Orthodontics	30		100	130
Pedodontics	45		100	145
Total	440		1400	1840

Provided that nothing contained in the provision of this regulations or statue or rules, regulations or guidance or notifications of the concerned university, or any other law for the time being in force shall prevent any student pursuing his/her 4th year BDS Course who fails in any one or more subjects of 1st semester will carry over those subjects to the 2nd Semester and will appear in those subjects together with the subjects of the 2nd semester. A pass in all the eight subjects is mandatory for completion of the 4th BDS Course before undergoing internship programme.

The following teaching Hours as prescribed for "V BDS" Course has been deleted in terms of (3rd Amendment) notification published on 25th August, 2011 in the Gazette of India.

V.B.D.S

Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
Oral & Maxillofacial Surgery.	30		200	230



PART – VI SYLLABUS

The syllabus for post-graduate course includes both Applied Basic Sciences and subjects of concerned specialty. The syllabus in Applied Basic Sciences shall vary according to the particular speciality, similarly the candidates shall also acquire adequate knowledge in other subjects related to their respective speciality.

24. SYLLABUS DISTRIBUTION IN VARIOUS SPECIALITIES:

(i) PROSTHODONTICS AND CROWN & BRIDGE

Part-I

Paper-I : **Applied Basic Sciences:** Applied anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition and Biochemistry, Pathology and Microbiology, virology, Applied pharmacology, Research Methodology and bio statistics, Applied Dental anatomy and histology, Oral pathology & oral Microbiology, Adult and geriatric psychology. Applied dental materials.

Part-II

Paper-I : Removable Prosthodontics and Implant supported prosthesis(Implantology), Geriatric dentistry and Cranio facial Prosthodontics

Paper-II : Fixed Prosthodontics, occlusion, TMJ and esthetics.

Paper-III : Descriptive and analysing type question

(ii) PERIODONTOLOGY

Part- I

Paper-I : **Applied Basic Sciences:** Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

Part-II

Paper I : Normal Periodontal structure, Etiology and Pathogenesis of Periodontal diseases, epidemiology as related to Periodontics

Paper II : Periodontal diagnosis, therapy and Oral implantology

Paper III : Descriptive and analysing type question

(iii) ORAL & MAXILLOFACIAL SURGERY

Part-I

Paper-I : **Applied Basic Sciences:** Applied Anatomy, Physiology, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

Part- II:

Paper-I : Minor Oral Surgery and Trauma

Paper-II : Maxillo-facial Surgery

Paper-III : Descriptive and analysing type question

(iv) CONSERVATIVE DENTISTRY AND ENDODONTICS

Part-I



Paper-I : **Applied Basic Sciences:** Applied Anatomy, Physiology, Pathology including Oral Microbiology, Pharmacology, Biostatistics and Research Methodology and Applied Dental Materials.

Part-II

Paper-I : Conservative Dentistry
Paper-II : Endodontics
Paper-III : Descriptive and analysing type question

(v) ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

Part-I

Paper-I : **Applied Basic Sciences:** Applied anatomy, Physiology, Dental Materials, Genetics, Pathology, Physical Anthropology, Applied Research methodology, Bio-Statistics and Applied Pharmacology.

Part-II

Paper-I : Orthodontic history, Concepts of occlusion and esthetics, Child and Adult Psychology, Etiology and classification of malocclusion, Dentofacial Anomalies, Diagnostic procedures and treatment planning in Orthodontics, Practice management in Orthodontic
Paper II : Clinical Orthodontics
Paper III : Descriptive and analysing type question

(vi) ORAL AND MAXILLOFACIAL PATHOLOGY AND ORAL MICROBIOLOGY:

Part-I

Paper-I : **Applied Basic Sciences:** Applied anatomy, Physiology (General and oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (oral and dental histology), Biostatistics and Research Methodology

Part-II:

Paper-I : Oral pathology, Oral Microbiology and Immunology and Forensic Odontology
Paper-II : Laboratory techniques and Diagnosis and Oral Oncology
Paper-III : Descriptive and analysing type question

(vii) PUBLIC HEALTH DENTISTRY

Part-I

Paper-I : **Applied Basic Sciences:** Applied Anatomy and Histology, Applied Physiology and Biochemistry, Applied Pathology, Microbiology, Oral Pathology, Physical and Social Anthropology, Applied Pharmacology and Research Methodology and Biostatistics.

Part-II:

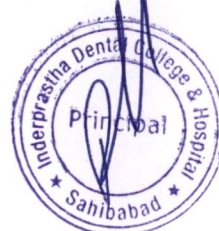
Paper-I : Public Health
Paper-II : Dental Public Health
Paper-III : Descriptive and analysing type question

(viii) PEDIATRIC DENTISTRY

Part-I

Paper I : **Applied Basic Sciences :** Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics Growth and Development and Dental plaque, Genetics.

