

Dow University of Health Sciences

Curriculum Bachelor of Dentistry (BDS) Program

2021-2022

Developed by
Curriculum Review Committee, Bachelor of Dentistry
(CRC-BDS)

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Dow University of Health Sciences

CURRICULUM FOR BACHELOR OF DENTISTRY (BDS) PROGRAM

DUHS VISION

“ To be a pre-eminent academic institution committed to changing and saving lives “

DUHS MISSION

“ Providing outstanding patient-centered education, training and clinical care informed by cutting edge research and innovation generating and disseminating new knowledge”

DUHS CORE VALUES I

1. CUSTOMER SERVICE

Put patients and students first.

2. EMPATHY & COMPASSION

Understand before you judge

Be concerned for sufferings & misfortune of others

3. EXCELLENCE

Be the best and commit to exceptional quality and service

4. INNOVATION

Encourage curiosity, imagine, create and share

DUHS Core Values II

5. TEAMWORK

Engage and collaborate

6. INTEGRITY AND LEADERSHIP

Be a role model and influence others to achieve their best

Have the courage to do the right thing

Hold yourself and others accountable

7. RESPECT & COLLEGIALITY

Be kind

Listen to understand

Value different opinions

BDS PROGRAM MISSION

The mission of the BDS program at DUHS is to develop academic excellence and to deliver the utmost quality of scientifically proven preventive, educational and therapeutic services to the community. To provide the graduates a scholarly environment that fosters excellence in the lifelong goals of continuing education, scholarly activity, and of compassionate patient care.

BDS PROGRAM OUTCOMES

At the end of the 4-year BDS program, the graduate should be able to:

- Demonstrate professional attitudes expected from an ethical dental practitioner
 - Manage community-based oral health effectively
- Manage individual patients for oral/dental healthcare ethically and professionally
 - Lead a team of oral/dental healthcare professionals
- Engage in self-directed life-long learning for personal development

AFFILIATED INSTITUTES

The DUHS-BDS program is employed in the three affiliate dental colleges of Dow University of Health Sciences. The program curriculum is developed in collaboration and consultation with all three.



PROGRAM STRUCTURE AND OVERVIEW

The DUHS-BDS program is in accordance with the guidelines provided by PM&DC and HEC in 2016-2017. The program curriculum is designed with the intend to incorporate the following competencies into graduates:

Oral health Experts	
Professional	Scholar
Collaborator	Leader
Communicator	Advocate

The program consists of two phases, completed over a period of four years. Phase 1 covers the basic sciences during the first two years. Phase 2 deals with the clinical science disciplines in the later two years. The process ensures development of novice learners into medical experts with the required knowledge and skills. Attitudinal competencies span over all four years longitudinally.

ALIGNMENT OF COURSE OBJECTIVES WITH PROGRAM OUTCOMES AND COMPETENCIES

Subject	Course Objectives	Program Outcomes*	Competencies**
Anatomy	Describe the development of body systems, especially relevant to oral health. Identify gross and microscopic anatomy of various body organs. Describe in detail the structures and parts of head and neck region for future correlation with dental surgery learning	3 & 5	ME,S
Biochemistry	Interpret the biochemistry of carbohydrates, proteins, and fats. Describe the DNA, RNA their replication and protein Synthesis. Describe hemoglobin structure, synthesis, degradation, and its disorder. Describe extracellular matrix. Describe Synthesis of collagen and elastin (BONES & Teeth) Justify role of acid base balance in homeostasis of body fluids. Describe cholesterol its metabolism. Describe Lipoproteins Describe metabolism of all macromolecules of our body.	3 & 5	ME,S

	<p>Role of vitamins, minerals, and enzymes in metabolism.</p> <p>Describe acidosis, alkalosis, and their regulation in the body</p> <p>Describe hormones and their role in different body system.</p>		
Community Dentistry	<p>Discuss and demonstrate the knowledge and skills to tackle oral health problems utilizing the principals of public health, health determinants, inequalities, and public health strategies</p> <p>Understand the natural history of common oral diseases, clinical risk assessment and basic concepts of disease screening processes</p> <p>Discuss and demonstrate the knowledge and skills to conduct scientific surveys utilizing the basic principles of epidemiology and trends of epidemiology in oral health.</p> <p>Evaluate current trends in the management of oral diseases and develop comprehensive and sequential evidence-based treatment plan through integrated evidence base practice, critical appraisal techniques of scientific content</p> <p>Effectively work in team to achieve optimal oral health community-based preventive and oral health promotion programs utilizing principles of behavioral change and health education techniques</p> <p>Describe, understand, and outline the knowledge and applications of chair-side and community-based prevention of common oral diseases affecting systemic health such as dental caries, periodontal diseases, oral cancers etc.</p> <p>Describe, understand, and outline the components, planning and organization of health care system, economic evaluations, and leadership role in the provision of dental care</p> <p>8Describe, understand, and outline the basic concepts of legislation, adherence, ethical practice, quality of services and clinical governance</p>	1,2,3,4 & 5	MEPCCSLAA
Physiology	<p>Understand the principles and mechanisms that explain homeostasis at the cellular, tissue, organ, and organismal levels.</p> <p>Demonstrate an understanding and operational knowledge of the functions, interactions, and control of the major cellular and organ systems. These include an in-depth knowledge of cellular biology, hematology, muscular, cardiovascular, and respiratory systems.</p>	3 & 5	ME,S

	<p>Describe the integration of and interrelationships between these bodily systems.</p> <p>Understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail</p> <p>Clinically apply understanding of human physiology to factual scenarios, case problems, and/or pathologic conditions altering normal physiology.</p>		
Oral Biology	<p>The objective of this undergraduate course is to provide students with a sound foundation of oral and dental structures within the oral microenvironment, their interrelationships, and their application in clinical dentistry in health and disease.</p>	3 & 5	ME, P, S
Science of Dental Materials	<p>Understand mechanical, physical, biological, and chemical properties of materials used in dentistry</p> <p>Understand the composition, manipulative techniques, and applications of various dental materials</p> <p>Analyze the interaction of the materials with the oral environment in which they are placed</p> <p>Correlate the properties with both clinical and non-clinical aspects</p>	3 & 5	ME,S
Pharmacology	<p>Identify a range of drugs used in medicine and discuss their mechanisms of action.</p> <p>Understand the clinical applications, side effects and toxicities of drugs used in medicine.</p> <p>Translate pharmacological principles into clinical decision-making.</p>	3 & 5	ME,P, S
General Pathology	<p>To demonstrate and analyze pathological changes macroscopically explain their observations in terms of disease processes.</p> <p>To integrate knowledge from the basic sciences, clinical medicine, and dentistry in the study of Pathology.</p> <p>To demonstrate understanding of the capabilities and limitations of morphological Pathology in its contribution to medicine, dentistry, and biological research.</p> <p>To demonstrate these abilities in exams and develop skills in communicating these basic pathological concepts to others.</p>	1,3 & 5	ME,P,S,C
Oral Pathology	<p>The students should be able to diagnose oral disease with regards to the clinical, radiographic, and histopathological findings.</p>	3 & 5	ME, S

Oral Medicine	<p>The student (dentist) must be competent to diagnose and manage common oral mucosal diseases and disorders in patients of all ages. In particular, he or she must:</p> <ol style="list-style-type: none"> 1. Be competent at counseling patients regarding the nature and severity of non-life threatening oral mucosal diseases and disorders, providing the patient with realistic options and expectations of management. 2. Be competent at performing limited soft tissue diagnostic procedures. 3. Be able to identify and understand oral manifestations of systemic diseases. 4. Be competent to participate in the diagnosis and proper referral of the patient with life-threatening oral mucosal diseases. 5. Be competent at managing acute oral infections, including patient referral and prescription of appropriate drugs. 6. Be familiar with the treatment of common oral medical lesions disorders, both medical and surgical. 7. Have knowledge concerning the effects of tobacco on the oral mucosa and ways in which to help patients who wish to stop using tobacco. 8. Differentiate between typical and atypical presentations of pain in teeth and jaws. 9. Competent in referring patients to appropriate departments and specialists for continued care of the patients. 10. Attain Collaborative, Professional values, Leadership qualities and perform well as a researcher and information manager. 	1,3 & 5	ME, P, C,C,A,L
General Medicine	<p>At the end of Course of General Medicine, the dental students should have a basic but thorough knowledge and understanding about the commonly occurring diseases.</p> <p>They should acquire certain essential basic examination skills as well as improving attitudes as clinicians.</p> <p>The instruction in clinical medicine should include the etiology, Pathogenesis, clinical presentation, appropriate investigations, and management principles of the diseases of various systems.</p> <p>Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry like:</p> <p>Special considerations for oral and dental procedures in different systemic diseases.</p>	1,3 & 5	ME, P,S,C,C

	<p>Oral manifestations of systemic diseases.</p> <p>Medical emergencies in dental practice</p> <p>Eliciting a through 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</p> <p>A dental student should be taught in such a manner that he/she is able to:</p> <ol style="list-style-type: none"> Take a basic history Record the vital signs Do a basic general and systemic medical examination Formulate a few differential diagnoses and advise basic investigations and be capable of referring a patient to the relevant specialty for further management before a dental procedure or treatment and avoid harm to any patient. 		
General Surgery	<p>Learn basic general surgery principles</p> <p>Are able to apply basic general surgery principals to dental patients</p> <p>Learn to interact with a patient requiring dental surgery in terms of history taking, examination, and management.</p>	1,3 & 5	ME, P, S
Periodontology	<p>The main objective is to establish the art and science of Periodontology and to promote the advance aspects and improvements in dental health practices</p>	1,3 & 5	ME, P, S
Operative Dentistry	<p>Explain the assessment methods of caries risk of patients and apply caries prevention strategies accordingly.</p> <p>Evaluate the dietary patterns of individuals for good oral health.</p> <p>Know the method of Topically applying fluoride containing compounds to the teeth of patients & Know the method of performing other caries preventive procedures including enameloplasty and fissure sealant application.</p> <p>Understand the techniques that maintain pulp vitality and restore the tooth to form, function and aesthetics with appropriate materials using latest instruments, preventing hard tissue disease, and promoting soft tissue health.</p> <p>Describe the basic therapeutic procedures to promote the defense mechanism of the dental pulp.</p> <p>Describe the procedure of endodontic treatment on uncomplicated single and uncomplicated multi-rooted teeth.</p>	1,3,4 & 5	ME,P,S,C,C,L

	<p>Recognize indications for surgical and complicated non-surgical root canal therapy and take appropriate action.</p> <p>Competent in referring patients to appropriate departments and specialists for continued care of the patients.</p> <p>Communicate effectively with the patient in professional and empathic manner.</p> <p>Prescribe proper medication for all the routine dental presentations</p>		
Oral Maxillofacial Surgery	<p>To act as a primary care provider for individuals and groups of patients. This includes providing emergency and multidisciplinary comprehensive oral health care, directing health promotion and disease prevention activities, and using advanced treatment modalities.</p> <p>To plan and provide multidisciplinary oral health care for a wide variety of patients including patients with special needs.</p> <p>To manage the delivery of oral health care by applying concepts of patient and practice management and quality improvement that are responsive to a dynamic health care environment.</p> <p>To function and effectively provide oral health care in the outpatient setting and a hospital setting.</p> <p>To function effectively within interdisciplinary health care teams.</p> <p>To apply scientific principles to the provision of oral health care. This includes using critical thinking, evidenced or outcomes-based clinical decision-making and technology-based information retrieval systems.</p> <p>To utilize the values of professional ethics, lifelong learning, patient centered care, adaptability, and acceptance of cultural diversity.</p> <p>To understand the oral health needs of communities and engage in community service.</p> <p>After graduation, a dentist must be competent to treat and manage conditions requiring simple surgical procedures of the hard and soft tissues in patients of all ages, including the extraction of teeth, the removal of roots when necessary, diagnose pre-malignant and malignant conditions of the oral cavity and be able to perform minor soft tissue surgery, and to apply appropriate pharmaceutical agents to support treatment.</p>	1,2,3,4 & 5	ME, P,S, A, C,C,L
Orthodontics	To have the quality education and prepare them with academic excellence to deliver best orthodontic knowledge	1,3 & 5	ME,P,S

	<p>Enable students in developing the research skills and basic epidemiological methods applied in dental research</p> <p>To enable the students to practice dentistry with high professional attitude and work ethics.</p> <p>Case-based learning should be incorporated to expose students to a variety of cases</p> <p>To apply procedures as a part of multidisciplinary approach that reflects appropriate standard of learning.</p> <p>The students shall have acquired the skill of identifying health problems affecting the society, develop a positive attitude towards the problems of the society and must take responsibilities in providing health care.</p> <p>Students' should be able to identify different types of malocclusion related to hard and soft tissues.</p> <p>Students should be able to differentiate between dental and skeletal problems.</p> <p>Students should be able to understand etiology of different malocclusion.</p> <p>Students should be able to know various type of treatment modalities related to orthodontic problem.</p> <p>They should be able to understand different dentition and eruption of teeth.</p> <p>They should be able to identify craniofacial and dental anomalies.</p> <p>Students' should be able to understand best materials utilized in the fabrication of different orthodontic appliances.</p> <p>Students' should be able to understand and apply basic theoretical knowledge of orthodontics in relevance to clinical setup.</p>		
Prosthodontics	<p>Students' should be able to identify:</p> <p>Different types of prosthesis and their components which replaces missing hard and soft tissues of oral cavity.</p> <p>Students' should be able to evaluate:</p> <p>The requirement and present conditions in order to propose the best prosthesis.</p> <p>Students' should be able to understand:</p> <p>Different materials utilized in the fabrication of different prosthesis.</p> <p>Students' should be able to understand and apply:</p> <p>Basic theoretical knowledge of all the clinical and laboratory steps in fabrication of different prosthesis.</p>	3 & 5	ME

	Students' should be able to: Diagnose and rectify problems pertaining to different prosthesis.		
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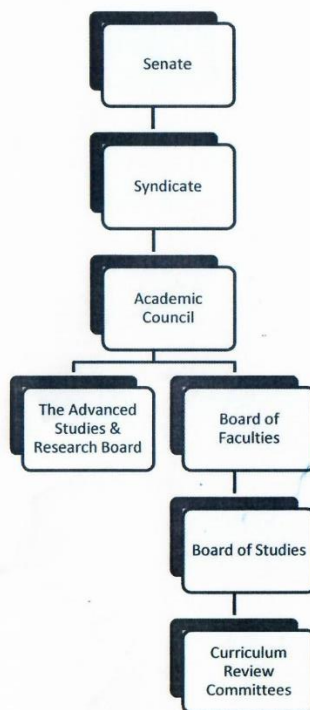
BDS PROGRAM OUTCOMES *
1. Demonstrate professional attitudes expected from an ethical dental practitioner
2. Manage community-based oral health effectively
3. Manage individual patients for oral/dental healthcare ethically and professionally
4. Lead a team of oral/dental healthcare professionals
5. Engage in self-directed life-long learning for personal development

PMDC SEVEN-STAR DOCTOR **
Medical Expert
Professional
Collaborator
Communicator
Advocate
Leader

ORGANOGRAM



Authorities of the Dow University of Health Sciences



REGISTRAR'S SEAL

VICE CHANCELLOR'S SIGNATURE

SCHEME OF STUDIES

Year and subject wise allocation of contact hours, and distribution of marks is given in the table below:

Year	Subject/ Discipline	Teaching/ Learning Contact Hours		Assessment Marks Distribution	
		Classroom teaching	Practical work	Theory	Practical
1	Anatomy	100	300	100	100
	Physiology	50	200	100	100
	Biochemistry	50	120	50	50
	Oral Biology & Tooth Morphology	60	100	100	100
	Pak Studies/ Islamiat	25			
	Information Technology		30		
	Professionalism	16			
First Professional BDS Total		301	750	350	350
2	General Pathology	50	200	100	100
	General Pharmacology	50	200	100	100
	Science of Dental Material	75	250	100	100
	Oral Pathology	50	100	100	100
	Preclinical Operative	25	110		
	Preclinical Prosthodontics	25	110		
	Information Technology		30		
Ethics & Communication	20				
Second Professional BDS Total		295	1000	400	400
3	General Surgery	50	150	100	100

	General Medicine	50	150	100	100
	Community & Preventive Dentistry	40	200	100	100
	Oral Medicine & Diagnosis	50	75	50	50
	Periodontology	50	125	50	50
	Prosthodontics	30	120		
	Operative Dentistry	20	80		
	Oral & Maxillofacial Surgery	30	120		
	Ethics & Research				
	Third Professional BDS Total	320	1020	400	400
	Prosthodontics	75			
	(Complete dentures+ Fixed Prosthodontics+ Occlusion+ MaxFac Prosthodontics+ Gerodontology+	(40+20+5+5+5)	250	100	200
	Operative Dentistry	55			
	(Operative+ Endodontics+ Paedodontics+ Crowns+ Radiology)	(20+10+10+10+5)	250	100	200
4	Oral & Maxillofacial Surgery	75			
	(Oral surgery+ Anesthesia+ Forensic dentistry)	(60+10+5)	250	100	200
	Orthodontia	45			
	(Orthodontics+ Radiology)	(40+5)	250	100	200
	Research, Leadership & Communication				
	Final Professional BDS Total	250	1000	400	800

Credit Hours

There are 4936 contact hours of this program in total with 1166 hours for interactive lectures and 3770 hours for practical work both in the laboratory and clinic.

- 16 contact hours make 1 credit hour for lectures/demonstrations, making up 71 credit hours of lectures/demonstrations during the entire program.
- 53 contact hours make 1 credit hour for practical sessions in laboratory or for clinical rotations.

Therefore, during the entire program 69 credit hours are designated for practical sessions and rotations. Year-wise credit hour details are shown here.

YEAR WISE CREDIT HOUR

Year	Number of Courses & Type of Delivery	Contact Hours	Credit Hours	Total Contact Hours	Total Credit Hours
1st Year	04 Lecture	301	18	1051	31
	Practical	750	13		
2nd Year	06 Lecture	295	19	1295	38
	Practical	1000	19		
3rd Year	08 Lecture	320	20	1340	38
	Practical	1020	19		
4th Year	04 Lecture	250	15	1250	33
	Practical	1000	18		
	Total Lecture	1150	70		
	Total Practical	3770	69		
Total				4936	140
Minimum Requirement	As per PMDC 4936 contact hours (53 practical contact hours are equivalent to 1 credit hour while 16 lecture hours are equivalent to one credit hour)				

PRE-REQUISITES FOR EACH YEAR

ACADEMIC YEAR	PRE-REQUIREMENTS	COMMENTS
First year	FSc/ A Level with Premedical subjects And SAT II / IBCC equivalence certificate	Student must pass the entry test, has good standing in Matric and FSc
Second year	All courses of First year BDS	
Third year	All courses of Second year BDS	
Final Year	All courses of Third year BDS	

CREDIT HOUR DETAILED DISTRIBUTION

Curriculum breakdown in terms of practical and lectures both in clinical and basic medical and dental sciences is displayed in the following table:

ACADEMIC YEAR	COURSE CODE	COURSE TITLE	UNITS		TOTAL UNITS
			LECTURES	LAB/CLINICALS	
First Year	4101-ANAT	General Anatomy,	3	1	4
	4102-GPHY	General Physiology	4	4	8
	4103-BIOCHE	Biochemistry			
	4104-OBIOM	Tooth morphology, TMJ & occlusion	2	2	4
Second Year	4205-GPATH	Pathology	2	2	4
	4208-SCDM	Sciences of Dental Materials	2	2	4
	4206-OPATH	Oral Pathology	2	2	4
	4205-GPHARM	Pharmacology	2	2	4
Third Year	4309-GMED	General Medicine	2	2	4
	4310-GSURG	General Surgery	2	2	4
	4312(A)-PERIO	Periodontology	1	1	2
	4312(B)-ORMED	Oral Medicine	1	1	2
	4311-CD	Community & Preventive Dentistry	2	2	4
	301-OMFS	Clinical oral & Maxillofacial surgery I			

	301-OPRD	Clinical Operative I			
	301-PRTD	Clinical Prosthodontics I			
	301-PDL	Clinical Periodontics I (Oral diagnosis)			
Final Year	4415-OMFS	Oral & Maxillofacial surgery	2	2	4
	4413-PROSTH	Prosthodontics	2	2	4
	4414-ORTH	Orthodontics	2	2	4
	4416-OPERD	Operative dentistry	2	2	4

COURSE CONTENT & OBJECTIVES

1.General anatomy & Histology

2.General Embryology

3.Head & Neck

4.Neuroanatomy

5.Abdomen & Thorax

COURSE TOPIC: GENERAL ANATOMY AND HISTOLOGY

S. No	LECTURE TOPICS	TOPIC OBJECTIVES
1	Introduction to Anatomy	Define anatomy. Compare the branches of anatomy with regard to their practical implications.
2	Terms of position and movements	Describe the location and movement of different parts of body with respect to various terms of position and movement.
3	Cell	Describe cell and cell organelles. Discuss functions of cells. Discuss cell cycle.
4	Epithelial Tissue	Compare different types of epithelia with regard to their features, functions and locations.
5	Connective Tissue	Classify the following with regard to their structures, functions and locations: - Connective tissue; Components of connective tissue.
6	Bones	Compare various types of bone with regard to their development, shape, histological features and blood supply.
7	Cartilages	Classify cartilages with regard to their location, morphology, histology and function.
8	Joints of Body	Relate the following: - Structure of different types of joint with their movements General features of synovial joints with their locations
9	Muscle	Classify muscles according to their macroscopic and microscopic structures and functions
10	Introduction to Limbs	Describe general arrangement of bones and muscles
11	Development of Musculoskeletal system	Discuss musculoskeletal system development
12	General organization of CVS	Discuss the organization of circulatory system
13	Histology of blood vessels	Compare the types of blood vessels with regard to their histology.
14	Microscopy and types of microscope	Demonstrate operational steps of microscope handling
15	Lymphatic system	Discuss the immune system.
16	Lymphoid tissue	Compare the lymphoid organs with regard to their histology and function
17	Skin and Fascia	Discuss the structure and distribution of skin and fascia
18	Histology of skin	Discuss the Gross & histological features of skin and its appendages.

COURSE TOPIC: GENERAL EMBRYOLOGY

S. No	LECTURE TOPICS	TOPIC OBJECTIVES
1	Introduction to Embryology	Define Embryology and Embryological terms Discuss the clinical application of embryology
2	Reproductive system	Identify parts of male and female reproductive system and their functions.
3	Uterine Cycle	
4	Cell division & Cell Cycle	Discuss types of cell division and their clinical importance.
5	Meiosis & Gametogenesis	Correlate the processes of meiosis and gametogenesis.
6	Fertilization and Implantation	Discuss the processes of fertilization & implantation. Discuss the following: Development of fetus Events occur during each week Derivatives of ectoderm, mesoderm and endoderm Role of teratogens in congenital anomalies Importance of antenatal diagnostic techniques
7	Development up to 3 weeks	
8	Embryonic Period	
9	Fetal Period	
10	Fetal membranes and Placenta	
11	Role of Genes & Teratogens in birth defects	
12	Antenatal diagnostic techniques	

COURSE TOPIC: HEAD AND NECK

S. NO	LECTURE TOPICS	TOPIC OBJECTIVES
1	Introduction of head and neck structures	Discuss the clinical relevance of the structures of skull as seen on 4 normas.
2	The 4 Normas of skull	Relate the features of different aspects of skull with their clinical relevance.
3	Osteology of mandible	Identify the structures associated with mandible on models.
4	The scalp	Discuss the clinical importance of the structures of scalp.
5	Face	Discuss the blood supply, nerve supply, lymphatic drainage and clinical conditions associated with muscles of facial expression.
6	Development of Face	Describe development and anomalies of face and pharyngeal apparatus. Discuss gross anatomy of orbit, eye and its contents. List the derivatives of optic cup. Discuss development of the eye.
7	Pharyngeal arches	
8	Orbital boundaries and contents	
9	Gross anatomy of eye ball	
10	Development of Eye	
11	External, middle, Internal ear	Discuss the clinical importance of the macroscopic structures of ear
12	Development of Ear	List the derivatives of otic vesicle.
13	Temporal fossa	Identify the structures of temporal and infra temporal region based on data provided.
14	Infratemporal fossa	
15	TMJ & Muscles of mastication	Discuss the articulation, neurovascular supply and the muscles of Temporomandibular joint
16	Nose & Paranasal sinuses	Discuss macroscopic and microscopic structures of nose and paranasal sinuses and their clinical application
17	Nose & Paranasal sinuses	Describe development of nose and paranasal sinuses
18	Oral cavity	Discuss the gross anatomy of oral cavity

19	Oral cavity	Differentiate among the microscopic features of contents of oral cavity
20	Tongue	Describe the macroscopic and microscopic features of tongue
21	Tongue & Palate	Discuss development of oral structures
22	Development of Teeth	Discuss common anomalies of oral structures
23	Major salivary glands	Discuss macroscopic structures of major salivary glands and their clinical importance
24	Salivary glands	Relate the histological differentiation of salivary glands with their function.
25	Major salivary glands	Discuss development of major salivary glands
26	Cervical vertebra	Identify the cervical vertebrae based on data provided. Discuss the importance of cervical vertebrae as landmarks
27	Skin, Fascia & neck muscles	Identify the macroscopic structures of the neck based on data provided.
28	Triangles of neck	Describe the boundaries of the triangles of neck and their contents
29	Pituitary & Pineal gland	Describe the macroscopic and microscopic structures and development of pituitary and pineal glands.
30	Thyroid & Parathyroid glands	Discuss gross anatomy and clinical importance of thyroid and parathyroid glands
31	Development of Thyroid & Parathyroid glands	Discuss development and anomalies of thyroid and parathyroid gland
32	Pituitary gland	Describe the dual origin of pituitary gland
33	Pharynx	Describe the division of pharynx
34	Larynx	Discuss the macroscopic and microscopic structures of the larynx
35	Trachea	Discuss the macroscopic and microscopic structures of trachea
36	Cranial nerves 5,7,9,10&12	Describe the course of cranial nerves and effects of their injury

37	Major Vessels of neck	Identify major arteries and their main branches in neck on models and normal subjects.
38	Head & neck	Discuss lymphatic drainage of head and neck.

S. No	LECTURE TOPICS	TOPIC OBJECTIVES
1	Cranial fossae	Describe features of cranial cavity.
2	Development of nervous system	List the steps of development of central nervous system.
3	Blood supply of brain and spinal cord	Discuss the clinical importance of blood supply of brain and spinal cord.
4	Meninges of the brain and spinal cord	Discuss the clinical importance of meninges of brain and spinal cord with regard to the following spaces: <ul style="list-style-type: none"> - Epidural, - Subdural, - Subarachnoid.
5	Dural venous sinuses	Describe the location and communications of Dural venous sinuses. Discuss the clinical significance of Dural venous sinuses.
6	Ventricular system of brain	Describe the structure of ventricular system. Correlate the structure of ventricular system with CSF disorders.
7	Brain stem	Describe the external features and attachment of cranial nerves with lesions.
8	Cerebellum	List the deep cerebellar nuclei.
9	Diencephalon	Describe the macroscopic features of the following structures: <ul style="list-style-type: none"> - Cerebellum - Diencephalon - Thalamus
10	Cerebrum	
11	Cranial nerves I-XII	
12	Autonomic nervous system	Describe the general distribution of white matter.
13	Imaging of Brain and spinal cord	Identify the following based on pictures/ models: <ul style="list-style-type: none"> - Functional cortical areas - Cranial nerve nuclei and their functional components - Brain and spinal cord (on radiographs). Describe the structural and functional organization of autonomic nervous system.

COURSE TOPIC: NEUROANATOMY

TOPIC: ABDOMEN AND THORAX

S. NO	LECTURE TOPICS	TOPIC OBJECTIVES
1	Introduction to thoracic cavity	Describe the boundaries of thoracic cavity and its contents
2	Mediastinum	Describe the boundaries and contents of mediastinum.
3	Gross and histology of thoracic part of respiratory tract	Identify the macroscopic and microscopic structures of lung based on data provided.
4	Development of respiratory system	List derivatives of lung bud
5	Overview of Pericardium and Heart	Describe the macroscopic structures of heart and pericardium
6	Development of CVS	List parts of primitives of heart tube & their derivatives
7	General Histological features of GIT	Differentiate among the parts of small & large intestine on the basis of histology
8	Development of GIT	List the derivatives of foregut, midgut & hindgut
9	introduction of abdomen	Quadrants, regions and the introduction of oesophagus, stomach, small and large intestine, pancreas, liver and spleen

COURSE CONTENT & OBJECTIVES

- 1. Basic Physiology**
- 2. Blood**
- 3. Nerve & Muscle**
- 4. Cardiovascular**
- 5. Respiratory**
- 6. Neuroscience**

7. Special senses & Endocrinology
8. Digestive and Urinary

COURSE TOPIC: BASIC PHYSIOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction of Physiology & Homeostasis	Discuss: <ul style="list-style-type: none">- What is Physiology?- Importance of Physiology in modern medicine.- Basic life processes and survival needs of the body.- Principle of homeostasis as a central theme of Physiology.- Negative and positive feedback systems.
2.	Body fluid compartments	Describe the body fluid compartments. Discuss the composition of body fluid compartments.
3.	Cell membrane	Define cell. Discuss the importance of cell as the basic unit of life. Describe the composition of cell membrane.
4.	Cell organelle 1	Discuss the structure and functions of all components of a cell.
5.	Membrane transport 1	Discuss the types of membrane transport. Define Passive transport Define the following: <ul style="list-style-type: none">- osmotic pressure- tonicity- bulk transport- phagocytosis- pinocytosis Compare types of solutions with regard to their tonicity.
6.	Membrane transport 2	Discuss Active transport Types of Active transport <ul style="list-style-type: none">- Primary active transport- Secondary active transport

COURSE TOPIC: BLOOD

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Composition of blood	Describe the components of blood and their functions. Describe the functions of blood.
2.	Erythropoiesis & Factors affecting erythropoiesis	Describe the structure and functions of erythrocytes. Draw a flow chart of RBCs production. Enumerate the sites of erythropoiesis. Discuss the humoral, maturation & nutritional factors affecting erythropoiesis.
3.	Hemoglobin- Anemia & Polycythemia	Discuss the formation, functions, fate and pathologies of hemoglobin. Define the following: <ul style="list-style-type: none"> - Anemia - Polycythemia. Classify anemia on the basis of <ul style="list-style-type: none"> - Morphology. - Etiology. Discuss various types of polycythemia.
4.	Blood groups	Discuss the following: <ul style="list-style-type: none"> - ABO blood types. - Rh blood types. - Mismatched blood transfusion hazards. - Erythroblastosis fetalis.
5.	Hemostasis 1	Define hemostasis. Discuss the events of hemostasis. List the contents and functions of platelets. Discuss the following <ul style="list-style-type: none"> - Intrinsic and extrinsic coagulation pathways
6.	Hemostasis 2	Balance between bleeding and coagulation Fibrinolytic mechanism Factors that prevent clotting in normal vascular system Conditions that cause excessive bleeding in human beings
7.	White blood cells	Discuss leukopoiesis and inflammation Differentiate among the types of white blood cells based on their function and physical characteristics

8.	Immunity- Antigen, antibody structure	Describe immunity and its types <ul style="list-style-type: none"> - Innate (non-adaptive) - Acquired (adaptive) Discuss types and functions of lymphocytes
9.	Humoral immunity &	Discuss the structure and mechanism of action of antigen and antibody Describe the complement system.
10.	Cell mediated immunity	Discuss Cell mediated immunity Types of T cells Coordinated working of Humoral and cell mediated immunity Describe allergy and hypersensitivity reactions.

COURSE TOPIC: NERVE AND MUSCLE

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Resting membrane potential	Discuss: <ul style="list-style-type: none"> - Distribution of ions across the plasma - Resting potential and its importance Define Nernst potential. Write the Nernst equation.
2.	Structure of neuron& synapse	Describe the structure and function of different parts of neuron. Define synapse. Discuss the following types of synapse <ul style="list-style-type: none"> - Electrical synapse - Chemical synapse
3.	Graded potential- Action potential- Properties & propagation	Discuss graded potential Discuss the action potential, its propagation in myelinated and non-myelinated nerve fibers. Describe the graph of action potential. Differentiate between graded and action potentials.
4.	Structure of skeletal muscle	Describe muscle tissue and its functions. Discuss organizational levels of skeletal muscle.
5.	Neuromuscular junction	Discuss the parts of neuromuscular junction (NMJ). Discuss the steps of impulse transmission through neuromuscular junction. Discuss the physiological basis of disorders of NMJ.
6.	Excitation contraction coupling & Mechanism of Skeletal muscle contraction	Discuss mechanism of muscle contraction in the skeletal muscle. Describe structure and function of sarcoplasmic reticulum and T-tubules. Define power stroke. Describe the role of ATP in muscle contraction. Define: <ul style="list-style-type: none"> - motor unit - motor unit recruitment - simple muscle twitch - summation - tetanization - fatigue Differentiate between isotonic and isometric muscle contraction.

7.	Smooth muscle	<p>List the types of smooth muscles.</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> • Membrane & action potentials in smooth muscles. • Contractile mechanism of smooth muscles. • Nervous and hormonal control of smooth muscle contraction.
8.	Skeletal, Smooth & Cardiac muscle Comparison	Compare smooth, cardiac and skeletal muscles regarding their structure and function.

