
REVISED CURRICULUM

of

B.D.S



UNIVERSITY OF HEALTH SCIENCES

Khayaban-e-Jamia Punjab Lahore – 54600 Pakistan

INTRODUCTION

The foundation of dental education was laid in the sub-continent by establishing the Punjab Dental Hospital in 1930. The de' Montmorency College of Dentistry was put in operation in the same premises and BDS course was initiated in 1934. The syllabi and courses for BDS degree were laid down in 1934 and in 1938 were improved. They were revised after the establishment of Pakistan. The Pakistan Medical & Dental Council framed the curriculum, rules and regulations for BDS course in 1964, which were revised by it in 1974 and again later in 1991. The universities also made necessary amendments, every now and then. In 2003, Higher Education Commission put forward a curriculum for BDS course, which needs examination, improvement and revision.

A fundamental purpose of dental education is to develop health professionals who will maintain and improve the oral health status of individuals and population. Curriculum should keep pace with oral health problems of the country, its complex medical conditions, scientific knowledge, technologies, information tools and society's expectations from the health profession. Objectives of dental education are to educate students, to serve the patients, communities and to prepare them to continue to grow in skill and knowledge during their lifetime spent in dental practice. Curriculum embodies the values and vision of an institution. Dental education should be scientifically based, clinically relevant and medically informed. A dentist needs to be intellectually able, technically skilled and socially responsible.

The primary goal is to offer quality education, research opportunities, community service, patient-care experience within the context of academic and clinical programs besides providing continuing education programs. The curriculum should be competency based and contemporary. It should provide community based experience and integrates basic, clinical and social services, so as to prepare the students with adequate knowledge, skill and values to practice dentistry.

The University of Health Sciences proposes to fulfill its mission through the attainment of excellence, and leadership in education, research and service. It aims to create an environment of academic excellence, to prepare highest quality health-care personnel's who are sensitive to ethical and professional responsibilities.

It will help to expand the body of scientific knowledge in medical / dental and clinical services and in the delivery of health-care through research. It is committed to provide a scholarly environment conducive to a spirit of free inquiry and creative investigation.

The outline / feature of basic curriculum is stated for the authorities / colleges to expand and enlarge. Colleges may adopt different modes of education in case, trained, adequate teachers are available. The co-ordination and integration of various subjects in teaching shall be preferred. The growth of knowledge in medicine / dentistry and in educational practice means that a curriculum can never be final, its deletion and addition is a continuous exercise. The aim of dental curriculum is to produce a caring, knowledgeable, competent and skillful dentist who is able to accept professional responsibility for the effective and safe care of patients, who appreciates the need for continuing professional development, and who is able to utilize advances in relevant knowledge.

The spirit of enquiry, scientific thought, and argumentation, evaluation of literature / scientifically established facts, and design of experiments shall be inculcated in the students. Students who are intellectually, morally and physically qualified for a career in dentistry should be selected for admission in dental colleges. The student and the teacher are crucial elements in the educational program and not essentially the curriculum. The course / curriculum should ensure that after passing the examinations the graduate is entitled to be registered with Pakistan Medical & Dental Council and can forthwith practice dentistry without supervision.

The Board of Studies in Dentistry of University of Health Sciences, Lahore constituted a committee to review the curriculum made by of the Higher Education Commission and the revised curriculum of BDS formulated by the Pakistan Medical & Dental Council. The Committee after thorough deliberation and consideration made recommendations in form of draft and presented before the Board of Studies in Dentistry, University of Health Sciences. The members of the Board of Studies in Dentistry approved this draft with some observations.

The Board of Studies in Dentistry constituted a further sub-Committee headed by the Convener Board of Studies in Dentistry, Prof. Dr. Muhammad Rafique Chatha and Dr. Kamran Ali (Assistant Professor Oral Surgery) as a member. This sub-Committee after a lot of efforts and hard work made significant changes in the draft. The updated draft was subsequently approved and notified by the Syndicate and Board of Governors, UHS (No. UHS/REGISTRAR/INT/258 dated 9th April 2004).

The duration of the BDS course shall be for four years. House job for one year is mandatory after passing final BDS University Examination. One-year house job provides adequate comprehensive clinical practice in dental specialties.

The shortage of dentists in the country shall be adversely affected by prolonging the course from 4 to 5 years at this point in time. It is pertinent to note that the students and the dental colleges cannot bear the extra expenses under the existing economic conditions of the colleges and the people. It is well known that there is acute shortage of teachers in dental colleges and existing staff can hardly conduct four years course, in-view of this fact a five years course cannot be run properly. However, a 5 year course may be put into practice in future.

Dental colleges are established to produce health professionals to maintain oral health of people of Pakistan and not for other countries and to meet their requirements. It is therefore, in light of our needs, problems, realities and experiences of the past that it is recommended BDS course shall not be prolonged to 5-years

In each year active teaching period should be for 38 to 40 weeks, exclusive of the period of summer and winter vacations and time taken for holding examinations.

The minimum working hours in a week should be 40 to 45 hours.

The 40 hours per-week time table scheduled for 38 to 40 weeks per year, assures adequate time in 4-years for education to fulfill requirements for obtaining BDS degree.

CURRICULUM

The Year-Wise Distribution of Subjects & the Scheme of Studies:

1st Year	2nd Year	3rd Year	Final Year
Anatomy (including Histology) General anatomy Gross anatomy Histology Embryology Physiology Biochemistry Oral Biology & Tooth Morphology Oral anatomy Oral embryology Oral histology Oral physiology Tooth morphology Pakistan studies Islamiat/Ethics <i>Introduction to Dentistry</i> <i>Information Technology</i> Laboratory Instruction Dissection on cadavers Histology Physiology Biochemistry Oral histology Tooth morphology	General Pathology & Microbiology Pharmacology & Dental Materia Medica Community & Preventative Dentistry Science of Dental Materials <i>Research Methodology</i> <i>Communication Skills</i> Pre-clinical Dental Techniques, Prosthodontics Operative dentistry Orthodontics Periodontology	General Medicine General Surgery Oral Pathology Periodontology Oral Medicine Pre-clinical dental techniques, Crown & bridge Endodontics Clinical Assignments Medicine wards & emergency Surgery wards & emergency Exodontia clinics Oral medicine clinics Periodontics clinics Prosthodontics clinics	Prosthodontics Operative Dentistry Conservative dentistry Endodontics Crown & Bridge Pedodontics Oral Surgery (Oral & Maxillofacial Surgery) Orthodontics (Orthodontics & Dental Radiology) Gerodontology Implantology Practice Management Tutorials and seminars Case presentations Clinical Assignments Prosthodontics Operative Dentistry Exodontia clinics Oral & Maxillofacial Surgery Orthodontics

All subjects, topics, laboratory, practical and clinical work to be examined regularly and credits to be accounted in internal evaluation.

EXAMINATIONS

The form and content of assessments have a strong influence on shaping students learning styles and approach to the curriculum. Accordingly both assessment and examinations should be designed with the aim and specified objective in mind. The students should be fully aware of the particular role of any assessment.

Dental colleges should make regular assessment of their students, feeding back the results and discussing them with each student. Continuous assessment systems may be used to establish the progress of students toward achievement of attitudinal objectives as well as testing knowledge and skills objectives. Dental colleges should introduce effective system of progressive monitoring of student progress in all clinical disciplines so that students have been adequately assessed with regard to their clinical skills and acumen before the final examination.

It is recommended that internal examinations shall be regularly held every two months throughout the year. Continuous assessment and monitoring system should be established and records must be maintained.

The internal evaluation of students in written, clinical, practical, Oral examination and attendance should be given due weight-age and credited to the marks earned in respective university professional examination. It is recommended that internal assessment should carry weight-age in total marks allocated to a subject as suggested below.

The written examination shall include MCQs, short essay questions, and one long essay question. The number of MCQs and short essay in a paper and the time given to answer it shall be specified.

The distribution of marks shall be as follows:

<i>In pre-clinical subjects</i>	<i>Mark</i>
▪ Theory	= 90
Internal Assessment	= 10
▪ Practical	= 90
Internal Assessment	= 10
<u>TOTAL</u>	<u>= 200</u>

<i>In Clinical subject</i>	<i>Mark</i>
▪ Theory	= 90
Internal Assessment	= 10
▪ Clinical & Oral	= 90
Internal Assessment	= 10
<u>TOTAL</u>	<u>= 200</u>

The candidates must secure 50 % in each part of the examination.

The students are to meet the following requirements to be eligible to appear in the university examinations:

- No student should be allowed to appear in any university examination unless he /she has attended at least 75% of the lectures, demonstrations, tutorials, chair-side tuition and the practical or clinical assignments.
- Satisfactory completion of requirements in the pre-clinical and clinical areas of respective years of study. No concession shall be given in clinical requirements
- Payment of all dues and financial obligations.
- Return of all equipment and patients records to the college.
- High standards of ethics, morals and professional conduct.

The university written practical / clinical and oral examination shall be finalized in shortest possible time and gaps between the examinations shall be discouraged. Every effort shall be made to declare the result within two weeks of the completion of the examinations.

The subjects to be examined in first, second, third and final Profession, University Examinations.

1st Professional (1 st Year)	2nd Professional (2 nd Year)	3rd Professional (3 rd Year)	Final Professional (Final Year)
Anatomy (including Histology) General anatomy Gross anatomy Histology Embryology Physiology Biochemistry Oral Biology & Tooth Morphology. Oral anatomy Oral embryology Oral histology Oral physiology Tooth morphology Pakistan studies Islamiat/Ethics	General Pathology & Microbiology Pharmacology & Dental Materia Medica Community & Preventative Dentistry Science of Dental Materials	General Medicine General Surgery Oral Pathology Periodontology Oral Medicine	Prosthodontics Operative Dentistry Conservative dentistry Endodontics Crown & Bridge Pedodontics Oral Surgery (Oral & Maxillofacial Surgery) Orthodontics (Orthodontics & Dental radiology)

First Professional BDS Examination shall assess the students in five subjects as given below:-

Table-1

SUBJECT	THEORY		PRACTICAL		TOTAL
Anatomy (including Histology)	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Physiology	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Biochemistry	Paper I MCQ	10 Marks	Oral and Practical	40 Marks	100 Marks
	Paper II SEQ	40 Marks	Internal assessment	10 Marks	
Oral Biology and Tooth Morphology	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Pakistan Studies,	Paper SEQ	50 Marks	-		*100 Marks
Islamic / Ethics	Paper SEQ	50 Marks			
			Total Marks		700

(*The marks of Pakistan Studies & Islamiat /Ethics shall not contribute towards the total marks of the Professional Examination and determination of position.)

Table-2

SUBJECT	THEORY	REMARKS
Written paper , each in - Anatomy (including Histology) - Physiology - Biochemistry - Oral Biology and Tooth Morphology MCQs = 30 minutes SEQs = 2 ½ hours • IPS* SEQs = 2 hours	Factual Recall, Application of knowledge & Problem solving	MCQ paper pass marks = 50% SEQ paper pas marks = 50% In each paper separately
Oral & practical , each in - Anatomy (including Histology) - Physiology - Biochemistry - Oral Biology & Tooth Morphology	Data analysis, imaging, Specimen / Models, Histology, Sides, Spotting, Skills, Attitude	Pass marks 50%
Internal Assessment @ 10%	Attitude, Self-directed learning Class exams etc. Year's work book	20 marks in Anatomy, Physiology, Oral biology and Tooth Morphology 10 marks each in Biochemistry & IPS

[* Islamic & Pakistan Studies / Social Studies]

Second Professional BDS Examination shall assess the students in four subjects as given below:-

Table-1

SUBJECT	THEORY		PRACTICAL		TOTAL
Pharmacology & Dental Materia Medica	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
General Pathology & Microbiology	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Science of Dental Materials	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Community and Preventive Dentistry	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Total Marks					800

Table-2

SUBJECT	THEORY	REMARKS
Written paper, each in Pharmacology & Dental Materia Medica General Pathology & Microbiology Science of Dental Materials Community and Preventive Dentistry MCQ = 30 minutes SEQ = 2 ½ hours	Factual Recall, Application of knowledge & Problem solving	MCQ paper pass marks = 50% SEQ paper pass marks = 50% In each paper separately
Oral & practical, each in General Pathology & Microbiology Pharmacology & Dental Materia Medica Science of Dental Materials Community & Preventive Dentistry	Data analysis, imaging, Specimen / Models, Histology, Slides, Spotting, Skills, Attitude	Pass marks 50%
Internal Assessment @ 10%	Attitude, Self-directed learning Class exams etc. Year's work book	20 marks each in General Pathology, Pharmacology Science of Dental Materials Community & Preventive Dentistry

Third Professional BDS shall assess the students in five subjects as given below:-