Part-II:



Paper-I	:	Clinical Pedodontics
Paper-II	:	Preventive and Community Dentistry as applied to pediatric dentistry
Paper-III	:	Descriptive and analysing type question

(ix) ORAL MEDICINE AND RADIOLOGY

Part-I

Paper I	:	Applied Basic Sciences: Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics
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Part-II:

Paper-I	:	Oral and Maxillofacial Radiology
Paper-II	:	Oral Medicine, therapeutics and laboratory investigations
Paper-III	:	Descriptive and analysing type question

The following provision has been inserted in terms of (3rd Amendment) notification published on 26.08.2019 in the Gazette of India

- “(x) The detailed syllabus for all the specialities is annexed as SCHEDULE-IX to these regulations.”

CHAPTER - VII

GOALS AND OBJECTIVES OF THE CURRICULUM

(25) GOALS._

The goals of the post-graduate training in various specialities is to train the graduate in Dental Surgery who will,

- (i) practice respective speciality efficiently and effectively, backed by scientific knowledge and skill;
- (ii) exercise empathy and a caring attitude and maintain high ethical standards;
- (iii) continue to evince keen interest in professional education in the speciality and allied specialities whether in teaching or practice;
- (iv) willing to share the knowledge and skills with any learner, junior or a colleague;
- (v) to develop the faculty for critical analysis and evaluation of various concepts and views and to adopt the most rational approach.

(26) OBJECTIVES._

The objective of the post-graduate training is to train a student so as to ensure higher competence in both general and special area of interest and prepare him or her for a career in teaching, research and speciality practice. A student must achieve a high degree of clinical proficiency in the subject and develop competence in research and its methodology in the concerned field.

The objectives to be achieved by the candidate on completion of the course may be classified as under:—

- (a) Knowledge (Cognitive domain)
- (b) Skills (Psycho motor domain)
- (c) Human values, ethical practice and communication abilities

(a) KNOWLEDGE._



Paper-I	:	Clinical Pedodontics
Paper-II	:	Preventive and Community Dentistry as applied to pediatric dentistry
Paper-III	:	Descriptive and analysing type question

(ix) **ORAL MEDICINE AND RADIOLOGY**

Part-I

Paper I	:	Applied Basic Sciences: Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics
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Part-II:

Paper-I	:	Oral and Maxillofacial Radiology
Paper-II	:	Oral Medicine, therapeutics and laboratory investigations
Paper-III	:	Descriptive and analysing type question

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The objectives to be achieved by the candidate on completion of the course may be classified as under:-

- (a) Knowledge (Cognitive domain)
- (b) Skills (Psycho motor domain)
- (c) Human values, ethical practice and communication abilities

(a) **KNOWLEDGE._**



- (i) demonstrate understanding of basic sciences relevant to speciality;
- (ii) describe etiology, pathophysiology, principles of diagnosis and management of common problems within the speciality in adults and children;
- (iii) identify social, economic, environmental and emotional determinants in a given case and take them into account for planned treatment;
- (iv) recognise conditions that may be outside the area of speciality or competence and to refer them to the concerned specialist;
- (v) update knowledge by self study and by attending courses, conferences and seminars pertaining to speciality;
- (vi) undertake audit, use information technology and carry out research in both basic and clinical with the aim of publishing or presenting the work at various scientific gathering;

(b) SKILLS:

- (i) take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the condition;
- (ii) acquire adequate skills and competence in performing various procedures as required in the speciality;

(c) HUMAN VALUES, ETHICAL PRACTICE AND COMMUNICATION ABILITIES.

- (i) adopt ethical principles in all aspects of practice;
- (ii) foster professional honesty and integrity;
- (iii) deliver patient care irrespective of social status, caste, creed, or religion of the patient;
- (iv) develop communication skills, to explain various options available and obtain a true informed consent from the patient;
- (v) provide leadership and get the best out of his team in a congenial working atmosphere;
- (vi) apply high moral and ethical standards while carrying out human or animal research;
- (vii) be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed;
- (viii) respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

**PART-VIII
SPECIALITIES**

27. The following specialties for the post-graduate course to be followed by the university / institute are detailed asunder:-

(i) Prosthodontics and Crown & Bridge:

Prosthodontics and Crown & Bridge is a branch of dental art and science pertaining to the restoration and maintenance of oral function, health, comfort and appearance by the replacement of missing or lost natural teeth and associated tissues either by fixed or removable artificial substitutes.

(ii) Periodontology:

Periodontology is the science dealing with the health and diseases of the investing and supporting structures of the teeth and oral mucous membrane.