COURSE TOPIC: CARDIOVASCULAR SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Structure of heart & Cardiac muscle	<p>Discuss the physiology of cardiac muscle and the importance of intercalated discs in cardiac muscle function.</p> <p>Compare types of muscles with regard to their structure and functions.</p> <p>Correlate the structure of cardiac muscle to its function.</p>
2.	Cardiac action potential Conduction system of heart	<p>Discuss the cardiac action potential.</p> <p>Compare the skeletal muscle and heart regarding their action potentials.</p> <p>Discuss the electrical conduction system of heart and components</p> <p>Discuss role of SA node in conduction system of heart.</p>
3.	Basic Electrocardiography 1	<p>Draw electrocardiogram (ECG) of a normally functioning heart</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Myocardial events - 12 ECG leads - Tachycardia - Bradycardia
4.	Basic Electrocardiography 2	<p>Define the Cardiac vector and axis of heart</p> <p>Discuss</p> <ul style="list-style-type: none"> - Myocardial infarction/ischemia - Atrial flutter - Atrial fibrillation - Heart blocks
5.	Cardiac cycle / Heart sounds	<p>Discuss the cardiac cycle</p> <p>Different phases of cardiac cycle</p> <p>Heart Sound in relation to phases of cardiac cycle</p>
6.	Cardiac output Factors affecting cardiac output	<p>Discuss the following</p> <ul style="list-style-type: none"> - Cardiac output - Frank-Starling law - Nervous and chemical factors that alter heart rate, stroke volume, and cardiac output
7.	Hemodynamics	<p>Discuss the physical characteristics of circulation</p> <p>Discuss the interrelationships of pressure, blood flow and resistance</p> <p>Discuss vascular distensibility and functions of the arterial and venous systems</p>

8.	Blood pressure & its regulation 1	Define: <ul style="list-style-type: none"> - Systolic blood pressure - Diastolic blood pressure - Mean arterial blood pressure - Pulse pressure Discuss short term and intermediate regulations of blood pressure.
9.	Blood pressure & its regulation 2	Discuss long-term regulations of blood pressure. Describe the renin angiotensin aldosterone system
10.	Local control of blood flow & Microcirculation	Discuss the following <ul style="list-style-type: none"> - Local control of blood flow - Humoral control of circulation Discuss the capillary system, vasomotion and fluid-filtration across capillaries
11.	Circulatory Shock	Discuss the physiological causes of shock

COURSE TOPIC: RESPIRATORY SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Respiratory passageways & alveoli- Pulmonary ventilation	List the structures that make up the respiratory system in correct order Discuss the functions of each structure of respiratory system Differentiate between the conducting and respiratory zones of respiratory passages
2.	Mechanics of Respiration	Basic mechanism for inspiration & Expiration Describe the roles of muscles of respiration in breathing Discuss: <ul style="list-style-type: none"> - Pressure gradients - Significance of dead space Boyle's law
3.	Lung volumes and capacities	Describe lung volumes and capacities in adult male
4.	Gas exchange & Diffusion	Discuss the relationship of partial pressure to a gas mixture Describe partial pressures of oxygen and carbon dioxide in venous and arterial blood, alveolar air and cells Discuss factors affecting exchange through respiratory membrane Compare inspired and alveolar air regarding their composition

5.	Transport of gases Oxygen-Hb dissociation curve	Discuss the role of partial pressure in gas transport by the blood Describe the transport of oxygen and carbon dioxide in blood Discuss the role of hemoglobin in oxygen transport Describe the factors affecting release or binding of oxygen to hemoglobin Discuss Bohr's and Haldane effects Interpret the oxygen hemoglobin dissociation curve graph
6.	Regulation of respiration	Describe the role of the four main groups of nuclei in the medulla and pons that control breathing Discuss the factors that can influence rate and depth of breathing Describe locations of chemoreceptors that monitor blood pH and gas concentrations Discuss the role of chemoreceptors in the regulation of respiration
7.	Effects of Exercise on Respiration	Discuss the Respiratory adaptations for exercise Role of respiratory system to maintain homeostasis during Exercise
8.	Respiratory disorders / Hypoxia	Discuss the causes of these respiratory disorders: <ul style="list-style-type: none">- Emphysema- Bronchitis- Asthma- Pneumonia- Pulmonary edema- Hypoxia

COURSE TOPIC: NEUROSCIENCE

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Electrical properties of neuron	Describe the basic organization of nervous system Discuss Electrical conduction across neuronal membrane, generation of action potential and transmission of nerve signal
2.	Synapse	Define synapse List the properties of synapse Discuss transmission of electrical signals between neurons
3.	Receptors	Describe the general characteristics of receptors Classify receptors according to location and stimulus type Discuss the following <ul style="list-style-type: none">- Receptor potential- Transduction of sensory stimuli into nerve impulses
4.	Sensory pathways	List the different types of sensory pathways Discuss the transmission of sensory information into CNS (DCML) Discuss the transmission of sensory information into CNS (Anterolateral system)
5.	Analgesia system Types of Pain	Discuss types of pain, their qualities and pain receptors Discuss dual pathways for transmission of pain signals into CNS Discuss analgesia system in the brain and spinal cord Describe brain opioid system
6.	Spinal level of motor control Descending tracts (pyramidal & extra pyramidal)	Discuss the organization of the spinal cord for motor functions Describe the role of muscle spindles & Golgi tendon organs in muscle control Discuss cord reflexes Describe the pathway of pyramidal efferent tracts Compare pyramidal and extra pyramidal tracts regarding their origin, termination and function
7.	Brainstem	Describe the major functions o <ul style="list-style-type: none">- Mid brain- Pons- Medulla oblongata Discuss the control of motor functions by the brain stem
8.	Cerebellum	Discuss the structure, functions, input and output connections of cerebellum Describe various cerebellar disorders

9.	Basal ganglia & Limbic system	Discuss the structure, functions, pathways and related disorders of basal ganglia List the components of limbic system Describe the functions of components of limbic system
10.	Autonomic nervous system (ANS)	Discuss the general organization and activation of ANS Discuss structure and functions of sympathetic, parasympathetic nervous system and adrenal medulla Compare the divisions of the ANS regarding origin of preganglionic fibers, location of ganglia and neurotransmitter substances Discuss the value of adrenal medullae in the function of the sympathetic nervous system.
11.	Sleep (Reticular activating system)	Discuss physiology of normal sleep REM & Non-REM sleep Different phases of sleep and their characteristics

COURSE TOPIC: SPECIAL SENSES & ENDOCRINOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Vision 1	Describe all layers and parts of eye Describe the physiological functions of each part of the eye Discuss refraction and refractory structures of the eye
2.	Vision 2	Discuss: <ul style="list-style-type: none"> - Errors of refraction and their corrections - Accommodation - Fluid system of eye - Anatomy of retina - Photochemistry of vision - Visual pathway and associated lesions Image formation
3.	Hearing and equilibrium	Discuss physiological anatomy of ear Describe the role of ossicles in the process of hearing Draw the auditory pathway Discuss conductive and perceptive deafness Explain the role of vestibular apparatus functions in monitoring equilibrium
4.	Sense of taste	Discuss types of taste sensations and their perception on tongue List factors affecting taste sensation Describe location and activation of taste buds Describe the gustatory pathway
5.	Sense of smell	Describe the location and activation of the olfactory receptors Discuss the primary sensations of smell Describe the olfactory pathway to brain Define the following <ul style="list-style-type: none"> - Anosmia - Hyposmia - Dyssomnia
6.	Classification & Mechanism of action of hormones	Classify hormones Discuss endocrine hormones Discuss the secretion, transport, clearance and mechanism of actions of different hormones Describe the hormone receptors and their activation Differentiate between endocrine and exocrine glands List the major endocrine glands and their locations

7.	Pituitary Gland & Hypothalamo-hypophyseal system	Describe the following structural and functional relationships of the hypothalamus-pituitary unit Discuss the control, site of action and functions of the adenohypophysis hormones Discuss the effects of hypo and hyper secretions of adenohypophysis hormones Correlate the function of the neurohypophysis and the hypothalamus Discuss the synthesis, secretions and effects of anterior and posterior pituitary hormones
8.	Growth Hormone	Release of growth hormone Factors effecting its release Functions of growth hormone Abnormalities in release of growth hormone secretion
9.	Thyroid hormones	Describe the formation, secretion, function and regulation of thyroid hormones Discuss disorders of thyroid hormones
10.	Pancreatic hormones	Discuss the following mode of action of insulin release Describe the functions of insulin, glucagon, somatostatin and pancreatic polypeptide.
11.	Calcium homeostasis-1	List the hormones that regulate the calcium and phosphate homeostasis
12.	Calcium homeostasis-2	Discuss the functions of parathyroid hormone, vitamin D and calcitonin Describe hypocalcemia and hypercalcemia
13.	Adrenal hormones 1 (Adrenal cortex)	Describe the site of formation, function and control of secretion of the following adrenal hormones: - Mineralocorticoids and - Glucocorticoids
14.	Adrenal hormones 2 (Adrenal Medulla)	Discuss Cushing syndrome, Cushing disease and Addison's disease
15.	Male sex hormones	Discuss hormones specific for male Structure and functions of male sex hormone
16.	Female sex hormones	Discuss hormones specific for female Structure and functions of female sex hormone
17.	Ovarian & Menstrual cycle	Describe ovarian and Menstrual cycle Different phases of ovarian and menstrual cycle Compare both cycles

COURSE TOPIC: DIGESTIVE & URINARY SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Digestive system – Introduction	Describe the structural and functional organization of the digestive system. Discuss the physiological anatomy of Gastrointestinal tract. Discuss the characteristic features of GIT smooth muscle.
2.	Salivation & Salivary Gland	Describe the composition and functions of saliva. List the factors that increase salivary secretion. Discuss the nervous regulation of salivary secretion
3.	Mastication & Swallowing	Discuss the chewing and swallowing reflex. Describe the function of lower esophageal sphincter Discuss the mechanisms that prevent food from entering the nasal cavity and larynx during swallowing
4.	Stomach	List the functions of stomach Describe composition of gastric juice & their functions Discuss the phases of gastric secretory activity, gastric emptying and its regulation.
5.	Small intestine	Describe types of movement in small intestine Discuss the inhibition of motility and secretion in the stomach Discuss peristaltic rush and migrating motor complex. List structures that increase the absorptive surface area of the small intestine. Discuss the factors affecting the motility and secretion of food in the stomach. Describe the absorption of each type of nutrient in the small intestine.
6.	Liver & Gallbladder	Discuss the composition, formation, conduction and functions of Bile and Bile salts. Describe the functions and emptying of gallbladder.
7.	Pancreas	Describe the composition, function and role of pancreatic secretion. Discuss factors which affect the pancreatic secretion. Discuss the role of hormones in regulating pancreatic secretion.
8.	Large intestine, defecation reflex	Describe the structure, functions and major types of movements in large intestine. Discuss the defecation reflex. Discuss functions of internal and external anal sphincters.
9.	Gastrointestinal hormones	Discuss the secretion and role of following GIT hormones in digestion of food <ul style="list-style-type: none"> - Cholecystokinin - Secretin - GIP - Gastrin

		<ul style="list-style-type: none"> - Gastrin Releasing Peptide - Pancreatic Polypeptide - Somatostatin - Vasoactive Intestinal Polypeptide - Motilin
10	Nervous and hormonal Regulation of GIT	<p>Discuss the neural and hormonal control of GIT - Enteric Nervous System.</p> <p>Describe types of GIT reflexes</p> <p>Correlate the role of interstitial cells of Cajal with smooth muscle contractile activity.</p> <p>Contrast the effects of parasympathetic and sympathetic nervous activity in modulating GI activity.</p>
11	Kidney function & Nephron	<p>Discuss the functional anatomy of kidney.</p> <p>Define Nephron and its types.</p> <p>Describe parts of a nephron</p> <p>Discuss the functions of kidney</p>
12	Glomerular filtration rate (GFR) & its Regulation	<p>Define GFR</p> <p>State the normal range of GFR.</p> <p>Describe the glomerular filtration membrane and its function</p> <p>Discuss the forces that promote and oppose glomerular filtration.</p> <p>Discuss the significance of autoregulation of GFR</p> <p>Describe the regulation of glomerular filtration by hormones and the nervous system</p>
13	Tubular reabsorption	<p>Discuss passive and active mechanism of transport for tubular reabsorption.</p> <p>Discuss reabsorption of fluid by peritubular capillaries</p> <p>Discuss tubular reabsorption along different parts of the nephron and its regulation.</p> <p>Define tubular load and Tubular transport maximum (T_m).</p>
14	Renal concentrating, diluting mechanism (Counter current mechanism)	<p>Discuss:</p> <ul style="list-style-type: none"> - Osmotic gradient - Counter Current Mechanism - Renal mechanisms for excreting diluted urine. - Role of anti-diuretic hormone & osmoreceptors
15	Micturition reflex	<p>Discuss the role of bladder in accommodating a wide range of urine volume</p> <p>Describe the neural reflex pathway that regulates emptying of bladder</p>
16	Hormones acting on kidney	<p>Discuss the effect of following hormones on kidney</p> <ul style="list-style-type: none"> - ADH - Aldosterone - Angiotensin II - ANP - PTH

COURSE TOPIC: SKIN

1.	Structure & Functions of Skin	Structure of the Skin Types of cells in different layers Skin Functions Glands in skin Skin color Keratinization & Albinism
2.	Thermoregulation	Normal Body Temperature Core and Shell body temp. Ways of measuring Body Temp List the mechanisms of heat production & heat loss Regulation of Body Temp. Effect of Hot & Cold environment on the body.

COURSE CONTENT & OBJECTIVES

- 1. Cell**
- 2. Carbohydrate**
- 3. Lipid**
- 4. Protein**
- 5. Enzymes**
- 6. Neuro-proteins**
- 7. Hemoglobin**
- 8. Vitamins & Minerals**
- 9. Metabolism**
- 10. Nutrition, Endocrinology & Metabolism**

Practical List:

- **Lab safety & hazards**
- **Solutions**
- **Normal saline preparations**
- **Detection of Carbohydrates**
- **Detection of Lipids**
- **Detection of Proteins**
- **Normal Urine**
- **Abnormal Urine contents**

COURSE TOPIC: BIOCHEMISTRY OF CELL

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to Biochemistry	Discuss importance of Biochemistry in Dentistry
1A	Introduction of Lab Safety procedures and equipment.	To be aware with: Lab safety procedures. Principle and operating procedures of lab equipment.
2	Cell- Biochemical Composition & Cell Organelles.	Describe the important micro and macro molecules found in the cell Discuss the major functions of organelles.
3	Cell Membrane	Explain the Biochemical structure and functions of cell membrane
4	Water	Explain the biochemical structure and properties of water
4A	Preparation of Solutions	Define solution, its types. Preparation of solutions of different concentrations
5	pH & Buffers	Define the following <ul style="list-style-type: none"> - Buffers - Acidosis - Alkalosis Explain the types and mechanisms of action of the following: <ul style="list-style-type: none"> - Buffers - Acidosis - Alkalosis

COURSE TOPIC: 2. CARBOHYDRATE CHEMISTRY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction of Carbohydrates	Define and classify carbohydrates Discuss sources and biomedical importance of carbohydrates
2	Monosaccharides Disaccharides and Oligo saccharides	Define and classify the following <ul style="list-style-type: none">- Monosaccharides- Disaccharides- Oligosaccharides Describe isomerism in monosaccharides Explain the biomedical importance of the following <ul style="list-style-type: none">- Monosaccharides- Disaccharides- Oligosaccharides
3	Polysaccharides	Define and classify Polysaccharides Explain functions of different types of polysaccharides
3A	Detection of CHO (Scheme)	Define principle and procedure for CHO detection methods. Identify and differentiate sugars-non-sugars, reducing-non reducing sugars and monosaccharide-polysaccharides in any sample/solution.

COURSE TOPIC: 3. LIPID CHEMISTRY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction of Lipids & Lipid Peroxidation	Define and classify lipids Discuss the functions of lipids and biomedical importance of lipids
2	Fatty Acids & Eicosanoids & Derived Lipids	Define and classify fatty acids Explain the properties, functions and nutritional importance of fatty acids
3	Compound Lipids & Cholesterol	Classify the functions and biomedical properties of each type of lipid (PL, LP, GL, sphingolipid)

		Discuss the functions and biomedical importance of each type of lipid
	Emulsification Test	Define hydrophobic nature of fats. To identify hydrophobic and hydrophilic solutions.

COURSE TOPIC:4. PROTEIN CHEMISTRY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Amino Acids	Describe the properties, functions and chemical reactions of amino acids
1A	Techniques for identification and separation of Amino Acids (Chromatography, Centrifugation, Salting out.)	- Define Polar and non-polar amino acids - Describe the principle and procedure for techniques used for identification of amino acids.
2	Introduction of Protein, Protein Structure & Collagen & Elastin	Explain the structure, function & biomedical importance of proteins
3	Plasma Proteins & Immunoglobulins	Define and classify simple proteins (plasma proteins) Discuss biomedical importance of simple proteins
3A	Detection of Protein (Scheme)	To detect the protein in any sample/solution.
3B	Separation of Proteins (Electrophoresis)	- To describe Ionic character of proteins. - Define principle and procedure of electrophoresis
4	Extra Cellular Matrix	Disorders CHO & Proteins

COURSE TOPIC: 5. ENZYMES

S. No	Lecture Topic	Topic Objectives
1	Introduction of Enzymes& Mechanism of Action of Enzymes	Define and classify enzymes Explain the structure of enzymes

		Discuss the mechanism of action of enzymes Describe the MM equation
2	Factors & Inhibitors	Discuss the factors that regulate enzyme activity
2A	Effect of Temperature and pH on enzyme action	- Define Enzyme activity. - Discuss effect of temperature and pH on enzyme activity.
3	Clinical Enzymology	Discuss the clinical importance of enzymes in diagnosis

COURSE TOPIC: 6. HEMOGLOBIN CHEMISTRY

S, No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Heme-Structure	Discuss structure, functions, & types of hemoglobin
2	Heme-Synthesis & Porphyria	Explain heme synthesis Discuss disorders of heme synthesis
3	Hemoglobinopathies	Discuss the types, biochemical defects & clinical manifestation of hemolytic anemia (Thalassemia, Sickle cell Anemia.)
4	Heme- Degradation & Jaundice	Discuss synthesis, types and fate of bilirubin Classify: <ul style="list-style-type: none">- Jaundice- LFTs
4A	Detection of Bile salt & Bile pigments	To detect the bile salts and bile pigments in given solution.
4B	Interpretation of LFT	- Define Principle and procedures for estimation of liver enzymes. Normal and abnormal values of liver enzymes. - Discuss the abnormalities of bile pigments and liver enzyme in relation to jaundice & other abnormalities.

COURSE TOPIC: 7. VITAMINS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Vitamin A, E & K	Introduction & Classification, Discuss the structure, functions, RDA, sources and deficiency Manifestations of the following: <ul style="list-style-type: none">- Vitamin A, E and K- Vitamin D- Vitamin C- Vitamin B12 and folic acids- Vitamin B1, B2, B3 and B6
2	Vitamin D	
3	Vitamin C	
4	Vitamin B12 & Folic Acids	
5	Vitamin B1, B2, B3 & B6	

COURSE TOPIC: 8. MINERALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Iron	Discuss the functions, RDA, sources, transport, storage, biochemical role & clinical importance of: <ul style="list-style-type: none"> - Sodium - Chloride - Iron - Calcium - Phosphorous - Fluoride - Other minerals.
2	Calcium, Phosphorus	
3	Fluoride & Other Minerals	
	Detection of Abnormal Urine	Enlist the abnormal contents of urine. To correlate the abnormal constituents of urine with the clinical condition.

COURSE TOPIC: 9. GENETICS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Nucleotides	Define nucleoproteins Discuss the chemical structure & significance of nucleoproteins
2	DNA & RNA	Describe the chemical structure, properties and functions of DNA & RNA
2A	Determination of Uric Acid	Define Normal value of uric acid. To correlate the abnormal value of uric acid with the disease.
3	Central Dogma of Molecular Biology	Discuss the central dogma of molecular biology
4	DNA Replication	
5	Nucleic Acid	Metabolism Brief
6	Transcription & Post transcriptional modification	Describe the steps of transcription and its enzymes
7	Translation & Post transcriptional modification	Describe the steps of translation and its enzymes

8	Protein synthesis and gene expression	Describe protein synthesis Discuss the role of protein
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COURSE TOPIC: 10. CARBOHYDRATE METABOLISM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Digestion & Absorption of Carbohydrates	Describe the breakdown of complex dietary carbohydrates to simple sugars Discuss the absorption of simple sugars from GIT into portal blood
2	Glycolysis	Define glycolysis Explain the reactions involved in glycolytic pathway Discuss the fate of pyruvate formed from glucose
3	TCA	Explain the reactions & the regulation of citric acid cycle.
4	Gluconeogenesis	Define gluconeogenesis. Discuss the process of gluconeogenesis.
5	Glycogen Metabolism	Describe the formation, break down and regulation of glycogen
6	HMP	Describe purpose, importance & reactions of Hexose Monophosphate Pathway
7	Regulation of Blood Glucose & Diabetes Mellitus	State the range of normal blood glucose level. Discuss the clinical significance of variations in blood glucose level and metabolic derangements that occur in Diabetes Mellitus.

COURSE TOPIC: 11. LIPID METABOLISM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Digestion & Absorption of Lipids	Describe the breakdown of complex dietary lipids into simpler forms. Discuss the absorption of simpler forms of dietary lipids from GIT.
2	Cholesterol & Lipid Transport (Lipoproteins)	Discuss the chemistry, metabolism and associated clinical disorders of lipoproteins.
3	β Oxidation	Explain the oxidation of fatty acid

4	Ketone Bodies	Explain the synthesis & utilization of Ketone Bodies
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COURSE TOPIC: 12. ELECTRON TRANSPORT CHAIN

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Electron Transport Chain	Discuss the structure & functions of Electron Transport Chain Describe the synthesis of ATP

COURSE TOPIC: 13. PROTEIN METABOLISM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Digestion & Absorption of Proteins	Describe the breakdown of dietary proteins into simpler forms Discuss the absorption of simpler forms of dietary proteins from GIT
2	Reactions of Amino acids & Urea Cycle and NH ₃ Toxicity	Explain the reactions of amino acids Describe the ammonia metabolism
3	Phenylalanine, Tyrosine & Tryptophan Metabolism	Discuss the metabolism and inborn errors of specific amino acids

COURSE TOPIC: 14. ENDOCRINOLOGY

S. No	Lecture Topic	Topic Objectives
1	Introduction of Hormones	Define hormones
2	Hypothalamus, Pituitary & Thyroid	Classify hormones Discuss the general characteristic of different types of hormones
3	Adrenal & Pancreatic Hormones	Explain the chemistry, mechanism of action & metabolic role of hormones released by the following structures <ul style="list-style-type: none"> - Hypothalamus - Pituitary gland - Thyroid gland - Adrenal glands - Pancreas

COURSE CONTENT & OBJECTIVES

- 1. Introduction to structures**
- 2. Vasculature & innervation of the mouth**
- 3. Embryology of head, face and oral cavity**
- 4. Development of tooth & supporting structures**
- 5. Enamel & Amelogenesis**
- 6. Dentin & Dentinogenesis**
- 7. Dental pulp & its development**
- 8. Periodontium**
- 9. Physiologic tooth movement**
- 10. Salivary glands**
- 11. Oral mucosa**
- 12. Temporo-mandibular joint**
- 13. Ageing in the oral cavity**
- 14. Dental anatomy**
- 15. Identification of teeth**
- 16. Pulp Chambers & Canals**
- 17. Occlusion**
- 18. Forensic dental anatomy**

COURSE TOPIC: INTRODUCTION TO STRUCTURES OF ORAL TISSUES

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to oral biology & structure of tooth	Discuss the clinical application of oral biology List all structures of a tooth with their clinical relevance Identify structures of a tooth on models ,radiographs and in the oral cavity
2.	Appearance of the oral cavity	List the correct and appropriate anatomical and dental terminologies to describe accurately all the visible features present in the mouth Identify the supporting structures of a tooth on pictures/ models. Differentiate among the various supporting structures of a tooth Relate the functional significance of lip posture and of producing an anterior oral seal Appreciate the clinical significance of normal and abnormal lip postures Perform basic dental charting and record dental findings Demonstrate basic dental history taking skills Perform basic extra-oral & intra-oral exam
3.	Age changes & clinical relevance of the structure of tooth	Appreciate that clinical situations in the mouth may be related to normal variation, or disorders that highlight normal features that may otherwise be inconspicuous, or be common benign disorders, or less common severe (possibly life-threatening) disorders. Discuss the clinical relevance of the following structures <ul style="list-style-type: none"> - Enamel - Dentine - Cementum - Periodontal ligament Discuss age-related changes of the following structures <ul style="list-style-type: none"> - Enamel - Dentine - Cementum - Periodontal ligament
4.	Dento-osseous structures	Describe the anatomical features of the bones that comprise the jaws (mandible and maxillae)

COURSE TOPIC: THE VASCULATURE AND INNERVATION OF THE MOUTH

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
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1	Vasculature of the mouth	Describe the sources and distribution of blood vessels supplying the mouth and associated structures (i.e., the teeth and their supporting structures, the salivary glands, the tongue, palate, floor of mouth, lips, and cheeks).
2.	Innervation of the mouth	Describe the sources and distribution of nerves supplying the mouth and associated structures (i.e., the teeth and their supporting structures, the salivary glands, the tongue, palate, floor of mouth, lips, and cheeks)
3.	Trigeminal nerve & its divisions	Describe the courses and distribution of the maxillary and mandibular divisions of the trigeminal nerve
4.	Lymph nodes & tonsillar ring	Describe the location of the major groups of lymph nodes draining oro-dental tissues Describe the tonsillar ring protecting the entrance to the pharynx
5.	Clinical considerations of the innervation of the mouth	Relate the inferior alveolar nerve block with its anatomy

COURSE TOPIC: EMBRYOLOGY OF HEAD FACE AND ORAL CAVITY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Neural Crest Cells and Head Formation, Branchial (Pharyngeal) Arches and Primitive Mouth	List the: <ul style="list-style-type: none"> - Derivatives of Pharyngeal Arches - Derivatives of pharyngeal pouches - Types of teratogens
2	Formation of Face and Secondary Palate	<p>Explain the development of the following structures of the embryo</p> <ul style="list-style-type: none"> - Head - Face - Palate - Tongue - Skull - Maxilla - Mandible - Temporomandibular joint
3	Formation of Tongue	
4	Development of Skull	
5	Development of Mandible and Maxilla	
6	Development of Temporomandibular Joint	
7	Congenital Defects	

		<p>Describe the mechanisms (both molecular and cellular) underpinning elevation (reorientation) of the palatal shelves</p> <p>Explain the events associated with fusion of the palatal shelves following shelf elevation</p> <p>Describe:</p> <ul style="list-style-type: none"> - The prenatal development of the mandible - The postnatal development of the mandible - The prenatal development of the maxillae - The postnatal development of the maxillae - The prenatal development of the TMJ - The postnatal development of the TMJ <p>Relate how the development of the jaws relates to the development of the skull</p> <p>Describe the development of both the anterior two thirds and the posterior third of the tongue</p> <p>Relate the development of the tongue to the innervation of the tongue once fully formed</p>
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COURSE TOPIC: DEVELOPMENT OF THE TOOTH AND ITS SUPPORTING TISSUES

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Stages of tooth development	<p>Discuss the development of:</p> <ul style="list-style-type: none"> - Primary epithelial band - Dental lamina - Vestibular lamina - Hard tissues of tooth - Root <p>Differentiate among/between the following</p> <ul style="list-style-type: none"> - All stages of tooth development - Single and multi-rooted tooth development <p>Describe the origin and fate of the primary epithelial band, the vestibular band and the dental lamina</p> <p>Describe the development of the tooth germ from its initial appearance at the dental lamina through to the bell stage of development and just at the point of initiation of dentine and enamel formation</p> <p>Relate how the description of early tooth development links with events of histogenesis and morphogenesis</p> <p>Describe the complexity of ectodermal–mesenchymal interactions during tooth development</p> <p>Discuss the mechanisms controlling tooth type and shape</p> <p>Enlist the range of congenital malformations affecting tooth development</p>
2	Tooth Type Determination	
3	Hard Tissue Formation & Root Formation	

COURSE TOPIC: DENTAL ENAMEL & AMELOGENESIS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to enamel	Describe the inorganic and organic composition of enamel
2	Stages of Amelogenesis & Mineralization	Describe the physical properties of enamel and histological features of enamel. Describe the characteristics of enamel crystallites and their changing orientation
3.	Structural, Organizational Features of Enamel	<p>Relate how the structure of enamel can withstand the forces of mastication</p> <p>Describe the concept of an enamel prism and its appearance in different planes of enamel</p> <p>Discuss the significance of the term “prism-less” enamel and where it is found</p> <p>The directions of enamel prisms and the appearance of Hunter-Schreger bands</p> <p>The nature of cross-striations, enamel striae and other incremental markings in enamel</p> <p>Differentiate between enamel spindles, enamel tubules, and enamel lamellae</p> <p>Recognize the features of enamel that are pertinent to the progress of dental caries</p> <p>Visualize & locate dental caries</p> <p>Differentiate among the stages of Amelogenesis.</p> <p>Appraise the importance of epithelial/mesenchymal interactions during amelogenesis</p> <p>Categorize the changes in morphology during the ameloblast life cycle to its changing function</p> <p>Restate the significance of the Tomes process in terms of prism formation</p> <p>Compare the composition of young enamel, particularly in terms of the organic matrix</p> <p>Describe the changes that take place during enamel maturation</p> <p>Describe the incremental nature of amelogenesis</p> <p>State the disorders that can occur during enamel formation and how they present clinically.</p> <p>Compare and contrast amelogenesis and Dentinogenesis</p> <p>Appraise how the current knowledge of enamel structure and biology relates to the design of dental restorations</p> <p>Appraise why a knowledge of enamel structure (in particular the enamel surface) and age changes are important in the clinic.</p>
4.	Investing organic layers on enamel surfaces.	<p>Explain the origins of the acquired pellicle</p> <p>Describe the mechanisms of attachment of bacteria and proteins to the acquired pellicle leading to plaque formation</p> <p>Appraise how different dietary carbohydrates influence plaque matrix and how that matrix affects cariogenicity</p> <p>Describe the formation of dental calculus</p>

COURSE TOPIC: DENTIN & DENTINOGENESIS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction, types, dentine formation	Describe the chemical composition of dentine Describe the physical properties of dentine
2	Histology of Dentin	Relate the structure of dentine in terms of the appearance and arrangement of the dentinal tubules and their contents
3	Dentinogenesis	
4	Theories of Dentin Sensitivity	
		<p>Compare intertubular and peritubular dentine</p> <p>Compare and contrast dentin with enamel, cementum, and bone</p> <p>Compare the different zones in dentine and the reasons for these differences</p> <p>Describe the structural and incremental lines in dentine</p> <p>Enlist the functions of dentine and how these relate to its structure</p> <p>Describe the basis of dentine sensitivity</p> <p>Describe the changes in dentine that take place with age (including secondary dentine)</p> <p>Relate how dentine reacts to trauma and other pathological insults</p> <p>Appraise the clinical implications related to dentine permeability</p> <p>Relate how dentine bonds to restorative materials</p> <p>The clinical aspects of dentine resorption</p> <p>Analyze how the processes involved in the development of dentine compare with those involved during the formation of enamel</p> <p>Describe the development of the odontoblast</p> <p>Appraise how Dentinogenesis is initiated by epithelial–mesenchymal interactions</p> <p>Relate how dentine matrix is laid down and subsequently mineralized</p> <p>Describe the process of heterogeneous nucleation and the role of Dentin phosphoprotein</p> <p>Relate the structures seen in fully formed dentine with the development of the tissue</p> <p>Compare & contrast the developmental differences between primary, secondary, and tertiary dentine</p> <p>Compare the developmental differences between intertubular and peritubular dentine</p> <p>State the stem cell developments that might lead to regeneration of pulpo-dentinal tissues</p>

COURSE TOPIC: DENTAL PULP & ITS DEVELOPMENT

	TOPIC	TOPIC OBJECTIVES
1.	Dental pulp, its composition	<p>Describe the composition of the dental pulps</p> <p>Recognize the structure of the dental pulp, including all its cell types</p> <p>Describe the stem cells within the pulp and relate their clinical significance</p> <p>Appraise how the dental pulp compares with other soft connective tissues and awareness of specializations that may relate to its position, being surrounded by dentine</p> <p>Describe the blood vessels of the pulp</p> <p>Describe the nerves of the pulp and the physiology of dental pain</p> <p>Analyze the regional differences within the pulp</p> <p>Appraise the age changes that occur in the dental pulp and how these may relate to clinical situations.</p>
2.	Development of the dental pulp	<p>Suggest best practice to ensure the safety of the pulp during treatment of the tooth</p> <p>State the origin of the dental papilla and of the tissues derived from the papilla</p> <p>Analyze the relationship between the development of dentine and the dental pulp</p> <p>Appraise the epithelial–mesenchymal interactions that lead to dental pulp formation</p> <p>Appraise the embryonic-like features of the dental pulp and why there are stem cells there</p> <p>Relate the development of the neurovascular elements within the dental pulp.</p>
3.	Age Changes in pulp	Analyze age changes in the dental pulp as part of its normal development

COURSE TOPIC: PERIODONTIUM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to periodontium.	Define periodontium. List the components of periodontium.
2	Cementum formation & Types of cementum	Classify cementum. Discuss the formation and biochemical composition of cementum. Describe the composition of cementum Discuss the physical properties of cementum Enlist the main structural features of cementum Relate the various types of cementum and the associated classification of the tissue Appraise the importance of the cementum–enamel and cementum–dental junctions Analyze comparisons between cementum and bone
3	Alveolar bone	Describe the structure of alveolar bone. Identify the histological features of alveolar bone on pictures. Describe the composition of alveolar bone Classify alveolar bone Enlist the main structural features of alveolar bone Describe the structure and origin of the various cell types seen in alveolar bone. Relate how the structure of different bone cells is related to their function. Analyze the complexity of factors involved in bone formation and resorption and how the two processes are coupled. Appraise why a knowledge of bone is necessary to appreciate how it impinges on tooth replacement by an implant Analyze why a knowledge of bone is necessary to appreciate how it impinges on the healing of fractures Appraise why a knowledge of bone is necessary to appreciate how it impinges on healing of tooth extraction sockets
4	Periodontal Ligaments	Classify the periodontal ligaments. Discuss the cells of periodontal ligament space. Enlist the features that characterize the tissue as a non-mineralized connective tissue Describe the composition of the collagenous components of the periodontal ligament & extracellular matrix Compare the arrangement of the principal collagen bundles and their fibrils, including the orientations and names of the principal bundles Describe the mode of attachment of the periodontal fibers into the tooth and bone Analyze the features of the periodontal vasculature Appraise the features of the innervation, particularly mechanoreceptor activity

		Appraise the functions of the periodontal and how these functions relate to structure Appraise the different theories relating to the tooth support mechanism
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COURSE TOPIC: PHYSIOLOGIC TOOTH MOVEMENT: ERUPTION AND SHEDDING

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Pre-eruptive & Eruptive Tooth Movement	Describe the events that take place around the tooth as it erupts from its developmental position and into its functional position
2	Post-eruptive & Abnormal Tooth Movement	Discuss the different theories of the tooth eruptive mechanism Describe the following types of tooth movements:
3	Shedding of Teeth	<ul style="list-style-type: none"> - Pre-eruptive - Post-eruptive - Abnormal - Orthodontic <p>Discuss shedding of teeth.</p> <p>Describe the reduced enamel epithelium and its contribution to the development of the junctional epithelium</p> <p>Enlist the stages in the eruption of the permanent teeth that lead to resorption of overlying deciduous teeth</p> <p>Describe the mechanisms responsible for the resorption of deciduous teeth, including signaling events promoting resorption by multinuclear (osteoclast-like) cells</p> <p>Appraise the variety of clinical conditions that affect the development of the dentition, including disorders influencing eruption.</p>

COURSE TOPIC: SALIVARY GLANDS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Anatomy, development & functions of salivary glands	Describe the anatomy of salivary glands Compare the positions and relations of the three major salivary glands and their ducts
2	Histology of Major & Minor Salivary Glands	Enlist the origin of the parasympathetic nerve supplies of the major salivary glands Discuss the composition of saliva
3	Clinical Considerations	<p>List age-related changes in salivary glands</p> <p>Relate the composition of saliva with its functions</p> <p>Recognize the process of formation of saliva</p> <p>List the main components and functions of saliva</p> <p>Know how the secretion of saliva is controlled</p> <p>Describe the gross anatomy and relationships of the major salivary glands and the situation of the groups of minor salivary glands</p> <p>Understand the histology of the salivary glands both in terms of the parenchymal cells (mucous and serous) and the nature of the duct system, and be able to appreciate the differences between the three pairs of major salivary glands</p>

		Describe the structure and possible function of the myoepithelial cells appreciate how the composition of saliva is modified from its formation in the acini until it passes into the oral cavity at the main opening of the gland transfer knowledge of the structure and function of the salivary glands into understanding clinical situations such as xerostomia.
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COURSE TOPIC: ORAL MUCOSA

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Definition, Boundaries & Functions of Oral Mucosa	Define oral mucosa Describe the boundaries of oral cavity Explain the structure of oral mucosa Relate the structure of oral mucosa with its functions
2	Oral mucosa, Oral Epithelium & Lamina Propria.	Classify different types of oral mucosa Differentiate between different types of oral mucosa on the basis of histology Describe the cells of epithelium & connective tissue. Enlist the constituent layers of the oral epithelium in different regions of the mouth and how structure and function are related. Compare the various types of keratocytes in the oral mucosa Differentiate the various types of non-keratocytes in the oral mucosa Relate the significance of the term gustatory epithelium. Describe the structure of the basement membrane. Appraise the significance of the basement membrane in tumor spread. The differences in the form of the lamina propria between masticatory and lining mucosa. Enumerate the constituents of the submucosa and where it is present in the mouth Describe the distribution of salivary glands within the oral mucosa Differentiate between free gingiva, attached gingiva, crevicular epithelium, and junctional epithelium. Appraise the uniqueness of the junctional epithelium and the underlying lamina propria, relating its structure to its function. Analyze the origin and composition of the gingival crevicular fluid and its primary role in health. Relate how inflammation influences gingival crevicular fluid composition and production Describe how proteins within the crevicular fluid act as biomarkers of disease progression Describe the types of oral mucosa lining the surface of the tongue, the different papillae and the distribution of taste buds.