Table-1

SUBJECT	THEORY		PRACTICAL		TOTAL
General Medicine	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
General Surgery	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Oral Pathology	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Periodontology	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Oral Medicine	Paper I MCQ	10 Marks	Oral and Practical	40 Marks	100 Marks
	Paper II SEQ	40 Marks	Internal assessment	10 Marks	
			Total Marks		900

Table-2

SUBJECT	THEORY	REMARKS
Written paper, each in General Medicine General Surgery Oral Pathology Periodontology Oral Medicine MCQ = 30 Minutes SEQ = 2 ½ hours	Factual Recall, Application of knowledge & Problem solving	MCQ paper pass marks = 50% SEQ paper pas marks = 50% In each paper separately
Oral & practical/ Clinical, each in General Medicine General Surgery Oral Pathology Periodontology Oral Medicine	Knowledge, Data analysis Clinical / Practical Skills, imaging, Attitude	Pass marks 50% in Oral Practical / Clinical and 50 % in Clinical separately
Internal Assessment @ 10%	Attitude, Class exams etc. Self-directed learning Year's work book	20 marks each in Medicine General Surgery, Oral Pathology, and Periodontology 10 marks each in Oral Medicine

Final Professional BDS shall assess the students in four subjects as given below:-

Table-1

SUBJECT	THEORY		PRACTICAL		TOTAL
Prosthodontics	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Orthodontics (Orthodontics & Dental Radiology)	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Operative Dentistry	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
Oral Surgery (Oral & Maxillofacial Surgery)	Paper I MCQ	20 Marks	Oral and Practical	80 Marks	200 Marks
	Paper II SEQ	80 Marks	Internal assessment	20 Marks	
					800 Marks

Table-2

SUBJECT	THEORY	REMARKS
Written paper, each in • Prosthodontics • Orthodontics • Operative dentistry • Oral Surgery MCQ = 30 Minutes SEQ = 2 ½ hours	Factual Recall, Application of knowledge & Problem solving	MCQ paper pass marks = 50% SEQ paper pas marks = 50% in each paper separately
Oral & practical/ Clinical, each in • Prosthodontics • Orthodontics • Operative Dentistry • Oral Surgery	Knowledge, Data analysis Clinical / Practical Skills, imaging, Attitude	Pass marks 50% in Oral Practical / Clinical and 50 % in Clinical separately
Internal Assessment @ 10%	Attitude, Class exams etc. Self-directed learning Year's work book	20 marks each in Prosthodontics, Orthodontics Operative dentistry, and Oral Surgery

DETAILS OF TEACHING SCHEDULE
FIRST PROFESSIONAL BDS

SUBJECTS	Lectures and Demonstrations	Practical Hours
Anatomy including Histology		
General anatomy	20	
Gross anatomy	50	300
Histology	30	50
Embryology	30	-
Physiology	80	250
Biochemistry	60	125
Oral Biology & Tooth Morphology.		
Oral anatomy	25	40
Oral histology	50	40
Oral embryology	20	-
Oral physiology	15	-
Tooth morphology	20	20
Pakistan studies	20	
Islamic studies	20	
Introduction to Dentistry	05	
Information Technology	05	25
Total	450	850

Total Hours For First Professional BDS= 1300

COURSE OUTLINE FOR FIRST PROFESSIONAL BDS

ANATOMY

The program of instruction is meant to provide a detailed anatomical study of the head and neck region to illustrate function and their interrelationship to the problems of dental therapy. Special emphasis is placed on the maxillofacial region, as well as those parts of the nervous system, thorax and abdomen, which are clinically important.

General Anatomy

Bones

- Structural classification
- Regional classification
- Functional classification
- Anatomy of bones with reference to blood supply

Cartilage

- Structural classification
- Regional classification
- Functional classification

Joints

- Structural classification
- Regional classification
- Functional classification
- Character and classification of synovial joints
- Movements of synovial joints
- Anatomy of joints with reference to dislocation sprain and inflammation

Muscle

- Parts of a muscle
- Classification
- Blood supply and nerve supply of muscle
- Neuromuscular junction
- Applied anatomy of muscle with reference to spasm.
- Paralysis atrophy and regeneration.

Cardiovascular system

- Introduction to C.V.S
- Arterial and venous circulation
- Capillary circulation
- Anastomoses
- Introduction to lymphatic system
- Lymph node

Nervous system

- Introduction to CNS
- Different parts of CNS with their brief functions
- Preripheral nervous system (cranial and spinal nerves) introduction
- Autonomic nervous system

Gross Anatomy

The gross structure of the regions of the human body, head and neck, thorax, abdomen and extremities are studied in the laboratory by dissection and demonstration. Special emphasis and study are placed on the oral and maxillofacial regions. Lectures stress morphological concepts, functional correlations and practical application to clinical problems. Lectures on radiographic anatomy of the head and neck and the development of the human body are also integrated with the teaching gross anatomy.

Head & Neck Region

Introduction

Osteology of cranio-facial complex, joints, musculature, nerve supply, blood supply, venous drainage and lymphatics

Neuro-anatomy

Introduction

General outline of the brain and spinal cord

Nuclei and central pathways of the cranial nerves

Thorax

Introduction

Parts of mediastinum

General disposition of organs and structures

Abdomen

Introduction

Parts of abdomen

General disposition of organs and structures

Practical Work

Study gross anatomical features of dissected out head and neck, thorax and abdomen. This includes demonstrations on models and dissected parts.

Essential Skills

The candidate should be able to perform the following:

Cadaver dissection to identify important anatomical structures.

Surface marking of structure important anatomical structures.

Identification of important anatomical structures on study models.

Recommended Books

Clinically oriented development anatomy by K. L. Moore

Anatomy for Dental Students by D. R. Johnson & K. L. Moore

Last's Anatomy by R.M.H. McMinn

Gray's Text Book of Anatomy

Clinical neuroanatomy by R. Snell

High Yield neuroanatomy by James D Fix

Cunningham's Manual of Practical Anatomy.

Atlas of Human Anatomy by Franz Frozhe

Color Atlas of Anatomy by Mc Minn.

Embryology

Gametogenesis
Fertilization
Preimplantation period
Embryonic period with special emphasis on gastrulation
Fetal period
Teratogenesis and developmental anomalies
Postnatal growth and developments of cranio facial complex.

Recommended Books

Langman's Medical Embryology by T.W.Sadler
Snell's Embryology by R.Snell.

Histology

General Histology

- Cell
- Epithelial tissue
- Connective tissue
- Muscle tissue
- Nervous tissue

Special Histology

- Digestive tract
- Respiratory tract
- Nervous system
- Exocrine glands
- Endocrine glands

Recommended Books

Wheater Functional Histology Text & Colour Atlas (4th Ed) 2000. Wheater, Burkitt, Young & Heath. Churchill Livingstone

Color Textbook of Histology (2nd Ed.) 2001. Gartner & Hiatt. Saunders

Basic Histology (9th Ed) 1998 Junqueira, Carneiro Contopoulos. Appleton & Lange

Essential Histology (1993 Ed. Rev.) Lippincott

Atlas of Functional Histology 1999 Kerr. by Mosby

Human Histology (2nd Ed.) 1996 Stevens & Lowe. Mosby.

Practical Work

Light microscopic examination and identification of various histological sections
A basic knowledge of slide preparation and commonly used stains

Essential Skills

The candidate should be able to perform the Identification of important histological sections of both basic tissues as well specialized tissues.

PHYSIOLOGY

The functional organization of human body as whole & homeostasis with special reference to the application of physiology in dentistry and comprising the following:-

Cell Physiology

Organization of the cell; Physical characteristics – membranous structures, organelles, nucleus; Functional system of the cell – endocytosis, pinocytosis, phagocytosis, synthetic functions, exocytosis, energy production, cell movements & locomotion. Common abnormalities of cell function and their clinical relevance.

Nerve- Muscle Physiology

Transport of Ions & molecules – diffusion, active transport; Membrane potentials and action potentials; Conduction of nerve impulse. Physiologic anatomy of skeletal and smooth muscle and mechanisms of muscle contraction. Neuromuscular transmission. Common diseases like myasthenia gravis etc

Cardiovascular System

Structure and physiology of cardiac muscle

Specialized excitatory & conductive system of heart

Cardiac Cycle

Heart Sounds

Regulation of heart pump

ECG basics, recording and interpretation; correlation of cardiac cycle with ECG and heart sounds.

Cardiac arrhythmias

Circulation; the concept of pressure, flow & resistance

Functions of arterial & venous systems

Microcirculation and lymphatic system

Control & regulation of blood flow

Regulation of peripheral vascular resistance

Arterial pulse

Arterial pressure regulation (short-term/ long-term) – hypertension types and consequences

Regulation of venous return

Cardiac output regulation and measurement.

Coronary circulation

Changes in exercise

Ischemic heart disease; cardiac failure; circulatory shock etc heart murmurs and echocardiography

Respiration:

Basic organization of respiratory system
Mechanics of pulmonary ventilation
Pulmonary volumes & capacities and their clinical relevance
Dead space (anatomical and physiological)
Principles of gas exchange and transport in blood
Nervous and chemical regulation of respiration;
Breathing patterns
Respiratory changes in exercise, high altitude, deep sea diving
Hypoxia – causes, types and effects
Dyspnea – causes, types and effects
Apnea, including obstructive sleep apnea
Tachypnea
Cyanosis – causes, types and effects
Respiratory insufficiency
Artificial respiration and oxygen therapy

Blood Physiology

Red blood cells, production, functions, regulation
Formation of hemoglobin, iron metabolism,
Anemia & polycythemia
Production & functions of leukocytes
Blood groups transfusion, transfusion reactions, tissue & organ transplantation
Hemostasis & blood coagulation
Platelets, production, regulation and functions
Thrombocytopenias
The clotting cascade
Hemophilia, Von Willebrand disease; Christmas disease
Bleeding time and clotting screen

Gastro-intestinal System

General structure & organization
Principles of GIT movements: Mastication, deglutition, peristalsis, vomiting, and defecation
Movements and functions of stomach, small intestine and large intestine
Secretory functions (saliva, gastric juice, pancreatic juice, intestinal juice & bile)
GIT hormones
Digestion & absorption & assimilation
Functions of liver & bilirubin formation & excretion; Jaundice.
Liver function tests

Renal Physiology

Structure and functions of kidneys
Glomerular filtration, factors affecting and measurement
Renal blood flow
Urine formation, micturition;
Renal regulation of blood volume & extra cellular fluid volume
Regulation of acid-base balance

Endocrine System:

General organization & importance of endocrine system

Chemistry, synthesis, storage, functions, control and abnormalities of pituitary, thyroid, parathyroid, pancreatic, and adrenal hormones

Hormonal assays and interpretation

Nervous System:

Organization of the nervous system

Synaptic transmission

Basic concepts of sensory, motor and integrative functions of nervous system including various pathways

Cerebral blood flow and cerebrospinal fluid system

Physiology of pain with emphasis on endogenous pain control mechanisms

Organization and functions of spinal cord

Organization and functions of sensory cortex

Organization and functions of motor cortex; pyramidal and extra pyramidal pathways; presentation and interpretation of common upper and lower motor neuron lesions

Organization and functions of cerebellum & basal ganglia in overall motor control - Parkinsonism

Thalamus- organization, nuclei and functions

Functions of hypothalamus

Temperature regulation

States of brain activity – sleep, brain waves, epilepsy & psychoses.

Organization and functions of autonomic nervous system

Special senses-elementary knowledge of structure and physiology of the special sense organs.

Laboratory Assignments

The candidate should be able to perform the following:

Hematology

- RBCs Count
- Hematocrit
- Determination of Hemoglobin (Hb%)
- Packed cell volume (PVC)
- Total leukocyte count (TLC)
- Differential leukocyte count (DLC)
- Erythrocyte sedimentation rate (ESR)
- Bleeding time (BT)
- Prothrombin time
- Thrombin time
- Blood grouping

Respiratory system

- Measurement of pulmonary volumes and capacities (Spirometry)
- Stethography

Nervous system

- Examination of superficial reflexes
- Examination of deep reflexes
- Examination of sensory, motor system
- Clinical examination of cranial nerves

Cardiovascular system

Frog's heart

- Recoding of normal cardiogram and affect if temperature
- Effect of drugs on cardiac contractility
- Effect on ions on cardiac contractility
- Properties of cardiac muscle in frog's heart (demonstration)

Cardiopulmonary resuscitation

Cold pressor test

Triple response

Examination of arterial pulse

ECG recoding/interpretation

Measurement of arterial blood pressure

Effect of exercise & posture on BP

Examination of apex beat

Heart sounds – auscultation of normal sounds/murmurs

Recording of body temperature

Introduction to biostatistics e.g. data collect and analysis

Recommended Books

Textbook of Medical Physiology (10th Ed) Sept.2000 Guyton. Saunders.