3	Clinical variations & Age Changes in oral mucosa	Describe the clinical variations & age changes within the oral mucosa Analyze why appreciation of the normal appearance of the oral mucosa is essential in obtaining a diagnosis for the many pathological conditions seen within the oral cavity.
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COURSE TOPIC: TEMPOROMANDIBULAR JOINT

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Regional topography of the mouth and related areas and the TMJ	<p>Classify joints</p> <p>List examples of each type of joint</p> <p>Differentiate the macroscopic and microscopic structure of a joint</p> <p>List the components of the temporomandibular joint, including the ligaments, muscles, the intraarticular disc, and the insertion of the lateral pterygoid muscle</p> <p>To classify TMJ and relate its anatomy and physiology to its biomechanics</p> <p>To link form with function of TMJ in health & disease including trauma</p> <p>Describe the Innervations and blood supply of temporomandibular joint.</p> <p>Relate the muscle attachments with movement of TMJ joint</p> <p>Enlist and relate the functions of the intra-articular disc of the TMJ with its anatomy</p> <p>Compare and contrast the TMJ with most other synovial joints</p> <p>List the main components of synovial fluid</p> <p>How synovial fluid might change with joint dysfunction.</p> <p>Appraise the multifactorial nature of temporomandibular joint disease and the symptoms it may present with</p> <p>Discuss the locations, attachments, functions, and innervations of the muscles influencing mandibular movements, lip movements & cheek movements,</p> <p>Discuss tongue & floor of the mouth movements & soft palate movements.</p> <p>Describe the location, major content and clinical importance of the infratemporal and pterygopalatine fossae</p> <p>Relate the locations and clinical significance of the tissue spaces around the jaws.</p>

COURSE TOPIC: AGEING AND ARCHAEOLOGICAL AND DENTAL ANTHROPOLOGICAL APPLICATIONS OF TOOTH STRUCTURE

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Effects of Aging in the oral cavity	Appraise the main age changes that occur in the orodental Tissues Analyze how age changes affect the treatment of young, as compared with old, patients.

COURSE TOPIC: INTRODUCTION TO DENTAL ANATOMY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to Dental Anatomy	<p>Describe the following</p> <ul style="list-style-type: none"> - Clinical application of oral biology/dental anatomy - Importance of oral biology/dental anatomy - Primary, transitional & permanent dentition periods - Tooth numbering systems - Surfaces and landmarks of teeth - Positive & Negative landmarks of teeth <p>Division into Thirds, Line Angles, and Point Angles</p> <p>Identify the following on models/ pictures:</p> <ul style="list-style-type: none"> - Primary, transitional & permanent dentition periods - Teeth based on various tooth notation systems on models - Surfaces and landmarks of teeth on Models

COURSE TOPIC: DEVELOPMENT AND ERUPTION OF THE TEETH

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Development and Eruption of Primary & permanent teeth	<p>Describe the pattern & age of eruption of primary & permanent teeth</p> <p>Chronologies of the permanent and primary dentition</p> <p>Estimate the dental age of an individual</p>

COURSE TOPIC: THE PRIMARY (DECIDUOUS) TEETH

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Maxillary Central & Lateral Incisor	<p>Identify all deciduous teeth on models.</p> <p>Differentiate between primary and permanent teeth.</p> <p>Explain the landmarks of all deciduous teeth.</p> <p>Appraise the Importance of Primary Teeth</p> <p>Compare & contrast primary and Permanent Teeth</p> <p>Describe the endodontic anatomy of all deciduous teeth.</p>
2	Mandibular Central & Lateral Incisor	
3	Maxillary & Mandibular Canine	
4	Maxillary First & Second Molar	
5	Mandibular First & Second Molar	

COURSE TOPIC: OROFACIAL COMPLEX: FORM AND FUNCTION

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Physiological Form of Teeth and Periodontium	Describe the physiological form of the teeth and periodontium Describe the facial and Lingual Aspects of All Teeth Summarize the schematic Outlines of teeth and dental arches Relate the Form and Function of the Permanent Dentition Describe the Alignment, Contacts, and Occlusion of dentitions Locate curve of Spee, curve of Wilson & plane of occlusion (Curve of Monson) in the dentition.
2	Contact Areas, Interproximal Spaces	Describe contact areas, interproximal spaces & embrasures Identify contact areas , interproximal spaces & embrasures on models/ pictures. Relate the Height of Epithelial Attachment with the Curvatures of the Cervical Lines (Cementoenamel Junction [CEJ]) Mesially and Distally

COURSE TOPIC: THE PERMANENT MAXILLARY INCISORS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Maxillary Central Incisor	Identify maxillary incisors on models/ pictures.
2	Maxillary Lateral Incisors	Describe the landmarks and endodontic anatomy of maxillary incisors Compare maxillary central and lateral incisors with regard to their macroscopic structure

COURSE TOPIC: THE PERMANENT MANDIBULAR INCISORS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Mandibular Central Incisor	Identify mandibular incisors on models/ pictures.
2	Mandibular Lateral Incisor	Describe the landmarks and endodontic anatomy of these teeth Compare mandibular central and lateral incisors with regard to their macroscopic structure

COURSE TOPIC: THE PERMANENT CANINES: MAXILLARY AND MANDIBULAR

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Maxillary Canine	Identify canines on models/ pictures.
2	Mandibular Canine	Describe the landmarks and endodontic anatomy of these teeth compare maxillary and mandibular canines regarding their macroscopic structure

COURSE TOPIC: THE PERMANENT MAXILLARY PREMOLARS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Maxillary First Premolar	Identify maxillary premolars on models/ pictures.
2	Maxillary second premolar	Describe the landmarks and endodontic anatomy of these teeth compare maxillary first and second premolars regarding their macroscopic structure

COURSE TOPIC: THE PERMANENT MANDIBULAR PREMOLARS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Mandibular First Premolar	Identify mandibular premolars on models/ pictures.
2	Mandibular Second Premolar	Describe the landmarks and endodontic anatomy of these teeth Compare mandibular first and second premolars with regard to their macroscopic structure

COURSE TOPIC: THE PERMANENT MAXILLARY MOLARS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Maxillary First Molar	Identify maxillary molars on models/ pictures.
2	Maxillary Second Molar	Describe the landmarks and endodontic anatomy of these teeth
3	Maxillary Third Molar	Compare maxillary first, second and third molars with regard to their macroscopic structure

COURSE TOPIC: THE PERMANENT MANDIBULAR MOLARS- FIRST, SECOND AND THIRD

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Mandibular First Molar	Identify mandibular molars on models/ pictures.
2	Mandibular Second Molar	Describe the landmarks and endodontic anatomy of these teeth
3	Mandibular Third Molar	Compare mandibular first, second and third molars with regard to their macroscopic structure

COURSE TOPIC: IDENTIFICATION OF TEETH

S.NO	TOPIC	_TOPIC OBJECTIVES
1.	Identification of teeth	Appraise how to identify precisely a tooth from either the permanent or deciduous dentition (excepting the variable permanent third molar teeth)
	Variation in tooth morphology	Describe the common dental anomalies associated with tooth morphology

COURSE TOPIC: PULP CHAMBERS & CANALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
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1	Pulp chambers of permanent teeth	Describe and identify pulp, Chamber, and Canals Enlist root canal configurations (Vertucci configuration)
2	Clinical applications of pulpal anatomy	Analyze radiographic pulpal anatomy Demarcate Pulp Cavity and Canal Identify Pulp Horns Appraise the Clinical Applications of pulpal & root canal morphology Locate access cavity preparation of all teeth for endodontics Describe the typical pulp morphologies for each tooth Describe Pulp Cavities of the Maxillary & Mandibular Teeth

COURSE TOPIC: OCCLUSION

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Basics of Primary Occlusion	Discuss occlusion in primary and permanent dentitions
2	Basics of Permanent Occlusion	Describe the concepts of Occlusion Difference between Centric relation & Centric Occlusion Enlist characteristics of an Ideal Occlusion Define Anterior guidance, Canine guidance, Cuspid rise Explain development of the Dentitions Appraise Cusp, Fossa, and Marginal Ridge Relations in occlusion Locate Centric spots, functional & non-functional cusps Discuss lateral Occlusal Relations Analyze the relationships of permanent teeth within the dental arches Aesthetics, smile , and the alignment and occlusion of teeth Enumerate the characteristics of normal (anatomical) centric occlusal position Classify malocclusions in terms of Angle's classification Classify malocclusions in terms of the incisor relationship Identify the major anatomical features seen on both extra-oral and intra-oral radiographs of the skull, jaws, and teeth

COURSE TOPIC: FORENSICS DENTAL ANATOMY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction & application of Forensic Dentistry	Define forensic dentistry Describe the methods of identification of unidentified individuals Discuss the application of forensic dentistry

COURSE CONTENT & OBJECTIVES

- 1. Public Health & Dental Public Health**
- 2. Epidemiology & Oral Epidemiology**
- 3. Evidence Based Practice**
- 4. Research Methods & Biostatistics in Dentistry**
- 5. Health Promotion & Health Education**
- 6. Prevention & Primary Health Care of Oral Diseases**

7. Health Administration & Clinical Governance

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S. NO.	TOPIC/ CONTENT	OBJECTIVES AND DETAILS OF THE TOPIC/ SUB-TOPICS TO BE COVERED	TEACHING METHODS	ASSESSMENT METHOD
SECTION I: PUBLIC HEALTH & DENTAL PUBLIC HEALTH				
1)	PRINCIPLES OF DENTAL PUBLIC HEALTH	<ol style="list-style-type: none"> 1. Introduce the history of public health movements 2. Define principles of public health and its relevance in dentistry as dental public health 3. Outline the relevance of public health to clinical practice 4. Understand the factors affecting the practice of dentistry 5. Understand the criteria to identify any public health problem 	<p>80% Large Class-room teaching</p> <p>20% Small Group Discussion</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Theory exam</p>
2)	HEALTH DETERMINANTS AND INEQUALITIES	<ol style="list-style-type: none"> 1. Describe the concepts of health, disease, illness, and ill health. 2. Understand the different concepts of health needs held by health care professionals, patients, and the public and its influence on service use. 3. Discuss how the gap (access and barriers) between professional, patient, and public concepts of health may have an impact on how health care is delivered and used 4. Describe the underlying range of factors that determine people's health 5. Outline the nature of and explanation for inequalities in health and oral health 	<p>80% Large Class-room teaching</p> <p>20% Small Group Discussion</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Theory exam</p>
3)	PUBLIC HEALTH STRATEGIES AND APPROACHES	<ol style="list-style-type: none"> 1. Understand the implications of dental public health for prevention, clinical practice, research and teaching 2. Describe the basis for the common risk factor approach 3. Outline the need for an upstream public health approach in promoting population health and reducing inequalities 4. Describe differing strategy approaches in prevention. 5. Outline the stages necessary in planning any strategy 6. Describe the rationale for choosing between approaches. 7. Outline the principles of screening. 8. Design a strategy to tackle a major oral health problem. 	<p>70% Large Class-room teaching</p> <p>20% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Project development (introducing public health related problem burden)</p> <p>-Theory exam</p> <p>-OSPE</p>

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SECTION-II EPIDEMIOLOGY & RESEARCH METHODS				
4)	OVERVIEW OF EPIDEMIOLOGY	<ol style="list-style-type: none"> 1. Define epidemiology and its requirements. 2. Describe the uses of epidemiology. 3. Outline the steps necessary to undertake an epidemiological study. 4. Understand the different types of epidemiological study and how they apply to dental care. 5. Understand the principles of measuring dental disease (Bradford Hill's Criteria) 6. Develop an epidemiological study protocol to identify a prevalent public health problem (preferably in dentistry) 	<p>60% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p> <p>10% Hands-on for Protocol development</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Project development (introducing public health related problem burden)</p> <p>-Theory exam</p> <p>-OSPE</p>
5)	TRENDS AND EPIDEMIOLOGY IN ORAL HEALTH	<ol style="list-style-type: none"> 1. Describe the ideal features of an index and know some of the limitations of existing indices. 2. Describe the trends (including epidemiology, etiology, examination and risk assessment) in oral health of children and adults both in local and international context 3. Describe the trends in oral health inequality. 4. Discuss the implications of these trends for oral health care in the both local and international context. 5. Understand why other countries may have different trends. 	<p>20% Large Class-room teaching</p> <p>60% Small Group Discussion Integrated with hands-on practices on models and mannequins</p> <p>10% Patients assessment in clinics</p> <p>10% Community-based assessments and data recording</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Log-Book Exercise</p> <p>-Project implementation (Data Collection)</p> <p>-Theory exam</p> <p>-OSCE</p>
SECTION-III: EVIDENCE-BASED PRACTICE, RESEARCH AND BIOSTATISTICS				

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6)	EVIDENCE BASED DENTISTRY	<ol style="list-style-type: none"> 1. Define and understand the terms evidence-based medicine (EBM) and evidence-based practice (EBP). 2. Describe the reasons for the development of EBM and EBP. 3. Describe and apply the five steps of EBP and critical appraisal 4. Describe and understand the limitations of EBP. 5. Begin using EBP as part of your own continuing professional education and clinical practice. 6. Integrate hierarchy of evidence with the project development through critical appraisal of scientific content 	<p>50% Large Class-room teaching</p> <p>50% Small Group Discussion integrated with hands-on critical appraisal techniques</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Log-Book Exercise</p> <p>-Project implementation (Report appraisal and report writing skills)</p> <p>-Theory exam</p> <p>-OSPE</p>
7)	BIOSTATISTICS	<ol style="list-style-type: none"> 1. Key considerations in use of statistics 2. Choice of statistics and summary analysis 3. Interpretation and report writing practicalities 	<p>30% Large Class-room teaching</p> <p>50% Small Group Discussion integrated with hands-on biostatistical techniques.</p> <p>20% Data entry and analysis of project</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Project implementation (Data Analysis/ analyzing problem burden)</p> <p>-Theory exam</p> <p>-OSPE</p>
SECTION IV: HEALTH PROMOTION AND EDUCATION				
8)	PREVENTION AND ORAL HEALTH PROMOTION	<ol style="list-style-type: none"> 1. Provide a definition of oral health promotion. 2. Outline the key principles of oral health promotion. 3. Describe the five areas for action outlined in the Ottawa Charter and provide oral health examples of each. 4. List potential partners and settings for oral health promotion. 5. Outline key findings of the effectiveness of reviews of oral health promotion 	<p>60% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Project implementation (interpreting results)</p>

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			10% Hands-on for solution proposal	and proposing solutions for change) -Theory exam -OSPE
9)	OVERVIEW OF BEHAVIOR CHANGE	<ol style="list-style-type: none"> 1. Outline the importance of the concepts of behavior change to dental practice. 2. Describe the main elements and features of a selection of important theories of change. 3. Consider the implications of behavior change theory for supporting patients in changing and maintaining health-promoting behaviors 	<p>60% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p> <p>10% Hands-on for solution proposal</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan proposal (interpreting project results and proposing solutions for change)</p> <p>-Theory exam</p> <p>-OSPE</p>
10)	HEALTH PROMOTION THROUGH EDUCATION IN DENTAL PRACTICE	<ol style="list-style-type: none"> 1. Outline the importance and relevance of prevention in dental practice. 2. Describe the key oral health preventive messages. 3. Outline effective ways of supporting patients in changing their behaviors to promote and maintain good oral health. 4. Present an overview of the different methods and materials used in prevention and health education. 5. Implement preventive messages in order to achieve change 	<p>40% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p> <p>10% Hands-on practice on models</p> <p>30% Health Education delivery in clinical and community practice</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (health education delivery as a part of community services)</p> <p>-Theory exam</p> <p>-OSPE</p>
SECTION V: PREVENTION AND PRIMARY CARE OF ORAL DISEASES				

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<p>11</p>	<p>PREVENTION OF DENTAL CARIES – ROLE OF DIETARY SUGARS</p>	<ol style="list-style-type: none"> 1. Understand the caries process and its clinical risk assessment 2. Present a classification of sugars based upon government recommendations. 3. Critically outline the principal sources of evidence on the relationship between sugars consumption and caries development. 4. Describe ways of assisting individuals reduce their sugars consumption such as through dietary counseling 5. Outline approaches to reduce sugars consumption at a population level through community initiative programs 	<p>50% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p> <p>30% Health Education delivery in clinical and community practice</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (health education delivery as a part of community services)</p> <p>-Theory exam</p> <p>-OSCE</p>
<p>12</p>	<p>PREVENTION PRIMARY MANAGEMENT OF DENTAL CARIES – ROLE OF FLUORIDES AND FISSURE SEALANTS</p>	<ol style="list-style-type: none"> 1. Describe briefly how the action of fluoride was discovered. 2. Describe how fluoride works in the prevention of dental caries. 3. List and describe the methods of fluoride delivery. 4. Describe the advantages and disadvantages of each mode of delivery. 5. Have an overview of the arguments for and against the use of fluoride in caries prevention. 6. Outline the public health importance of fissure sealants. 7. Understand the importance of minimally-invasive dental procedures and hand-instrumentation and Implement atraumatic restorative treatment as a part of basic package of oral care (BPOC) for dental caries management in community settings 	<p>40% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>30% Hands-on laboratory practice on human extracted teeth and plastic teeth</p> <p>20% Fluoride applications, Fissure-Sealants and ART procedures in community settings</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (health education delivery as a part of community services)</p> <p>-Theory exam</p> <p>-OSCE</p>
<p>13</p>	<p>PREVENTION OF PERIODONTAL DISEASES</p>	<ol style="list-style-type: none"> 1. In the light of already explained key epidemiological and main etiological factors in periodontal disease, critically assess preventive options for periodontal disease. 2. Outline preventive and health promotion approaches appropriate for the prevention of periodontal diseases such as oral hygiene instructions, scaling, tooth brushing, flossing and use of chemical agents (e.g. mouthwashes etc.) 	<p>50% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>20% Hands-on laboratory practice on models</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (health education delivery as a part of community services)</p>

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			20% demonstrations integrated with health education plan for individuals and groups in community settings	-Theory exam -OSCE
14	PREVENTION OF ORAL CANCERS	<ol style="list-style-type: none"> 1. In the light of already explained key epidemiological and main etiological factors for oral cancer, identify opportunities for prevention of oral cancer within the clinical environment and vulnerable groups. 2. Outline a range of public health approaches to oral cancer prevention such as Screening of oral cancer 3. Outline clinical approach for prevention of oral cancer such as tobacco cessation strategies 	<p>70% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>20% oral cancer screening in laboratory, clinics and in community settings</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (integrated with health education delivery as a part of community services)</p> <p>-Theory exam</p> <p>-OSPE/ OSCE</p>
15	PREVENTION ON TRAUMATIC DENTAL INJURIES	<ol style="list-style-type: none"> 1. Describe the key epidemiological data on traumatic dental injuries. 2. Identify the main etiological factors in traumatic dental injuries. 3. Critically assess preventive approaches in traumatic dental injuries. 4. Present public health approaches and school-based preventive programs for the prevention of traumatic dental injuries. 	<p>70% Large Class-room teaching</p> <p>10% Small Group Discussion</p> <p>10% Problem-Based Learning using P.I.C.O Strategy</p> <p>10% Hands-on practice on models in laboratory, clinics and in community settings</p>	<p>-Class test</p> <p>-Quiz</p> <p>-Plan implementation (integrated with health education delivery as a part of community services)</p> <p>-Theory exam</p> <p>-OSPE/ OSCE</p>
16	PREVENTION FOR GERIATRIC POPULATION AND	<ol style="list-style-type: none"> 1. Describe the characteristics of and need for prevention in people with disabilities and vulnerable groups. 	80% Large Class-room teaching	-Class test

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	PEOPLE WITH DISABILITIES AND VULNERABLE GROUPS	<ol style="list-style-type: none"> Understand the principles of prevention for people with disability and vulnerable groups. Outline the supportive role of health and social networks in prevention for people with disability and vulnerable groups. 	20% Small Group Discussion	<ul style="list-style-type: none"> -Quiz -Plan implementation (integrated with health education delivery as a part of community services) -Theory exam -OSPE/ OSCE
SECTION-VI: HEALTH ADMINISTRATION AND CLINICAL GOVERNANCE				
17	HEALTH SERVICES	<ol style="list-style-type: none"> Outline the range of factors that influence the development of health care systems. Describe the main ways in which services are delivered in the light of devolution of health care Describe the different components of a health care system Describe the structure and features of the primary and secondary care sector in the provision of public sector dental care. Describe the structure and features of private dental care. Outline criteria by which health care systems could be managed .organized and evaluated. Describe the general principles by which health care services are funded and organized. Describe the major problems faced by health services. Understand the basic legislations and requirements Describe methods of remuneration for oral health personnel. Describe the leadership role, training, and use of persons complementary to dentists in the provision of dental care. 	<p>80% Large Class-room teaching</p> <p>20% Small Group Discussion</p>	<ul style="list-style-type: none"> -Class test -Quiz -Theory exam -OSPE
18	QUALITY OF CARE AND CLINICAL GOVERNANCE	<ol style="list-style-type: none"> Provide a definition of planning and outline the basic steps in the planning cycle. Describe the range of information needed in planning dental services. Define concepts of need in the context of quality of health care. Understand the reasons why health economics are part of modern health services. 	<p>80% Large Class-room teaching</p> <p>20% Small Group Discussion</p>	<ul style="list-style-type: none"> -Class test -Quiz -Theory exam

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		<ol style="list-style-type: none"> 5. Understand the main types of economic analyses. 6. Have an overview of how NICE uses QALYs in economic analyses. 7. Describe the common problems with health care delivery. 8. Define the term 'access to care'/'barriers to care'. 9. Briefly outline how the barriers to accessing dental care might be overcome for underserved groups and populations. 10. Understand the importance of adherence, ethics, communication and health hazards in clinical health care practice 		-OSPE
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S. No.	CLINICAL, PRACTICAL/ HANDS-ON & COMMUNITY CONTENT	MODE OF PRACTICE
1.	<p>SECTION I: ORAL EXAMINATION METHODOLOGIES</p> <ol style="list-style-type: none"> 1) Tooth numbering system (Revision) & Oral examination and its types recommended by ADA, WHO/ FDi 2) Measurements of oral diseases & Basic Dental indices on Pictures/ Models/ Patients (in Field & OPD) using WHO Oral Health Assessment Forms <ol style="list-style-type: none"> a. DMFT/ PUFA/ ICDAS/ CAST/ CAMBRA b. CPITN/ GI/ PI/ Tooth Mobility c. Deans for Fluorosis d. Oral Cancer grading e. Trauma/ Malocclusion 	<p>Models, Patients in clinic, Community volunteers to be recorded in Log-book</p>
2.	<p>SECTION II: RESEARCH DESIGN AND PLANNING</p> <ol style="list-style-type: none"> 1) Formulating a research question and Hypothesis generation 2) Designing a research 3) Data collection from Community 4) Data processing and analysis 	<p>Supervised collective group activity with divided tasks to assess research planning and other soft skills</p>

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	5) Writing and Presenting a research	
3.	SECTION III: PUBLIC HEALTH PRACTICES: PLANNING AND CONDUCTING A DENTAL HEALTH EDUCATION (D.H.E) 1) Designing D.H.E material 2) Planning, conducting and evaluating D.H.E. session for small groups 3) Scientific presentations in class room	Supervised collective group activity with divided tasks to assess Health education skills, Presentation and communication skills
4.	SECTION IV: ORAL HYGIENE PRACTICES 1) Exercises on tooth brushing on models 1) Exercises on flossing on models 2) Chair-Side Practice on Oral hygiene instructions and Dietary counseling <ol style="list-style-type: none"> a. Plaque disclosing b. Tooth brushing demonstration c. Inter-dental cleaning d. Chemical control of dental plaque 	Patients in clinic, Community volunteers to be recorded in Log-book
5.	SECTION V: CHAIR-SIDE CLINICAL/ FIELD PREVENTIVE DENTAL PROCEDURES 1) High fluoride gel application 2) Pits and Fissure sealing 3) Atraumatic Restorative Treatment 4) At Least one planned final visit in any Rural Community	Individual activity on Models (typo-donts/ extracted teeth/ phantom teeth), Patients in clinic, Community volunteers to be recorded in Log-book

CURRICULUM

SCIENCE OF DENTAL MATERIALS

COURSE CONTENT & OBJECTIVES

1. Introduction to Dental Materials
2. Properties Used to Characterize Dental Materials
3. Gypsum Products for Dental Casts
4. Waxes
5. Investment and refractory dies
6. Metal and Alloys
7. Gold and Alloy of Noble Metals
8. Base Metal Casting Alloys
9. Casting
10. Steel and Wrought Alloys
11. Ceramics and Porcelain Fused to Metal
12. Synthetic Polymers
13. Denture Base Polymers
14. Denture Lining Materials
15. Artificial Teeth
16. Impression Materials: Classification and Requirements
17. Non-Elastic Impression Materials
18. Elastic Impression Materials: Hydrocolloids
19. Elastic Impression Materials: Synthetic Elastomers
20. Requirements of Direct Filling Materials
21. Dental Amalgam
22. Resin-based Filling Materials
23. Adhesive Restorative Materials: Bonding of Resin-Based Materials
24. Glass Ionomer Restorative Materials
25. Resin-Modified Glass Ionomers and Related Materials
26. Temporary crown and Bridge Resins
27. Requirements of Dental Cements for Lining, Base and Luting Applications

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28. Cements Based on Phosphoric Acid

29. Cements Based on Organometallic Chelate Compounds

30. Polycarboxylates, Glass Ionomers and Resin-Modified Glass Ionomers for luting and lining

31. Endodontic Materials

32. Finishing and Polishing Materials

33. Implants

COURSE TOPIC: INTRODUCTION TO DENTAL MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Introduction to dental materials	Identify the goals of dentistry Define Dental Materials Science Define Dental Materials Identify the different materials used in dentistry. Classify Dental Materials. Define Biocompatibility Discuss the ideal properties of dental materials	<ul style="list-style-type: none"> - Lectures - Small group discussion 	Formative: <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Midterms
2.	Selection & Evaluation of Dental Materials	Report the criteria for dental material selection and evaluation in relation to the clinical problem to be addressed. List the names of material quality assurance and monitoring agencies		

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COURSE TOPIC: PROPERTIES USED TO CHARACTERISE DENTAL MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Properties of Dental Materials	<p>Describe the ideal properties of dental materials</p> <p>Discuss the various states of materials during their mixing, manipulation and oral conditions</p> <p>Classify properties:</p> <p>1) Properties of unmixed paste</p> <p>Define Shelf Life</p> <p>2) Properties during mixing and setting</p> <p>Discuss & Define:</p> <ul style="list-style-type: none"> - Methods of dispensation - Methods of mixing - Working time - Setting time - Viscosity <p>3) Properties of set material</p> <p>Discuss</p> <ul style="list-style-type: none"> - Mechanical Properties - Rheological Properties - Thermal Properties - Adhesion - Physical Properties - Chemical Properties - Biological Properties 	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

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2.	Mechanical Properties	<p>Define:</p> <ul style="list-style-type: none"> - Stress & Types of stress - Fracture stress – Strength - Strain - Poissons Ratio - Stress Strain relationship (Proportional limit, Elastic Limit, Yield Stress) - Plastic and elastic deformation - Modulus of elasticity - Ductility and Malleability - Resilience & Toughness - Fracture toughness and impact strength - Fatigue Properties - Tooth wear and its types - Hardness - Elasticity and Viscoelasticity - Creep & Stress Relaxation <p>Illustrate stress and strain relationships by plotting graphs</p> <p>Differentiate between/among the following:</p> <ul style="list-style-type: none"> - Strong & weak - Rigidity & Flexibility - Toughness and brittleness - Elastic limit and proportional limit - Ductility and Malleability - Fatigue life & Fatigue Limit - Creep & Flow - Corrosion & tarnish 		
3.	Rheological Properties	<p>Define:</p> <ul style="list-style-type: none"> - Viscosity - Shear Stress & Shear Rate - Working and setting time 		

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		<p>Relate flow characteristics of dental materials with their behavior</p> <p>Contrast the different features of fluid behavior (Newtonian, dilatant and pseudoplastic)</p>		
4.	Thermal Properties	<p>Analyze factors causing temperature fluctuation in oral cavity</p> <p>Identify reaction of pulp to thermal changes</p> <p>Define:</p> <ul style="list-style-type: none"> - Thermal conductivity - Thermal diffusivity - Coefficient of thermal expansion <p>Discuss exothermic reaction</p> <p>Differentiate between Thermal conductivity & Thermal diffusivity</p>		
5.	Adhesion	<p>Define:</p> <ul style="list-style-type: none"> - Adhesion - Adhesive and Adherend <p>Discuss:</p> <ul style="list-style-type: none"> - Adhesion and cohesion - Mechanical and chemical adhesion - Wettability and its significance - Contact angle - Surface tension 		
6.	Physical Properties	<p>Discuss:</p> <ul style="list-style-type: none"> - Physical characteristics of dental materials - Dimensional changes during and after setting - Density and its effect on design of appliance 		