Review of Medical Physiology (20th Ed.) 2001 Ganong. Appleton & Lange

Physiology (2nd Revised Ed) 1998 Linda S Costanzo. W B Sanders

Lecture Notes on Human Physiology (4th Ed.) Bray JJ, Cragg, PA, MacKnight ADC,
Mills R G & Taylor D W. Blackwell

Human Physiology (8th Ed.) 1998. Vander, Sherman & Luciano. McGraw Hill

Principles of Physiology (3rd Ed.)2000 Berne RM & Levy MW. Mosby

Physiology (4th Ed.) 1998. Berne R M & Levy M W. Mosby

BIOCHEMISTRY

Introduction of Biochemistry

Introduction to cell (biochemical aspects)

Composition of cell

Methods to study cell biochemistry

Biochemistry of Intracellular and extra cellular Communication

Structure, assembly and function of cell membrane

Biochemistry of cell membrane, chemical composition

Importance of Lipid and proteins in membranes, chemistry of signals and receptors

Biochemistry of membrane transport mechanism

Biochemistry of fluids

Introduction of water and weak acids, Bases

Concept of pH and pH scale

Dissociation constant & titration curve of weak acids, the concept of pK values.

Henderson-Hasselbalch Equation

Buffers, their mechanism of action

Regulation of pH of body fluids; the concept of metabolic acidosis/alkalosis and respiratory acidosis/alkalosis

Routes of transport across cell membrane including simple & facilitated diffusion, osmosis, osmotic pressure, surface tension, viscosity & their importance related to regulation of body fluids

Amino Acids

Amino acids, classification, properties, functions & significance

Acid/base properties of amino acids

Separation techniques

Peptides

Introduction and biomedical significance

Peptide structure and separation techniques

Synthesis of peptides by automated techniques

Proteins

Structure and classification of proteins

Globular and fibrous proteins

Plasma proteins & their clinical significance

Heme proteins; myoglobin and hemoglobin

Structure, function and types of hemoglobin

Oxygen binding capacity of hemoglobin, and its regulation

Degradation of heme, formation of bile pigments, its types, transport and excretion

Hemoglobinopathies (Hb-S, Thalassemia etc.) and their biochemical basis

Enzymes

Introduction, nomenclature, properties of enzymes

Enzyme kinetics, mechanism of action, factors affecting enzymes activity, Michaelis-Menten Equation

Lineweaverburk equation and their application in enzyme kinetics

Enzyme inhibitors and their classification and biomedical importance
Application of enzyme in clinical diagnosis and therapeutic uses

Carbohydrates

Definition, classification, biochemical function and significance
Structure and function of monosaccharides and polysaccharides, their important examples and biochemical role

Lipids

Classification of lipids; classification, functions, biochemical significance
Phospholipids, glycolipids, sphingolipids and their biochemical significance
Fatty acids, chemistry, classification and biochemical function
Eicosanoids, their classification and function in health and disease
Cholesterol: chemistry, functions and clinical significance

Bioenergetics and Metabolism of Carbohydrates and Lipids

Introduction to bioenergetics, biologic oxidation
Oxidative phosphorylation and mitochondrial transport systems
The citric acid cycle: the catabolism of acetyl-CoA
Glycolysis and the oxidation of pyruvate
Metabolism of glycogen
Gluconeogenesis and pentose phosphate pathway
Regulation of carbohydrate metabolism
Oxidation and biosynthesis of fatty acids and eicosanoids
Metabolism of acylglycerols and sphingolipids
Lipids transport and storage
Cholesterol synthesis, transport and excretion
Regulation of lipid metabolism

Metabolism of Proteins and Amino Acids

Biosynthesis of amino acids
Catabolism of amino acids - the urea cycle
Porphyrins & bile pigments

Vitamins

Introduction, classification
Chemistry, Biochemical function, daily allowance and source of water soluble and fat soluble vitamins
Hypovitaminosis and hypervitaminosis

Mineral & Trace Element

Classification, biochemical role and regulation of macro minerals (Na, K, Ca, Cl, PO₄) and micro minerals (Fe, Zn, Mg, Se, I, Cu, Cr, Cd, Mn)

Nucleotide and nucleic Acid

Chemistry and structure of nucleotides and their biochemical role
Synthesis and degradation of purines and pyrimidines
DNA structure and synthesis
RNA structure and synthesis
Recombinant DNA technology
Protein synthesis and genetic code

Biochemistry of Digestive tract

Basic concepts of digestion and absorption

Composition, function, daily secretion, stimulants and depressants of;

Saliva

Gastric juice & HCL

Pancreatic juice

Intestinal juice

Bile Juice

Digestion and absorption of carbohydrates, proteins and lipids

Biochemical disorders of GIT, e.g. achlorhydria, peptic ulcer, lactose intolerance, cholelithiasis and related disorders

Integration of Metabolism

Metabolic effects of insulin and glucagon

Glucose homeostasis

Basic concepts of metabolism in fed-state, starvation and diabetes mellitus

An overview of nutrition, nutrients and energy requirements

Laboratory Assignments

Introduction to use laboratory facilities/equipment

Basic techniques and fundamental information

Preparation of solution-Normal solution and Normal saline

Experiments on carbohydrates-qualitative analysis

Experiments on proteins-qualitative analysis

Experiments on fats –qualitative analysis

Chemical analysis of Urine-Normal and abnormal specimens

Recommended Books

Lippincots illustrated Reviews, Biochemistry

Basic and applied dental Biochemistry by Williams & Elliot

Harper's Biochemistry

Text book of biochemistry by West & Todd

Berg, Tymoczko & Stryer, 5th edition (2002). Biochemistry

W.H Freeman. Dow, Lindsay & Morrison (1995) Biochemistry

Mosby. Cole and Eastoe. 2nd Edition (1988). Biochemistry and oral Biology

ORAL BIOLOGY & TOOTH MORPHOLOGY

Oral Anatomy

The actions, attachments of the muscles of the mouth and related regions

Facial & jaw bones

Salivary glands

Temporomandibular joint

The nerve supply, blood supply and lymphatic drainage of the orofacial region

Eruption and resorption of teeth

Articulation of teeth and movement during mastication.

Age changes of the teeth and jaws, and their integument

Oral Embryology

Development of human embryo with special emphasis on the pharyngeal apparatus, & role neural crest cells

Development of skull, jaws, face, tongue, palate, & teeth. amelogenesis, dentinogenesis, etc.

Development of deciduous and permanent dentition

Development of occlusion

Common anomalies associated with development of the afore-mentioned

Oral Histology

The microscope and its accessories

Principles governing their use and methods of working with them

Histology, composition and functions of various dental tissues including;

- Enamel
- Dentin-pulp complex
- Cementum
- Periodontal ligament
- Alveolar process

Histology, and functions of oral mucosae, gingivae and the dento-gingival junction,

Microscopic structure of salivary glands

Microscopic structure of temporomandibular joint

Oral Physiology

Composition, functions, control and clinical relevance of saliva.

The phenomenon of taste, smell, mastication, swallowing, pain, proprioception & speech.

Physiology of bone growth & metabolism with special reference to jaw bones. Effects of hormones, diet etc & various disease processes of jaw bones

Tooth Morphology

Study of naked eye anatomy of the primary and permanent teeth

Timings and sequence of eruption & shedding of teeth

Study of the forms and dimensions of the teeth, their drawings and modeling.

Laboratory Assignment

Essential Skills

The candidate should be able to perform the following:

- (i) Use of microtomes and methods of cutting sections;
- (ii) Common staining techniques.
- (iii) Clearing and mounting sections
- (iv) Histological preparation: a) hard tissues (b) soft tissues (c) combined hard and soft tissues.
- (v) Decalcification of histological sections

Recommended Books

Oral Histology Development, Structure & Function	Richard Ten Cate
Oral Histology & Embryology	Berkovitz
Orban's Oral Histology & Embryology	
Essentials of Oral Histology and Embryology	Avery 2nd edition Mosby
Orofacial Embryology	Kamran Ali
An Atlas of Oral Anatomy	Berkovitz
Tooth Morphology	Fuller
Wheeler's Atlas of Tooth Form	
Essentials of Oral Physiology	Robert M Bradley
Oral Physiology	Levalle

PAKISTAN STUDIES

Describe briefly the salient feature of the Pakistan movement.
Explain the basis for the creation of Pakistan.
Give a brief account of the history of Pakistan.
Explain the ethnic and cultural distribution of the population of Pakistan.
Describe the province and resources available in Pakistan
Describe the current problems faced by Pakistan
Describe the health care system in Pakistan
Describe the social, economic and health problems of the rural population of Pakistan.

ISLAMIC STUDIES

Understand the basic principles of Islam
Explain the concept of the Islamic state.
Explain the Quran as a guide for the modern society and scientific development
Describe the life of the Holy Prophet (Peace be upon him) as an example to follow.
Explain ethics in the Islamic Perspective
Describe the rights of the individual in Islam.
Describe the rights of women and children in Islam.
Explain the contribution of Islamic Scholars to science and medicine.
Understand Islamic in term of modern scientific development
Explain the concept of Rizk-e-Hilal.
Explain the concept of Hukook-ul-Ibad.

INTRODUCTION TO DENTISTRY

History of dentistry, role of basic sciences in dentistry, specialties of dentistry or branches of dentistry, Clinical and laboratory work in different sub-specialties, Importance of dentistry in modern era.

INFORMATION TECHNOLOGY

Introduction and history of computers, types of computer generations
Introduction to different hardware and their usage
Introduction to software, handling and management of windows
Usage of Microsoft Word & Excel for documentation
Usage of Microsoft Power Point for slide preparations
Handling of software for dental record keeping, handling of internet and usage of E-mail and net links and literature search from the internet.

DETAILS OF TEACHING SCHEDULE
SECOND PROFESSIONAL BDS

SUBJECTS	Lectures and Demonstrations	Practical Hours
General Pathology & Microbiology	100	200
Pharmacology & Dental Materia Medica	100	200
Community & Preventative Dentistry	50	200
Science of Dental Materials	75	200
Research methodology	15	25
Communication skills	10	
Pre-clinical Dental Techniques		
Operative Dentistry	15	50
Prosthodontics	10	50
Periodontology	10	30
Orthodontics	10	25
Maxillofacial appliances	05	20
Total	400	1000

Total Hours For Second Professional BDS= 1400

COURSE OUTLINE SECOND PROFESSIONAL BDS

GENERAL PATHOLOGY & MICROBIOLOGY

Cell Injury and Cellular Adaptations

Introduction

Causes of cell injury

Ischemic and hypoxic injury

Free radicals and cell injury

Cell death (necrosis) types of necrosis; pathogenesis and clinical examples of each

Gangrene dry, wet and gas gangrene with clinical examples

Intracellular accumulations

Fatty change - pathogenesis and manifestations of fatty change in liver, heart and kidneys

Pigments endogenous and exogenous; disorders of pigmentation with special emphasis on oral pigmentation

Cellular adaptations of growth and differentiation; hypertrophy, hyperplasia, atrophy, hypoplasia, metaplasia and dysplasia

Calcification - metastatic and dystrophic

Hyaline change.

Inflammation

Introduction

Acute inflammation cellular and vascular events

Mononuclear phagocytes system

Chronic inflammation

Chronic granulomatous inflammation

Giant cells

Morphologic patterns in acute and chronic inflammation

Systemic effects of inflammation

Healing and Repair

Introduction

Regeneration

Repair by connective tissue

Healing of skin wounds

Complications of wound healing

Mechanisms involved in repair

Factors affecting healing – local as well as systemic

Repair in the CNS

Healing in specialized tissues (Bone)

Abnormalities of fracture healing.