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		<p>Define:</p> <ul style="list-style-type: none"> - Hue - Chroma - Value - Metamerism - Transparency - Translucency - Opalescence - Dimensional stability <p>Analyze factors affecting color, appearance and selection of materials</p>		
7.	Chemical Properties	<p>Discuss Chemical stability of materials</p> <p>Analyze the factors affecting rate of solubility and erosion</p> <p>Discuss leaching and its effects on the material's properties and oral environment</p> <p>Define:</p> <ul style="list-style-type: none"> - Solubility - Erosion - Corrosion - Tarnish - Anode - Cathode <p>Discuss electrolytic cell formation in oral cavity, types of corrosion and testing of corrosion and tarnish</p>		
8.	Biological Properties	<p>Define Biocompatibility</p> <p>Identify and discuss the levels of biological evaluation of dental materials</p>		

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COURSE TOPIC: GYPSUM PRODUCTS FOR DENTAL CASTS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	General Introduction, Classification & Composition of Gypsum products	Write down: <ul style="list-style-type: none"> - Chemical formula of natural & dental gypsum - Composition and setting reaction of dental plaster and dental stone Define die and cast Classify gypsum according to ISO standard Describe the requirements of dental cast materials Discuss dry and wet calcination for producing dental plaster and dental stone and their crystal structure
2.	Manipulative variables and setting characteristics of gypsum products	Discuss the manipulation of gypsum products <ul style="list-style-type: none"> - Powder/water ratio - Hand mixing procedure - Measurement of fluidity Discuss the setting process of gypsum products Define initial and final setting time Discuss factors affecting the setting characteristics of gypsum <ul style="list-style-type: none"> - Gillmore and Vicat needles to measure the setting time Discuss the physical changes occurring during setting of gypsum <ul style="list-style-type: none"> - Rise in temperature - Setting expansion - Hygroscopic expansion Discuss the properties of set material List the following <ul style="list-style-type: none"> - Factors controlling the setting time of gypsum - Advantages and disadvantages of gypsum - Applications of gypsum products - Alternate materials for model or die production
3.	Practical	Mix soft plaster using the recommended technique and water/powder ratio Build a plaster slab following the allocated dimensional guidelines

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		<p>Justify any visualized change in slab dimensions during and after completion of setting reaction</p> <p>Demonstrate the technique of model pouring.</p> <p>Fabricate dental cast/model</p> <p>Trim study models</p> <p>Perform finishing of study models</p>
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COURSE TOPIC: WAXES

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Waxes (Introduction, requirements, classification, composition, properties and applications of dental waxes)	<p>Describe waxes used in dentistry</p> <p>Discuss wax pattern and direct and indirect technique</p> <p>Discuss application of different dental waxes in dentistry</p> <p>Describe the composition of dental waxes</p> <p>Classify dental waxes according to their use and origin</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Ideal requirements for wax pattern materials - Properties of dental waxes - Types of waxes and their applications
2.	Practical	<p>List the steps of partial dental construction</p> <p>Identify the different classes of Kennedy's classification on study models</p> <p>Analyze partial denture design on study models</p> <p>Justify the use of waxes for partial denture pattern</p> <p>Demonstrate the steps of wax up on given model</p>

COURSE TOPIC: INVESTMENT MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
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1.	Investments and Refractory Dies	<p>Discuss</p> <ul style="list-style-type: none"> - Investing Procedure - Refractory Die Materials - Requirements of investment materials - Composition, types , setting reaction and applications of different investment materials - Properties of investment materials <p>Differentiate between:</p> <ul style="list-style-type: none"> - Different types of investment materials - Types of expansions occurring to compensate the alloy shrinkage
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COURSE TOPIC: CASTING

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Casting	<p>Discuss the following</p> <ul style="list-style-type: none"> - Formation of investment mold - Steps of casting process - Sprue - Casting machines <p>Correlate faults in casting with incorrect selection of materials or faulty technique</p> <p>Identify the components of investment mold</p>

COURSE TOPIC: METALS AND ALLOYS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES		

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<p>1.</p>	<p>Metals and Alloys (Introduction; Structure and properties of metals)</p>	<p>List different methods of metal shaping in dentistry</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Crystal structure of metals - Significance of grain boundaries - Significance of particle size - Cold working - Coring & Homogenization heat treatment - Structure and properties of different alloy systems <p>Define:</p> <ul style="list-style-type: none"> - Crystal/grain - Grain boundaries - Equiaxed grain structure - Dislocation - Slip plane - Quenching - Coring - Seeding - Ductility & Malleability - Recrystallization temperature - Grain growth - Stress relief annealing <p>Differentiate between:</p> <ul style="list-style-type: none"> - Cold working & Casting - Different three-dimensional lattice arrangements - Quenching and grain growth - Homogenization heat treatment & stress relieving annealing - Different alloy systems 	<p>-</p>	<p>-</p>
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CURRICULUM

2.	Gold and alloys of noble metals	<p>Discuss:</p> <ul style="list-style-type: none"> - Cohesive gold - Cold welding - Condensation or plugging - Properties - Advantages & disadvantages of gold foil filling <p>Classify dental casting gold alloys and discuss its:</p> <ul style="list-style-type: none"> - Composition - Nobility - Standards - Role of the constituents - Comparative properties - Applications - Biocompatibility - Heat treatments <p>Differentiate between soldering and brazing materials with regard to their requirements and properties</p> <p>Discuss fluxes</p> <p>Define:</p> <ul style="list-style-type: none"> - Carat value - Fineness value - Soldering material - Brazing material - Flow temperature 		
3.	Base Metal Casting Alloys	<p>Discuss:</p> <ul style="list-style-type: none"> - Available materials 		

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		<ul style="list-style-type: none"> - Composition of Cobalt Chromium and role of the constituents - Composition of Nickel Chromium and role of the constituents - Composition of alloys for fixed restorations - Properties - Biocompatibility <p>Describe the manipulation of base metal casting alloys</p> <ul style="list-style-type: none"> - Methods for melting - Investment molds - Casting machines - Methods of polishing <p>Compare:</p> <ul style="list-style-type: none"> - Properties of Co/Cr and Type IV casting gold alloys - Properties of Ni/Cr and Type III casting gold alloys <p>List the types of base metal alloys for fixed dental restoration and discuss its properties</p>		
<p>4.</p>	<p>Steel and Wrought Alloys</p>	<p>Discuss:</p> <ul style="list-style-type: none"> - Wrought alloys - Steel (Critical Temperature, ferrite, cementite , pearlite, hypereutectoid and hypoeutectoid alloys and their applications, martensite, tempering) - Stainless Steel (composition, role of constituents, 18/8 stainless steel, properties) - Stainless steel denture bases (Swaging, properties, advantages and disadvantages) - Stainless steel wires, their requirements, properties and available materials) <p>Differentiate between austenitic and martensitic stainless steel</p> <p>Illustrate the hardening and tempering cycle of steel heat treatment</p>		

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		<p>Define:</p> <ul style="list-style-type: none"> - Wrought structure - Ferrite - Cementite - Pearlite - Hypereutectoid alloys - Hypoeutectoid Alloys - Martensite - Tempering - Swaging - Weld decay - Soldering - Welding <p>Correlate the properties of steel and wrought alloys with their clinical applications</p>		
5.	Practical	<p>Construct the following</p> <ul style="list-style-type: none"> - Alphabets using 0.7 mm SS wire on given outline <p>Clasp for partial denture according to the standard protocol</p>		

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COURSE TOPIC: CERAMICS AND PORCELAIN FUSED TO METAL

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Ceramics and porcelain fused to metals	<p>Discuss briefly ceramic and porcelain</p> <p>Classify the major types of porcelain</p> <p>Compare the major types of porcelain with regard to composition, physical and optical properties</p> <p>Discuss</p> <ul style="list-style-type: none"> - Process of porcelain compaction and firing. - Different methods of ceramic/porcelain strengthening - Sintered All-Ceramic Materials along with their types that is alumina-based ceramic leucite-reinforced ceramic - Injection molded Heat pressed Ceramic Materials along with their types that is Leucite-Based Ceramic and Lithium Disilicate–Based Materials - Slip-Cast All-Ceramic Materials along with their crystalline phases like Alumina-based and Spinel-based and Zirconia-toughened alumina. - Cast glass and polycrystalline ceramics - Yttrium tetragonal zirconia polycrystals (Y-TZP) - Fundamental concept behind CAD CAM restorations - Porcelain veneers - Porcelain fused to metals and its types <p>Classify all ceramics according to fabrication technique and crystalline phase.</p> <p>Enlist</p> <ul style="list-style-type: none"> - Requirements of alloys used as a substructure with porcelain in porcelain fused to metals - Types of alloys currently available for porcelain bonding 	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

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		Define <ul style="list-style-type: none"> - Captek system with advantages, disadvantages and indications. - Bonded platinum foil technique with advantages 		
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COURSE TOPIC: POLYMERS USED IN DENTISTRY

S. NO	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Synthetic Polymers	Discuss <ul style="list-style-type: none"> - Polymers - Types of polymerization - Stages of polymerization - Physical changes occurring during polymerization Describe structure and properties of synthetic polymers Discuss different methods of fabricating polymers Differentiate between <ul style="list-style-type: none"> - Chain branching and cross-linking - Thermoplastic and thermosetting polymers Define: <ul style="list-style-type: none"> - Polymers - Polymerization - Addition Polymerization - Condensation Polymerization - Chain branching - Cross-linking - Chain transfer - Glass transition temperature 	<ul style="list-style-type: none"> - Lectures - Small group discussion - Lab work (partial denture fabrication) 	Formative: <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Graded logbook - Midterms
	Denture base polymers	Classify denture base polymers Discuss:		

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<p>2.</p>		<ul style="list-style-type: none"> - Fabrication of acrylic denture base - Requirement of denture base materials - Composition, manipulation and processing of heat-cure and self-cure denture base polymers - Properties of acrylic resin as a denture base material - Injection molding technique - Structure of set material - Modified Acrylic Materials and alternative denture base material <p>Define:</p> <ul style="list-style-type: none"> - Denture base - Dough molding technique - Suspension polymerization - Doughing time - Working time - Trial closure - Flash - Pourable resins - Crazeing <p>Identify:</p> <ul style="list-style-type: none"> - Causes of different types of porosities occurring during polymer processing - Different stages and of polymers their structure after mixing - Important functions if pressure applied during packing - Causes of crazeing - Causes of denture whitening - Different types of separating media used in dentistry and discuss the indications and applications of separating media <p>Compare the mechanical properties of acrylic resins with certain alloys</p>		
	<p>Denture Lining materials</p>	<p>Discuss:</p> <ul style="list-style-type: none"> - Hard reline materials and their clinical applications - Tissue conditioners and their clinical applications - Temporary soft lining materials and their clinical applications - Permanent relining materials and their clinical applications 		

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3.				
4.	Artificial teeth	<p>List:</p> <ul style="list-style-type: none"> - Requirements of artificial teeth - Available materials for artificial teeth <p>Describe the techniques for manufacturing of acrylic & porcelain artificial teeth</p> <p>Discuss the properties of acrylic & porcelain teeth</p> <p>Differentiate between:</p> <ul style="list-style-type: none"> - Acrylic & porcelain teeth - Their bonding to denture base 		
5.	Practical	<p>Justify selection of artificial teeth in various clinical applications</p> <p>Mix monomers according to standard ratios.</p> <p>Identify the physical stages occurring during polymerization</p> <p>Fabricate an acrylic partial denture</p> <p>Identify the type of wax on the teeth strip.</p> <p>Select the appropriate teeth for the partial denture for teeth set up</p> <p>Demonstrate the technique for teeth set up</p>		

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COURSE TOPIC: IMPRESSION MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Introduction to Impression Materials: Classification and Requirements	<p>Classify impression materials according to viscosity, elasticity and chemical type.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Impression making - Impression materials as duplicating materials - General requirements, manipulative variables and clinical considerations of impression materials - Impression trays - Tissue management and cross infection control - Various impression techniques for impression making <p>Define and differentiate between muco-static, muco-compressive and pseudoplastic impression materials</p>	<ul style="list-style-type: none"> - Lectures - Small group discussion - Lab work (partial denture fabrication) 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Graded logbook - Midterms
2	Non Elastic Impression Materials	<p>Classify non elastic impression materials</p> <p>Discuss Impression Plaster</p> <ul style="list-style-type: none"> - Composition - Techniques to record impression with impression plaster - Properties and clinical applications <p>Differentiate between impression plaster and model plaster</p> <p>Discuss Impression Compound</p> <ul style="list-style-type: none"> - Composition, types and manipulation - Applications of Type I and Type II Impression Compound - Copper ring technique - Requirements, Properties and clinical applications <p>Discuss Impression Waxes</p>		

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		<ul style="list-style-type: none"> - Composition and applications - Applegate technique <p>Discuss Zinc Oxide Impression Pastes</p> <ul style="list-style-type: none"> - Composition and manipulation - Setting reaction - Properties and clinical applications - Advantages and disadvantages 		
3.	Elastic Impression Materials: Hydrocolloids	<p>Discuss Hydrocolloid Impression Materials</p> <p>Define:</p> <ul style="list-style-type: none"> - Colloidal suspension - Fibrils - Reversible and irreversible hydrocolloids <p>Discuss Reversible Hydrocolloids (Agar)</p> <ul style="list-style-type: none"> - Composition and manipulation - Classification - Properties and advantages - Applications - Technique for duplication <p>Define and differentiate between</p> <ul style="list-style-type: none"> - Syneresis - Imbibition <p>Discuss Irreversible Hydrocolloids (Alginate)</p> <ul style="list-style-type: none"> - Composition and manipulation - Setting reaction - Properties - Decontamination <p>Discuss</p> <ul style="list-style-type: none"> - Combined reversible and irreversible impression technique - Modified alginates 		
4.	Elastic Impression Materials: Synthetic Elastomers	Discuss the reasons for the advent of synthetic elastomers		

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		<p>Classify synthetic elastomers according to consistency.</p> <p>Discuss Polysulphides</p> <p>Composition, setting reaction, properties, manipulation, advantages, disadvantages and clinical applications</p> <p>Discuss Silicone Rubbers (addition and condensation)</p> <p>Composition, setting reaction, properties, manipulation, advantages, disadvantages and clinical applications</p> <p>Discuss Polyethers</p> <p>Composition, setting reaction, properties, manipulation, advantages, disadvantages and clinical applications</p> <p>Compare qualitative properties like viscosity, tear resistance, elasticity, accuracy, dimensionally stability of different synthetic elastomeric impression materials.</p>		
5.	Practical	<p>Identify the different types of impression materials used in dentistry.</p> <p>Justify selection of impression materials</p> <p>Mix alginate impression powder and water in the recommended ratio</p> <p>Record an alginate impression on a phantom head</p> <p>Recall their composition and selection based on the clinical problem to be addressed.</p>		

COURSE TOPIC: DIRECT FILLING MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Requirements of direct filling materials	<p>Differentiate between direct and indirect restorative materials</p> <p>Identify the causes of loss of tooth substance</p> <p>Discuss durability and appearance of a direct restorative material</p>	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva

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		Discuss the requirements, properties and historical perspective of direct restorative materials		<ul style="list-style-type: none"> - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Graded logbook - Midterms
2.	Dental Amalgam: Introduction Setting reaction and properties	Introduction Describe the composition of dental amalgam and primary purpose of each component Classify amalgam according to: <ul style="list-style-type: none"> - Shape and size of alloy particles - Copper content - Zinc content Discuss the process of production of different amalgam alloy particles and heat treatments Differentiate between : <ul style="list-style-type: none"> - Homogenization heat treatment and alloy ageing - Single-composition and dispersion-modified copper enriched alloys Define: <ul style="list-style-type: none"> - Amalgam - Dental amalgam - Amalgamation Pre-amalgamated alloys Setting reaction and properties Discuss the setting reaction associated with amalgam production Identify the phases produced during the setting reaction and their significance Discuss properties of dental amalgam	<ul style="list-style-type: none"> - Lectures - Small group discussion - Lab work (observation of manipulation and armamentarium) 	Formative: <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Graded logbook Midterms

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	<p>Clinical Handling and Manipulative variables</p> <p>Environmental Considerations -</p>	<p>Discuss creep and its effects on the restoration</p> <p>Clinical Handling and Manipulative variables</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Ideology of Black's cavity design - Cavity design and matrices with regard to properties of the material <p>Correlate the manipulative parameters of amalgam with the properties of the final restoration</p> <p>Environmental Considerations</p> <p>Relate the importance of the role of mercury/alloy ratio and its influence/effect on the setting reaction and restorative procedures</p> <p>List the hazards of incorrect handling of mercury.</p> <p>Discuss the importance of mercury hygiene, mercury/amalgam scrap handling and disposal at chair side</p>		
	<p>Dental Amalgam Practical</p>	<p>Observe the mixing and manipulation of amalgam alloy</p> <p>Identify the armamentarium for amalgam restoration</p>		

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	<p>Clinical Handling and applications</p>	<p>Correlate filler particle size, setting reaction and method of manufacture of dental composite resin based restorative materials with properties and behavior of the material in situ</p> <p>Define;</p> <ul style="list-style-type: none"> - Setting time of composite - Command setting - C-factor <p>Clinical Handling and applications</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Cavity design - Bonding to enamel and dentine - Material placement - Matrix techniques - Repair - Finishing and polishing <p>Discuss the applications of composites in vivo</p> <p>Describe new resin based restorative materials variants available in the market</p>		
	<p>Resin-Based Filling Materials Practical</p>	<p>Observe the mixing and manipulation of composite material</p> <p>Identify the armamentarium for composite restoration</p>		
	<p>Adhesive Restorative Materials: Bonding of Resin-Based Materials</p> <p>Adhesion &</p>	<p>Adhesive Restorative Materials: Bonding of Resin-Based Materials</p> <p>Discuss the general mechanistic aspects and approaches to adhesion</p> <p>Discuss dental composite adhesion to tooth structure based on the principles of micromechanical attachment</p>	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p>

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	<p>Acid etch systems for bonding to enamel</p> <p>Bonding to dentine and dentine bonding agents</p>	<p>Adhesion &</p> <p>Acid etch systems for bonding to enamel</p> <p>Describe:</p> <ul style="list-style-type: none"> - Acid etching; - Types of enamel etching patterns - Factors determining the success or failure of acid-etch bonding system - Type of resin applied to the etched enamel - Applications of acid etch technique <p>Bonding to dentine and dentine bonding agents</p> <p>Discuss mechanisms of bonding to dentine (acid etching and chemical bonding)</p> <p>Define smear layer and list its constituents</p> <p>Discuss the importance of smear layer as a determinant of the clinical success of dental composites</p> <p>Define & Discuss:</p> <ul style="list-style-type: none"> - Conditioning - Priming - Bonding agents <p>Discuss hybrid layer and different approaches to achieve hybrid layer formation</p> <p>Classify dentine bonding agents</p>		<ul style="list-style-type: none"> - Monthly class assessment test - Midterms
	<p>Glass Ionomer Restorative Materials:</p> <p>Introduction, composition and setting characteristics</p>	<p>Glass Ionomer Restorative Materials:</p> <p>Introduction, composition and setting characteristics</p> <p>Discuss the historical importance of glass ionomer cements (GIC) as restorative cements</p> <p>Describe the composition of GIC & correlate the constituents of GIC to its properties</p>		

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	<p>Properties, clinical handling and applications of GIC</p>	<p>Identify the relation between mixing and porosity</p> <p>Identify the different stages of setting reaction of GIC</p> <p>Relate the role of tartaric acid in controlling the setting characteristics of GIC</p> <p>Properties, clinical handling and applications of GIC</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Requirements of GIC - Properties of GIC - Clinical handling of GIC (dentine surface treatment, matrix techniques, finishing & polishing, moisture control) <p>Relate the properties of set GIC to its clinical manipulation and performance</p> <p>List the applications of GIC including fissure sealant, sandwich technique and ART</p>		
	<p>Glass Ionomer Restorative Material Practical</p>	<p>Observe the mixing and manipulation of GIC</p> <p>Identify the armamentarium for GIC restoration</p>		
	<p>Resin-Modified Glass Ionomers & Related Materials</p>	<p>Discuss the properties, performance and clinical indications of Cermets</p> <p>Justify the development of modified glass ionomers</p> <p>Classify modified GIC</p> <p>Define and discuss:</p> <p>Compomers, Giomers and Resin-modified GIC, their composition, properties, setting reaction, setting characteristics and fluoride release</p>	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

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COURSE TOPIC: TEMPORARY CROWN AND BRIDGE RESINS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Introduction, requirements and properties	Discuss: <ul style="list-style-type: none"> - Technique for recording impression for temporary crown and bridge - Available materials - Their composition, requirements and properties 	<ul style="list-style-type: none"> - Lectures - Small group discussion 	Formative: <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

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COURSE TOPIC: DENTAL CEMENTS FOR LINING, BASES AND LUTING APPLICATION

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Requirements of Dental Cements For Lining, Bases And Luting Application	Define and differentiate between cavity liner, cavity bases and luting cements. Enlist the requirements of ideal cements in terms of thermal, chemical, electrical barrier to protect the pulp. Discuss <ul style="list-style-type: none"> - Varnishes along with their compositions and uses - Factors effecting the integrity of lining materials - Radiopacity and compatibility of lining materials - Requirements of dental cements for cavity lining, luting, endodontic and orthodontic purposes. 	<ul style="list-style-type: none"> - Lectures - Small group discussion Lab work (observation of manipulation and armamentarium)	Formative: <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test Summative: <ul style="list-style-type: none"> - Monthly class assessment test - Graded logbook - Midterms
2.	Cements Based On Phosphoric Acid	Classify the cements based on phosphoric acid Discuss composition, setting reactions, manipulative variables, properties and uses of zinc phosphate cements , silicophosphate cements and copper cements		
3.	Cements Based On organometallic compounds	Define the chelation reaction Classify the organometallic compounds Discuss <ul style="list-style-type: none"> - Composition, setting reactions, properties and uses of zinc oxide eugenol cements, ortho ethoxy benzoic acid cements and calcium hydroxide cements. Calcium hydroxide cement as pulp capping agent		

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4.	Polycarboxylates, Glass Ionomers and Resin-modified Glass Ionomers for Luting and Lining	<p>Describe composition, setting reactions, manipulative variables, properties and uses of polycarboxylate cements, glass ionomer cements, resin modified glass ionomer cements and compomers</p> <p>Compare the types of dental cements with regard to their use as intra pulpal medicaments, bases, lining, luting and restorative materials</p>		
5.	Practical	<p>Observe mixing, manipulation and armamentarium of:</p> <ul style="list-style-type: none"> - Zinc phosphate cement - Zinc Oxide Eugenol - Glass ionomer cement - Calcium hydroxide 		

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COURSE TOPIC: FINISHING AND POLISHING MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
1.	Finishing and polishing materials	<p>Define:</p> <ul style="list-style-type: none"> - Cutting - Grinding - Finishing - Polishing - Contouring - Abrasion and erosion. - Two body wear and three body wear <p>Enlist</p> <ul style="list-style-type: none"> - The benefits of finishing and polishing - Health hazards of finishing and polishing <p>Discuss</p> <ul style="list-style-type: none"> - Principles of cutting, grinding, finishing and polishing - Steps involved in finishing and polishing - Classify abrasive in terms of bonded and non-bonded abrasives - Finishing and polishing procedures of: <ul style="list-style-type: none"> - Composite restorations - Dental Amalgam restorations - Denture base resins - Gold alloys - Ceramic restorations 	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

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COURSE TOPIC: DENTAL IMPLANTS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
	Dental Implants	<p>Define:</p> <ul style="list-style-type: none">- Implants- Dental Implants- Osseo integration <p>Classify</p> <ul style="list-style-type: none">- Dental implants- Dental implant biomaterials <p>Discuss</p> <ul style="list-style-type: none">- Rationale for implant placement- Parts of implants- Implant placement procedure- Enlist the surface treatments procedures prior to the placement of implants	<ul style="list-style-type: none">- Lectures- Small group discussion	<p>Formative:</p> <ul style="list-style-type: none">- Assignments- Class quiz- Viva- Mock test <p>Summative:</p> <ul style="list-style-type: none">- Monthly class assessment test- Midterms

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COURSE TOPIC: ENDODONTIC MATERIALS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	TEACHING METHODS	ASSESSMENT METHODS
	Endodontic Materials	<p>Enlist:</p> <ul style="list-style-type: none"> - Objectives of endodontic. - Various endodontic materials (i.e. irrigants, lubricants, intra-canal medicaments, obturating materials) - Materials used for root canal repair and peri-radicular surgery <p>Discuss:</p> <ul style="list-style-type: none"> - Sodium hypochlorite as an irrigant along with advantages and disadvantages. - Medicaments widely used in endodontic treatment - Silver, Dental amalgam, Medicated pastes as root canal obturation materials: - Contemporary root canal materials - Composition, uses, advantages and disadvantages of MTA. - Cold packing/ lateral condensation technique - Thermal packing/ technique and methods of heat application 	<ul style="list-style-type: none"> - Lectures - Small group discussion 	<p>Formative:</p> <ul style="list-style-type: none"> - Assignments - Class quiz - Viva - Mock test <p>Summative:</p> <ul style="list-style-type: none"> - Monthly class assessment test - Midterms

CURRICULUM

PHARMACOLOGY

COURSE CONTENT & OBJECTIVES

- 1. General Pharmacology**
- 2. General Pharmacology**
- 3. Drugs Acting on Gastrointestinal Tract**
- 4. Cardiovascular Drugs**
- 5. Autacoids**
- 6. Drugs Acting on Autonomic Nervous System**
- 7. Drugs Acting on Central Nervous System**
- 8. Drugs Acting on Endocrine System**
- 9. Antibiotics**
- 10. Analgesics**
- 11. Respiratory System**

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COURSE TOPIC: GENERAL PHARMACOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction to Pharmacology	Classify pharmacology Discuss the nomenclature, sources and active principles of drugs Describe routes of drug administration Calculate dosage of drugs using Youngs & Clarks Formula
2.	Absorption of drugs	Discuss the following - process of drug absorption - bioavailability - drug distribution - drug biotransformation - drug excretion - mechanism of drug action - dose response relationship - receptors - adverse drug reactions
3.	Bioavailability	
4.	Drug distribution, plasma protein binding	
5.	Biotransformation of drugs	
6.	Plasma half-life and steady state concentration of drugs	
7.	Excretion of drugs	
8.	Mechanism of drug action	
9.	Dose response relationship	
10	Receptors	
11	Adverse drug reactions	

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COURSE TOPIC: DRUGS ACTING ON GASTROINTESTINAL TRACT

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Drugs used to treat PUDs (Peptic Ulcer Disease)	List the drugs used to treat peptic ulcer disease (PUDs) Classify drugs used to treat PUDs Discuss the clinical significance of drugs used to treat PUDs Demonstrate effects of acetylcholine, epinephrine, atropine on intestine of rabbit
2.	Anti-emetics	Classify the following: - Anti-emetics - Laxatives - Anti-diarrheal Discuss mechanism of action, clinical uses, significance, adverse effects of: - Anti-emetics - Laxatives - Anti-diarrheal
3.	Laxatives	
4.	Anti-diarrheal drugs	

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COURSE TOPIC: CARDIOVASCULAR DRUGS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Diuretics	Classify the following drugs: <ul style="list-style-type: none"> - diuretics - anti-hypertensives - anti-anginal - drugs used to treat cardiac failure - anti-coagulants and thrombolytic drugs - anti-arrhythmic drugs - anti-hyperlipidemic drugs Discuss mechanism of action, clinical use, significance and adverse effects of: <ul style="list-style-type: none"> - diuretics - anti-hypertensives - anti-anginal - drugs used to treat cardiac failure - anti-coagulants and thrombolytic drugs - anti-arrhythmic drugs - anti-hyperlipidemic drugs
2.	Anti-hypertensive drugs	
3.	Anti-anginal drugs	
4.	Drugs used to treat Cardiac Failure	
5.	Anti-coagulants and thrombolytic drugs	
6.	Anti-arrhythmic drugs	
7.	Anti-hyperlipidemic drugs	

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COURSE TOPIC: AUTACOIDS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Autacoids Eicosanoids Histamine & Anti histamine	Classify: <ul style="list-style-type: none"> - Autacoids, - Eicosanoids, - Histamine and - Antihistamines. Discuss mechanism of action, clinical uses, significance and adverse effects of <ul style="list-style-type: none"> - Autacoids, - Eicosanoids, - Histamine and - Antihistamines.

COURSE TOPIC: DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction to ANS Pharmacology	Classify drugs acting on the autonomic nervous system (ANS)
2.	Sympathomimetic drugs	Describe receptors of ANS
3.	Sympatholytic drugs	Discuss mechanism of action, clinical uses and significance and adverse effects of the following drugs <ul style="list-style-type: none"> - sympathomimetic - sympatholytic - cholinomimetic - anti-muscurinic - skeletal muscle relaxants
4.	Cholinomimetic drugs	
5.	Anti-muscurinic drugs	
6.	Skeletal muscle relaxants	

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COURSE TOPIC: DRUGS ACTING ON CENTRAL NERVOUS SYSTEM

S. No	Lecture Topic	Topic Objectives
1.	Sedative-hypnotics	Classify drugs acting on the central nervous system (CNS) Discuss mechanism of action, clinical uses and significance and adverse effects of the following drugs: <ul style="list-style-type: none"> - sedative hypnotics - antiepileptics - anti-parkinsonian drugs - general and local anesthetics - alcohol - drugs for migraine - anti-psychotics - anti-depressants and anti-manic drugs
2.	Antiepileptics	
3.	Anti-parkinsonian drugs	
4.	General anesthetics	
5.	Local Anesthetics	
6.	Alcohol	
7.	Drugs for migraine	
9.	Anti-psychotics	
10	Anti-depressant and anti-manic drugs	

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COURSE TOPIC: DRUGS ACTING ON ENDOCRINE SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Hypothalamic and Pituitary drugs	Classify drugs acting on the endocrine system. Discuss mechanism of action, clinical uses and significance and adverse effects of the following: <ul style="list-style-type: none"> - Hypothalamic and pituitary drugs, - Adrenocorticoids, - Thyroid drugs, - Insulin preparations and oral hypoglycemic agents, - Gonadal hormones (Estrogen & Antiestrogen, Progesterone & Antagonist, OCP, Testosterone & Antagonist).
2.	Adrenocorticoids	
3.	Thyroid drugs	
4.	Insulin and oral hypoglycemic agents	
5.	Gonadal hormones	

COURSE TOPIC: ANTIBIOTICS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction to anti-microbial therapy	Classify antibiotics Discuss mechanism of action, clinical uses and significance, resistance and adverse effects of the following <ul style="list-style-type: none"> - Cell wall synthesis inhibitors - Protein synthesis inhibitors - Fluoroquinolones - Anti-tuberculous drugs - Antiprotozoal drugs - Anti-virals - Anti-fungals
2.	Cell wall synthesis inhibitors	
3.	Protein synthesis inhibitors	
4.	Fluoroquinolones	
5.	Anti-tuberculous drugs	
6.	Antiprotozoal drugs	
7.	Anti-virals	

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8.	Anti-fungals	
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COURSE TOPIC: ANALGESICS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	NSAIDs and Acetaminophen	Classify analgesics .
2.	Opioid analgesics	Discuss mechanism of action, clinical uses, significance and adverse effects of: <ul style="list-style-type: none"> - NSAIDs, - Acetaminophen, - Opioid analgesics.

COURSE TOPIC: RESPIRATORY SYSTEM

S. .No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Drugs used for treatment of Asthma and COPD	Classify drugs acting on the respiratory system. Discuss mechanism of action, clinical uses, significance and adverse effects of:
2.	Anti –tussives	<ul style="list-style-type: none"> - Drugs, inhalers and nebulizers used to treat asthma and COPD, - Anti-tussives, - Anti-histamine.
3.	Anti-histamines	
4.	Advantages of inhalers & nebulizers	Write a prescription for management of asthma and COPD.

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GENERAL PATHOLOGY & MICROBIOLOGY

COURSE CONTENT & OBJECTIVES

- 1. Cell Injury**
 - 2. Inflammation and Wound Healing**
 - 3. Disorders of Fluid & Hemodynamics**
 - 4. Neoplasia**
 - 5. Environmental Pathology**
 - 6. Genetics**
 - 7. Systemic Pathology**
 - 8. Immunology**
 - 9. Microbiology**
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COURSE TOPIC: CELL INJURY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction to cell injury	Define cell injury. Describe causes, mechanism and pathogenesis of cell injury.
2.	Cellular adaptations	Describe cellular Adaptations. Define with examples of: <ul style="list-style-type: none"> - Hyperplasia, - Metaplasia, - Dysplasia, - Atrophy and - Hypertrophy.
3.	Process of cell injury	Describe the sequence of the ultrastructural and biochemical changes which occur in the cell in response to cell injury. Distinguish between irreversible and reversible injury.
4.	Necrosis Apoptosis	Define: <ul style="list-style-type: none"> - Necrosis, - Apoptosis Differentiate between types of necrosis with examples. Discuss the pathogenesis and significance of apoptosis. Differentiate between apoptosis & necrosis.
5.	Intracellular accumulation	Describe various Intracellular accumulation. Differentiate between Dystrophic and metastatic calcification and its clinical significance.

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COURSE TOPIC: INFLAMMATION AND WOUND HEALING

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Introduction to Inflammation	Describe the role of inflammation in the defense mechanisms of the body. Differentiate between acute and chronic inflammation.
2.	Acute inflammation	Describe the vascular changes and cellular events of acute inflammation Relate vascular changes of acute inflammation to morphological and tissue effects.
3.	Chemical mediators of inflammation	List the important chemical mediators of inflammation Describe the complement & coagulation pathways. Discuss the Arachidonic Acid metabolism and its role in inflammation. Describe the mechanism for development of fever.
4.	Exudate and transudate.	Differentiate between exudate and transudate. Describe the systemic effects of acute and chronic inflammation and their possible outcomes.
5.	Chronic Inflammation	Describe chronic inflammation. Define granuloma. Discuss type and causes of granuloma.
6.	Repair	Discuss Repair and Regeneration.
7.	Wound healing	Describe wound healing by first and second intention Describe the formation of granulation tissue.
8.	Complications of wound healing	Describe the complications of wound healing.

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COURSE TOPIC: DISORDERS OF FLUID & HEMODYNAMICS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Edema	Define: <ul style="list-style-type: none"> - Edema, - Ascites, - Hydrothorax and - Anasarca. Discuss Pathophysiological features of edema with special emphasis on CHF
2.	Hemorrhage Hyperemia & congestion	Discuss: <ul style="list-style-type: none"> - Hemorrhage - Hyperemia & - Congestion
3.	Thromboembolism, Embolism, Infarction	Explain the pathogenesis of Thromboembolism Describe the types & outcomes of thromboembolism
4.	Thrombus	Describe Thrombus, its types with examples. Discuss DIC.
5.	Shock	Define Shock. Describe types of shock. Describe the pathogenesis and etiology of four major types of shock (Hypovolemic, cardiogenic, vasovagal and septic). Describe the compensatory mechanisms involved in shock.

COURSE TOPIC: NEOPLASIA

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Neoplasia Introduction	Define neoplasia. Classify tumors. Discuss characteristics of benign and malignant tumors. Discuss local and systemic effects and mechanism of local and distant spread of tumors.

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2.	Molecular basis & carcinogenic agents	Describe the molecular basis of cancer. List Carcinogenic agents including chemical, physical agents and microorganisms related to human cancer.
3.	Tumor diagnosis	Discuss grading and staging system of tumors.



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COURSE TOPIC: ENVIRONMENTAL PATHOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Nutritional deficiency Alcohol abuse Burns & Radiation Smoking	Discuss the following: - Nutritional deficiency, - Alcohol abuse, - Burns & Radiation, - Smoking.

COURSE TOPIC: GENETICS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Mutations	Define mutations and various types.
2.	Transmission pattern of single gene disorders	Enumerate various transmission pattern of single gene disorders including; - Autosomal dominant disorders, - Autosomal recessive disorders, - X linked disorders, Describe important examples of each.
3.	Proteins	Enumerate: - Disorders associated with defects in structural proteins; - Disorders associated with Receptor proteins; - Disorders associated with Enzymes.

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COURSE TOPIC: SYSTEMIC PATHOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Blood Disorders	Classify Anemia. List investigation to reach a diagnosis of anemia. Discuss various bleeding disorders
2.	Blood Vessels Disorders	Discuss the causes, signs and symptoms of the following disorders: <ul style="list-style-type: none"> - Atherosclerosis; - Hypotension; - Ischemic Heart Diseases (IHD); - Rheumatic Heart Diseases (RHD); - Endocarditis; - COPD; - IBSs (Crohn's disease and Ulcerative colitis); - Peptic Ulcers (Acute & chronic gastritis); - Diabetes; - Thyroid.
3.	CVS	
4.	Respiratory system	
5.	GIT	
6.	Endocrine System	

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COURSE TOPIC: IMMUNOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Normal host defense	Describe Specific and nonspecific defense mechanisms: <ul style="list-style-type: none"> - Innate and acquired immunity, - Active & passive Immunity.
2.	Antigen, antibodies and complement	Discuss Antigen, antibodies and complement with their clinical significance.
3.	Cell mediated & antibody mediated immunity	Differentiate between Cell mediated & antibody mediated immunity.
4.	Practical applications of immunology	Describe practical applications of immunology, (Immunization)T cells and Cellular Immunity.
5.	MHCs	Discuss MHC Class 1 and MHC Class 2. Discuss transplants.
6.	Hypersensitivity reactions	Define Hypersensitivity reactions. Describe its various type with examples
7.	Immunodeficiency disorders	Classify immunodeficiency disorders.
8.	Autoimmunity disorders	Define Autoimmunity & self-tolerance
9.	Serological testing	Discuss the basic concepts underlying serological tests - agglutination/ precipitation Differentiate among various serological tests: <ul style="list-style-type: none"> - Typhi dot - ELISA - ICT e.g. Malaria - PCR

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COURSE TOPIC: MICROBIOLOGY

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to microbiology	Classify microorganisms. Differentiate between eukaryotes & prokaryotes.
2	Morphology of bacteria	Differentiate bacteria on the basis of: <ul style="list-style-type: none"> - Staining; - Shapes; - Procedure or - Accessory structures
3	Anatomy of bacterial cell wall	List essential & non-essential structures of bacterial cell wall with their function. Differentiate between gram positive & negative cell wall.
4	Physiology of bacteria	List aerobes, anaerobes, microaerophilic, carboxyphilic organism. Discuss oxygen and nutritional requirements of various types of bacteria. Describe the growth curve.
5	Classification	Classify medically important Bacteria.
6	Genetics	List different methods of transfer of genetic material between bacterial cells
7	Normal Flora of Human	List normal flora of human body. Explain the significance of normal flora of human body.
8	Sterilization	Classify physical & chemical methods of sterilization Differentiate between disinfections and sterilization.
9	Pathogenesis	Discuss various methods and sources of transmission Describe virulence factors including: <ul style="list-style-type: none"> - Capsule wall - Enzymes - Toxins
10	Laboratory diagnosis	Describe specimen collection & transport for culture (throat, swabs, blood culture). Discuss various types of staining in direct microscopy <ul style="list-style-type: none"> - Simple

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		<ul style="list-style-type: none"> - Gram's - Zeil nelson <p>Discuss use of unstained preparation various in Wet mount</p> <p>Describe:</p> <ul style="list-style-type: none"> - Culture & sensitivity testing - Different culture media with their use - Enriched& selective - SDA <p>Explain Anaerobic culture and cooked meat media (Thioglycolate broth and gas pack jar)</p> <p>List various biochemical testing methods:</p> <ul style="list-style-type: none"> - Coagulase - Catalase - Oxidase - TSI & Urease <p>Describe sensitivity testing, media use</p> <p>Demonstrate use of sensitivity plates</p> <p>Discuss serological tests of bacterial diseases</p> <ul style="list-style-type: none"> - Mantoux test - Widal test - Typhi dot (Typhoid) <p>Identify cases where special microbiology (medically important bacteria) may be needed.</p>
11	Gram positive Cocci	<p>Describe various bacteria:</p> <ul style="list-style-type: none"> - Streptococcus - Staphylococcus - C. diphtheria - Bacillus - Listeria - Clostridia (c. tetani & c. defficile) - Neisseria - Enteric Rods - E. coli & Salmonella - Pseudomonas aeruginosa
12	Gram Positive Rods	
13	Anaerobes	
14	Gram negative Cocci	
15	Gram negative Rods	
15	Mycobacteria	

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		<ul style="list-style-type: none"> - Vibrio Cholera - Campylobacter Enterocolitis - Helicobacter Gastritis, peptic ulcer - Zoonotic organism. - Bordetella pertussis - H. Influenza - Mycobacterium tuberculosis - Mycobacterium leprea List Zoonotic diseases
19	Protozoa	<p>Discuss protozoa:</p> <ul style="list-style-type: none"> - E. histolytica - Malaria - Leishmania - Giardia, - Toxoplasma, - Trichomonas
20	Nematodes	<p>Discuss Nematodes and Cestodes:</p>
21	Cestodes	<ul style="list-style-type: none"> - Hookworms - Ascaris lumbricoides - Entrobiumvermicularis - Tissue Nematodes (Filaria) - Tenia Solium/saginata - E. Granulosus - D. Latum
22	Virology: Introduction	<p>List major groups of DNA & RNA viruses that infect humans</p> <p>Discuss Replication of viruses, viral pathogenesis, and structure of viruses.</p> <p>List lab investigations to reach a diagnosis for a viral disease.</p>
23	Special Virology	<p>Discuss the following viruses:</p> <ul style="list-style-type: none"> - Hepatitis - HIV - Dengue - Herpes simplex type 1 & 2 - Herpes zoster virus - Mumps virus - Influenza virus

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		<ul style="list-style-type: none">- Polio virus- Rabies virus- Measles
24	Mycology	Diagnose the following by interpreting lab investigations: <ul style="list-style-type: none">- Candida- Dermatophytes- Aspergillus

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GENERAL SURGERY

COURSE CONTENT & OBJECTIVES

- 1. Principles of Surgery**
- 2. Surgical Emergencies**
- 3. Head and Neck**
- 4. Gastrointestinal Tract**
- 5. Abdominal Wall Hernia**
- 6. Skin & Soft Tissues**
- 7. Vascular and Nerve Disorders**
- 8. Plastic Surgery**
- 9. Orthopedics**
- 10. Oncology**

11. Essential Skills to be acquired

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COURSE TOPIC: PRINCIPLES OF SURGERY

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Physiological response to Surgical Trauma and homeostasis	<p>Discuss the classical concepts of homeostasis and the physiochemical and biochemical changes associated with it.</p> <p>List:</p> <ul style="list-style-type: none"> - Mediators of metabolic response to injury, - Avoidable factors that compound the metabolic response to injury. <p>Describe changes in body composition.</p> <p>Describe optimal perioperative care.</p>
2.	Wound and its Repair	<p>Describe the normal healing response.</p> <p>Discuss management of wound.</p> <p>List disorders of healing.</p> <p>Categorize variety of scars and their treatment.</p>
3.	Pathophysiology and Management of Shock	<p>Discuss the pathophysiology and patterns of shock.</p> <p>Prioritize the sequence of resuscitation.</p>
4.	Investigation and treatment of Infections and Parasitic Infestations of surgical Importance	<p>Classify Infections.</p> <p>List the determining factors for development of infection.</p> <p>Discuss the local and systemic manifestations, sign and symptoms of bacterial and parasitic infections.</p> <p>Describe the principles of antimicrobial treatment.</p> <p>Justify the choice of antibiotics and prophylaxis in various infections.</p>
5.	Patient with Gas Gangrene and Tetanus	<p>Define:</p> <ul style="list-style-type: none"> - Gas Gangrene and - Tetanus <p>Discuss types of Gas Gangrene and Tetanus.</p> <p>Differentiate gas gangrene and tetanus bases on sign and symptoms and treatment.</p>
6.	Hemorrhage Blood Transfusion and their implications	<p>Define:</p> <ul style="list-style-type: none"> - -Hemorrhage and

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		<ul style="list-style-type: none"> - Blood transfusion. <p>Discuss the types and Pathophysiology of Hemorrhage.</p> <p>List various blood and blood products used for transfusion.</p> <p>Describe the preparation of blood products and the procedure for transfusion.</p> <p>Discuss the use of blood and blood products in shock.</p> <p>Describe risks of blood transfusion.</p>
7.	Management of Acutely injured & critically ill patients including aspiration pneumonia and embolic phenomenon	<p>Define:</p> <ul style="list-style-type: none"> - Trauma - Aspiration pneumonia and - Embolic phenomenon <p>Describe types of injuries.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Primary and secondary survey, and - Resuscitation. <p>Discuss the sign and symptoms of acutely injured & critically ill patients.</p> <p>Diagnose acutely injured & critically ill patients based on history and clinical examination and investigations.</p> <p>Formulate and treatment and prevention plan for acutely injured & critically ill patients.</p>
8.	Principles of Anesthesia	<p>Define Anesthesia.</p> <p>Classify various types of anesthesia.</p> <p>Discuss the mechanics and stages of different anesthesia.</p> <p>Manage patients that are scheduled for general anesthesia including considerations for pre-operative fasting and airway assessment.</p>
9.	Nutrition of surgical patients	<p>Discuss pre-operative and post-operative malnutrition.</p> <p>Describe balance of electrolytes.</p> <p>Evaluate the nutritional status of surgical patients.</p> <p>Manage the nutritional status of surgical patients.</p>

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S. No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Poly trauma with airway difficulty and circulatory instability	<p>Discuss initial evaluation and intervention of patients with polytrauma and airway difficulty.</p> <p>Discuss steps of intubation of trauma patient.</p> <p>Describe simple airway strategy.</p>
2.	Uncontrolled External Hemorrhage	<p>Define Uncontrolled external hemorrhage.</p> <p>Discuss types of uncontrolled external hemorrhage.</p> <p>Describe primary and secondary survey.</p> <p>Manage patients with uncontrolled external hemorrhage.</p>
3.	Patient in Hypovolemic or Septicemic Shock	<p>Define:</p> <ul style="list-style-type: none"> - Hypovolemic Shock, - Septicemic Shock <p>Classify hypovolemic and septicemic shock</p> <p>Differentiate between hypovolemic and septicemic shock based on pathogenesis and signs and symptoms.</p> <p>Discuss management of hypovolemic and septicemic shock.</p>
4.	Thoracic Trauma	<p><i>Define Hemothorax</i></p> <p>Discuss Pathophysiology, signs and symptoms and treatment of <i>Tension Pneumothorax</i>.</p>
		<p>Discuss Pathophysiology, signs and symptoms and treatment of Tension Pneumothorax.</p> <p>Define Cardiac Tamponade.</p> <p>Discuss Pathophysiology, signs and symptoms and treatment of cardiac tamponade.</p>
5.	Abdominal & Pelvic Trauma	<p>Type of Abdominal & Pelvic Trauma</p> <p>Discuss clinical presentation of abdominal and pelvic trauma and outline the management plan according to ATLS protocol.</p>
6.	Unconscious patient due to Head Injury	<p>Discuss signs, symptoms and management of unconscious patient due to head injury.</p>
8.	Burns	<p>Discuss depth of burn, quantity of fluid to be given, techniques and Pathophysiology of burn.</p> <p>Manage patients presenting to the department with burns.</p>

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COURSE TOPIC: HEAD AND NECK

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Development abnormalities of palate, lip	Discuss types and features of development abnormalities of palate and lip. Manage developmental abnormalities of palate and lip.
2.	Principles of management of Head Injuries and its complications	List types of head injuries. Manage patients presenting to the hospital with head injuries. Discuss complications of patients presenting with head injuries.
3.	Diseases of Salivary glands (Inflammation, Calculus, Tumors)	Describe various diseases and abnormalities of salivary glands. Discuss clinical features and management of various diseases and abnormalities of salivary glands.
4.	Neck lumps including Lymphatics Thyroid, Parathyroid	Abnormalities Clinical features Management
5.	Diseases of Tongue	Discuss the clinical features and management of benign and malignant lesion of tongue
6.	Diseases of Nose and Ear	Discuss the clinical features and management of benign and malignant lesion of Paranasal sinuses, Nose and Ear (Otitis media).

COURSE TOPIC: GASTROINTESTINAL TRACT

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Conditions Causing Acute Abdomen	Discuss causes, clinical features and management of conditions causing acute abdomen.
2.	Abdominal Wall Hernia	Discuss clinical presentation and management of patients with abdominal wall hernia
3.	Obstructive Jaundice	Discuss clinical features and management of Obstructive Jaundice.
4.	Hydatid cyst	Discuss clinical features management f Hydatid cyst.

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5.	Cholelithiasis and its Complications	Discuss types, clinical features and management of acute and chronic cholecystitis. Discuss clinical features, management and complications of Cholelithiasis.
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COURSE TOPIC: SKIN & SOFT TISSUES

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Principles in the Management of common Skin and Soft Tissue problems: Ulcers, Abscesses, Sinus & Fistulae, Swellings, Embedded foreign bodies and Minor injuries Common benign and malignant skin lesions	Define <ul style="list-style-type: none"> - Ulcers, - Abscesses, - Sinus, - Fistula, - Swelling. <p>Discuss types, sign and symptoms and pathophysiology of common skin and soft tissue problems.</p> <p>List investigations</p> <p>Diagnose common skin and soft tissue problems based on history and clinical examination and investigations.</p> <p>Justify management of common skin and soft tissue problem by antibiotics, surgery or a combination of both.</p> <p>Discuss causes, clinical features and management of common benign and malignant skin lesions.</p>
2.	Wounds / Ulcers / abscesses /Sinuses / Fistulae	Discuss clinical features and management of: <ul style="list-style-type: none"> - Wounds / Ulcers / abscesses /Sinuses / Fistulae
3.	Soft Tissue Lumps	Discuss clinical features and management of Soft Tissue Lumps.

COURSE TOPIC: VASCULAR AND NERVE DISORDERS

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Arterial Disorders (Aneurysm & Gangrene)	Discuss causes, clinical features and management of Aneurysm & Gangrene
2.	Varicosities	Discuss causes, clinical features and management of Varicosities
3.	Deep venous thrombosis	Discuss causes, sign and symptoms and management of Deep venous thrombosis.
4.	Peripheral nerve Injuries	Discuss causes, clinical features and management of Peripheral nerve Injuries.

COURSE TOPIC: PLASTIC SURGERY

CURRICULUM

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Flaps and Grafts	Define: Flap and Graft Discuss the different types of Flaps the Clinical Features and management plan of malignant skin lesion.

COURSE TOPIC: ORTHOPEDICS

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Infectious disease of bones	Discuss the infectious disease of bones Define Osteomyelitis, its types, Clinical Presentation and outline management plan
2.	Bone fractures	Define fracture, outline different types of long bone fracture, investigations and outline the management plan of long bone fracture.

COURSE TOPIC: ONCOLOGY

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES
1.	Chemotherapy and Radiotherapy	Basics principles of chemotherapy and Radiotherapy.

ESSENTIAL SKILLS TO BE ACQUIRED

1.	Provide First Aid: Resuscitation (ABC) of Polytrauma, CPR
2.	Collect samples of blood, urine, sputum, pus swab etc.
3.	Understand the principles of pre-operative preparations, Sterilization /Disinfecting techniques
4.	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.
5.	Have Observed common surgical procedures, treatment of Fracture / Dislocation and Methods of General / Local Anesthesia

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6	Have observed instillation of Chemotherapy and principles of Radiotherapy
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GENERAL MEDICINE**COURSE CONTENT & OBJECTIVES**

- 1. Introduction to General Medicine, Principles of History, Investigations and Diagnosis**
- 2. Gastrointestinal / Liver Diseases**
- 3. Cardiovascular System**
- 4. Respiratory System**
- 5. Nervous System**
- 6. Kidney and Urinary Tract**
- 7. Endocrine System & Nutritional Factors**
- 8. Infectious Diseases**
- 9. Blood**

10. Rheumatology and Bone Disease

CURRICULUM

COURSE TOPIC: INTRODUCTION TO GENERAL MEDICINE. PRINCIPLES OF HISTORY, INVESTIGATIONS AND DIAGNOSIS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Introduction to general medicine	<p>Discuss scope of general medicine.</p> <p>Identify goals of studying general medicine.</p> <p>Discuss the importance of a doctor & patient relation.</p> <p>Explain the importance of Ethics when managing patients.</p>
2	<p>Clinical teachings-</p> <p>History, examination, investigations and diagnosis</p>	<p>Take medical history of a patient presenting to general medicine ward/ clinic.</p> <p>Interpret various signs and their clinical correlation when performing a general physical examination:</p> <ul style="list-style-type: none"> - Pallor - Cyanosis - Jaundice - Clubbing - Thyroid - Lymph nodes - Dehydration - Edema - Pulse, B.P Temp, R/R

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COURSE TOPIC: GASTROINTESTINAL / LIVER DISEASES

S. No	LECTURE TOPICS	TOPIC OBJECTIVES
	GERD Gastritis / Peptic Ulcer Gastroenteritis Mal Absorption IBS / IBD Hepatitis (Acute / Chronic) CLD & Hepatocellular Carcinoma	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common GI and Liver diseases
	Clinical teachings- History and Examination of GI/ Liver Disease	Take a comprehensive history for a patient presenting to the general medicine clinics with complaints of GI/ Liver disease. Perform clinical examination of patient presenting to the general medicine clinics with complaints of GI/ Liver disease: <ul style="list-style-type: none"> - Inspection, - Palpation, - Percussion, - Auscultation.

COURSE TOPIC: CARDIOVASCULAR SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
	Ischemic Heart Disease (Angina / MI) CHF	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common cardiac conditions

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	Rheumatic Fever Infective Endocarditis Hypertension Valvular Heart Diseases (MS / MR / AS / AR) Congenital Heart Diseases (VSD / TOF)	
	Clinical Teachings- History taking in CVS	Take a comprehensive history for a patient presenting to the general medicine clinics with complaints of cardiovascular disease pain and symptoms: <ul style="list-style-type: none">- Chest pain,- Dyspnea,- Syncope.

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COURSE TOPIC: RESPIRATORY SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Respiratory Diseases: TB COPD Pneumonia Asthma Bronchogenic Ca Bronchiectasis Pneumothorax / Pleural effusion	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common respiratory diseases
2	Clinical Teachings- History taking and clinical examination in Respiratory disease	Take a comprehensive history for a patient presenting to the general medicine clinics with complaints of respiratory disease pain and symptoms: <ul style="list-style-type: none"> - Cough, - Chest pain, - Wheezing, - Haemoptysis. Perform clinical examination (front and back of chest) of patient presenting to the general medicine clinics with complaints of respiratory disease: <ul style="list-style-type: none"> - Inspection, - Palpation, - Percussion, - Auscultation. Interpret findings seen on chest x-rays for Pneumothorax/ pleural effusion:

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COURSE TOPIC: NERVOUS SYSTEM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
	Neurological diseases: Facial Pain / Palsy Headache Stroke Epilepsy Parkinson's Meningitis	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common neurological diseases
	Clinical Teachings- History taking and clinical examination in Neurological disease	Take a comprehensive history for a patient presenting to the general medicine clinics with complaints of neurological disease pain and symptoms: <ul style="list-style-type: none"> - Headache, - Facial pain, - Dizziness, - Coma, - Amnesia. Assess higher mental functions of patients presenting to the general medicine clinics: <ul style="list-style-type: none"> - Level of consciousness - Behavior - Speech - Memory Perform examination of: <ul style="list-style-type: none"> - Cranial nerves - Motor system and reflexes - Sensory system:

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		<ul style="list-style-type: none"> ○ Crude touch, pain & temperature ○ Fine touch, pressure, vibration, joint position ○ Two-point localization & two point discrimination <p>- Cerebellar system</p>
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COURSE TOPIC: KIDNEY AND URINARY TRACT

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Diseases of kidney and urinary tract: Acute & Chronic Renal Failure Nephrotic & Nephritic Syndromes UTI Electrolytes Imbalances	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of the following diseases of kidney and urinary tract: <ul style="list-style-type: none"> - Acute & Chronic Renal Failure - Nephrotic & Nephritic Syndromes - UTI - Electrolytes Imbalances

COURSE TOPIC: ENDOCRINE SYSTEM & NUTRITIONALS FACTORS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
	Diseases of endocrine system: Pituitary Diseases Thyroid Disorders Para thyroid Disorders Adrenal Disorders Diabetes Mellitus	Discuss the etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common endocrine disorders and vitamin deficiencies

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	Vitamin Deficiencies: Vit. B, C, D	
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COURSE TOPIC: INFECTIOUS DISEASES

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
	Infectious diseases: Tetanus Malaria Viral Fevers HIV / Mumps Sepsis Diphtheria Hospital Acquired Infections	Discuss the sources, etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common Infectious diseases

COURSE TOPIC: BLOOD

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Blood disorders: Anemia's Leukemia	Discuss the sources, etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common blood disorders Discuss the following:

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	Lymphoma Thrombocytopenia Bleeding disorders / Anti coagulants Blood products & transfusions Shock (anaphylactic, cardiogenic, hypovolemic)	<ul style="list-style-type: none"> - Blood products and transfusion - Anticoagulant and antithrombotic therapy - Hematopoietic stem cell transplant
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COURSE TOPIC: RHEUMATOLOGY AND BONE DISEASE

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Diseases of Joints & Bones: SLE RA Sero-negative Arthropathies Osteoporosis/Osteomalacia Sjogren's syndrome	Discuss the sources, etiology, clinical features, types, differential diagnosis, investigations, diagnosis, management and complications of common diseases of joints and bones

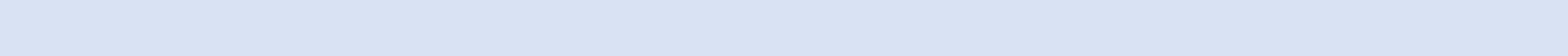
CURRICULUM

ORAL PATHOLOGY

COURSE CONTENT & OBJECTIVES

- 1. Abnormalities of Teeth**
- 2. Dental Caries**
- 3. Diseases of Pulp**
- 4. Orofacial infections**
- 5. Cyst of Jaws**
- 6. Odontogenic Tumors**
- 7. Vesiculobullous and Ulcerative Diseases**
- 8. Verrucal-Papillary Lesions**
- 9. White and Red Lesions**
- 10. Pigmented lesions (Brown, Black and Blue)**
- 11. Squamous Cell Carcinoma and Other Epithelial Tumors**
- 12. Salivary Gland Diseases**

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- 13. Bone Pathology**
 - 14. Metabolic and Genetic Diseases**
 - 15. Hematological disorders and oral manifestations of systemic diseases**
 - 16. Vitamin D Deficiency, Psychological diseases and Pregnancy related Complications**
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COURSE TOPIC: ABNORMALITIES OF TEETH

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Disturbance in number and size of teeth	<p>On completion of the course, the student will be able to:</p> <p>Describe the clinical and radiographic features of disturbances in number of teeth including:</p> <ul style="list-style-type: none"> - Anodontia, - Hyperdontia/ Supernumerary teeth, - Hypodontia/ Oligodontia and associated syndromes. - Impactions <p>Differentiate between hypodontia and hyperdontia Distinguish between anodontia, hypodontia and oligodontia Distinguish between supplementary and supernumerary teeth Distinguish between impacted teeth and embedded teeth</p> <p>Describe the disturbances in size of teeth including:</p> <ul style="list-style-type: none"> - Macrodontia and - Microdontia <p>Differentiate between microdontia and macrodontia Enlist the systemic diseases / syndromes associated with disturbances in number and size of teeth</p>	To understand the etiology and pathogenesis of dental caries.	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook
2	Disturbance in form of teeth	<p>Discuss the alterations in shape of teeth including:</p> <ul style="list-style-type: none"> - Gemination, - Fusion, - Concrecence, - Dens invaginatus, - Dens evaginatus - Enamel pearls, - Taurodontism, - Dilaceration - Supernumerary roots - Attrition, Abrasion, Erosion 	Student must be able to identify the enamel, dentine and root caries.	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p>

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		<p>Differentiate between fusion and gemination Differentiate between dens evaginatus and dens invaginatus</p>		<ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook
3	<p>Disturbance in structure of teeth</p>	<p>Describe the etiology, types, clinical features and radiological features of the following disturbances in structure of teeth:</p> <ul style="list-style-type: none"> - Amelogenesis Imperfecta - Dentinogenesis Imperfecta - Dentine dysplasia - Hypercementosis - Pulp calcifications - Internal and external resorption <p>Enlist and discuss the types of amelogenesis imperfecta, dentinogenesis imperfecta and dentine dysplasia</p>	<p>To understand the sequel of the Dental caries.</p>	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook

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4	Discoloration of teeth	<p>Correlate developmental syndromes with developmental disorders of teeth.</p> <p>Discuss the causes and clinical features of exogenous and endogenous discoloration of teeth</p>		<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook

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COURSE TOPIC: DENTAL CARIES

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Etiology of dental caries	<i>On completion of the course, the student will be able to:</i> Discuss the role of Dental Plaque, Responsible pathogen, Carbohydrates and other variables in Development of Dental caries		Written examinations <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) Oral examinations <ul style="list-style-type: none"> • Structured oral exam Clinical Examinations <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook
2	Classification of dental caries	Classify dental caries on basis of: <ul style="list-style-type: none"> - Site of attack and - Rate of attack 	Summarize the sequel of dental caries to be able to predict the prognosis of a carious lesion.	
3	Pathology & Histopathogenesis of dental caries	Describe the course and histopathogenesis of dental caries in: <ul style="list-style-type: none"> - Enamel, - Dentin and - Root. 	Describe and differentiate enamel, dentine and root caries to develop a better understanding of caries detection.	