Hemodynamics

Hyperemia and congestion
Edema
Shock – types with pathogenesis and stages
Burns
Thrombosis
Embolism
Infarction

Immunology

Introduction
Antigens
The cellular basis of immune reactions
Antibodies
Complement system
Cytokines
The Immune response
Transplantation and major histocompatibility antigen
Immune deficiency – congenital and acquired clinical significance of common immunodeficiency states
Hypersensitivity reactions; pathogenesis and clinical examples
Autoimmunity; pathogenesis and clinical examples
Amyloidosis; classification, pathogenesis and clinical examples
Vaccination

Genetic Basis of Disease

Introduction
Mutations
Mendelian disorders
Disorders of defects in structural proteins
Disorders of defects in receptor proteins
Disorders of defects in enzymes
Disorders with multifactorial inheritance
Cytogenetic disorders molecular diagnosis
Diagnosis of genetic disease

Neoplasia

Introduction; Classification of tumors; Nomenclature of tumors
Characteristics of benign and malignant tumors with emphasis on local invasion, anaplasia and metastasis
Differences between benign and malignant tumors
Differences between carcinomas and sarcomas
Biology of tumor growth
Carcinogenic agents and their cellular interactions
Chemical carcinogenesis
Radiation carcinogenesis
Viral carcinogenesis
Oncogenes and cancer

Pathogenesis of cancer
Effect of malignant tumors on host
Laboratory diagnosis of cancer
Oral cancer and pre-cancer
Salivary gland tumors

Recommended Books

Pathological basis of disease 6th Edition Cortan, Kumar, Collins
Text book of Pathology by Walter & Israel

Microbiology

Cell types : prokaryocytes, eukaryocytes
Structure of bacteria
Culture media
Basic properties of micro-organisms and their mechanisms of pathogenicity
Common bacteria and their pathogenicity cocci, bacilli, spirochetes
The mode of action of chemotherapeutic agents
Mechanisms of resistance in bacteria
Hospital infections
Structure and properties of fungi and an overview of common fungal infections
Structure and properties of parasites and an overview of common parasitic infections
Structure and properties of protozoa and an overview of common protozoal infections
Structure and properties of viruses and an overview of common viral infections
Disinfection and sterilization
The spread of infectious diseases in dentistry

Recommended Books

Essentials and Applications of Microbiology Larry Mckane Judy Kandel
Microbiology by Jawetz

Laboratory Assignments

Essential Skills

The candidate should be able to perform the following:

Identification and interpretation of common human pathological specimens by naked eye examination
Laboratory instruction in hematology: CBC, DLC, TLC, Clotting screen etc
Laboratory instruction in microbiology including common staining techniques, culture media and their use etc

PHARMACOLOGY & Dental Materia Medica

This course presents the pharmacological properties of drugs and their proper use in dental therapeutics. It covers currently available drugs and the basic principles for evaluating new drugs as they become available. Special attention is given to those drugs that are relevant to the daily delivery of good dental care.

General Pharmacology

Definition of drug and drug nomenclature
Branches / divisions of pharmacy
Sources of drugs
Active principles of drug and pharmacy
Dosage forms and doses of drugs
Drug administration
Absorption of drugs and processes involved in drug absorption
Factors modify absorption of drugs
Transport of drugs across cell-membrane
Bio-availability its clinical significance and factors affecting bio-availability
Drugs reservoirs, distribution and redistribution of drugs, plasma protein binding
Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting it.
Excretion of drugs.
Mechanisms of drug action.
Dose response curves, structure activity relationship
Factors modifying action and doses of drugs
Pharmacokinetics, pharmaco-dynamics and receptors

Central Nervous system

Sedatives and hypnotics
Anti-epileptics
Central muscle relaxants
Anti-psychotics
Anxiolytics
CNS stimulants

Autonomic Nervous system

Parasympathomimetics
Parasympatholytics
Sympathomimetics
Sympatholytics
Ganglion blocking agents

Analgesics

Narcotic analgesics

Non-steroidal anti-inflammatory drugs

Anesthetics

Preanesthetic medication

General anesthetics

Local anesthetics

Chemotherapeutic Agents

Antibiotics

Antifungals

Anti-virals

Autocoids

Cancer chemotherapeutic agents

Introduction to common chemotherapeutic agents with emphasis on mechanisms of action and side effects

Cardiovascular drugs

Anti-anginal drugs

Cardiac glycosides

Anti-arrhythmic drugs

Anti-hypertensives

Thrombolytics

Anti-hyperlipidemics

Respiratory system

Anti-tussives

Bronchodilators

Mucolytics

Drug treatment of bronchial asthma

Drugs acting on Blood

Drug treatment of iron deficiency anemia

Drug treatment of megaloblastic anemia

Anticoagulants

Coagulants

Drugs acting on Kidneys

Diuretics

Inhibitors of tubular transport of water

GIT Drugs

Emetics

Anti-emetics

Ant-acids

Purgatives

Laxatives

Dental Pharmacology:

Pharmacology and therapeutic of drugs employed in dental practice:

Antimicrobial agents used in dentistry

Analgesics used in dentistry

Antiseptics and disinfectants

Agents used for the prevention of dental caries

Agents used for maintenance of oral hygiene

Dentin desensitizing agent

Agents used in root canal therapy

Local anesthetics used in dentistry

Artificial salivary preparations

Hemostatic agents used in dentistry

(Dental pharmacology shall be taught at a dental institution and paper setter must base 10% of MCQs and SEQs on dental pharmacology)

Practical Pharmacology :Essential Skills

The candidate should be able to perform the following:

Demonstrate the use of measurements systems in pharmacy practice

Make & dispense common drug preparations: lotion, liniment, ointment, solution, emulsion, powder, mixture suspension etc.

Recommended Books

Lippincott's Pharmacology by Champ & Harvey

Basic Pharmacology by RW Foster

Pharmacology by L.S Jacob

Principles of Pharmacology and Therapeutics by Goodman & Gillman.

Lectures Note on Drugs for Dental Students by Wilkin & Davidson

Clinical Pharmacology in Dental Practice by S.V Holroyd

Pharmacology by Dr. Maqsood Cheema

Clinical Dental Pharmacology Kamran Ali

COMMUNITY AND PREVENTIVE DENTISTRY

Introduction: Role of the preventive dentistry in community health

Primary health care approach: Concepts of primary health, oral health in PHC principles, implications

Society and oral health: Sociological perspective, social classes and society, family socialization and health, research methods in social sciences. Health needs assessment: impairment, disability and handicap, development of socio-dental indicators, use of health needs assessment to plan oral health care.

Basic principles and methods of oral epidemiology: Diagnostic testing, measures of disease frequency, variable and bias, type of studies.

Public health aspect of oral disease and disorders: Dental caries, periodontal disease, oral cancer, dental trauma, developmental enamel defects, dentofacial irregularities.

Community based strategies for preventing dental caries: Fluoride tooth paste, water fluoridation, fluoridated salts, dietary fluoride, fluoride mouth washes, fluoride varnishes, pit and fissure sealants.

Trends in oral health: The primary dentition, the permanent dentition, international comparison, root caries, changes associated with caries diagnosis.

Principles in community oral health: Introduction, design of study, calculation of sample size determination, analyses, issues, common statistical methods

Principles of health economics: Type of economic evaluation, stages of economic analysis, assessing the quality of economic evaluation and limitations.

Principles of oral health promotion: Principles of oral health behavior and health education : conceptualization health, health behavior and health education and health psychology perspective, determination of health education and health behavior models, theory to practice.

Nutritional dietary guideline and food policy in oral health: Effect of nutrition and diets and value of teeth in nutrition, guideline for nutrition, sugar consumption.

Fluoridation : History, legal framework and decision making about fluoridation, the ethics of water fluoridation, fluoridation case studies.

Approaches in oral health promotion: Planning, development skill required in oral health promotion, identification of resources.

Principles of organization and models of delivery of oral health care: The oral health care delivery system, policies and objectives, organization and potential for changes evaluation of opportunities.

Introduction to bio-statistics: Definition of variable, types of variable and analyzing the association between variable probability and samples. Methods of sampling, sampling errors, probability, normal distribution, and confidence interval. Tests of statistical significance, description of terms mean, modes, average, standard deviation, percentage, percentile, Chi-square kappa test, etc.). Introduction to SPSS Software

Practical Assignments

Essential Skills

The candidate should be able to perform the following:

- A. Clinical Oral Examination
 - i Exercise on models and extracted teeth
 - ii Exercise on patients in out patients department
 - iii Examination of institutionalized population like school children
- B. Questionnaire / interview study
 - i Designing a questionnaire
 - ii. Pilot testing the questionnaire
 - iii Data coding, processing and analysis
- C. Planning and conducting a dental health education (D.H.E.) session:
 - i. Designing D.H.E. material
 - ii Planning, conducting and evaluating (D.H.E) sessions
- D. Chair-side preventive dental procedures
 - i High fluoride gel application
 - ii Fissure sealing
 - iii Dietary counseling
 - iv Plaque disclosing
 - v Oral Hygiene Instructions
 - Tooth Brushing demonstration
 - Inter-dental cleaning
 - Chemical control of dental plaque

Recommended Books

Cynthis M.Pine, Community Oral Health Wright, 1997
Burt, B. & Ekland, S.A. Dentistry, Dental Practice and the Community 5th ed. Saunders, 1999
Daly, B. Treasure, E. et al Essential dental public health O.U.P., 2002
John O. Forrest, Preventive Dentistry.
Murray, J.J. Prevention of Oral Disease OUP, 2003

SCIENCE OF DENTAL MATERIALS

Introduction to dental materials:

Physical properties of dental materials

Thermal and electrical properties of dental materials

Mechanical properties i.e. stress, strain, stress/ strain relationship and other related properties

Biocompatibility

A comprehensive understanding of the composition, properties, setting reactions, manipulation, application and adverse effects of dental materials is required and the following materials are important in this regard:

Impression materials – classification, types

Gypsum product – model and Die materials

Investment materials – casting and casting defects.

Dental waxes

Separating media used in dentistry

Polymers

Non-metallic denture base materials.

Tissue conditioning materials and soft liner.

Amalgam – types, composition, mercury toxicity

Composites – development, types, acid etching

Compomers

Glass ionomers

Dental cements – different classes and usage.

Adhesives and dentin bonding materials

Materials used in endodontics

Metals and alloys – gold, Cobalt Chromium, Nicked – Chromium

Steel and Stainless steel & other wire materials,

- Ceramic materials – porcelain, metal fused porcelain, castable ceramics
- Abrasive and polishing materials
- Dental implant materials
- Soldering, welding, general principles.

Laboratory Assignments:

Essential Skills

The candidate should be able to perform the following:

Identification of all dental materials

Manipulation of dental plasters

Exercises in acrylic partial dentures

Exercises in cast partial denture

Recommended Books

Craig/Powers/Wataha: Dental Materials: Properties and Manipulation, 7th Edition Mosby
Restorative Dental Materials by Robert. Craig.
Notes on Dental Materials by Shahina Nusrat.
Clinical Handling of Dental Materials by B.N Smith.
Notes on Dental Materials by E.C.Combe.
Dental Chemistry by Cunnigham.

PRE-CLINICAL DENTAL TECHNIQUES

Introduction to:

Operative Dentistry
Prosthetic Dentistry
Orthodontics
Maxillofacial Appliance
Periodontology

Operative Techniques

- Introduction to dental operatory & armamentarium
- Introduction to instruments used in cavity preparation
- Principles of cavity preparation
- Cavity preparation on plaster models / phantom head using different materials
- Cavity preparation and filling on extracted teeth. using different materials
- Methods of sterilization
- Rubber dam, components, application
- Use of matrix bands, matrix band retainers, and wedges.
- Anterior crowns: porcelain fused to metal
- Posterior crowns: metal, porcelain fused to metal
- Bridges: metal, porcelain fused to metal
- Repair work of crown & bridges

Prosthetic Techniques

- Introduction of impression and denture materials
- Laboratory procedures
- Plaster slab, wire bending exercises, manipulation of dental waxes, denture exercise (partial), anterior partial denture, posterior partial denture.
- Acrylic removable partial denture
- Cast partial denture
- Complete denture
- Soldering and welding techniques

Maxillofacial Appliances

- Bite raising appliances
- Occlusal splints

Orthodontics Laboratory Procedures

- Properties of wires used in orthodontics.
- Principles of wire bending including wire bending on wooden blocks.
- Removable appliance: interceptive, corrective, retainers appliances.

Periodontology

- Use of instruments
- Prophylaxis exercises on phantom head

INTRODUCTION TO RESEARCH METHODOLOGY

Introduction to philosophy of sciences and its implications.

Scientific enquiry, hypothesis, theory & law.

Introduction to Bio-statistics.

Myth of scientific methods.

Origin and categories of ideas in research.

Varieties of models.

Introduction to medical / dental writing.

Introduction to basic terminologies of research.

Illustrating presentations and publications.

COMMUNICATION SKILLS

Introduction and principles of communication skills, factors involved in communication, presentation skills, principles of presentation. Introduction of visual aids. Counseling, principles of counseling, communication with patients.

DETAILS OF TEACHING SCHEDULE

THIRD PROFESSIONAL BDS

SUBJECTS	Lectures & Demonstrations	Clinical / Practical Hours
1. General Medicine	100	200
2. General Surgery	100	200
3. Oral Pathology	100	80
4. Oral Medicine	50	80
5. Periodontology	50	200
Clinical Assignments		
• Oral surgery (Exodontia clinics)	20	80
• Operative Dentistry	15	80
• Prosthodontics	15	80
TOTAL	450	1000

Total Hours For Third Professional BDS = 1450

COURSE OUTLINE THIRD PROFESSIONAL BDS

GENERAL MEDICINE

The instruction in general medicine should include the etiology, pathogenesis, clinical presentation, appropriate investigations and management principles of the diseases of various systems.

It is extremely important that the oral manifestations and clinical significance of various systemic diseases must be highlighted and potential complications of medically compromised patients be appreciated by the student.

Eliciting a thorough medical history, carrying out a meticulous clinical examination, (general as well as systemic) diagnosis and treatment planning.