COURSE TOPIC: DISEASES OF PULP

S.No.	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Pulpitis	<i>On completion of the course, the student will be able to:</i> Classify diseases of the pulp Discuss etiology of pulpitis	Explain the process of healing and inflammation of the pulp to have a better understanding of the pathophysiology of pulpal diseases	Written examinations <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs)

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		<p>Differentiate between different types of pulpitis on the basis of clinical and histopathologic features</p>		<ul style="list-style-type: none"> • Assignments • Short answer questions (SAQs)
2	Spread of infection	<p>Describe the spread of infection, pathogenesis, clinical, histopathological and radiological features of:</p> <ul style="list-style-type: none"> - Acute periapical periodontitis - Periapical abscess - Periapical granuloma (Chronic periapical periodontitis) - Periapical cyst - Osteomyelitis - Cellulitis & Ludwig’s angina <p>Enlist the types of osteomyelitis. Discuss the clinical and radiological features of types of osteomyelitis Compare periapical cyst with periapical granuloma Differentiate between cellulitis and periapical abscess</p>	<ol style="list-style-type: none"> 1. State the etiology and describe the clinicopathological and histopathological features of Pulpitis to aid in the diagnosis of pulpal diseases 2. Describe the pathogenesis of different types of pulp calcification to develop an understanding of their impact on dental treatment 	<p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks <p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE)

CURRICULUM

				➤ Logbooks
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COURSE TOPIC: OROFACIAL INFECTIONS				
S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Orofacial Infections	<p>On completion of the course, the student will be able to:</p> <p>Enlist the orofacial infections based on the source of origin (bacterial, viral and fungal)</p> <p>Discuss the clinical features, pathogenesis and histopathology of bacterial orofacial infections:</p> <ul style="list-style-type: none"> - Tuberculosis - Actinomycosis - Pericoronitis - Syphilis - Leprosy - Acute necrotizing ulcerative gingivitis (ANUG) - Noma <p>Discuss the clinical features, pathogenesis and histopathology of viral orofacial infections:</p> <p>Discuss the clinical features, pathogenesis and histopathology of fungal orofacial infections:</p>		<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks

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COURSE TOPIC: CYST OF THE JAWS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Cysts of the jaws	<p>On completion of the course, the student will be able to:</p> <p>Classify odontogenic and non-odontogenic cyst of the jaws</p> <p>Discuss the origin of odontogenic and non-odontogenic cyst of the jaws</p>	<ol style="list-style-type: none"> 1. Distinguish between benign tumors (osteoma) and malignant tumors (osteosarcoma) of the bone to develop a better understanding regarding neoplasia and cancer. 2. Enlist the types and describe the clinical, histopathological and radiographic manifestations of osteosarcoma to be able to identify the effects of osteosarcoma on the head and neck region. 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks
2	Odontogenic cysts	<p>Compare the clinical, radiographic, histological features and pathogenesis of Odontogenic cyst including:</p> <ul style="list-style-type: none"> - Periapical (radicular) cyst - Dentigerous and eruption cyst - Odontogenic keratocyst - Gingival cyst - Lateral periodontal cyst - Calcifying odontogenic cyst - Glandular odontogenic cyst <p>Enlist the Complications of dentigerous cyst</p> <p>Describe the clinical features of Gorlin Goltz Syndrome</p>	<ol style="list-style-type: none"> 1. Classify cysts of the jaw based on tissue of origin (odontogenic or non-odontogenic) and epithelial lining (true cyst vs pseudo cyst) 2. Describe the pathogenesis of cysts of the jaw based on the clinical, histopathological and radiographic features of the cyst 3. Discuss the process by which a cyst recurs with special emphasis on odontogenic keratocyst 	
3	Non-odontogenic cyst	<p>Describe clinical, radiographic, histological features and pathogenesis of Non-odontogenic cyst including:</p> <ul style="list-style-type: none"> - Nasopalatine cyst - Nasolabial cyst - Median cyst - Globulomaxillary cyst 		

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4	Non-epithelial/ pseudocyst	Describe clinical, radiographic, histological features and pathogenesis of Non epithelial / pseudo cyst including: <ul style="list-style-type: none">- Traumatic bone cyst- Stafne's bone cavity- Aneurysmal bone cyst		
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COURSE TOPIC: ODONTOGENIC TUMORS

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
Odontomes and Odontogenic tumors		<p><i>On completion of the course, the student will be able to:</i></p> <p>Classify odontogenic tumors</p> <p>Describe etiology, pathogenesis, clinical, histological and radiological features of tumors of odontogenic epithelium</p> <ul style="list-style-type: none"> - Ameloblastoma - Squamous odontogenic tumors - Calcifying epithelial odontogenic tumor - Adenomatoid odontogenic tumor <p>Describe etiology, pathogenesis, clinical, histological and radiological features of mixed odontogenic tumors</p> <ul style="list-style-type: none"> - Ameloblastic fibroma - Ameloblastic fibro odontome - Odontoma <p>Describe etiology, pathogenesis, clinical, histological and radiological features of mesenchymal odontogenic tumors:</p> <ul style="list-style-type: none"> - Odontogenic fibroma - Odontogenic myxoma - Cementoblastoma 	<ol style="list-style-type: none"> 1. Classify odontogenic tumors based on the tissue of origin (epithelial, mesenchymal, mixed) and describe the pathogenesis of odontogenic tumors based on the clinical, histopathological and radiographic features of the tumor. 2. Differentiate various types of ameloblastoma based on the histopathological presentation of the tumor to aid in developing a better understanding regarding the pathogenesis of ameloblastoma. 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks

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COURSE TOPIC: VESICULOBULLOUS AND ULCERATIVE DISEASES

CURRICULUM

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Vesiculobullous Diseases	<p><i>On completion of the course, the student will be able to:</i></p> <p>Classify vesiculobullous diseases based on the site of origin (intra-epithelial or sub-epithelial)</p> <p>Discuss the clinical and histopathological features of following vesiculobullous diseases</p> <ul style="list-style-type: none"> - Herpes Simplex infection - Varicella Zoster infection (should be transferred to orofacial viral Infections) - Pemphigus vulgaris - Mucous membrane pemphigoid - Bullous pemphigoid 	<ol style="list-style-type: none"> 1. To understand different types of vesiculobullous diseases. 2. Define primary (e.g.; vesicle) and secondary (e.g.; ulcer) mucosal lesions to aid in the diagnosis of various mucocutaneous diseases 3. Explain the effect of antibodies on cell junctions (desmoglein 3, BP 230, BP 180) and extracellular matrix (laminin 5, collagen 7) of vesiculobullous diseases to have an understanding regarding the pathogenesis of these diseases. 4. Describe the clinical features in relation to the histological changes in vesiculobullous diseases to be able to comprehend the association between microscopic and macroscopic features of a disease. 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks
2	Ulcerative Condition	<p>Discuss the clinical and histopathological features of following ulcerative conditions</p> <ol style="list-style-type: none"> 1. Aphthous ulcers 2. Behcets syndrome 3. Erythema multiforme 	<ol style="list-style-type: none"> 1. Explain the clinical presentation of ulcer in various diseases (reactive, infectious, immunological and neoplastic) to be able to comprehend the pathogenesis of ulcerative conditions 2. Distinguish between an ulcer, an erosion and an epithelial atrophy based on the clinical and histopathological manifestations to improve diagnostic skills as a clinician 3. Describe the etiology, pathogenesis, clinical presentation, clinical staging and histological grading of oral cancer to be able to develop an understanding regarding the diagnosis and prognosis of oral cancer 	
3	Fungal Infection	<p>Discuss the types, clinical features and histopathological features of Candidiasis. (should be transferred to orofacial fungal infections!)</p>		

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COURSE TOPIC: VERRUICAL-PAPILLARY LESIONS

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1.	Benign lesions associated with Human Papilloma Virus	<p><i>On completion of the course, the student will be able to:</i></p> <p>Describe the etiology, pathogenesis, clinical and histological features of the following reactive/infectious lesions</p> <ol style="list-style-type: none"> 4. Squamous cell papilloma 5. Papillary hyperplasia (it's not associated with HPV) 6. Condyloma latum 7. Condyloma acuminatum 8. Focal epithelial hyperplasia 	<ol style="list-style-type: none"> 1. Discuss the etiology and pathogenesis of verrucal papillary lesions 2. Explain the cytopathic effects of human papilloma virus on oral mucosal lesions 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks

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COURSE TOPIC: WHITE & COLORED LESION

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Classification of White lesions	On completion of the course, the student will be able to: Classify white lesion of oral mucosa according to their etiology	Classify white lesions based on the nature of the disease (hereditary, reactive, infectious, neoplastic) and discuss the clinical and histological presentation of these lesions to aid in proper diagnosis of oral mucosal lesions	Written examinations <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) Oral examinations <ul style="list-style-type: none"> • Structured oral exam Clinical Examinations <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks
2	Hereditary white lesions	<ul style="list-style-type: none"> • Describe the etiology, pathogenesis, clinical features and histological features of following hereditary white lesions: • White sponge nevus • Leukoedema • Hereditary benign intraepithelial dyskeratosis • Follicular keratosis 		
3	Reactive white lesions	<ul style="list-style-type: none"> • Describe reactive white lesions • Frictional hyperkeratosis • Nicotine stomatitis • Hairy leukoplakia • Hairy tongue 		
4	Preneoplastic and neoplastic white lesions	Describe etiology, pathogenesis, clinical features, histopathology and prognosis of the following: Leukoplakia 3. Oral Submucous fibrosis 4. Lichen planus 5. Lupus erythematosus 6. Actinic cheilitis Define epithelial dysplasia. Enlist the grades of epithelial dysplasia. Discuss the features of epithelial dysplasia	Define leukoplakia, in addition to that, state the clinical and histological features with special emphasize on epithelial dysplasia to comprehend the role of exclusion criteria in its diagnosis and its importance as a precancer.	

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		Classify red and blue lesions. Discuss etiology, pathogenesis, clinical features, and histopathology of pre-neoplastic / neoplastic, metabolic / endocrine, immune mediated and purpuric red lesions:		
5	Vascular lesions	Discuss and compare the Etiology, pathogenesis, clinical features, and histopathology of Congenital Hemangioma and Arteriovenous malformation	<ol style="list-style-type: none"> 1. Categorize the red and blue lesions according to the nature of the disease (reactive, infectious, immunological, neoplastic) to ensure appropriate management. 2. Name and distinguish vascular anomalies based on the nature of the lesion, etiology, pathogenesis, clinical and histopathological features to ensure proper diagnosis of these lesions. 3. Define erythroplakia, in addition to that, state the clinical and histological features with special emphasize on epithelial dysplasia to comprehend the role of exclusion criteria in its diagnosis and its importance as a precancer. 	
6	Reactive lesions	Discuss etiology, pathogenesis, clinical features, and histopathology of the following reactive lesions: <ul style="list-style-type: none"> - Pyogenic granuloma - Peripheral giant cell granuloma - Peripheral Fibroma - Generalized Gingival Hyperplasia - Denture Induced Fibrous Hyperplasia 	Distinguish between the pathogenesis of pyogenic granuloma and peripheral giant cell granuloma to comprehend the role of multinucleated giant cells in true granuloma	

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COURSE TOPIC: SQUAMOUS CELL CARCINOMA AND OTHER EPITHELIAL TUMORS

S.No	Lecture Topic	Topic Objectives	Teaching Outcomes	Assessment Method
1.	Squamous cell carcinoma	<p>On completion of the course, the student will be able to:</p> <p>Explain the etiology, epidemiology, pathogenesis, clinical features, histopathology and prognosis of squamous cell carcinoma</p> <p>Describe staging and grading of squamous cell carcinoma</p>		<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks
2.	Basal Cell Carcinoma	<p>Explain the etiology, pathogenesis, clinical features, histopathology of Basal Cell Carcinoma</p>		

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COURSE TOPIC: SALIVARY GLAND DISEASES

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Reactive lesions of salivary gland	<p>On completion of the course, the student will be able to:</p> <p>Describe reactive lesions of Salivary glands</p> <ul style="list-style-type: none"> - Mucous extravasation phenomenon - Mucus retention cyst - Necrotizing sialometaplasia <p>Differentiate between Mucus retention cyst and Mucous extravasation phenomenon</p>		<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbooks
2	Infectious and other salivary gland diseases	<p>Describe pathogenesis, clinical and histological features (if required) of the following salivary glands:</p> <ul style="list-style-type: none"> - Mumps - Bacterial sialadenitis - Sarcoidosis - Sjogren's syndrome - Xerostomia - Cytomegaloviral sialadenitis (occurs mainly in immunocompromised people. Subject to omission) 	Classify salivary gland diseases and describe their pathophysiology to aid in the diagnostic process.	
3	Salivary gland tumors	<p>Classify and describe the pathogenesis, clinical and histological features of salivary gland tumors:</p> <ul style="list-style-type: none"> - Pleomorphic adenoma - Warthin tumor - Basal cell adenoma - Oncocytoma - Canalicular adenoma (can we omit the rare tumors?) - Mucoepidermoid carcinoma - Acinic cell carcinoma - Adenoid cystic carcinoma 	Name the common benign and malignant salivary gland tumors and discuss their pathogenesis to ensure proper diagnosis of the tumor.	

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COURSE TOPIC: METABOLIC AND GENETIC DISEASE (BONE PATHOLOGY)

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Inherited and developmental disorder of bone	<p>On completion of the course, the student will be able to:</p> <p>Discuss the following genetic abnormalities and associate the developmental disorders with dental defects:</p> <ul style="list-style-type: none"> - Cherubism - Osteopetrosis - Cleidocranial dysplasia 	<ol style="list-style-type: none"> 1. Enlist and differentiate the types of osteomyelitis based on the pathogenesis, clinical, histological and radiographic features of the osteomyelitis to ensure appropriate management. 2. Explain the role of bisphosphonate in relation to bone pathology to highlight the affect of medications on the human body. 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook
2	Fibro-osseous lesion	<p>Classify and describe etiology, clinical features, pathogenesis and behavior of fibro-osseous lesions.</p>	Differentiate between ossifying fibroma, fibrous dysplasia and cement osseous dysplasia based on the clinical, histological and radiographic features to aid in proper diagnosis of central (intraosseous) lesions.	
3	Metabolic & endocrinal disorder of bone	<p>Discuss the pathogenesis and diagnostic features of following metabolic conditions:</p> <ul style="list-style-type: none"> - Paget's disease - Hyperparathyroidism - Hypothyroidism - Hyperthyroidism - Hypophosphatasia 		
4	Central giant cell granuloma	<p>Describe clinical and diagnostic features central giant cell granuloma</p> <p>Enlist Giant Cell lesions i.e. Cherubism</p>	Explain the pathophysiology of various giant cell lesions and distinguish them based on their clinical, histopathological and radiographic features to aid in providing a definitive diagnosis of giant cell lesions.	

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		Hyperparathyroidism Central Giant Cell Granuloma Osteopetrosis Rheumatoid Arthritis		
5	Tumors of bone	Classify bone tumors Describe etiology, pathogenesis, clinical and diagnostic features of bone tumors including: <ul style="list-style-type: none">- Osteoma and osteoblastoma- Osteosarcoma- Ossifying fibroma	<ul style="list-style-type: none">- Distinguish between benign tumors (osteoma) and malignant tumors (osteosarcoma) of the bone to develop a better understanding regarding neoplasia and cancer.- Enlist the types and describe the clinical, histopathological and radiographic manifestations of osteosarcoma to be able to identify the effects of osteosarcoma on the head and neck region.	

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COURSE TOPIC: PIGMENTED LESIONS

S.No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Outcomes	Assessment Method
1	Pigmented lesions	<p><i>On completion of the course, the student will be able to:</i></p> <p>Classify pigmented lesions.</p> <p>Discuss the etiology, pathogenesis, clinical and histological features of non-neoplastic pigmented lesions</p> <p>Discuss the etiology, pathogenesis, clinical and histological features of malignant melanoma</p>	<ol style="list-style-type: none"> 1. Classify pigmented lesions based on the nature of the disease (melanocytic vs non-melanocytic) and discuss the clinical and histological presentation of these lesions to aid in proper diagnosis of oral mucosal lesions 2. Describe the etiology, variants, pathogenesis, clinical and histological features of malignant melanoma 	<p>Written examinations</p> <ul style="list-style-type: none"> • Multiple Choice Questions (MCQs) • Assignments • Short answer questions (SAQs) <p>Oral examinations</p> <ul style="list-style-type: none"> • Structured oral exam <p>Clinical Examinations</p> <ul style="list-style-type: none"> ➤ Objective Structured Clinical Examination (OSCE) ➤ Objective Structured Practical Examination (OSPE) ➤ Logbook

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COURSE TOPIC: TEMPOROMANDIBULAR JOINT DISORDERS

S.No	Lecture Topic	Topic Objectives
1	Developmental disorders	<p><i>On completion of the course, the student will be able to</i></p> <p>Classify TMJ disorders</p> <p>Discuss the developmental disorders of TMJ:</p> <ul style="list-style-type: none"> - Aplasia, - Hyperplasia and - Hypoplasia of mandibular condyle.
2	Inflammatory Disorders	<p>Discuss the Inflammatory Disorders of TMJ:</p> <ul style="list-style-type: none"> - Traumatic arthritis, - Infective arthritis, - Rheumatoid arthritis
3	Osteoarthritis	Discuss causes and clinical features of osteoarthritis
4	Functional Disorders	Discuss causes and clinical features of Myofascial pain dysfunction syndrome and Disc displacement

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ORAL MEDICINE & DIAGNOSIS

COURSE CONTENT & OBJECTIVES

- 1. Principles of Investigations and Diagnosis**
- 2. Oral Infections**
- 3. Oral Ulcerative Lesions**
- 4. Oral Soft Tissue Lesions**
- 5. Salivary Gland Disorders**

- 6. Temporomandibular Joint Disorders**
- 7. Oral Manifestation of Systemic Diseases**
- 8. Medical Emergencies**
- 9. Professional Hazards in Dentistry**
- 10. Hypersensitivity, Autoimmunity & Drug reaction**
- 11. Nutrition & oral Health**
- 12. Geriatrics & Oral Health**
- 13. Disorder of Teeth and Bone**
- 14. Halitosis & Taste Disturbances**
- 15. Ionizing Radiation & Its Effects on Oral Tissues**

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COURSE TOPIC: PRINCIPLES OF INVESTIGATIONS AND DIAGNOSIS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	History taking	Record a comprehensive history Discuss the significance of each component of history, e.g. importance of recording the presenting complaint in the patient's own words, impact of an underlying medical condition on the patients' oral health management etc.	Lecturers & Clinical Demonstrations	MCQS(theory), Interactive session(viva)
2	Examination /Investigations	Perform extraoral and intraoral examination <ul style="list-style-type: none"> - TMJ and muscles of mastication - Cervical lymph nodes - Cranial nerve examination, with emphasis on CN V and VII Interpret findings seen on the following investigations <ul style="list-style-type: none"> - Haematological - Radiological - Histological - Specialized imaging, e.g. Sialography, CT scan, MRI, Radioisotope scan - Molecular biology - Culture and sensitivity testing, Serology, PCR - Immunohistochemistry 	Tutorials and clinical +lab. demonstrations	Observed stations(practical)
3	Diagnosis	Formulate differential diagnoses for common oral pathologies on the basis of <ul style="list-style-type: none"> - Site of lesion - Type/physical characteristics of the lesion 	Lectures and clinical demonstrations	Short essay questions (theory)/Observed stations(practical)

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4	Treatment planning	Formulate treatment plans for common oral and maxillofacial pathologies presenting to the dental OPD.	Lectures and clinical demonstrations	Short essay questions(theory) /Interactive stations(viva)
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COURSE TOPIC: ORAL INFECTIONS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Bacterial infections	<p>Describe the signs, symptoms and clinical features of bacterial infections of the oro-facial region:</p> <ul style="list-style-type: none"> - Odontogenic infections, Cellulitis, Ludwig's angina - Actinomycosis - Syphilis - Acute necrotizing ulcerative gingivitis - Tuberculosis - Gonorrhea - Reiter's Syndrome <p>List the investigations required to reach a diagnosis</p> <p>Manage patients presenting with bacterial infections to the dental OPD.</p> <p>Justify the choice of antibiotic use in treating bacterial infections.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical),int eractive stations(viva)
2	Viral infections	<p>Discuss signs, symptoms and clinical features of viral infections of oro-facial region:</p> <p>Classify viral infections</p> <ul style="list-style-type: none"> - Herpes simplex virus - Paramyxovirus - Varicella zoster virus - Cocksackie virus - Epstein Barr virus 	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical),int eractive stations(viva)

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		<ul style="list-style-type: none"> - Cytomegalovirus - Human immunodeficiency virus <p>Manage patients presenting with viral infections to the dental OPD.</p> <p>Justify the choice of antiviral therapy.</p>		
3	Fungal infections	<p>Classify fungal infections</p> <p>Discuss the signs, symptoms and clinical features of fungal infections of the oro-facial region</p> <p>List investigations required for diagnosis</p> <p>Manage patients presenting with fungal infections to the dental OPD.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

COURSE TOPIC: ORAL ULCERATIVE LESIONS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Classification	Classify oral ulcerative lesions on the basis of etiology	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
2	Traumatic Ulceration	<p>Discuss the cause & clinical features of the Traumatic ulcers.</p> <p>List the investigations available for diagnosis of Traumatic ulcers.</p> <p>List the common pharmacological treatment options for management of Traumatic ulcers.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
3	<p>A. Recurrent Aphthous stomatitis</p> <p>B. Bechet's Disease</p>	<p>Discuss the etiological & clinical features.</p> <p>List the investigations available for Diagnosis.</p> <p>List the common pharmacological treatment options</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

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4	Vesiculo-bullous conditions	<p>Discuss the clinical features of vesiculo-bullous conditions affecting the oral cavity</p> <p>List investigations available for diagnosis of vesiculo-bullous conditions.</p> <p>Discuss the common pharmacological treatment options for management of vesiculo-bullous conditions</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
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COURSE TOPIC: ORAL SOFT TISSUE LESIONS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	White lesions	<p>Classify white lesions of the oral cavity</p> <p>Differentiate white lesions on the basis of their etiology, history and clinical features</p> <p>Discuss management options of persistent, unresolving white lesions.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
2	Red lesions	<p>Classify red lesions of the oral cavity</p> <p>Differentiate red lesions on the basis of their etiology, history and clinical features</p> <p>Discuss management options of persistent, unresolving red lesions.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
3	Pigmented lesions	<p>Classify pigmented lesions of the oral cavity</p> <p>Differentiate between malignant melanoma and other pigmented lesions of the oral cavity</p> <p>Discuss management of malignant melanoma</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
4	Premalignant lesions and conditions,	<p>Differentiate between premalignant lesions and conditions</p> <p>Discuss management of dysplastic lesions</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

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	Carcinoma & Carcinogenesis	List risk factors for malignant changes in oral premalignant lesions/conditions Describe the etiological, clinical & histological features. Describe the TNM classification of oral Squamous cell carcinoma along with staging for prognosis. Discuss the investigation & treatment options.		
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COURSE TOPIC: MOTOR AND SENSORY CHANGES IN THE OROFACIAL REGION

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Facial pain & neurological Disturbances.	Classify facial pain according to somatic, neurogenic & psychogenic. Somatic: musculoskeletal & visceral Neurogenic: Neuralgia's, Neurovascular, Neuritis pain PSYCHOGENIC: CHRONIC OROFACIAL PAIN, DISTURBANCES IN TASTE & SALIVATION, DELUSIONAL SYMPTOMS, DRUGS & ALCOHOL Describe the Etiological factors, clinical features diagnosis and management	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

COURSE TOPIC: SALIVARY GLAND DISORDERS

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Salivary Glands Saliva	Functions of saliva. Brief discussion of salivary Gland. Assessment of Salivary Gland Classification of salivary Gland Diseases. Classify the Disturbances of salivary Flow Discuss the etiology, clinical features & management.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

COURSE TOPIC: TEMPOROMANDIBULAR JOINT DISORDERS

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S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Temporomandibular Joint Disorder.	Discuss the normal functions. Classify TMJ Disorders. Discuss common signs and symptoms associated with TMJ disorders Discuss current investigations available for the evaluation of TMJ disorders.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)
2	Treatment	Conservative & specialist management of TMJ Disorders.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

COURSE TOPIC: ORAL MANIFESTATION OF SYSTEMIC DISEASES:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Cardiovascular diseases	Discuss clinical considerations for dental management of patients <ul style="list-style-type: none"> - with cardiovascular diseases - on warfarin therapy - on antiplatelet medication Describe current guidelines for antibiotic prophylaxis for infective endocarditis Discuss oral manifestations of antihypertensive medication	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)
2	Respiratory diseases	Discuss the management of an asthmatic and chronic obstructive pulmonary disease patient.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)

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		Discuss clinical features, investigations and treatment options.		
3.	Neurological Disorders	Discuss the management of Epilepsy & other neurological disorders.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)
4.	Gastrointestinal diseases	Discuss oral manifestations of GI diseases: <ul style="list-style-type: none"> - Crohn's disease, - Ulcerative colitis, - Orofacial granulomatosis, - Coeliac disease, - Hepatitis B and C Discuss considerations for dental management of a patient with, Hepatitis B and C	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)
5.	Renal diseases	Discuss oral manifestations of renal diseases Discuss considerations for dental management of a patient with renal disease	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)
6.	Endocrine Disorders	Discuss the classification, clinical features & precautions during Dental Treatment.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)
7.	Hematological diseases/ Malignant Disorders.	Discuss oral manifestations of hematological diseases: <ul style="list-style-type: none"> - Anaemia - Leukaemia - Lymphoma Discuss considerations for dental management of a patient with hematological disease	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)

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<p>8.</p>	<p>Hemorrhagic diseases</p>	<p>Classify oral manifestations of hemorrhagic diseases according to primary, secondary and tertiary types of hemostasis.</p> <p>Discuss the effects of medication on hemostasis.</p> <p>Discuss dental management of a patient with hemorrhagic disease.</p>	<p>Lectures and clinical demonstrations</p>	<p>MCQs(theory), Short essay questions(theory)/OSCE(practical) ,interactive stations(viva)</p>
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COURSE TOPIC: MEDICAL EMERGENCIES:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Medical Emergencies	Prevention of Medical Emergencies Administration of Drugs Emergency Drugs & Equipment Management of Medical Emergencies	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/OSCE(practical), interactive stations(viva)

COURSE TOPIC: PROFESSIONAL HAZARDS IN DENTISTRY:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Professional Hazards in Dentistry	Enumerate the Hazards which an operator can face during the chair side procedure. Enlist the risk factors & precautionary measures Discuss the Management of the factors responsible for professional Health Hazards in Dentistry.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

COURSE TOPIC: HYPERSENSITIVITY, AUTOIMMUNITY & DRUG REACTION:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Hypersensitivity, Autoimmunity & drug reaction.	Understand the term Hypersensitivity, Autoimmunity & drug reaction.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/

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		<p>Enlist the conditions & their risk factors along with the sign & symptoms.</p> <p>Discuss the precautionary measures & give the Management of the condition due to Hypersensitivity, Autoimmunity & Drug Reaction.</p>		OSCE(practical),interactive stations(viva)
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COURSE TOPIC: NUTRITION & ORAL HEALTH:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Nutrition & Oral Health	Importance of nutrition & its effects on oral health.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

COURSE TOPIC: GERIATRICS & ORAL HEALTH:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Geriatrics & oral Health	<p>Understand the term Geriatrics & give the effect of age changes in oral Hard & Soft tissues.</p> <p>Dental Management of elderly patients.</p> <p>Domiciliary care required for dental patients.</p>	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

COURSE TOPIC: DISORDER OF TEETH AND BONE:

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S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Disorder Of Teeth	Discuss the developmental disorders according to number, size and anatomical structure of teeth. Discuss the developmental conditions which affect the dental hard tissue.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)
2	Disorder of Bone	Discuss the different conditions which affecting the bone. Discuss the etiology, clinical features & radiological features. Discuss Treatment Options.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

COURSE TOPIC: HALITOSIS & TASTE DISTURBANCES:

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Halitosis	Understand the term Halitosis & discuss its etiological factors. Enlist the treatment options.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)
2	Taste Disturbances	Define the terminologies used to describe the taste disturbances.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

COURSE TOPIC: IONIZING RADIATION & ITS EFFECTS ON ORAL TISSUES:

CURRICULUM

S. No	LECTURE TOPIC	TOPIC OBJECTIVES	Teaching Tools	Assessment Method(theory and practical/viva)
1	Ionizing radiation & its Effects on Oral Tissues	Enumerate the different types of radiation therapy. Describe the precautionary measures before radiotherapy & discuss the radiations effects & its management on oral tissues during and after radiotherapy.	Lectures and clinical demonstrations	MCQs(theory), Short essay questions(theory)/ OSCE(practical),interactive stations(viva)

PERIODONTOLOGY

COURSE CONTENT & OBJECTIVES

- 1. Anatomy Biology and Development of Structures of Periodontium**
- 2. Periodontal Structures in Aging Humans**
- 3. Classification and Epidemiology of Gingival & Periodontal Disease**
- 4. Etiopathogenesis**
- 5. Periodontal Pathology - Gingival Diseases**
- 6. Periodontal Pathology– Periodontal Diseases I**
- 7. Treatment of Periodontal Diseases - Diagnosis, Prognosis & Treatment Plan**
- 8. Treatment of Periodontal Diseases - Non-Surgical**
- 9. Treatment of Periodontal Diseases - Surgical**

S.NO	CHAPTER NO	TOPICS	
		<u>PART I: BASIC PERIODONTICS</u>	
		<u>SECTION 1</u>	
		<u>NORMAL PERIODONTIUM</u>	
1	1	ANATOMY OF THE PERIODONTIUM	
		External anatomic features of oral cavity	Explain external anatomic features related to the periodontium. Describe types of oral mucosa and their characteristics.
		Gingiva	Describe the macroscopic and microscopic features of gingiva. Describe morphologic characteristics of different areas of gingival epithelium and connective tissues. Discuss the histology of epithelium - connective tissue interface. Describe the development of Gingiva. List the blood supply, nerve supply and lymphatics of gingiva.
		Periodontal Ligament	Define Periodontal Ligament. Describe structure, cellular composition and extracellular components of PDL. Discuss the development of principal fibers of PDL. Describe the blood supply, nerve supply and lymphatics of the PDL. List the various functions of PDL. Correlate the changes in the PDL space in different clinical conditions.
		Cementum	Define Cementum. Classify different types of cementum. List composition, functions, vascularization, innervation and characteristics of cementum. Name structures involved in Cemento-enamel and Cemento-dentinal junction. Describe the phenomena of cemental resorption & repair.
	Alveolar Bone	Define Alveolar bone. Describe various parts and composition of alveolar bone. Differentiate between fenestration and dehiscence. Differentiate between the periosteum and endosteum. Describe the process of remodeling & resorption of alveolar bone. Describe the blood supply, nerve supply and lymphatics of the bone.	
	2	Aging And The Periodontium	

CURRICULUM

		<table border="1"> <tr> <td>Periodontal changes with aging</td> <td> <p>List general effects of aging. Describe age changes in Periodontium. Discuss effects of aging on progression of periodontal diseases. Describe the effects of treatment on aging individual.</p> </td> </tr> </table>	Periodontal changes with aging	<p>List general effects of aging. Describe age changes in Periodontium. Discuss effects of aging on progression of periodontal diseases. Describe the effects of treatment on aging individual.</p>
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2		<u>CLASSIFICATION:</u>		
	<u>3</u>	CLASSIFICATION OF DISEASES AND CONDITIONS AFFECTING THE PERIODONTIUM		
	<table border="1"> <tr> <td>Classification system of Periodontal Diseases</td> <td> <p>Discuss the need for classification. Classify Periodontal diseases according to current classifications. Describe characteristic of gingival and periodontal diseases.</p> </td> </tr> <tr> <td>Epidemiology of Gingival & Periodontal Disease</td> <td> <p>Define Epidemiology and Index. Classify different types of epidemiologic research. State the Purpose and use of an index. Discuss the Characteristics of an Ideal Index. Discuss various indices used to assess different periodontal problems.</p> </td> </tr> </table>	Classification system of Periodontal Diseases	<p>Discuss the need for classification. Classify Periodontal diseases according to current classifications. Describe characteristic of gingival and periodontal diseases.</p>	Epidemiology of Gingival & Periodontal Disease
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3		ETIOLOGY:		
	<u>5</u>	Periodontal Pathogenesis		
	<table border="1"> <tr> <td>Pathogenesis of periodontal disease</td> <td> <p>Describe the Role of bacterial invasion, exotoxins, cellular constituents and enzymes in causing periodontal disease. Describe the Evasion of host response in causing periodontal disease. List the Host derived bone resorbing agents.</p> </td> </tr> </table>	Pathogenesis of periodontal disease	<p>Describe the Role of bacterial invasion, exotoxins, cellular constituents and enzymes in causing periodontal disease. Describe the Evasion of host response in causing periodontal disease. List the Host derived bone resorbing agents.</p>	
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	<u>7</u>	Role Of Dental Calculus And Other Local Predisposing Factors		
<table border="1"> <tr> <td>Calculus and other Etiological Factors</td> <td> <p>Define calculus. Differentiate between different types of calculus, their composition and formation. Describe calculus as a pathogenic potential in periodontal disease. Describe other etiological factors contributing to gingival and periodontal disease. Discuss features of various extrinsic and intrinsic stains seen on tooth surfaces.</p> </td> </tr> </table>	Calculus and other Etiological Factors	<p>Define calculus. Differentiate between different types of calculus, their composition and formation. Describe calculus as a pathogenic potential in periodontal disease. Describe other etiological factors contributing to gingival and periodontal disease. Discuss features of various extrinsic and intrinsic stains seen on tooth surfaces.</p>		
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<u>8</u>	BIOFILM AND PERIODONTAL MICROBIOLOGY			
<table border="1"> <tr> <td>Periodontal microbiology (Dental Plaque)</td> <td> <p>Define a Bio-film. Describe dental Plaque as biofilm. Discuss the steps in formation of dental plaque. Explain the structural & microscopic properties of dental plaque. Describe the clinical significance of dental plaque. List microorganisms associated with various periodontal disease.</p> </td> </tr> </table>	Periodontal microbiology (Dental Plaque)	<p>Define a Bio-film. Describe dental Plaque as biofilm. Discuss the steps in formation of dental plaque. Explain the structural & microscopic properties of dental plaque. Describe the clinical significance of dental plaque. List microorganisms associated with various periodontal disease.</p>		
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<u>11</u>	Influence of Systemic Conditions on Periodontium			

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		Role of systemic diseases	Describe the Dietary & nutritional aspect of periodontal disease. Interpret the effect of hematologic, metabolic & endocrine disorders on periodontium. Describe the effect of cardiovascular diseases on periodontium. Outline the effects of Antibody deficiency disorders on periodontium.
		<u>SECTION 2</u>	
		GINGIVAL PATHOLOGY:	
4	<u>13</u>	Defense Mechanism Of Gingiva	
		Defense Mechanisms	List various defense mechanisms of the gingiva. Describe the anatomy of gingival crevice. Outline the significance of gingival sulcus and fluid. Outline the significance of gingival vasculature & crevicular fluid. Explain the methods of collection of sulcular fluid. Discuss the composition and clinical significance of GCF. Discuss the effect of drugs in gingival fluid. Interpret the relationship of periodontal therapy & gingival fluid.
	<u>14</u>	Gingival Inflammation	
		Gingival Inflammation	List salient features of the initial, early, established, advanced lesion of gingivitis.
	<u>15</u>	Clinical Features of Gingivitis	
	Clinical features of Gingivitis	Classify different types of Gingivitis. List various clinical features of gingivitis. Describe gingival bleeding on probing. Explain color changes of gingival in gingivitis. Describe the change in consistency of gingiva in gingivitis. Discuss the change in size of gingival in gingivitis. Discuss the surface texture of gingiva. Explain the change in position of gingiva in gingivitis.	
<u>16</u>	Gingival Enlargement and its Treatment		
	Gingival Enlargements	Classify gingival enlargement. Explain various inflammatory and non-inflammatory enlargement of gingiva. Explain various enlargement of gingiva associated with systemic disease. List different neoplastic conditions of gingival enlargement. Describe the false enlargement of gingiva.	

5	<u>17</u>	Acute Gingival Infections and its Treatment	
		Acute Gingival Infections	Classify various acute gingival lesions. Discuss: - Acute necrotizing ulcerative gingivitis, - Acute herpetic gingivostomatitis, - Pericoronitis.
	<u>19</u>	Desquamative Gingivitis	
		Desquamative Gingivitis	Discuss the diagnosis of desquamative gingivitis. Describe the clinical features and histopathology of various forms of desquamative gingivitis. Describe the therapy for desquamative gingivitis. Describe diseases clinically presenting as desquamative gingivitis.
		PERIODONTAL PATHOLOGY:	
	<u>20</u>	Periodontal Pocket and its Treatment	
		Periodontal Pocket	Define a periodontal pocket. Classify different types of periodontal pockets. Describe clinical features, pathogenesis, histopathology and treatment of periodontal pocket. Describe features of a periodontal cyst. Perform pocket depth measurement in patients presenting with periodontitis in the dental OPD.
	<u>21</u>	Bone loss And Patterns Of Bone Destruction	
		Bone loss and patterns of bone destruction	Discuss the normal anatomy of alveolar bone. Describe the mechanism of bone formation & destruction. Describe the factors determining bone morphology in periodontal disease. Describe the bone destruction patterns in periodontal disease. Describe the prevalence & distribution in bone defects.
	<u>23</u>	Chronic Periodontitis	
	Chronic Periodontitis	Define chronic periodontitis. Discuss the Diagnostic criteria for chronic periodontitis. Compare different types Based on disease distribution & severity. Describe the Nature of disease progression. Describe the Risk factors for chronic periodontitis.	
<u>25 & 40</u>	Aggressive Periodontitis and Treatment of Aggressive and Atypical forms of Periodontitis		
	Aggressive Periodontitis	Describe in detail Localized and Generalized Aggressive Periodontitis.	
<u>42</u>	Periodontal Abscess and its Treatment		

	<u>24</u>	Necrotizing Ulcerative Periodontitis	
		Necrotizing Ulcerative Periodontitis, Refractory Periodontitis	Describe types of Necrotizing ulcerative and Refractory Periodontitis.
	<u>52 & 28</u>	Oral Malodor / Sleep Disorder Breathing	
		Oral Malodor	Classify halitosis. List various etiology responsible for halitosis. Diagnose halitosis based on history, clinical examination and appropriate investigations. Manage patients presenting to the dental clinic with oral malodor.
		<u>PART II: CLINICAL PERIODONTICS</u>	
		<u>SECTION 3</u>	
		PHASE I : CLINICAL DIAGNOSIS & TREATMENT	
	<u>29</u>	Tooth Mobility and its treatment	
	<u>62</u>	Furcation and its treatment	
		Furcation involvement and its management	Define furcation involvement. Classify different grades of furcation involvement. Describe etiology, clinical features, prognosis and treatment of furcation involvement (traditional, reconstructive, respective treatment).
	<u>31</u>	Radiographic Aids in Diagnosis of Periodontal Disease	
	<u>35</u>	Treatment Plan	
		Rationale for Periodontal Treatment Treatment plan	List the Objectives of periodontal therapy. List various local and systemic factors which affect healing. Describe the Healing phenomena after periodontal therapy. Outline the Sequence of therapeutic Procedures. Plan the diagrammatic layout of Preferred Sequence of periodontal therapy.
	<u>46</u>	Scaling and Root Planning	
		Scaling and Root Planning	Explain the principles of scaling & root planning.
	<u>47</u>	Sonic And Ultrasonic Instrumentation And Irrigation	
06			

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		Principles of Periodontal Instrumentation Periodontal Armamentarium	Describe clinician position and patient position. Discuss visibility, illumination & retraction with procedure. Describe Periodontal Instrument. Classify Periodontal Instrument. Discuss the condition of instruments. Describe the importance of maintaining a clean field. Describe the importance of instrument stabilization (instrument grasp, finger rest). Describe the procedure of instrument activation. Describe the working of ultrasonic instruments.
	45 & 48	Plaque Biofilm Control and Anti-Infective Therapy	
		Plaque Control	List the goals of plaque control measures. Discuss the rationale for plaque control. Describe various basic approaches for plaque control. Describe mechanical plaque control methods. Describe the chemical plaque control methods.
07		MANAGEMENT OF PATIENTS WITH SPECIAL NEEDS:	
	37	Periodontal Treatment Of Medically Compromised Patients	
	38	Periodontal Therapy In Female Patients	
	39	Periodontal Treatment For Older Adults	
	18	Gingival Diseases In Childhood	
		Periodontal Disease in Children & Young Adolescents	Describe anatomical consideration of periodontal disease in children and young adolescents. Classify periodontal diseases in children. Describe histopathology and microbiology of periodontal disease in children. Describe the following gingival and periodontal lesions: <ul style="list-style-type: none">- Acute herpetic gingivostomatitis,- Necrotizing ulcerative gingivitis,- Candidiasis,- Prepubertal periodontitis,- Juvenile periodontitis. Describe various Periodontitis associated with syndromes.
	43	Diagnosis and Management of Endodontic/Periodontic Lesions	

08		PHASE II : PERIODONTAL THERAPY	
	<u>55</u>	General Principles of Periodontal Surgery	
		Principles of Periodontal Surgery	List the indications, contraindications and general principles for periodontal surgery. Describe the complications during procedure and first post-operative week. Describe the Hospital periodontal surgery.
	<u>56</u>	Gingival Surgical Techniques	
			<ul style="list-style-type: none"> • Gingival Curettage • Gingivectomy • Gingivoplasty
		Gingival Curettage	Define gingival curettage. Classify different types of gingival curettage. Discuss the rationale of gingival curettage. List the indications of gingival curettage. List various procedures of gingival curettage. Explain various procedures of gingival curettage (basic techniques, ultrasonic curettage, caustic drug). Describe the phase of healing after scaling & curettage. Describe the clinical appearance after scaling & curettage.
		Gingivectomy	Define gingivectomy. List the prerequisite, indications, contraindications for gingivectomy. Classify gingivectomy Describe different types of gingivectomy.
<u>57</u>	The Periodontal Flap		
	Periodontal Flap	Classify different types of flaps. List the indications/objective of flap surgery. Define a periodontal flap. Discuss different types of incisions. Describe different flap techniques for pocket therapy. Describe the phase of healing after flap surgery.	
<u>60</u>	Resective Osseous Surgery		
		<ul style="list-style-type: none"> • Guided Bone Regeneration • Guided Tissue Regeneration • Muco Gingival Surgeries 	

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		Osseous and Mucogingival Surgery	<p>Define osseous and mucogingival surgery. Discuss the rationale for osseous surgery. Itemize different types of osseous surgery. List the indications and contraindications of resective osseous surgery and mucogingival surgery. List the examination prior to resective surgery. List various methods of osseous surgery. Describe the phase of healing after resective osseous surgery. Describe in detail the reconstructive osseous surgery. List various mucogingival problems. Describe various techniques to increase width of attach gingiva. Describe indications, classification and procedure for root coverage by conventional flaps. Describe subepithelial connective tissue graft and its modification. Describe the guided tissue regeneration technique for root coverage. Describe in detail operation for removal of frena.</p>
		<u>EXTRAS</u>	
		Periodontal Dressing	
		Splint Therapy	
		Splints and Role of orthodontics in Periodontal Therapy	<p>Define dental and periodontal splinting. List the objectives of splinting. Classify splints. List principles, indications, contraindications, advantages & disadvantages of splinting. Describe rationale, indications & contraindications for orthodontic treatment in periodontal therapy. Discuss the timing of orthodontic procedure in periodontal treatment. Discuss the iatrogenic effect associated with orthodontic treatment. Discuss the response of periodontal ligament to orthodontic forces.</p>
		<u>SECTION 4</u>	
		IMPLANT	
	<u>71</u>	Peri Implant Anatomy, Biology and Functions	
		Peri Implant Mucositis and Peri Implantitis (From Textbook of Jan Lindhe)	
		<u>LASERS</u>	
09	<u>65</u>	Recent Advances in Surgical Therapy <ul style="list-style-type: none"> • Lasers in Periodontal Therapy 	

CURRICULUM

OPERATIVE DENTISTRY**COURSE CONTENT & OBJECTIVES**

- 1. Endodontics**
- 2. Pedodontics**
- 3. Indirect Restorations**

CURRICULUM

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES	Mode of Teaching Lecture, CBL, PBL, Practical lab work, clinical teaching	Mode of Assessment MCQs, SAQs, OSCE, OSPE, classroom quiz, lab demonstration, project
01	Biologic Considerations in Operative Dentistry, Restorative Gingival Interface	<ul style="list-style-type: none"> • State the chemical composition, structure and properties of dentin-pulp complex • Relates the morphologic and histologic structure of tooth tissues with their clinical relevance on restorations. • Recognize the importance of dentogingival complex and biologic width when planning restorations. 	Lecture	BCQs
02	Patient Evaluation and Problem Oriented Treatment Planning	<ul style="list-style-type: none"> • Define treatment and patient-oriented planning. • Discuss merits and drawbacks of treatment offered to the patient. • Arrange and practice a thorough medical and dental history. • Perform the key elements of a clinical examination. • <u>Perform extra oral and intraoral examination on a patient presenting to the dental clinic.</u> • Identify esthetic parameters to be considered when restoring the dentition. • <u>Formulate a logical treatment plan</u> • Recognize the importance of dental record keeping. 	Lecture, Demonstration, hands on.	BCQ, OSCE
03	Preliminary Considerations in Operative Dentistry	<ul style="list-style-type: none"> • Demonstrate correct patient and operator positions when carrying out restorative procedures. • State the importance of isolation in operative dentistry. Describe different methods used for isolation. Enlist the armamentarium required for rubber dam isolation. • <u>Perform application and removal of rubber dam on patients when carrying out a restorative procedure.</u> 	Lecture, Demonstration, hands on.	BCQ, OSCE

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04	Sterilization And Disinfection	<ul style="list-style-type: none"> • Differentiate among the following: <ul style="list-style-type: none"> - Sterilization, - Disinfection, - Asepsis. - Discuss the importance of sterilization and disinfection. <p>Discuss elements of a sterilization plan</p> <p>Explain various methods used for sterilization and methods to monitor effectiveness of sterilization.</p> <p>Enlist chemicals that are used for disinfection.</p> <p>Define cross infection.</p> <p>Explain the exposure risks in dentistry.</p> <p>Describe the different methods of cross infection control in the dental office.</p>	Lecture, Demonstration	BCQs, OSCE
05	Dental Radiology	<p>Summarize the basics of Dental Radiology.</p> <p>Describe importance of radiographs in operative dentistry.</p> <p>Identify normal anatomic structures of maxilla and mandible on a:</p> <ul style="list-style-type: none"> - Periapical x-ray, - Bitewing x-ray, - Occlusal x-ray, - Orthopantomogram (OPG). <p>Discuss the indications and limitations of the following radiological views for diagnostic purposes:</p> <ul style="list-style-type: none"> - Periapical x-ray, - Bitewing x-ray, - Occlusal x-ray, - Orthopantomogram (OPG). - Digital radiography - CBCT <p><u>Interpret pathological findings seen on these radiographs.</u></p>	Lecture, Case based discussions, demonstrations	BCQs, OSCE, VIVA

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		Discuss the biological effects and risks associated with radiations.		
06	Dental Caries- (Etiology and Clinical Characteristics)	<p>Define dental caries.</p> <p>Explain the etiology and pathogenesis of dental caries. Enumerate the factors influencing dental caries process.</p> <p>Explain the role of plaque biofilm in progression of dental caries. Identify the microorganisms responsible for dental caries.</p> <p>Describe and interpret the Stephan's curve.</p> <p>Compare the clinical characteristics and progression of carious lesions as seen on:</p> <ul style="list-style-type: none"> - Pit and fissures, - Smooth surfaces, - Root surfaces. Distinguish the progression of carious lesions in: - Enamel, - Dentin. <p>Label different zones of enamel and dentin caries.</p>	Lecture, case based discussions	BCQs, VIVA
07	Dental Caries- (Diagnosis and Management)	<p>Name methods of detection and diagnosis of dental caries.</p> <p>Diagnose dental caries in patients based on clinical and radiographic examination.</p> <p>Describe and apply International Caries Detection and Assessment System (ICDAS II).</p> <p>Evaluate and compute the dental caries risk for a patient.</p> <p>Grade dental caries risk for a patient.</p> <p>Discuss Caries Management by Risk Assessment (CAMBRA).</p> <p>Explain protocols and strategies for prevention of dental caries.</p> <p>Define caries control restorations.</p> <p>Describe the clinical protocol for caries control restorations.</p> <p>Counsel patients regarding measures to prevent dental disease.</p>	Lecture, Case based discussion, Demonstration, Hands on Practice	BCQs, OSCE, VIVA

CURRICULUM

		schedule a maintenance care and recall visit interval plan for patients based on risk assessment.		
08	Dental Caries- (Management of Deep Carious Lesion)	<p>Define:</p> <ul style="list-style-type: none"> - Stepwise excavation, - Indirect pulp cap, - Direct pulp cap (carious and iatrogenic). <p>Identify the various possible reactions of the pulp-dentin complex to a deep carious lesion.</p> <p>State the rationale of stepwise excavation.</p> <p>Enlist materials that can be used for direct and indirect pulp cap. Explain the clinical protocol for direct and indirect pulp cap procedures.</p> <p>Perform indirect and direct pulp cap restorations on permanent teeth.</p>	Lecture, Case based discussions, Demonstrations	BCQs. OSCE, VIVA
09	Nomenclature, Principles of Cavity Design and Preparation. Class I- Class VI	<p>Enlist various methods to Classify carious lesions.</p> <p>Enumerate different systems for naming and numbering teeth.</p> <p>Explain the nomenclature of tooth surfaces and cavity preparation.</p> <p>Enlist factors that need to be considered before tooth preparation.</p> <p>Explain the steps in the initial and final stages of tooth preparation.</p> <p>Discuss the advances in material sciences that have made cavity preparation minimally invasive.</p>	Lectures, Demonstrations	BCQs, OSCE
10	Instruments and Equipment for Tooth Preparation	<p>Enlist various cutting and non-cutting hand instruments.</p> <p>State the use of each of these instrument</p> <p>Identify the design features for hand cutting instruments.</p> <p>Interpret the nomenclature for hand cutting instruments.</p> <p>Demonstrate various instrument grasp techniques that can be employed.</p> <p>summarize rotary cutting equipment and instruments.</p> <p>Identify the common design characteristics of rotary cutting instruments (dental burs).</p>	Lecture, Demonstration, Hands on practice	OSCE, VIVA

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		<p>enumerate recent advances of tooth preparation and caries removal including:</p> <ul style="list-style-type: none"> - Lasers, - Ozone, - Air abrasion. <p>Discuss hazards with cutting instruments on dental tissues and their prevention.</p>		
11	Occlusion	<p>Define the terms:</p> <ul style="list-style-type: none"> - Occlusion, - Static occlusion, - Dynamic occlusion, - Centric relation, - Maximum intercuspation, - Supporting cusps, - Non supporting cusps. <p>Explain the types and directions of mandibular movements.</p> <p>Discuss the importance of restoring occlusion in restorative dentistry.</p>	Lecture	BCQS, VIVA
		-		
13	Amalgam Restorations	<p>Describe the composition, properties and indications / contraindications of Amalgam material.</p> <p>Enlist advantages and disadvantages of amalgam restorations. Perform class I , class II and class VI cavity preparation on phantom teeth and patients..</p> <p>Enlist ways of improving resistance and retention form of a simple class I and II restoration.</p> <p>Explain ways of improving resistance and retention form of complex restorations. Illustrate the need for cuspal coverage with special reference to rule of thirds.</p> <p>Distinguish among:</p>	Lecture, Demonstration, Hands on practice	BCQS, OSCE, VIVA

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		<ul style="list-style-type: none"> - Box only preparation, - Tunnel preparation, - Slot preparation. <p>Describe bonded amalgam restorations and the mechanism of amalgam bonding.</p> <p>perform placement of amalgam in simple and complex cavities. Identify types of dentin pins and summarize their method of placement. Explain secondary mechanical features to improve resistance and retention.</p> <p>Discuss importance of matricing and wedging.</p> <p>select various types of matrix band systems and wedges.</p> <p>Label the various parts of a tofflemire matrix band retainer.</p> <p>Demonstrate placement of tofflemire matrix band and wedge on patients when restoring multi-surface cavities.</p> <p>Summarize mercury hazards and hygiene.</p> <p>-</p>		
14	Bonding to Enamel and Dentin	<p>Classify modern adhesives.</p> <p>List advantages of adhesive techniques over non-adhesive methods.</p> <p>Explain why enamel is a favorable substrate for bonding.</p> <p>Differentiate structure of dentin from enamel.</p> <p>Discuss the effect of smear layer on dentin bonding.</p> <p>Explain the effect of Configuration Factor (C-factor) on bonding.</p> <p>Explain enamel bonding.</p> <p>Enumerate the challenges in dentine conditioning.</p> <p>Relate the chemistry of primers and adhesive resin (bonding agent).</p> <p>Describe 1st- 7th generation adhesives.</p> <p>Explain steps involved in enamel and dentin bonding.</p>	Lecture, Demonstration	BCQS, OSCE, VIVA

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15	Direct Anterior Composite Restorations	<p>Discuss the Describe the composition, properties and indications / contraindications of anterior composites.</p> <p>Perform and plan preoperative evaluation before placing an anterior composite restoration.</p> <p>Enumerate factors influencing shade selection.</p> <p>Explain guidelines for shade matching and various methods of shade selection.</p> <p>perform cavity preparation for class III and class IV restorations.</p> <p>Demonstrate composite placement technique for class III and IV restorations.</p> <p>Identify different instruments used for finishing and polishing of composite restorations and their state their use.</p> <p>perform placement of appropriate matrix and wedges on patients when restoring teeth with composite.</p> <p>Practice Finishing and polishing of composite restorations.</p> <p>List indications, contraindications, advantages and disadvantages of direct composite veneers. Enlist clinical steps for placing direct resin composites veneer.</p> <p>Explain the technique for diastema closure with direct composite.</p>	Lecture, Demonstration, Hands on practice	BCQS, OSCE, VIVA
		-		

S. No.	LECTURE TOPIC	TOPIC OBJECTIVES	Mode of Teaching	Mode of Assessment
16	Direct Posterior Composite Restorations	Describe/ list indications, contraindications, advantages and disadvantages for composite resin as a posterior restorative material.	Lecture, practical lab work, clinical teaching	MCQS, OSCE, Lab demonstration

CURRICULUM

		<p>Demonstrate/ explain preoperative evaluation for a posterior composite restoration.</p> <p>Discuss sealant and preventive resin restoration</p> <p>Describe indications and contraindications of sealant and preventive resin restoration</p> <p>List factors affecting retention of fissure sealants.</p> <p>Describe placement technique for fissure sealants and preventive resin restorations.</p> <p>Outline features of a class I and class II cavity for composite restoration.</p> <p>Justify the need of pre-wedging in class II composite restorations.</p> <p>Explain bonded base technique.</p> <p>Describe/ distinguish/ define/ demonstrate/ illustrate for composite restorations:</p> <ul style="list-style-type: none"> - Box only preparation, - Tunnel preparation, - Slot preparation. <p>Classify matrix systems available for composite restorations.</p> <p>Compare/ discuss circumferential and sectional matrix systems.</p> <p>Justify different methods and techniques used to minimize polymerization shrinkage.</p> <p>Discuss different methods to create a tight contact for class II composite restorations.</p> <p>Describe various resin polymerization equipment.</p> <p>Discuss cavity preparation and restoration of a class VI lesion./ Describe successive cusp build-up technique.</p> <p>Demonstrate placement of appropriate matrix and wedges on patients when restoring teeth with composite.</p> <p>Perform on patients:</p>		
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CURRICULUM

		<ul style="list-style-type: none"> - Pit and fissure sealants and preventive resin restorations, - Class I cavity preparation and composite restorations, - Class II cavity preparation and composite restorations, <p>Class VI cavity preparation and composite restorations.</p>		
17	Class 5 Restorations	<p>Describe and discuss carious and non-carious defects.</p> <p>Discuss etiology and predisposing/ risk factors of non-carious defects</p> <p>Discuss preventive and definitive treatment of non-carious defects</p> <p>Describe cavity preparation for class V restorations.</p> <p>Describe non-surgical and surgical techniques for isolating class V restorations.</p> <p>Classify and Discuss restorative materials available for restoring class V lesions.</p> <p>List ways of improving retention of class V composite restorations.</p> <p>Perform Class V cavity preparation on patients and restore it with appropriate restorative material.</p>	Lecture, practical lab work, clinical teaching	MCQS, OSCE, Lab demonstration
18	Diagnosis and Treatment of Root Caries	<p>Define root caries.</p> <p>Describe appearance and location of root caries.</p> <p>List etiology and risk factors associated with root caries.</p> <p>Diagnose root caries based on clinical and radiographic examination.</p> <p>Discuss preventive and chemotherapeutic strategies to manage root caries.</p> <p>Discuss available restorative materials for treating root caries.</p> <p>Perform cavity preparation and restoration of root caries with appropriate restorative material on patients.</p>	Lecture, practical lab work, clinical teaching	MCQS, OSCE, Lab demonstration
19	Tooth Surface Loss	<p>Define the following types of tooth surface loss:</p> <ul style="list-style-type: none"> - Abrasion, - Attrition, - Erosion, 	Lecture, practical lab work, clinical teaching	MCQS, OSCE, Lab demonstration

CURRICULUM

		<ul style="list-style-type: none"> - Abfraction. - Dentine hypersensitivity <p>Discuss the etiology, pathogenesis, prevention and management of tooth surface loss and dentine hypersensitivity.</p>		
20	Discoloration of Teeth	<p>Describe causes of tooth discoloration.</p> <p>Describe nature of stains.</p> <p>Discuss mode of action of bleaching agent on stains.</p> <p>Indication and contraindication for bleaching</p> <p>List commonly used bleaching agents and their strengths.</p> <p>Discuss treatment planning and patient education regarding bleaching procedure</p> <p>Describe shade selection and record collection before bleaching procedure</p> <p>Describe vital and non-vital tooth bleaching</p> <p>Discuss indications and contraindications of various types of bleaching techniques.</p> <p>Explain technique for :</p> <ul style="list-style-type: none"> - In-office vital bleaching, - At-home vital bleaching, - Non-vital bleaching. <p>Discuss the factors affecting in-house and at home bleaching process</p> <p>Describe indications, contraindications for micro abrasion and macro abrasion</p> <p>Describe the procedure for micro abrasion and macro abrasion.</p>	Lecture, practical lab work, clinical teaching	MCQS, OSCE, Lab demonstration
	COURSE TOPIC: ENDODONTICS			

CURRICULUM

1	Biology of Dental Pulp and Periradicular Tissue	<p>Describe the anatomic regions of the pulp and their clinical importance.</p> <p>Describe the functions of the pulp-dentin complex.</p> <p>Describe the blood vessels, lymphatics and neural components of pulp.</p> <p>Discuss the distribution and function of the neural components of pulp.</p> <p>Discuss theories of dentin sensitivity.</p> <p>Explain the pathway of efferent nerves from the pulp to central nervous system.</p> <p>Discuss changes in pulp morphology with age.</p> <p>Describe the structure and function of peri-radicular tissues.</p>	Lecture	MCQS
2	Preserving pulp vitality/ pulp consideration	<p>Describe physiologic and structural characteristics of pulp and how it affects pulp response to injury.</p> <p>Discuss iatrogenic effects on the dental pulp by:</p> <ul style="list-style-type: none"> - Local anesthetics with vasoconstrictor, - Cavity/ crown preparation (thermal shock), - Depth of cavity preparation, - Various restorative materials, - Placement of pins, - Polishing restorations, - Post-restoration hypersensitivity, - Orthodontic tooth movement, - Vital bleaching. <p>Discuss the formation and role of tertiary dentin in pulp protection.</p> <p>Explain preventive measures adopted during dental restorative procedures to preserve pulp vitality.</p>	Lecture	BCQ, Viva
3	Endodontic microbiology	<p>Describe the routes of entry of microorganisms to the pulp and periradicular tissues.</p> <p>Discuss the different types of endodontic infections.</p> <p>Describe the various microbial species involved in various endodontic infections.</p>	Lecture	MCQ

CURRICULUM

		Illustrate ecology of endodontic microbiota and features of endodontic ecosystem.		
4	Pulp and periradicular pathosis / diagnosis in endodontics	<p>Classify pulpal diseases.</p> <p>Classify periradicular lesions of pulpal origin.</p> <p>Describe etiological factors of pulp inflammation.</p> <p>Explain mechanism of spread of inflammation in the pulp.</p> <p>Explain why the pulp has difficulty in recovering from severe injury.</p> <p>List specific and non-specific indicators of pulpal inflammation.</p> <p>Describe the clinical and histological features of pulp diseases.</p> <p>Explain the mechanism and consequences of spread of pulpal inflammation into periradicular tissues.</p> <p>Describe clinical and histological features of periradicular lesions of pulpal origin.</p> <p>Describe steps involved in repair of periapical pathosis.</p> <p>Describe non-endodontic lesions that may simulate endodontic periradicular pathosis.</p>	Lecture, clinical teaching	MCQ, OSCE
5	Endodontic diagnosis and treatment plan	<p>Discuss the importance of a thorough medical and dental history.</p> <p>Take medical and dental history of patient presenting to dental clinic.</p> <p>Discuss elements of a clinical examination.</p> <p>Perform extra oral and intraoral examination on patients to ascertain pulpal and periapical health.</p> <p>Describe various vitality tests/ sensibility tests, their advantages and limitations.</p> <p>Perform vitality tests /sensibility tests on patients.</p> <p>Interpret findings of various vitality tests/sensibility tests in clinical settings.</p> <p>Correlate radiographic findings to the history and clinical examination.</p>	Lecture, practical lab work, clinical teaching	MCQ, OSCE, lab demonstration

CURRICULUM

		<p>Discuss the common medical diseases that may influence endodontic treatment planning.</p> <p>Discuss special considerations when formulating treatment plans for geriatric patients.</p> <p>Diagnose pulpal and periapical pathosis in patients based on history, clinical and radiographic examination.</p> <p>Develop/ formulate/prepare a treatment plan.</p> <p>Take an informed consent before any treatment.</p> <p>Formulate a referral letter to an endodontist when required.</p>		
6	Endodontic radiology / dental radiology	<p>Describe importance of radiographs in endodontics.</p> <p>Identify normal anatomic structures of maxilla and mandible on periapical radiographs.</p> <p>Differentiate between endodontic and non-endodontic radiolucencies and radioopacities.</p> <p>Describe radiographic characteristics of periapical lesion of endodontic origin.</p> <p>Justify varying horizontal and vertical cone angulations to create image shift.</p> <p>Describe the cone image shift/ same lingual opposite buccal rule slob rule.</p> <p>Describe new technologies for radiographic imaging.</p>		

7	Pulp anatomy / endodontic treatment procedure/ tooth morphology and access cavity	<p>Correlate the shape of pulp system to root anatomy.</p> <p>List laws of canal orifice location.</p> <p>Outline pathologic factors that may cause alterations in pulp anatomy.</p> <p>Describe major components of the pulp space and variations in the pulp system in apical third.</p>	Lecture, clinical based scenarios	BCQ, OSCE, Viva
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CURRICULUM

		<p>Determine radiographically the distance from occlusal/ incisal surface to the roof of chamber.</p> <p>Define accessory canals.</p> <p>Explain relationship of anatomic, radiographic and actual location of apical foramen.</p> <p>Describe variations in pulp anatomy resulting due to:</p> <ul style="list-style-type: none"> - Developmental defects, - With age. <p>Identify the internal and external anatomy of teeth in sagittal and cross section.</p> <p>Describe changes in pulp morphology with age.</p> <p>Discuss special considerations when planning treatment for geriatric patients.</p> <p>Knows about management of the difficulties that can be encountered during root canal treatment of older patients.</p>		
8	Instruments, materials and devices in endodontics / endodontic treatment procedure/ tooth morphology and access cavity	<p>Identify basic set of instruments appropriate for various endodontic procedures.</p> <p>State the general physical properties of instruments.</p> <p>Recognise the design of common canal preparation instruments and their proper use of to prevent breakage within canal.⁹</p> <p>Tell the basis for sizing and taper of hand operated instruments.</p> <p>Identify visible changes in instruments that will predispose them to breakage.</p> <p>Describe techniques for sterilization and disinfection of endodontic instruments.</p> <p>Describe nickel titanium rotary instruments.</p>	Lecture, demonstration, hands on	OSCE
9	Local anesthesia in endodontics / endodontic treatment procedure/ tooth morphology and access cavity	<p>Define pain threshold and the factors affecting it.</p> <p>List techniques that are helpful in giving "painless" injections.</p> <p>Describe the "routine" approach to conventional local anesthesia.</p> <p>Perform administration of topical and local (infiltration and block) anesthesia before starting root canal treatment on patients.</p> <p>Describe circumstances that create difficulties in obtaining profound anesthesia.</p>	Lecture, demonstration, hands on experience	BCQs, OSCE

CURRICULUM

		<p>Justify use supplemental methods of obtaining pulpal anesthesia.</p> <p>Discuss techniques of intraosseous, periodontal ligament, and intrapulpal injections.</p>		
10	Isolation, endodontic access, and length determination / endodontic treatment procedure	<p>Explain methods of isolation in endodontics with emphasis on rubber dam isolation.</p> <p>Describe importance of pre-operative assessment as pre-requisite for treatment success.</p> <p>Knows the importance of pre-endodontic buildup.</p> <p>Describe the objectives, general principles, procedure, armamentarium and sequence of endodontic access cavity preparation.</p> <p>Draw outline of access cavity of each tooth.</p> <p>Write average length and canal configuration of various teeth.</p> <p>Describe technique for locating canal orifices.</p> <p>Identify errors during access cavity preparation and know how to correct them.</p> <p>Describe various methods of working length determination.</p> <p>Perform rubber dam isolation before starting endodontic treatment.</p> <p>Prepare access cavity on single rooted teeth (extracted teeth/patients).</p> <p>Determine working length of single rooted teeth (extracted teeth/patients).</p>	Lecture, case based scenarios, demonstrations	BCQs, viva, OSCE
11	Cleaning and shaping/ endodontic treatment procedure	<p>Differentiate pulp space infection from infection in other tissues of body.</p> <p>Restate purpose of cleaning and shaping the pulp space.</p> <p>Explain the concept of apical patency.</p> <p>Demonstrate basic and combined instruments movements.</p> <p>Describe different techniques of canal preparation.</p> <p>Recall how to minimize preparation errors in curved canal.</p> <p>Explain management of calcified canals.</p> <p>Justify use of niti rotary instruments and its efficacy over ss files.</p>	Lecture, demonstration, hand on experience	BCQs, viva, OSCE

CURRICULUM

		<p>Explain the importance, properties and irrigation techniques of irrigants.</p> <p>Name various agents used for irrigation.</p> <p>Perform:</p> <ul style="list-style-type: none">- Pulpectomy of single rooted teeth (extracted teeth/patients).- Cleaning and shaping of root canal (extracted teeth/patients).- Root canal irrigation (extracted teeth/patients).		
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CURRICULUM

S. No.	Lecture topic	Topic objectives	Mode of teaching	Mode of assessment	Comments
12	Intra canal medicaments and temporary filling materials / endodontic treatment procedure	<p>Name different microorganisms involved in endodontic pathosis.</p> <p>Define intra canal medicament.</p> <p>Discuss the properties, role, method of application and instruments used in intra-canal, inter-appointment medicaments.</p> <p>Categorize various agents used as intra-canal medicament.</p> <p>List temporary filling materials used in endodontics.</p> <p>Describe techniques for placement and removal of temporary filling materials.</p> <p>Demonstrate the selection of placement of intracanal medicament in a root canal.</p>	Lecture, practical lab work, clinical teaching	MCQ, SAQ, OSCE, OSPE, classroom Quiz, Lab demonstration, Project	
13	Root canal obturation / endodontic treatment procedure	<p>Describe the rationale of obturation.</p> <p>Describe the clinical criteria that determine time of obturation.</p> <p>List the properties of ideal core obturation material and sealer.</p> <p>Name core obturation materials, sealers and obturation techniques..</p> <p>Describe the composition and properties of gutta percha.</p> <p>Describe advantages and disadvantages of each core material.</p> <p>Describe the need for using a sealer during obturation.</p> <p>Describe lateral compaction technique.</p> <p>Describe briefly other techniques used for obturation.</p>	Lecture, practical lab work, clinical teaching	BCQs, OSCE, classroom Quiz, Lab demonstration	

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		<p>Discuss the radiographic criteria for evaluating the quality of obturation.</p> <p>Perform obturation of single rooted teeth (extracted teeth/patients).</p>			
14	Endodontic mishaps	<p>Describe causes, prevention and treatment of procedural accidents during:</p> <ul style="list-style-type: none"> - Access cavity preparation, - Cleaning and shaping, - Obturation. <p>Describe the endodontic mishap including their management:</p> <p>Identify on clinical and/or radiographic slides various procedural errors.</p> <p>Discuss how procedural errors can affect the prognosis of treatment</p>	Lecture, practical lab work, clinical teaching	BCQs, OSCE, classroom Quiz, Lab demonstration	
15	Endodontic emergencies / diagnosis in endodontics	<p>Identify causes of endodontic emergencies: pre-treatment, inter-appointment and post-obturation.</p> <p>Discuss the difficulties in diagnosing and treating a patient presenting with an endodontic emergency.</p> <p>Explain the importance of sequential approach to endodontic emergencies.</p> <p>Describe how to manage various endodontic emergencies including:</p> <ul style="list-style-type: none"> - Painful irreversible pulpitis, - Necrotic pulp with acute apical periodontitis, - Acute apical abscess, - Acute apical periodontitis. <p>Identify inter-appointment and post-obturation flareup.</p> <p>Discuss management of inter-appointment and post-obturation flareup.</p>	Lecture, practical lab work, clinical teaching	BCQs, OSCE, classroom Quiz, Lab demonstration	

CURRICULUM

		<p>Discuss pharmacological therapy used in emergency and its role in controlling pain and infection.</p> <p>List indications and contraindications for prescribing analgesics, antibiotics, anti-inflammatory agents and anxiolytics.</p> <p>Develop a treatment plan consisting of appropriate endodontic and pharmacologic strategies for managing pain, anxiety, and infection.</p> <p>Write down a prescription for pain and infection control in patients presenting with endodontic pain.</p>			
16	Restoration of endodontically treated tooth	<p>Differentiate endodontically treated teeth from vital teeth.</p> <p>Explain the importance of coronal seal.</p> <p>Discuss options available for restoring endodontically treated teeth.</p> <p>Explain ferrule effect.</p> <p>Describe indications of post placement in anterior and posterior teeth.</p> <p>Describe nayyar core.</p> <p>Describe ideal dimensions of a post.</p> <p>Describe common post systems, their advantages and disadvantages.</p> <p>Describe method of placement of prefabricated and cast post.</p> <p>Describe core materials and their placement.</p> <p>Discuss complications that can occur during placement of post.</p>	Lecture, practical lab work, clinical teaching	BCQs, OSCE, classroom Quiz, Lab demonstration	
18	Nonsurgical endodontic retreatment	<p>Explain rationale and indications of endodontic retreatment.</p> <p>Describe the alternates to endodontic retreatment.</p> <p>Perform technique of accessing through extra coronal restorations.</p> <p>Describe technique of removing crowns and posts.</p>	Lecture, cbl, practical lab work, clinical teaching	MCQs, OSCE, classroom Quiz, Lab demonstration	