Application of invasive and non-invasive diagnostic modalities in medical practice

Diseases of cardiovascular system

Rheumatic fever

Rheumatic heart disease

Ischemic heart disease

Differential diagnosis of acute chest pain and management principles

Cardiac failure

Cardio-pulmonary resuscitation: Basic life support (BLS) and advanced life support (ALS)

Pericarditis

Valvular heart disease

Infective endocarditis

Congenital heart disease

Pericarditis

Hypertension

Diseases of respiratory system

Chronic bronchitis

Bronchial asthma

Emphysema

Bronchiectasis

Pneumonias

Tuberculosis

Respiratory distress syndrome of the newborn (hyaline membrane disease) and adult

Pulmonary edema

Pulmonary thrombo-embolism

Acute respiratory obstruction

Respiratory failure

Cystic fibrosis

Bronchial carcinoma

Cyanosis

Dyspnea

Finger clubbing

Hematological Diseases

Anemias (all types)

Polycythemia

Leukemias

Myeloproliferative and myelodysplastic disorders

Thrombocytopenias

Hemophilia, von Willebrand disease, Christmas disease and other disorders of blood clotting system

Infectious Diseases

Common bacterial infections

Common parasitic infections

Common protozoal infections

Common fungal infections

Common viral infections

Diseases of nervous system

Meningitis

Infections of CNS

Headache

Migraine

Cluster headaches

Facial pain with special emphasis on trigeminal neuralgia, vagoglossopharyngeal neuralgia, multiple sclerosis and other central/peripheral causes

Facial paralysis central and peripheral causes with special emphasis on differentiation of upper motor neuron and lower motor neuron lesions and Bell's palsy

Cerebrovascular accident

Hemiplegia and paraplegia

Epilepsy

Parkinson's disease

Dementia, Alzheimer's disease

Cerebral edema

Diseases of gastrointestinal system

Esophagitis

Peptic ulcer

Duodenal ulcer

Coeliac disease

Inflammatory bowel disease

Chronic diarrhea

Cancers of GIT

Diseases of liver

Acute and chronic infections, viral hepatitis A,B,C,
Liver cirrhosis
Alcoholic liver disease
Liver Abscess
Hepatic encephalopathy
Hepatocellular carcinoma
Jaundice: hereditary and acquired causes
Liver function tests: rationale and interpretation

Diseases of kidneys

Nephrotic syndrome
Infections of the kidney and urinary tract system
Acute and chronic renal failure
Uremia
Kidney stones
Renal dialysis and transplants

Diseases of Endocrine System.

Disorders related to the hyper and hypo secretions of the pituitary gland
Disorders related to the hyper and hypo secretions of the thyroid gland
Disorders related to the hyper and hypo secretions of the parathyroid glands
Disorders related to the hyper and hypo secretions of the adrenal cortex with special emphasis on steroid therapy
Disorders related to the hyper and hypo secretions of the adrenal medulla
Disorders related to the hyper and hypo secretions of Islets of Langerhans with special emphasis on Diabetes Mellitus

Clinical Assignments

General medicine OPD, wards and emergency

Essential Skills to be acquired:

1. Elicit a thorough medical history
2. Should be able to carry out a meticulous general and systematic physical examination (CNS, CVS, respiration, GIT, GU etc)
3. Should be able to interpret common signs and symptoms
4. Should be able to carry out cardio-pulmonary resuscitation
5. Collect samples of blood, urine, sputum, pus swab etc.
6. Should be able to advise and interpret common laboratory and related investigations
7. Should be able to administer drugs by intramuscular and intravenous routes
8. Should observe management of critically ill patients in ICU

Recommended Books

Text book of Medicine Davidson
Clinical Medicine P.J.Kumar
Synopsis of Medicine in Dentistry by Lawrence Cohen.
Hutchison's Clinical Methods ELBS

GENERAL SURGERY

Surgical Principles

Eliciting a thorough medical history, carrying out a meticulous clinical examination, diagnosis and treatment planning.

Application of invasive and non-invasive diagnostic modalities in surgical practice

Cross infection control and sterilization

Surgical instruments and their use

Sutures and suturing techniques

Protocols of operation theatre, ward work, patient clerking and out-patient clinics

Introduction to basic surgical skills

Healing and Repair of Wounds

Mechanism of healing and repair in both hard and soft tissues

Complications of wound healing and their management

Surgical Infections

Clinical presentation, diagnosis and treatment of bacterial, viral, fungal, and protozoal infections including hospital infections.

Cellulitis, spread of infection through fascial planes, Ludwig's angina, intracranial complications of dental infection

Osteomyelitis.

Chronic sinuses and fistulae of the oral & maxillofacial region.

Trauma Care

Principles of pre-hospital, emergency and definitive care of trauma victims with special emphasis on the management of airway, bleeding and circulation and CPR protocols.

Principles of management of head, chest and abdominal injuries

Principles of nutrition and fluid intake in trauma victims

Presentation, diagnosis and treatment of maxillofacial trauma including fractures of maxilla, mandible and the zygomatic complex

Principles of fracture healing

Hemorrhage, Shock, Burns

Causes, presentation, diagnosis and management of primary and secondary hemorrhage; vasovagal, cardiogenic, septic, anaphylactic, neurogenic hypoglycemic, and hypovolemic shock

Presentation and management of burns victims.

Oral & Maxillofacial Pathology

Epidemiology, classification, clinical presentation, diagnosis and treatment of benign and malignant tumors of oral cavity including epithelial, soft tissue, and bone tumors. Special emphasis should be laid down on the oral squamous cell carcinoma, basal cell carcinoma, melanoma and osteosarcoma

Epidemiology, classification, clinical presentation, diagnosis and treatment of odontogenic tumors and cysts with special emphasis on ameloblastoma, Pindborg tumor, dentigerous cyst, radicular cyst and keratocyst.

Maxillary sinusitis, carcinoma and other pathological lesions of maxillary sinus

Sialadenitis, sialolithiasis, sialosis, Sjogren's syndrome, Mickulicz syndrome.

Cystic lesions like mucocele, ranula of salivary glands.

Epidemiology, classification, clinical presentation, diagnosis and treatment of benign and malignant tumors of salivary glands.

Neck pathology

Cervical lymphadenopathy, thyroid gland, thyroglossal cyst, parathyroid gland, branchial cyst, dermoid cyst, , sternomastoid tumor, cervical rib, carotid body tumor, carotid aneurysm, thymic swellings, cystic hygroma, pharyngeal pouch, spinal abscess etc
Carcinoma of the esophagus and larynx

Developmental Pathology

Developmental defects of oral and para-oral structure with special emphasis on the cleft lip and palate.

Clinical Assignments

General surgical OPD, wards and emergency

Essential Skills to be acquired:

9. Provide First Aid: Resuscitation (ABC) of poly-trauma, CPR.
10. Collect samples of blood, urine, sputum, pus swab etc.
11. Should be able to administer drugs by intramuscular and intravenous routes
12. Understand the principles of pre-operative preparations, sterilization /disinfection techniques.
13. Understand principles of wound care, skin suturing and suture removal, incision and drainage of superficial abscesses, excision of small soft tissue lumps, needle biopsies, aspiration of localized fluids, etc.
14. Should observe common surgical procedures, treatment of fracture / dislocation

Recommended Books

Text book of general surgery by Bailey & Love

An Introduction to the Symptoms & Signs of Surgical Disease Norman Browse

Clinical Methods in General Surgery by S. DAS

Clinical Methods in General Surgery by Hamilton & Bailey

Text book of Surgery by Ijaz Ahsan

ORAL PATHOLOGY

Development Distribution of Oral and Para Oral Structures:

Tongue:

Macroglossia: microglossia, ankylosed tongue, benign, fissured tongue, benign migratory glossitis, black hairy tongue, lingual thyroid and lingual varicosities.

Lips:

Commisural and para median lip pits, fissures, double lip, cleft lips.

Oral mucosa:

Fordyce's granules, genodermatosis, leukoedema.

Gingiva:

Fibromatosis gingivae.

Salivary glands:

Aplasia, atresia of ducts, ectopic glands, developmental cysts.

Jaws:

Condylar hyperplasia, coronoid hyperplasia, condylar duct, hemihyperplasia, mandibulofacial dysostosis, hemifacial atrophy, Pierre Robin sequence, Crouzon's syndrome, Apert's syndrome.

Developmental cysts:

Including palatal cyst of newborn, nasolabial cyst, globulomaxillary cyst, nasopalatine duct cyst, median palatal cyst, epidermoid and dermoid cysts, thyroglossal tract cyst, branchial cyst, lymphoepithelial cyst.

Teeth:

Micro and macrodontia; gemination, fusion, concrescence, dilaceration, Talon's cusps, dens in dente, taurodontism etc. Anodontia, hypodontia, supernumery teeth, and predeciduous teeth. Amelogenesis imperfecta, enamel hypoplasia due to systemic disturbance, dentinogenesis imperfecta, dentinal dysplasias, odontodysplasia; ankylosis of teeth.

Epithelial Pathology:

Benign tumors of epithelial origin including papilloma, karto acanthoma, Heck's diseases, verruciform xanthoma, etc.

Pigmented cellular nevus and oral melanotic macules, melanocanthoma, acquired melanocytic nevus etc.

Premalignant lesions / conditions of the oral cavity like leukoplakia, erythroplakia. oral submucous fibrosis, nicotinic stomatitis, actinic keratosis, actinic cheilosis, tobacco pouch keratosis, Plummer Vinson syndrome etc.

Epithelial malignancy including oral squamous cell carcinoma, verrucous carcinoma, spindle cell carcinoma, basal cell carcinoma, melanoma, etc.

Soft Tissue Pathology:

Fibroma, giant cell fibroma, epulis fissuratum, inflammatory papillary hyperplasia, fibrous histiocytoma, fibromatosis, pyogenic granuloma etc,

Lipoma, hemangiomas, Rendu-Osler-Weber syndrome, Struge-Weber disease, angiofibromas and lymphangiomas,

Traumatic neuroma, neurofibroma, neurofibromatosis, schwannoma and multiple endocrine neoplasia syndromes

Soft tissue sarcomas including fibrosarcoma, liposarcoma, malignant fibrous histiocytoma, neurofibrosarcoma, Kaposi's sarcoma, angiosarcoma, leiomyosarcoma, rhabdomyosarcoma, synovial sarcoma, metastatic soft tissue sarcomas.

Bone Pathology:

Osteogenesis imperfecta, osteopetrosis, cleidocranial dysplasia, focal osteoporotic bone marrow defect, idiopathic osteosclerosis, massive osteolysis, Paget's disease of bone Langerhans cell disease,

Giant cell lesions,

Fibro osseous lesions

Granulomatous lesions

Osteoma, Gardner syndrome, osteoid osteoma, osteoblastoma, chondroma, chondromyxoid fibroma, bony hemangioma, osteosarcoma, fibrosarcoma, chondrosarcoma, Ewing's sarcoma, metastatic tumors of the jaws.

Salivary Gland Pathology:

Sialadenitis

Sialolithiasis

Sialosis

Sialorrhea

Xerostomia

Benign lymphoepithelial lesion

Sjogren's syndrome

Cystic lesions like mucocele, ranula and sialocyst of salivary glands

WHO classification of salivary gland tumors

Benign tumors of salivary glands-epidemiology and distribution in oral cavity like pleomorphic adenoma, papillary cyst adenoma lymphatosum, adenoma-oxyphilic and canalicular, oncocytoma, malignant tumors of salivary glands, epidemiology, distribution in oral cavity, adenoid cystic carcinoma, mucoepidermoid tumor and carcinoma, adenocarcinoma, carcinoma ex pleomorphic adenoma.

Cysts of Odontogenic Origin:

Pathogenesis of jaw cysts, clinical signs and symptoms, diagnostic modalities e.g. radiography, aspiration, biochemistry, culture & sensitivity, biopsy etc

WHO classification,

Dentigerous cyst,

Eruption cyst

Gingival cyst,

Primordial cyst / odontogenic keratocyst, Gorlin Coltz syndrome

Radicular cyst

Lateral periodontal cyst

Calcifying odontogenic cyst

Carcinoma in odontogenic cysts

Tumors of Odontogenic Origin:

WHO classification,

Ameloblastoma, squamous odontogenic tumor, calcifying epithelial odontogenic tumor, ameloblastic fibroma, ameloblastic fibro-dentinoma & ameloblastic fibroodontoma, odonto-ameloblastoma, adenomatoid odontogenic tumor, calcifying odontogenic cyst, odontomes, odontogenic fibroma, myxoma, cementoblastoma; malignant ameloblastoma, primary intra-osseous carcinoma, malignant variants of other odontogenic epithelial tumors, malignant changes in odontogenic cysts;

Infections:

Diseases of bacterial origin including, impetigo, erysipelas, streptococcal infections, scarlet fever, diphtheria, syphilis, tuberculosis, gonorrhea, leprosy, noma, actinomycosis, cat scratch disease, sinusitis, phenomenon of dental caries,

Diseases of viral origin including, herpes group, enteroviruses, rubella, mumps and AIDS.,

Diseases of fungal and protozoal origin including, candidiasis, histoplasmosis, mucormycosis, cryptococcosis, aspergillosis, blastomycosis, toxoplasmosis, zygomycosis.

Dental Caries

Disease phenomenon of dental caries,

Etiological factors, taking part in production of dental caries

Pathogenesis of disease at the microscopic level

Classification of clinical types of carious lesions depending on the site of involvement and rate of spread, various surfaces involved in various sites, Clinical features of smooth surface, pit and fissure and cervical caries, rampant caries, slow progressive caries, arrested caries and secondary caries, Various methods used in diagnosis

Histopathology of enamel caries, mode of spread and shape of lesions in different sites, different zones of lesions, pathway of entry into enamel or initiation of caries, evaluate difference between smooth surface, pit and fissure caries

Advantages of early detection and prevention

Diseases of Pulp and Periapical Tissues:

Disease of pulp, etiology, classification, clinical features, pulp tests
Histopathological features, non-vitality of teeth, regressive changes,
Squeal of untreated pulpitis
Pulpal calcifications, secondary dentin formations, root resorption
Periapical pathosis-etiology, acute periapical periodontitis, acute and chronic
dentoalveolar abscess, periapical granuloma, radicular cyst, recurrent abscess.

Spread of Oral Infection:

Cellulitis
Spread of infection through fascial planes
Ludwig's angina
Intracranial complication of dental infection
Osteomyelitis

Physical and Chemical Injuries of the Oral Cavity:

Physical injuries of oral tissues-classification, injuries to teeth, injuries to bone, injuries
to soft tissue, cheek biting lip biting, tongue biting etc, burns, emphysema
Effects of radiation and chemotherapy on oral and paraoral structures
Systemic metallic intoxication
Smokers melanosis
Oral trauma from sexual practice, anesthesia necrosis, exfoliative cheilitis, submucosal
hemorrhage
Amalgam tattoo and other types of oral pigmentations.

Allergies and Immunological Diseases:

Recurrent aphthous stomatitis, Behcet's syndrome,
Sarcoidosis
Allergic reaction to systemic drug
Allergic contact stomatitis from artificial cinnamon flavoring, contact reactions to dental
amalgam
Angioedema

Healing of Oral Wounds:

Healing of gingivectomy wound
Extraction wound healing
Fractures and bone healing
Local and systemic factors affecting healing

Diseases of Blood and Blood Forming Organs:

Lymphoid hyperplasia
Anemia
Polycythemia
Hemophilia
Leukemia
Thrombocytopenia
Lymphomas
Multiple myeloma
Plasmacytoma

Oral Aspects of Metabolic Disease:

Mucopolysaccharidoses
Amyloidosis
Jaundice
Hepatitis
Vitamin deficiency
Iron deficiency
Disorders of pituitary, thyroid, parathyroid, adrenal, Islets of Langerhans and other glands
Disorders of calcium and phosphate metabolism, uremic stomatitis.
Disorders of other organ systems and their manifestations in the oral cavity

Diseases of Skin:

Ectodermal dysplasia
White sponge nevus
Dyskeratosis congenita
Peutz Jegher's syndrome
Hereditary hemorrhagic telangiectasia
Ehler's Danlos syndrome
Tuberous sclerosis
Epidermolysis, bullosa
Pemphigus
Bullous, pemphigoid
Benign mucous membrane pemphigoid
Linear IgA disease
Dermatitis herpetiformis
Erythema multiforme
Lichen planus
Reiter's syndrome
Graft versus host disease
Psoriasis
Systemic sclerosis
Acanthosis nigricans
Lupus erythematosus

Facial and Neuromuscular Pathology:

Facial palsy including Bell's Palsy

Facial pain trigeminal neuralgia, glossopharyngeal neuralgia, atypical facial pain, neuralgia inducing cavitation osteonecrosis, cluster headache, migraine, temporal arteritis, myasthenia gravis, motor neuron disease, glossopyrosis, dysguesia

Frey's syndrome

Diseases of the temporomandibular joint: Osteoarthritis, rheumatoid arthritis, temporomandibular joint dysfunction syndrome, ankylosis of the temporomandibular joint

Forensic Odontology:

Record management

Identification

Bite pattern evidence,

Child abuse.

Laboratory Assignments:

The students should be able to:

1. Demonstrate basic skills in preparation of histopathological sections using appropriate stains
2. Demonstrate basic skills in the interpretation and clinico-radiographic correlations of histopathological sections of common oral diseases

Recommended Books

1. Contemporary Oral and Maxillofacial Pathology, 2nd edition
J. Philip Sapp, Lewis Roy Eversole, George W. Wysocki: Mosby · December 2003
2. Oral & Maxillofacial Pathology (2nd edition) Brad W. Neville, Douglas D. Damm, Carl M. Allen, Jerry E. Bouquot January 2002 W B Saunders Co
3. Cawson's Essentials of Oral Pathology and Oral Medicine / R.A. Cawson and E.W. Odell, with the assistance of S. Porter. 7th Edition 2002
4. Clinico-Pathologic Correlations by Regazy and Caranza
5. Oral Pathology by Soames & Southam 3rd Edition 1998
6. Atlas of Oral Pathology by Cawson & Scully
7. Colour Atlas of Clinical Oral Pathology by Nculle / Damm / While / Waldron
8. Oral Pathology, J W Everson
9. Oral Diseases C Scully S Porter
10. A color Atlas of Oral Pathology C Scully John W Eveson.

PERIODONTOLOGY

Historical background of periodontology

The normal periodontium

Classification and epidemiology of periodontal disease

Etiology of periodontal disease

Periodontal microbiology

Host response and host-bacterial interactions in periodontal disease

Dental calculus

Systemic diseases and the periodontium

Gingival inflammation

Acute gingival infections

Gingival abscess

AIDS and the periodontium

Gingival enlargements

Desquamative gingivitis

Periodontitis: classification, presentation and diagnosis

Periodontal abscess

Periodontal pockets

Bone loss and patterns of bone loss

Diagnosis and treatment planning:

- Clinical diagnosis
- Radiographic diagnosis
- Advanced diagnostic aids

Treatment planning and determining prognosis of periodontal disease

Plaque control

Periodontal instrumentation

Principles of oral prophylaxis, root planning and curettage

Antimicrobials and other chemotherapeutic agents in periodontal therapy

Surgical periodontal therapy

 Surgical curettage

 Gingivectomy

 Flap surgery

 Osseous surgery

Supportive periodontal therapy

Periodontal-restorative inter-relationships

Clinical Assignments:

 Clinics in Periodontology

Essential Skills to be acquired:

 Elicit a thorough medical history

 Should be able to interpret common signs and symptoms of gingival & periodontal conditions

 Should be able to carry out scaling and polishing of teeth of patients (all age groups)

 Should be able to drain periodontal abscesses under local anesthesia (all age groups)

Recommended Books

Clinical Periodontology (Glickman) Caranza & Newman

Outline of Periodontics, Manson & Eley (4th Edition) Publisher: Wright

Guide to Periodontics. Jenkins, Allan & Collins Publisher: Heinemann

Color Atlas of Clinical and Surgical Periodontology by Straphang & Waite.

A text book of clinical periodontology by Jan Lindhe

Fundamentals of periodontics by Thomas G.Wilson Kenneths Korman.

Periodontology and Periodontics, Modern Theory and Practice by Sigurd P. Ramford

Major M. Ash.

ORAL MEDICINE

Normal oral mucous membrane

Abnormal oral mucous membrane

Immunity

Methods of Investigation

Principles of treatment

Oral cancer and precancer

Oral pigmentation

Oral ulceration

Vesiculobullous diseases

Autoimmune diseases

Orofacial Allergy

Immunosuppression

Bone diseases

Temporomandibular joint disease

Facial paralysis

Facial pain

Salivary gland disease

Systemic Disease and their Oral Manifestations:

Disorders of cardiovascular system

Disorders of respiratory system

Disorders of blood

Infectious diseases

Diseases of the skin

Disorders of nutrition

Disorders of gastrointestinal system

Disorders of liver

Disorders of kidneys

Endocrine disturbances

Oral reactions to drug therapy

Clinical Assignments:

Diagnostic Clinics in Oral Medicine OPD

Essential Skills to be acquired:

Elicit a thorough medical history

Should be able to interpret common signs and symptoms of common oral medicine conditions

Should be able to advise and interpret common laboratory tests especially hematological and immunological investigations

Recommended Books

LEWIS, MAO; JORDAN, RCK A Color Handbook of Oral Medicine Manson Publishing, 2004

GAWKRODGER, DJ (ED) Human Disease for Dentists Blackwell Munksgaard, 2004

TYLDESLEY, WR; FIELD, EA Oral Medicine (4th Ed) Oxford University Press
Oxford, 1995

SCULLY, C ; CAWSON, RA Medical Problems in Dentistry (5th Ed)
Wright (Butterworth Heinemann) Oxford, 2004

DETAILS OF TEACHING SCHEDULE

FINAL PROFESSIONAL BDS CLASS

SUBJECTS	Lectures and Demonstrations	Practical Hours
Prosthodontics	80	300
- Operative dentistry - Conservative dentistry - Endodontics - Crown & Bridge - Pedodontics	40 15 15 10	150 50 50 20
Oral Surgery (Oral & Maxillofacial Surgery)	80	250
Orthodontics (Orthodontics & Dental Radiology)	80	250
Oral Implantology	10	10
Gerodontology	10	20
Seminars & Case Presentations	60	
TOTAL	400	1100

Total Hours For Final Professional BDS = 1500

COURSE OUTLINE FINAL PROFESSIONAL BDS

PROSTHODONTICS

Introduction to scope of prosthodontics
Applied oral anatomy and physiology
Medical history
General and local examination
Diagnosis, prognosis, and treatment planning
Review of dental materials employed in prosthodontics

Partial Dentures

Classification
Indications
Advantages
Hazards
Components
Use of surveyors in partial denture construction
Designing partial dentures
Tooth preparation for partial dentures
Patient instructions

Complete dentures

General principles and guidelines
Patients' expectations and limitations of prosthodontist
Patient assessment
Indications for pre-prosthetic surgery
Impression techniques and materials for primary and secondary impressions
Maxillo-mandibular relations
Use of face-bow record
Selection of teeth
Trial
Insertion
Post insertion complaints and follow-up
Patient instructions
Laboratory procedures at various stages

Over -dentures

Immediate dentures

Repairs, relining and rebasing of prostheses

Prosthetics for dental implants

Maxillofacial prostheses

Recommended Books

Mccord, JF; Grant, AA : A Clinical Guide To Complete Denture Prosthetics
BDJ Books, 2000

Boucher, CO ; Zarb, GA ; Bolender, CL ; Carlsson, GE Boucher's Prosthodontic
Treatment For Edentulous Patients (11th Ed) Mosby 1997

Fenn, HRB ; Liddelow, K ; Gimson, A ; Macgregor, AR Clinical Dental Prosthetics
Wright London, 1989

Allen, PF; McCarthy, S Complete Dentures From Planning To Problem Solving:
Quintessence, 2003

Rosenstiel, SF; Land, MF; Fujimoto, J Contemporary Fixed Prosthodontics (3rd Ed)
Mosby 2001

Mcgivney, GP ; Carr, AB Mccracken's Removable Partial Prosthodontics (10th Ed)
Mosby 2000

Basker, RM ; Davenport, JC Prosthetic Treatment Of The Edentulous Patient (4th
Edition) Blackwell, 2002

Jepson, NJA Removable Partial Dentures: Quintessence, 2004

Taylor, TD (ED) Clinical Maxillofacial Prosthetics: Quintessence, 2000

Clinical Assignments

Clinical cases for partial and complete denture construction

Essential Skills to be acquired:

- Elicit a thorough medical history
- Should be able to take primary and secondary impressions using appropriate materials
- Should be able to record jaw relationships for complete denture patients
- Should be able to set up teeth in wax rims in complete denture patients
- Should be able to take trial for complete denture patients
- Should be able to insert complete dentures and deal with common post-insertion complaints

OPERATIVE DENTISTRY

Conservative Dentistry

Introduction to operative dentistry
History taking and record keeping
Reasons for restoration of teeth
Clinical diagnosis and pathology of disease
Application of radiography in operative dentistry
Instruments and their usage
Operator's environment and self protection
Material used in restorative dentistry
Field isolation
Black's classification
Principles of cavity preparations in class I-V cavities
Fissure sealant and fissure restorations
Direct tooth colored restorations
Amalgam restorations
Temporary restorations
Dental pins and posts
Restoration of endodontically-treated teeth
Dental trauma and its restorative management
Treatment of surface lesion
Causes and management of tooth discoloration
Direct filling gold, cast metal restorations and porcelain restorations
Maintenance of restoration in long term
Common complication / failures of restorative dentistry.

Clinical Assignments

Clinics in Operative dentistry

Essential Skills to be acquired:

- Elicit a thorough medical history
- Should be able to diagnose different types of dental caries
- Should be able to advise and interpret appropriate radiographs
- Should be able to demonstrate competency in handling the armamentarium and materials used in operative dentistry
- Should be able to restore all types of tooth cavities (Class I, II, III, IV, V) with appropriate techniques and materials

Recommended Books

Operative dentistry by M.A. Marzouk
Kidd E and Smith BGN. Pickard's Manual of Operative Dentistry. 7th edition, 1996.
Contemporary operative by JB Summit
Art and science of operative Dentistry by Sturtevant
Restorative dentistry by P Jacobson
Kidd E and Joyston-Bechal S. Essentials of Dental Caries. 2nd edition, 1997.
Restorative Dentistry: An integrated approach. 1998.

Crown & Bridge

Terminology

Indications & contraindication of crown & bridge

Types of crowns, indications, contraindications, advantages + disadvantages

Diagnosis & treatment planning

Basic principles of preparation

Porcelain jacket crowns – indications & contraindications, clinical assessment and steps of preparation

Porcelain fused to Metal crown: indications and contraindications, clinical assessment, step of preparation

Full crowns: indications & contraindications, clinical assessment steps of preparation

Soft tissue management, electro surgery application

Post & core crowns, impression & impression materials,

Bridges: indication & contraindication & types of bridges, pontic designs, and basic principles, clinical procedures, resin bonded bridges

Laboratory technique for crown & bridge, porcelain veneer, inlays onlays, occlusion and causes of bridge failures

CAD-CAM (Computer assisted design- computer assisted manufacture)

Clinical Assignments

Clinics in Crown & Bridge

Essential Skills to be acquired:

Elicit a thorough medical history

Should be able to demonstrate competency in handling the armamentarium and materials used in crown & bridge

Should be able to restore teeth using anterior jacket and posterior full veneer crowns

Should have exposure to preparation and insertion of post and core crowns

Should have exposure to preparation and insertion of porcelain veneers

Recommended Books

Inalys, crowns and bridges by Colin R Cowel

Introduction to metal ceramic technology by W. Partick Naylor

Contemporary fixed prosthesis by Stephen F. Rosenstiel

Fundamentals of tooth preparations by Jams C. Kessler

Grundy and Glyn Jones J. A Colour Atlas of Clinical Operative Dentistry, Crowns and Bridges. 2nd edition, 1992

Shillingburg et al. Fundamentals of Fixed Prosthodontics. 2nd edition (1981) 3rd edition (1997)

Smith BGN. Planning and Making Crowns and Bridges. 3rd edition, 1998

Schillingburg HT, Jacobi R and Brackett SE. Fundamentals of Tooth Preparation. 1988

Tay W-M. Resin-bonded Bridges. 1992.

Endodontics

Introduction and scope of endodontics
Normal anatomy of dental pulp
Pulpal reaction to caries, operative procedures and materials
Diagnosis and differential diagnosis of pulp disorders
Assessment for endodontic therapy
Role of radiography in endodontic
Endodontics microbiology, prevention and infection control in dental clinic
Sterilization in endodontics
Application of rubber dam
Endodontics instrument and standardization
Therapeutic agents used in endodontics
Management of pain and anxiety, local anesthesia in endodontics
Endodontic emergencies and their management
Pulp capping, apexification
Selection of cases, and treatment planning stages
Rationale of endodontic treatment
Access opening and anatomy of root canals
Anatomical variations in individual tooth negotiation and preparation of root canals
Shaping and irrigation of root canal system
Endodontic cement sealers
Obscuration techniques
Traumatic injuries and their management
Restoration of endodontically-treated teeth
Non vital bleaching of teeth
Over denture preparation of root treated teeth
Single visit Endodontics
Management of broken instrument in the root canal
Perforations and their management
Endo perio lesions and their management
Surgical endodontics: apicectomy and root resections (hemi section / bisection)
retrograde fillings and materials used for root end fillings
Re-implantation and transplantation
Endodontic implants and their significance
Root resorption: types and management
Methods of removal of old fillings and posts from the root canals
Endodontic failure and treatment

Clinical Assignments

Clinics in endodontics

Essential Skills to be acquired:

- Elicit a thorough medical history
- Should be able to diagnose different types of pulp pathologies and advise and interpret appropriate radiographs
- Should be able to demonstrate competency in handling the armamentarium and materials used in endodontics
- Should be able to carry out electric and thermal pulp vitality tests
- Should be able to carry out endodontic treatment on anterior teeth
- Should have exposure to endodontic treatment of posterior teeth

Recommended Books

- Pitt Ford TR. *Harty's Endodontics in Clinical Practice*. 4th edition, 1997.
- Jacobsen PH Grossman's Endodontics
- Endodontics by Guttuman
- Gutman JL *et al. Problem solving in Endodontics*. 2nd edition, 1992
- Clinical endodontics BY L. Transtod.
- Cohen S and Burns EC. *Pathways of the Pulp*. 7th edition, 1998.
- Ingle's endodontics
- Stock and Nehammer. *Endodontics in Practice*. 2nd edition, 1990

Pedodontics

- Introduction, rationale, objective and future of pedodontics
- Prenatal counseling
- Child behavior and management
- General concept of growth and development
- Dentition: its development and speech
- Development distribution in dentition and surrounding structure
- Importance of 1st permanent molar
- Diagnosis and treatment planning
- Medical conditions specific to children
- Management of anxiety and pain
- Periodontal health care, periodontal disease in children, tooth brushing, oral habits
- Dental caries and child response, rampant caries, endodontics, prevention of dental caries
- Modification of cavity preparation in pedodontics
- Restorative materials in pedodontics including pit and fissure sealants
- Fluoride and its role in tooth development
- Hereditary disorders in pedodontics
- Traumatology, injury to primary and permanent teeth
- Pulp capping, pulp therapy for primary and young permanent teeth
- Pulpotomy, endodontics of primary teeth, radiology
- Space maintenance in primary dentition, crowning consideration in pedodontics
- Management of handicapped children
- Long-term dental care child patient and common complications faced in children.

Clinical Assignments

Clinics in Pedodontics

Essential Skills to be acquired:

Elicit a thorough medical history from a child / attendant
Should be able to diagnose different types of carious involvement and pulp pathologies and advise and interpret appropriate radiographs
Should be able to demonstrate competency in handling the armamentarium and materials used in pedodontics
Should be able to carry out restoration of primary and permanent teeth using appropriate techniques and materials
Should have exposure to management of handicapped children

Recommended Books

Welbury, R.R. Paediatric Dentistry 2nd ed. O.U.P., 2001

Pedodontics by Fenn

Duggal, M.S. et al Restorative Technique in Paediatric Dentistry 2nd ed.
Dunitz, 2002

Pediatric Dentistry by Kennedy

ORAL SURGERY (Oral & Maxillofacial Surgery)

Basic principles of oral and maxillofacial surgery:

Introduction to oral and maxillofacial surgery
Scope of oral and maxillofacial surgery
Sterilization & cross infection control
Patient assessment
Informed consent
Patient confidentiality
Instruments & armamentarium
Principles of flap design, sutures & suturing techniques
Techniques of biopsy & cytology
Use of anti-microbials in oral and maxillofacial surgery
Radiography for oral and maxillofacial surgery
Use of imaging modalities in oral and maxillofacial surgery
Treatment planning in oral and maxillofacial surgery

Local anesthesia & Conscious sedation:

Indications & contraindications in oral surgery
Pharmacology of common agents used for local anesthesia & conscious sedation
Surgical anatomy of the trigeminal nerve
Injection techniques for administering local anesthesia in oral surgery
Complications of local anesthesia
Pharmacology of common agents conscious sedation & relative analgesia
Techniques for administering conscious sedation & relative analgesia
Complications of conscious sedation analgesia & their management.

General anesthesia

Preoperative assessment and fitness for general anesthesia including knowledge of normal & abnormal cardiovascular, respiratory & renal signs,
The principles of premedication, anesthetic & analgesia medication
Techniques for endotracheal intubation, tracheostomy & criothyroidotomy
Postoperative patient care after general anesthesia.

Exodontia

Indications & contraindications
Forcep extractions
Principles of use of surgical elevators
Surgical extraction
Complications of tooth extraction.

Tooth Impaction

Terminology
Classification systems for impacted teeth
Radiographic assessment
Indications & contraindications for removal
Surgical techniques
Complications

Maxillary antrum

Surgical anatomy

Oro-antral fistula

Common pathological lesions & their management.

Periapical surgery

Terminology

Indications & contraindications

Surgical techniques

Complications.

Spread of oral infection

Periapical abscess & cellulitis

Spread of oral infection through tissue spaces of the jaws & neck

Intracranial complications of oral infection

Principles of management of odontogenic infections.

Cysts of the Jaws

Classification of jaw cysts including odontogenic & non-odontogenic cysts,

Salient histopathologic features of common jaw cysts

Diagnosis

Treatment of jaw cysts (marsupialization and enucleation).

Perprosthetic surgery

Terminology

Goals of preprosthetic surgery

Specific hard and soft tissue procedures including their indications & advantages, complications.

Oral & maxillofacial trauma

Surgical anatomy of facial skeleton

Etiology and presentation

Head injuries, the Glasgow coma scale, the indications for surgical intervention.

Assessment of other associated injuries to the spine, thorax, abdomen etc

Emergency and definitive management of maxillo-facial trauma:

- soft tissue injuries of the head & neck
- dental injuries
- fractures of mandible
- fractures of mid-face & zygomatic complex, naso-ethmoid fractures

Complications of maxillofacial injuries

Temporomandibular joint:

Surgical anatomy

Pain & dysfunction

Internal derangement

Other acquired abnormalities

Congenital abnormalities especially ankylosis

Management principles

Complications of surgical intervention

Salivary glands

All diseases of salivary glands including sialoadenitis, sialolithiasis,

Benign & malignant tumors

The mean of investigation, an understanding of operative treatment

Complications of surgical procedures

Oncology

Oral neoplasia:

Tumors of the oral cavity & jaws & associated tissues, including odontogenic tumors, oral squamous cell carcinoma & lymphomas, the principles of operative treatment of the above including reconstruction.

The principles of radiotherapy & chemotherapy & their effects on orofacial tissues.

Orofacial pain

An understanding of common causes of orofacial pain, their diagnosis & management with special emphasis on trigeminal neuralgia.

Orthognathic surgery

Means of assessment

Diagnosis

Principles of surgical treatment

Postoperative care & follow-up.

Developmental anomalies

Cleft & palate; head & neck deformity,

Principles of dental & surgical management of the above.

Dental implants

Introduction

Patient assessment & options for implants placement

Surgical procedures for implant placement

Postoperative care & follow-up.

Management of medically compromised patients:

The presentation of systemic disease in the mouth, oral surgical management of medically compromised patients with special emphasis on:

- cardiovascular diseases
- respiratory disorders
- diabetes mellitus
- immunosuppression
- blood dyscrasias

Management of medical emergencies in oral surgery.

Clinical Assignments

Exodontia clinics

Out-door clinics in Oral & Maxillofacial Surgery

Minor oral surgery sessions

Operation theatre sessions

Ward work

Essential Skills to be acquired:

Elicit a thorough medical history

Should be able to evaluate and diagnose patients requiring tooth extractions

Should be able to interpret main radiological findings of common pathological lesions and cases of oral and maxillofacial trauma on plain X-ray views and OPG

Should be able to administer local anesthesia in the oral cavity

Should be able to carry out an atraumatic tooth extraction using forceps

Should be familiar with the use of elevators in exodontia

Should be able to assist the following:

Surgical removal of wisdom teeth

Apicectomy

Biopsy

Jaw fracture reduction under local and general anesthesia

Recommended Books

Peterson, LJ ; Ellis, E ; Hupp, JR ; Tucker, MR Contemporary Oral and Maxillofacial Surgery (4th Ed) Mosby, 2003

Seward, GR; Harris, M; McGowan, DA; Killey, HC ; Kay, LW

An Outline of Oral Surgery Parts 1 & 2

Butterworth-Heinemann, 1998 (single volume edition)

Howe, GL Minor Oral Surgery (3rd Ed) Wright Bristol, 1985

P Banks, Killey's fractures of the middle third of the facial skeleton.

P Banks, Killey's fractures of the mandible.

Dimitroulis, G A Synopsis of Minor Oral Surgery Wright, 1997

Malamed, S.F. Handbook of local anesthesia 4th ed. Mosby, 1997

Roberts GL Rosenbaum NI Colour Atlas of Dental Analgesia and Sedation.

Hill CM & Morris PJ General Anaesthesia and Sedation in Dentistry.

McGowan, DA An Atlas of Minor Oral Surgery - Principles and Practice (2nd Ed)

Martin Dunitz London, 1999

ORTHODONTICS (Orthodontics & Dental Radiology)

Introduction to orthodontics, Scope of orthodontic practice

Orthodontic problems

Epidemiology of malocclusion

Malocclusion and dentofacial deformity in society

The development of orthodontic problems.

Ideal Occlusion in the permanent dentition

Normal occlusion

The development of occlusion, malocclusion

Indications for orthodontic treatment.

Concepts of physical growth and development

Growth pattern: Variability, and timings

Theories of growth control

Methods for studying the physical growth: measurement approaches, experimental approaches

The nature of Skeletal growth

Growth of the craniofacial complex, cranial vault, cranial base, maxilla (nasomaxillary complex), mandible

The Early stages of physical and social development

Prenatal influences on facial development

Infancy and early childhood

The primary dentition years: eruption of the primary teeth, maturation of oral function, physical development in the preschool years, social and behavioral development, learning and the development of behavior, stages of emotional and cognitive development.

The later stages of development

Late childhood; the mixed dentition years

Eruption of the permanent teeth

Space relationships in replacement of the incisors

Space relationships in replacement of canines and primary molars

Assessment of skeletal and other developmental ages

Adolescence; the early permanent dentition years

Initiation of adolescence: Timing puberty

Growth patterns in the dentofacial complex

Dimensional changes

Rotation of jaws during growth

Maturational and aging changes in the dental apparatus

Changes in teeth and supporting structures

Changes in alignment and occlusion
Facial growth in adults.

The Etiology of orthodontic problems

Possible causes of malocclusion
Developmental cause of malocclusion
Problems caused by trauma
Functional influences
Etiology in contemporary perspective
Classification of malocclusion

Orthodontic Diagnosis

The format of the assessment:
History
Clinical examination (extra-oral / intra-oral examination)
Reference models
Radiographic assessment: Cephalometric analysis; tracing a lateral skull radiograph, cephalometric landmarks, cephalometric analysis, descriptive analysis, measurement of skeletal relationships, dentoskeletal relationships, orthodontic classification systems, development of a problem list. The role of intra-oral and OPG views in orthodontic diagnosis.
Summarizing and recording your findings

Orthodontic Treatment Planning

From Problem List to Final Plan
Principles of treatment planning
Orthodontic triage: distinguishing moderate from severe problems
Treatment planning for orthodontic problems in the primary dentition
Treatment planning for orthodontic problems in the early mixed dentition
Treatment planning for orthodontic problems in adolescence (late mixed and early permanent dentition)
Treatment planning for orthodontic problems in adults
Limitations and Special Problems
Arch expansion versus extraction
Treatment planning for patients with skeletal discrepancies
Treatment planning in special circumstances

The Biologic Basis of Orthodontic Therapy

Periodontal and bone response to normal function
Periodontal ligament and bone response to sustained orthodontic forces
Deleterious effects of orthodontic forces
Skeletal effects of orthodontic forces.

Mechanical Principles in Orthodontic Force Control

Elastic materials and the production of orthodontic force
Design factors in orthodontic appliances
Anchorage and its control
The development of contemporary orthodontic appliances

Removable Appliances

Development of removable appliances
Indication for removable appliances
Components of removable appliances

Contemporary Fixed appliances

Bands for attachments
Bonded attachments
Characteristics of contemporary edgewise attachments,

Functional Appliances

Introduction
Mode of action
Indications for functional appliances
Types of appliances.

Treatment of Non-skeletal Problems in Preadolescent Children

Treatment for potential alignment problems
Crowding in the mixed dentition
Posterior cross bites
Incisor retrusion / protrusion, vertical problems.

Treatment of Skeletal Problems in Preadolescent Children

Principles of growth modification treatment
Appliances for growth modification
Treatment for Class II jaw relationships
Treatment for Class III jaw relationships
Treatment for vertical and transverse problems
Treatment for facial asymmetry

The First Stage of Comprehensive Treatment

Alignment and Leveling
Goals of the first stage of treatment
Alignment
Special Problems in alignment, leveling.

The Second Stage of Comprehensive Treatment

Correction of molar relationship and space closure

The Third Stage of Comprehensive Treatment

Finishing
Root paralleling at extraction sites
Torque of incisors
Correction of vertical relationships
Midline discrepancies
Tooth size discrepancies
Final "setting" of teeth
Removal of bands and bonded attachments
Positioners for finishing
Special finishing procedure to avoid relapse.

Retention

Rationale of retention necessary
Removable appliances as retainers
Fixed retainers
Active retainers

Adjunctive Treatment for Adults

The goals of adjunctive treatment
Principle of adjunctive treatment
Adjunctive treatment procedures

Special Consideration in Comprehensive Treatment of Adults

Motivation for adult treatment
Periodontal aspects of adult treatment
Orthodontic appliance therapy

Combined Surgical and Orthodontic Treatment:

Type of orthodontic surgical treatment
Timing of treatment
Special considerations in orthodontic surgical planning
Integration of orthodontic and surgery
Future directions

Cleft lip and palate and other facial anomalies

Role of orthodontist
Common orthodontic problems and principles of correction

Clinical Assignments

Clinics in Orthodontia

Essential Skills to be acquired:

- Elicit a thorough medical history
- Should be able to carry out basic evaluation of patients requiring orthodontic treatment
- Should be able to do a cephalometric tracing and carry out a comprehensive analysis
- Should be able to do interpret radiographic findings on OPG in Orthodontic patients
- Should be able to perform cast analyses on adult and mixed dentitions
- Should be able to carry out the wire work for common removable and functional appliances
- Should be familiar with the biomechanics of fixed orthodontic appliances

Recommended Books

Mitchell, L; Carter, NE An Introduction to Orthodontics (2nd Ed)
Oxford University Press, 2001

Proffit, WR ; Fields, HW Contemporary Orthodontics (3rd Ed) Mosby 2000

Roberts-Harry, D; Sandy, JR A Clinical Guide to Orthodontics BDJ Books, 2003

Bishara, SE A Textbook of Orthodontics WB Saunders, 2001

Houston, WJB ; Stephens, CD; Tulley, WJ A Textbook of Orthodontics
John Wright Bristol, 1992

Moyers, RE Handbook of Orthodontics Year Book Medical Publishers Inc Chicago, 1988

Isaacson, KG; Muir, JD; Reed, RT Removable Orthodontic Appliances
Wright, 2000

DENTAL RADIOLOGY

Introduction

Radiation biology

Hazards of radiation

Radiation protection - guidelines

Medic-legal issues

Radiographic anatomy of oral and maxillofacial region

Intra-oral views: periapical, bitewing, occlusal – indications, and interpretation

Extra-oral views: lateral, postero-anterior, occipitomenal, sub-mentovertex,
cephalometric view - indications, and interpretation

Ortho-pantomogram- indications, and interpretation

Radiographic diagnosis of common dental and oral pathological lesions

Sialography - indications and interpretation

Principles of computerized Tomography – applications in dentistry

Principles of magnetic resonance imaging – applications in dentistry

Principles of nuclear imaging- application in dentistry

Recommended Books

Whaites, E. Essentials of Dental Radiography and Radiology 4th ed. Churchill/Liv., 2005
Fundamentals of Dental Radiology by Vimal K Sikri

GERODONTOLOGY

General factors involved in the process of aging

Age changes in oral and dental tissues

Medical considerations in geriatric subjects

Psychological and behavioral considerations in geriatric patients

Problems in the dental management of geriatric subjects

- Attitude of the dentist
- Common restorative procedures
- Common surgical procedures

Clinical Assignment:

Restorative work on geriatric subjects

Recommended Books

Allen, PF Teeth for Life for Older Adults Quintessence, 2002

Holm-Pedersen, P ; Loe, H (EDS) Textbook of Geriatric Dentistry (2nd Ed)
Munksgaard Copenhagen, 1996

Drummond, JR ; Newton, JP; Yemm, R Color Atlas and Text of Dental Care for
the Elderly Mosby, 1994

ORAL IMPLANTOLOGY

Introduction and rationale of implants

Medical evaluation of implant patient

Diagnosis and assessment local as well as systemic

Surgical techniques for implant placement

Laboratory techniques

Prosthetic rehabilitation

Clinical Assignment

Every effort will be made to provide clinical exposure to oral implantology
including both the surgical and prosthetic phases of treatment.

Recommended Books

Contemporary Implant dentistry by C. Misch 2nd edition Mosby

A clinical guide to implants in dentistry / edited by Richard M. Palmer (Peter D. Floyd et
al) 2000

Cranin: Atlas Of Oral Implantology, 2nd edition Mosby

REQUIREMENTS FOR THE CLINICAL TRAINING IN TEACHING DENTAL HOSPITALS

The students are required to perform clinical procedures on patients under the supervision of instructors. The students need to be given the opportunity to work with a dental assistant, to enhance clinical and practice management, learn utilization of dental auxiliaries in final years and during house job. Preparatory teaching of technical skills prior to procedures being undertaken on patients is to be through the use of phantom heads. The Dental students need to perform dental treatment on actual patients. The students must follow the patient through all the procedures indicated by diagnosis and treatment plan supervised by a specialist teacher / instructor.

The education, training and dental practice of the students requires that students must gain sufficient clinical experience in a variety of technical procedures so that they become competent practitioners and pass their final university examinations to qualify for the BDS degree. The students should not regard patients merely as teaching material. The college must educate students in high quality, ethical patient-care and treatment and no patients should be exposed to inept learners.

The teachers as role models should ensure excellent treatment and excellent education to students. No one should be denied optimal treatment for economic factors.

Quality treatment should be ensured to all patients for proper training of students. System and requirement for quality assessment and assurance should be developed for comprehensive treatment of patients in teaching dental institutes. Each dental college must provide a formal system of quality assurance that includes a formal record review process and a post-operative patient review process. For all comprehensive care patients, a re-call program should be established.

A dental emergency service must be provided. Management of medical emergencies must be available for all students, teachers, supporting staff involved in patient care. They should also be trained in life support procedures including cardio-pulmonary resuscitation to manage medical emergencies.

Each institution must ensure that an appropriate level of direct faculty supervision is available at all times when students are providing patient care.

Dental education institutions must ensure the availability of adequate patient pool to provide the opportunity to obtain clinical competency within a reasonable time. The patients' record must be available at each appointment and must be maintained in an orderly, standardized and legible document where all necessary information is readily accessible.

Patient care is one of the functions of a teaching hospital it but should not be subservient to the interests of education and research.

The treatment in teaching hospital should be low cost and free for some for educational purpose. As a matter of fact in dental colleges large majority of patients are provided treatment by students. The teachers / instructors oversee and guide the students. The patient is the responsibility of the designated teacher although most of the treatment is provided by the students.

The legal basis under which patients are treated should be discussed and the ethical responsibilities which the students assume under these circumstances examined. No student should proceed to treat patients without a proper understanding of these matters, especially consent, assault, duty of care and confidentiality. The legal requirement to maintain full accurate clinical records should be appreciated by the students. Dental students should receive instruction in the legal and ethical obligations of registered dental practitioners, dental jurisprudence, and the permitted activities of dental auxiliaries.

Comprehensive care should be taught in co-ordination with other subjects. Restorative dentistry, oral surgery and oral medicine are obvious examples.

So are the disciplines of pediatric dentistry and orthodontic which may find it appropriate to develop joint arrangements to teach the comprehensive dental care of children. Comprehensive dental care should be taught in association with dental accident and emergency care. Finally comprehensive dental care teaching should make a major contribution to the preparation of students to cross the interface between undergraduate dental education and vocational training.

Clinical Assignments

The following are the minimum requirements of clinical works to be completed in Teaching Dental Hospitals during the course of studies for the BDS degree by every student before his / her name is sent to the University for the final BDS Examinations:

Oral Prophylaxis	60 Cases
Periodontal surgery (Assistance)	10 Cases
Extraction under local anesthesia	200Cases
Extraction under general anesthesia (Assistance)	15 Cases
Fractures of jaws (Assistance)	05 Cases
Complete denture (upper & lower)	8-10 Cases
Cast partial dentures	04 Cases
Partial dentures (temporary)	12 Dentures
Amalgam filings, one surface	100 Cases
Amalgam filings, 2-3 surface	50 Cases
Glass ionomer / composite fillings	25 Cases
Single-rooted RCT (with or without surgery)	15 Cases
Multi-rooted RCT (with or without surgery) (Assistance)	8 Cases
Metal inlays	15 Cases
Metal-bonded porcelain crowns	5 Cases
Hi-Ceram crowns	5 Cases
Metal-bonded plastic bridges	5 Cases
Metal-bonded porcelain bridges	5 Cases
Temporary Crowns	6 Cases
Orthodontic treatment, removable appliances	4 Cases
Orthodontic treatment, functional appliances	4 Cases
Fixed Orthodontic appliance therapy stepwise (Assistance)	4 Cases

*****The End*****