CURRICULUM

		<p>Discuss various types of canal obstructions and their management.</p> <p>Perform the techniques for gutta percha removal.</p> <p>Explain the role of intra-canal medicament in retreatment.</p> <p>Justify prognosis of retreatment.</p>			
19	Surgical endodontics	<p>Justify the need of endodontic surgery alone or in combination with nonsurgical root canal therapy.</p> <p>Describe situations when endodontic surgery is contraindicated.</p> <p>Define the terms:</p> <ul style="list-style-type: none"> - Incision for drainage, - Apical curettage, - Root-end resection, - Root-end preparation - Root-end filling, - Root amputation, - Hemisection, - Bicuspidization. <p>Discuss indications and the steps involved for the above mentioned procedures.</p> <p>Explain principles of flap design.</p> <p>Illustrate various flap designs.</p> <p>Describe in brief, step by step procedures involved in peri-radicular surgery.</p> <p>Discuss prognosis of endodontic surgical cases.</p>	Lecture, cbl, practical lab work, clinical teaching	MCQ, OSCE, classroom quiz, lab demonstration,	
20	Longitudinal tooth fractures/trauma (primary and permanent teeth)	<p>Differentiate among the following:</p> <ul style="list-style-type: none"> - Craze line, - Cusp fracture, - Cracked tooth, 	Lecture, Cbl, Pbl, practical lab work, clinical teaching	MCQ, Saqs, OSCE, Ospe, classroom quiz, lab	

CURRICULUM

		<ul style="list-style-type: none"> - Split tooth, - Vertical root fracture. <p>Describe the causes of these fractures of tooth structure.</p> <p>Describe symptoms and clinical features of these fractures of tooth structure.</p> <p>Diagnose longitudinal tooth fractures in patients based on history, clinical and radiographic examination.</p> <p>Discuss the treatment, prognosis and prevention of a crack/ fracture at various levels.</p>		demonstration, project	
21	Endo perio lesions	<p>Classify endodontic-periodontal lesions.</p> <p>Discuss possible paths of communication between pulpal and periodontal tissue.</p> <p>Differentiate between lesions of endodontic or periodontal origin based on clinical, radiographic and histopathological features.</p> <p>Justify treatment options.</p>	Lecture, Cbl.	BCQs, OSCE	
	Paedodontics				
1.	Introduction to pediatric dentistry	<p>Discuss growth and development of jaws and dentition.</p> <p>Differentiate between permanent and primary teeth.</p> <p>Discuss the chronology of development of primary and permanent dentition.</p> <p>Discuss eruption timing and sequence of primary and permanent teeth.</p>	Lecture	BCQs	
2.	Pain and anxiety management of pediatric patient/ pediatric pain management	<p>List various pharmacological methods of pain and anxiety control in pediatric patients.</p> <p>Discuss different behavioral management strategies for pediatric patients.</p> <p>Describe different sedation techniques for paediatric patients.</p>	Lecture, clinical teaching, practical lab work.	BCQs, Quiz, Lab demonstration	

CURRICULUM

		<p>Discuss the dental management of children with special needs.</p> <p>Demonstrate various behavioral management strategies on simulated pediatric patients.</p> <p>Write down a prescription for pain and infection control in pediatric patients presenting with endodontic pain.</p>			
3.	Prevention of dental disease of pediatric patient/ restorative dentistry for primary dentition	<p>Take a medical and dental history of a pediatric patient.</p> <p>Describe various medical conditions that may affect the management of pediatric patient.</p> <p>Discuss effects of diet on dental tissues.</p> <p>Describe various sources of sugars.</p> <p>Discuss the effect of fluoride on dental caries process.</p> <p>Explain the rationale for fluoride supplementation.</p> <p>Describe different vehicles of fluoride delivery.</p> <p>Demonstrate correct tooth brushing technique.</p> <p>Explain the importance of parental counseling.</p> <p>Describe the importance of dietary management and home care in caries prevention.</p> <p>Discuss the importance of regular dental follow-ups.</p> <p>Counsel parent/ guardian of a pediatric patient regarding measures to prevent dental disease.</p> <p>Describe the importance of fissure sealing and acid etch technique as a preventive measure.</p> <p>Describe the placement of pit and fissure sealants and preventive resin restorations in primary teeth.</p> <p>Perform placement of pit and fissure sealants and preventive resin restorations on patients.</p>	Lecture, clinical teaching, cbl	BCQs, OSCE, Quiz, Lab demonstration	

CURRICULUM

4.	Local anesthesia technique for pediatric patient / pediatric pain management	<p>Describe available topical anesthesia solutions.</p> <p>Describe new techniques for achieving topical anesthesia.</p> <p>List various techniques of local anesthesia administration.</p> <p>Describe pain free anesthesia technique.</p> <p>Discuss possible complications of local anesthesia.</p> <p>Perform painless anesthesia technique on pediatric patients undergoing restorative treatment.</p>	Lecture, clinical teaching, lab demonstration	Quiz, lab demonstration	
5.	Restorative dentistry for pediatric dentition	<p>Discuss methods to detect and diagnose dental caries in primary teeth.</p> <p>Describe the pattern of early childhood caries and its management.</p> <p>Discuss the radiographic views that are of value in diagnosing dental caries.</p> <p>Diagnose dental caries in primary teeth based on clinical and radiographic examination.</p> <p>Explain the importance of isolation when restoring teeth.</p> <p>Explain the importance of matricing in proximal decay.</p> <p>Discuss restorative materials that can be used to restore a carious lesion.</p> <p>Describe restoration of occlusal and proximal caries.</p> <p>Perform restoration of primary teeth.</p> <p>Describe the indications for stainless steel crowns and acrylic crowns.</p> <p>Describe the technique for stainless steel crown and acrylic crown placement.</p>	Lecture, clinical teaching,	Quiz, lab demonstration.	
6.	Pulp therapy for primary and young permanent teeth / restorative	<p>Describe the development of a tooth from its eruption to root maturation.</p> <p>Explain the need to save a primary tooth.</p>	Lecture, cbl, clinical teaching	BCQ, OSCE, quiz, lab demonstration	

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	dentistry for primary dentition	<p>Describe the importance of case assessment.</p> <p>Describe the indications and contraindications of pulp therapy in deciduous teeth.</p> <p>Describe the stabilization of mouth in case of rampant caries.</p> <p>Describe the indications, contraindications and procedures in primary dentition for:</p> <ul style="list-style-type: none"> - Pulp cap, - Pulpotomy, - Pulpectomy. <p>Describe indications, contraindications and procedure in young permanent dentition for:</p> <ul style="list-style-type: none"> - Indirect pulp cap, - Direct pulp cap, - Cvekpulpotomy, - Apexogenesis, - Apexification. <p>Discuss the role of regenerative endodontics in the management of non-vital immature teeth.</p> <p>Perform indirect pulp cap procedure on primary and young permanent teeth.</p>			
7.	Inherited anomalies of enamel and dentin	<p>List various inherited enamel and dentin defects.</p> <p>Discuss the clinical problems associated and treatment objectives when managing inherited enamel and dentin defects.</p> <p>Discuss the etiology, prevention, clinical features and management of:</p> <ul style="list-style-type: none"> - Amelogenesis imperfecta - Dentinogenesis imperfecta - Molar incisor hypoplasia. <p>Diagnose based on history, clinical and radiographic examination:</p>	Lecture, clinical teaching	BCQs, OSCE	

CURRICULUM

		<ul style="list-style-type: none"> - Amelogenesis imperfecta - Dentinogenesis imperfecta - Molar incisor hypoplasia. 			
8.	Periodontal diseases in pediatric patient	<p>Classify periodontal diseases in children.</p> <p>Discuss the etiology, clinical features and management of acute gingival conditions:</p> <ul style="list-style-type: none"> - Primary herpetic gingivostomatitis - Necrotizing ulcerative gingivitis. <p>Discuss the etiology, clinical features and management of chronic gingivitis and periodontitis.</p> <p>Discuss etiology, clinical features and management of drug induced gingival enlargement.</p> <p>Discuss periodontal disease as a manifestation of various syndromes and systemic diseases in children.</p>	Lecture, cbl	BCQs, OSCE	
9.	Anomalies of tooth formation and eruption	<p>Discuss the prevalence, etiology and management of variation in number of teeth.</p> <p>Discuss various anomalies in tooth size and their management.</p> <p>Discuss various anomalies of tooth form and their management.</p> <p>Describe disturbances in eruption and exfoliation and its clinical significance.</p> <p>Diagnose anomalies of tooth size and form based on clinical and radiographic examination.</p> <p>Diagnose disturbances in eruption and exfoliation based on history, clinical and radiographic examination.</p>	Lecture, cbl	OSCE, BCQs	
10.	The pedodontic-orthodontic interface	<p>Discuss the importance of screening patients for orthodontic referral at the correct time.</p> <p>Formulate a referral letter to an orthodontist when required.</p> <p>Define interceptive orthodontics.</p>	Clinical teaching, lecture	Project, lab demonstration, BCQs, OSCE	

CURRICULUM

		<p>Discuss the rationale and sequence of serial extractions.</p> <p>Discuss various space maintainers used in mixed dentition.</p> <p>Describe various habit breaking appliances in pediatric patients.</p>			
11.	Oral surgery and pathology in pediatric patients	<p>Discuss lesions affecting the oral soft tissues in children:</p> <ul style="list-style-type: none"> - Infections, - Ulcers, - Vesiculobullous, - White lesions, - Cysts, - Tumors. <p>Discuss lesions affecting the jaws in children:</p> <ul style="list-style-type: none"> - Cysts, - Developmental, - Osteodystrophies, - Tumors. 	Lecture, CBL	BCQs, OSCE	
12.	History and examination of patient with dental trauma (primary and permanent teeth)	<p>Classify dento-alveolar injuries.</p> <p>Take medical and dental history of a patient presenting with history of dental trauma.</p> <p>Perform thorough extraoral and intraoral examination of patient presenting with history of dental trauma.</p> <p>Discuss the appropriate radiographs needed for an accurate diagnosis.</p>	Lecture, clinical teaching, CBL	BCQs, OSCE	
13.	Injury to tooth and healing after trauma (primary and permanent teeth)	<p>Describe different types of healings.</p> <p>Describe the healing of pulp and factors affecting its healing.</p> <p>Describe the healing of periodontium and factors affecting its healing</p> <p>Differentiate between various types of root resorptions:</p> <ul style="list-style-type: none"> - External resorption, - Cervical resorption, 	Lecture, CBL	BCQs, project	

CURRICULUM

		<ul style="list-style-type: none"> - Internal resorption, - Replacement resorption. 			
14.	Injuries to primary dentition trauma (primary and permanent teeth)	<p>Describe management of hard tissue injury in the following categories:</p> <ul style="list-style-type: none"> - Uncomplicated crown fracture, - Complicated crown fracture, - Crown-root fracture, - Root fracture. <p>Describe management of soft tissue injury in following categories:</p> <ul style="list-style-type: none"> - Concussion, - Subluxation, - Extrusive luxation, - Lateral luxation, - Intrusion, - Avulsion. <p>Describe the sequelae of injuries to the primary dentition.</p>	Lecture, CBL	BCQs, OSCE, project	
15.	Injury to permanent dentition-hard tissue trauma (primary and permanent teeth)	<p>Describe management of hard tissue injury in the following categories:</p> <ul style="list-style-type: none"> - Enamel infarction, - Enamel fracture, - Enamel-dentin fracture, - Complicated crown fracture, - Uncomplicated crown-root fracture, - Complicated crown-root fracture, - Root fracture. <p>Discuss the types and uses of splints.</p> <p>Describe the duration of splint therapy in each injury.</p> <p>Describe the procedure for placement of composite and wire splint.</p>	Lecture, PBL, clinical teaching	BCQs, OSCE, quiz	

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16.	Injury to permanent dentition-luxation and avulsion trauma (primary and permanent teeth)	<p>Describe management of soft tissue injury in following categories:</p> <ul style="list-style-type: none"> - Concussion, - Subluxation, - Extrusive luxation, - Lateral luxation, - Intrusion, - Avulsion. <p>Describe duration of splint therapy in each injury.</p> <p>Describe the rationale of delayed reimplantation of an avulsed tooth.</p>	Lecture, CBL	BCQs, OSCE	
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COURSE CONTENT & OBJECTIVES

- 1. Basic Principles of Oral Surgery**
- 2. Medical Aspects of Oral Surgery**
- 3. Anesthesia and Sedation**
- 4. Exodontia**
- 5. Impacted Teeth**
- 6. Infections**
- 7. Cysts**
- 8. Odontogenic Tumour**
- 9. Malignant Orofacial Tumours**
- 10. Salivary Gland Disease**
- 11. TMJ Disorders**
- 12. Pre-Prosthetic Surgery**
- 13. Facial Pain**
- 14. Oro- Facial neuropathies**

CURRICULUM

- 15. Cleft Lip and Palate**
- 16. Orthognathic Surgery**
- 17. Surgical Endodontics**
- 18. Maxillofacial Trauma**

CURRICULUM

COURSE TOPIC: BASIC PRINCIPALS OF ORAL SURGERY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction. History, Diagnosis and Treatment Planning	Formulate a treatment plan for the patient presenting in oral surgery on the basis of history, clinical examination and radiograph. Explain Basic necessities for surgery Define Aseptic technique Perform aseptic technique on patients during surgery Discuss Communicable Pathogenic Organisms <ul style="list-style-type: none"> - Bacteria - Viral organisms - Mycobacterial organism
2.	Sterilization. (instruments and armamentarium)	Discuss: <ul style="list-style-type: none"> - Aseptic techniques & universal precautions - Techniques of instrument sterilization and disinfection - Maintenance of sterility - Operating disinfection - Surgical staff Preparation Explain post-surgical Asepsis
3.	Incision. Flap design and tissue handling	Demonstrate: <ul style="list-style-type: none"> - Incisions - Flap design - Prevention of flap necrosis, flap dehiscence, and flap tearing
4.	Haemostasis management and suturing	Describe tissue handling. Describe hemostasis and means of promoting wound hemostasis. Discuss dead space management.
5.	Post operative care, nutrition, prevention of infection	Describe: <ul style="list-style-type: none"> - Decontamination & debridement - Edema control - Patient general health & nutrition
6.	Wound healing (soft tissue and hard tissue)	List causes of tissue damage. Discuss wound repair and epithelialization. List stages of wound healing. Discuss surgical significance of wound healing concepts. Define facial neuropathy of traumatic origin. List the classifications of nerve injury. Discuss nerve healing.

COURSE TOPIC: MEDICAL ASPECTS OF ORAL SURGERY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
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1.	Prevention and Management of Medical Emergencies	<p>Take a comprehensive medical history of patients presenting to the dental OPD.</p> <p>Demonstrate physical examination on patients presenting in the OPD.</p> <p>Discuss conditions which can exaggerate the pre-existing medical conditions.</p> <p>Discuss appropriate preventive measures to be taken before treatment.</p>
2.	Management of Medically Compromised Patient	<p>Diagnose dental problems in medically compromised patient.</p> <p>Obtain informed /written consent.</p> <p>Discuss management of patient with compromising medical condition.</p> <p>Prescribe medication for pregnant & postpartum patients after treatment.</p>

COURSE TOPIC: ANESTHESIA AND SEDATION

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction and types of anesthesia	<p>Classify Anesthesia.</p> <p>Describe different type of anesthetic solutions used in dentistry.</p>
2.	Preoperative assessment	<p>Interpret investigations for General Anesthesia fitness.</p> <p>Discuss criteria for selecting patient to undergo procedures under general anesthesia.</p> <p>Describe Mechanism of local anesthesia.</p>
3.	Indication and contraindications	<p>Discuss indications and contraindications of general local anesthesia and local anesthesia.</p>
4.	Administration and techniques	<p>Explain conventional & specialized technique of local anesthesia administration.</p> <p>Administer local anesthesia with the most suitable technique in different clinical scenarios.</p>

COURSE TOPIC: EXODONTIA

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Clinical and radiographic evaluation of teeth for removal	<p>Discuss the following steps as a prerequisite for tooth extraction:0</p> <ul style="list-style-type: none"> - Pain & Anxiety control - Pre surgical Medical Assessment - Clinical evaluation of teeth for removal - Radiographic examination of tooth for removal - Patients & surgeons preparation
2.	Principles of use of instruments	<p>Identify instruments used for:</p> <ul style="list-style-type: none"> - incising tissue - elevating mucoperiosteum

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		<ul style="list-style-type: none"> - retracting soft tissue - controlling hemorrhage - grasping tissue - removing bone - removing soft tissue from bony defects - suturing mucosa - holding mouth open - providing suction - transferring sterile instruments - holding towel & drapes in position - irrigation <p>Demonstrate correct use of:</p> <ul style="list-style-type: none"> - Dental elevators - Extraction forceps <p>Discuss instrument tray system</p>
3.	Non-surgical extraction	<p>Discuss:</p> <ul style="list-style-type: none"> - Indications and contraindications for removal of teeth - Mechanical principles involved in tooth extractions - Principles of forceps use - Specific techniques for removal of each tooth - Post extraction care of tooth socket <p>Demonstrate:</p> <ul style="list-style-type: none"> - Correct chair position for forceps extraction - Procedure of closed extraction
4.	Surgical extraction	<p>Discuss:</p> <ul style="list-style-type: none"> - Principles of flap design, development and management, - Design parameters for soft tissue flaps, - Types of mucoperiosteal flaps, - Principles of suturing, - Indications, principles and techniques for surgical extraction, <p>Demonstrate:</p> <ul style="list-style-type: none"> - Technique for open extraction of single- rooted tooth. - Technique for surgical removal of multi rooted teeth. - Removal of small root fragments and root tips. <p>Discuss Policy for leaving root fragments.</p> <p>Formulate a treatment plan emphasizing on extraction sequencing and technique for extraction when multiple extractions have to be performed.</p>

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COURSE TOPIC: IMPACTED TEETH

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Definition, assessment & evaluation of impacted teeth	Define Impaction. Classify impactions.
2.	Indications, contraindications and type of impactions	Classify maxillary impacted teeth according to modified classification.
3.	Techniques of removal	Discuss the indications & contraindications for removal of impacted teeth.
4.	Post-operative management and complications	Describe the difficulty of removal of impacted teeth. Discuss preoperative and postoperative patient management after extraction. Discuss intra-operative complications: <ul style="list-style-type: none"> - injuries to the adjacent teeth, osseous and adjacent structures and soft tissue injuries. Discuss Root Morphology. Describe the surgical procedures for extraction. Discuss measures of control of postoperative bleeding, pain and discomfort. Write down operative notes for patient records. Discuss measures to prevent post-operative complications: <ul style="list-style-type: none"> - oro-antral communications; - postoperative bleeding; - delayed healing and infection; - fractures of the mandible.

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COURSE TOPIC: INFECTIONS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Acute infection	Classify spaces of infection. Explain: - Microbiology of odontogenic infections, - Fascial space infections, - Mandibular spaces, - Osteomyelitis, - Actinomycosis, - Candidiasis.
2.	Chronic infection	
3.	Spread of infection	Discuss natural history of progression of odontogenic infections.
4.	Principles of management of infection	Discuss principles of: - Therapy of odontogenic infections; - Prevention of infection; - Prophylaxis of wound infection; - Prophylaxis against metastatic infection.

COURSE TOPIC: CYSTS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Diagnosis and management of cysts	Discuss basic surgical goals. Describe Surgical management of cysts and cyst like lesions of the jaws.

COURSE TOPIC: ODONTOGENIC TUMOUR

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1	Diagnosis and management	Identify Odontogenic tumors on patients. Describe surgical management of benign lesions in oral soft tissues. Discuss principles of surgical management of jaw tumors.
2	Resection	Discuss resections types & their indications in the jaw tumor. Explain reconstruction of jaws after removal of oral tumors.

COURSE TOPIC: MALIGNANT OROFACIAL TUMOURS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Clinical features, investigation & diagnosis of cancer	Discuss Principles of surgical management of jaw tumors.
2.	Principles of differential	Discuss examination and diagnostic methods.

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	diagnosis and biopsy	List principles of biopsy. Discuss : - Soft tissue biopsy technique and surgical principles; - Intraosseous/ hard tissue biopsy technique and surgical principles. Formulate a referral letter for biopsies if needed.
3.	Management (surgery, radiotherapy & chemotherapy)	Describe dental management of patients: - undergoing radiotherapy to head and neck; - on systemic chemotherapy for malignant disease.
4.	Reconstruction principles	Classify the mucosal flaps use for reconstruction. Describe basic reconstructive principles.

COURSE TOPIC: SALIVARY GLAND DISEASE

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Salivary gland infection, obstructive disease & tumors	Discuss: - Embryology, anatomy and physiology of salivary glands - Diagnostic modalities for salivary gland diseases - Obstructive salivary gland disease - Mucous retention and extravasation phenomenon - Salivary gland infections - Necrotizing sialometaplasia - Sjogren's syndrome - Traumatic salivary gland injuries - Salivary gland disorders.
2.	Clinical features, investigation & management of salivary gland disorders.	

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COURSE TOPIC: TMJ DISORDERS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1	Classification of TMJ disorders.	Classify temporomandibular disorders
2	Clinical features, investigation and treatment modalities	<p>Identify sign & symptoms of TMJ disorders</p> <p>Evaluate a patient with TMJ disorder</p> <p>Formulate a management plan for patient presenting with TMJ disorders.</p> <p>Prescribe relevant investigation</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Different treatment options - Permanent occlusion modification - Temporomandibular joint surgery - Follow up

COURSE TOPIC: PRE-PROSTHETIC SURGERY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Correction of soft & hard tissue abnormalities	<p>Discuss the following:</p> <ul style="list-style-type: none"> - Objectives of pre-prosthetic surgery; - Principles of patient evaluation and treatment planning; - Recontouring the alveolar ridges; - Tori removal; - Soft tissue abnormalities; - Immediate dentures; - Overdenture surgery; - Mandibular augmentation; - Maxillary augmentation; - Soft tissue surgery for ridge extension of the mandible; - Soft tissue surgery for maxillary ridge extension; - Correction of abnormal ridge relationships.
2.	Dental implants	<p>Discuss:</p> <ul style="list-style-type: none"> - Biologic considerations for osseointegration; - Clinical implant components; - Implant prosthetic options; - Preoperative medical evaluation of implant patient; - Surgical phase: treatment planning; - Basic surgical techniques; - Complications;

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		<ul style="list-style-type: none"> - Advanced surgical techniques; - Special situations.
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COURSE TOPIC: FACIAL PAIN

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Diagnosis and management of Orofacial pain	Classify orofacial pains. Discuss the following: <ul style="list-style-type: none"> - Basics of pain neurophysiology - Neuropathic facial pains - Chronic headache - Chronic head pains of dental interest Evaluate patients presenting to the dental OPD with orofacial pain.
2.	Clinical evaluation and management of trigeminal neuralgia.	Discuss the signs and symptoms, clinical history and management options of trigeminal neuralgia.

COURSE TOPIC: ORO- FACIALNEUROPATHIES

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Diagnosis and management of facial palsy.	Discuss the causes and management of facial nerve pathology.

COURSE TOPIC: CLEFT LIP AND PALATE

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Management of cleft lip and palate patient	Discuss the embryology, causative factors and problems of the cleft affected individual. Discuss treatment and dental needs of cleft lip and palates.

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COURSE TOPIC: ORTHOGNATHIC SURGERY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Objectives & principles of management of Orthognathic surgery	Classify orthognathic procedures. Evaluate patient for orthognathic surgery. Discuss the procedure to correct jaw abnormality.

COURSE TOPIC: SURGICAL ENDODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Indication and Technique (Surgical Endodontics)	Discuss the following: <ul style="list-style-type: none"> - Drainage of abscess; - Periapical surgery; - Corrective surgery; - Healing; - Recall; - Adjuncts; - When to consider referral.

COURSE TOPIC: MAXILLOFACIAL TRAUMA

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	BLS and ATLS	Discuss evaluation of patients with facial trauma. Demonstrate BLS & ATLS. Discuss ABCDE of emergency management.
2.	Traumatic injuries of teeth	Discuss: <ul style="list-style-type: none"> - Soft tissue injuries - Dentoalveolar injuries
3.	Management of soft tissue injuries	
4.	Management of mandibular fractures	Classify mandibular fractures. Discuss causes, sign & symptoms and management of mandibular fractures. Explain complications of mandibular fracture.
5.	Clinical features, investigation & manage of ZMC	Classify ZMC fractures. Discuss causes, signs, symptoms and management of ZMC fractures. Discuss appropriate investigations for ZMC fracture. Explain complication of ZMC fracture.
6.	Nasal & Orbital fractures.	Discuss anatomy of orbit. Classify Orbital & Nasal fractures. Discuss causes, signs, symptoms and management of orbital & nasal fractures.

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		Explain complication of orbital & nasal fracture.
7.	Mid face fracture.	Classify Mid-face fractures. Discuss causes, signs, symptoms and management of mid face fractures. Explain complication of mid face fracture.

PROSTHODONTICS

COURSE CONTENT & OBJECTIVES

- 1. Removable Partial Denture**
- 2. Complete Denture**
- 3. Impression Procedures**
- 4. Fixed Prosthodontics**
- 5. Crown and Fixed Partial Denture (Indirect Restorations)**
- 6. Maxillo Facial Prosthesis**
- 7. Occlusion Including TMD/MPD**
- 8. Gerodontology**

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COURSE TOPIC: REMOVABLE PARTIAL DENTURE

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Partially edentulous epidemiology, physiology & terminology	Define the following: <ul style="list-style-type: none"> - Abutment; - Retainer; - Extra coronal partial denture; - tooth supported RPD; - tooth tissue supported RPD; - temporary RPD; - Interim denture; - Transitional denture; - Treatment denture; - Centric relation; - Centric occlusion; - Eccentric relation; - Support; - Retention; - Reciprocation; - Bracing; - Appliance; - Saddle area; - Stability. Discuss the Clinical application of anatomy of oral cavity.
2.	Applied anatomy and physiology	
3.	Classification of partially edentulous arches.	Discuss the requirements of an acceptable method of classification. Discuss the following: <ul style="list-style-type: none"> - Baily classification - Skinner classification - Cummer classification - Kennedy classification - Applegate's rules
4.	Oral manifestations of local and systemic diseases	Discuss the problems related to: <ul style="list-style-type: none"> - Xerostomia; - Poor healing; - Osteoporosis; - Osteopenia; - Autoimmune diseases.

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5.	<p>Diagnosis and treatment planning.</p> <p>Patient Evaluation, history, general examination and Problem Oriented Treatment Planning.</p>	<p>Perform the Clinical examination</p> <p>Take a complete history from patients coming to OPD.</p> <p>Perform the following examination of patient:</p> <ul style="list-style-type: none"> - General Examination (gait, complexion and personality, cosmetic index, mental attitude of patient) - Extra Oral examination (facial features, facial form, facial profile, lower facial height, muscle tone, complexion, lip competency) - TMJ examination (including muscles of mastication, deviation, deflection, clicking/crepitation of TMJ and mouth opening). - Neuromuscular examination - Intra Oral Examination (Hard and soft tissues, saliva, occlusion) - Radiographic examination (crown to root ratio, periapical pathology, retained residual roots, thickness of mucosa, bone support and quality, root configuration of abutment teeth) <p>Discuss the following:</p> <ul style="list-style-type: none"> - Purpose of diagnostic cast, - Mounting diagnostic cast, - Sequence of mounting maxillary cast to axis orbital plane, - Jaw relation for diagnostic cast, - Materials and methods for centric relation. <p>Interpret the Diagnostic findings.</p> <p>Interpret examination data:</p> <ul style="list-style-type: none"> - Radiographic interpretation; - Periodontal consideration; - Caries cavity; - Evaluation of prosthesis foundation teeth and residual ridge; - Surgical preparation; - Analysis of occlusal factors; - Fixed restorations; - Orthodontic treatment. <p>Discuss the following:</p> <ul style="list-style-type: none"> - Indications of fixed and removable partial denture - Choices between complete denture and removable partial denture - Clinical factors related to metal alloys used for metal framework.
6.	<p>Biomechanics of removable partial dentures</p>	<p>Discuss the bio mechanical consideration.</p> <p>Discuss the concept of Lever 1, 2 and 3.</p> <p>Discuss vertical, horizontal and torsional stress considerations in partial dentures.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Factors influencing magnitude of stress - Differential support - Role of periodontal ligaments in removable partial denture
7.	<p>Connectors (major and minor connectors)</p>	<p>Define Major and Minor connectors.</p> <p>Discuss the location, types, function, indications and contraindication, design and ideal requirements of minor and major connectors.</p> <p>Discuss Tissue stops and finishing lines.</p>

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8.	Rests and Rest Seats	<p>Define rests and rest seats.</p> <p>Discuss types, form, supports, design and role of rest and rest seats in control of prosthesis movement.</p>
9.	Direct retainers	<p>Define direct retainers</p> <p>Discuss role of direct retainer in prosthesis movement control</p> <p>Classify extra-coronal and intra-coronal direct retainers.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Analysis of tooth contours for retentive clasps. - Functional requirement of clasp <p>Justify the choice of selecting a certain clasp design.</p> <p>List basic parts of clasp assembly.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Basic principles of clasp design - Types of clasp assemblies. - Other type of retainers.
10.	Indirect retainers	<p>Define Indirect retainers</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Factors influencing effectiveness of indirect retainer, - Forces acting on the denture, - Fulcrum line. - Auxiliary functions of indirect retainers, - Rugae support. <p>Discuss various indirect retainers.</p> <ul style="list-style-type: none"> - Auxiliary occlusal rests. - Canine rests. - Canine extension from occlusal rests. - Cingulum bars(continuous bars)and linguoplates. - Modification areas.
11.	Denture base considerations	<p>Define denture base</p> <p>Discuss ideal requirement, functions and methods of attaching for a denture base.</p> <p>Discuss denture base material, their advantages and disadvantages.</p> <p>Describe methods of attaching artificial teeth:</p> <ul style="list-style-type: none"> - Porcelain or acrylic resin teeth attached with acrylic resin - Porcelain or resin tube teeth and facings cemented directly to metal bases - Resin teeth processed directly to metal bases - Metal teeth - Chemical bonding <p>Discuss the need for relining and stress breakers.</p>

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12.	Principles of removable partial denture design	<p>Discuss difference in prosthesis support and the influence on design</p> <p>Differentiation between two main types of removable partial denture according to their support, impression registration and clasp designs.</p> <p>Describe essentials and components of partial denture design.</p> <ul style="list-style-type: none"> - Tooth support - Ridge support. - Major and minor connectors. - Direct retainer for tooth supported partial denture - Direct retainer for distal extension partial denture. - Stabilizing components - Guiding plane. - Indirect retainers. <p>Design:</p> <ul style="list-style-type: none"> - Class I removable partial denture. - Kennedy class II removable partial denture - Kennedy class III removable partial denture - Kennedy class IV partial denture
13.	Surveying	<p>Define surveying</p> <p>Discuss types, parts and purpose of dental surveyor.</p> <p>Describe various types of survey lines.</p> <p>Discuss factors that determine path of placement and removal</p> <p>Discuss step by step procedures in surveying a diagnostic cast</p>
14.	Preparation of mouth for removable partial dentures	<p>Discuss the following Oral surgical procedures</p> <ul style="list-style-type: none"> - Extractions, - Removal of residual roots, impacted and mal-posed teeth, - Cysts and odontogenic tumors, - Exostoses and tori, - Hyperplastic tissue, - Muscle attachments and frena, - Bony spines and knife edge ridges, - Polyps, papillomas and traumatic hemangiomas, - Hyperkeratosis, erythroplasia and ulceration, - Dentofacial deformity, - Osseointegrated devices, - Augmentation of alveolar bone, - Conditioning and use of tissue conditioning materials, - Periodontal preparations, - Periodontal diagnosis and treatment planning, - Initial disease control therapy, - Definitive periodontal surgery, - Recall maintenance. <p>Discuss occlusal disharmony, pain, discomfort and endodontic treatment.</p>
15.	Preparation of abutment teeth.	<p>Classify abutment teeth</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Sequence of abutment preparation on sound teeth and existing restorations. - Preparation of guide planes. - Preparation of rest seats.

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		<ul style="list-style-type: none"> - Technique to create undercut - Abutment preparation using crowns. - Abutment preparation using conservative restoration. - Splinting of abutment teeth. - Use of isolated teeth as abutments. - Missing anterior teeth. - Temporary crowns when a removable partial denture is being worn
16.	Impression techniques and modification	<p>Discuss:</p> <ul style="list-style-type: none"> - Types of impression materials used for RPD - Anatomic or functional form of impression. - Indication of functional impression. <p>Discuss the following impression techniques:</p> <ul style="list-style-type: none"> - Mclean's physiologic impression technique, - Functional relining method, - Selective pressure impression, - Altered cast technique, - Modifications of altered cast technique.
17.	Trial of metal framework	<p>Discuss examination of the framework</p> <p>Discuss steps of fitting frame work to teeth, supporting structures and opposite occlusion.</p> <p>Describe correction of discrepancies by indicating media and soft tissue impingements and finishing the framework</p>
18.	Occlusal relations for removable partial denture. (Maxillo- mandibular relations)	<p>Discuss the following:</p> <ul style="list-style-type: none"> - Desirable occlusal contact relationship for removable partial denture. - Methods for establishing occlusal relationship - Use of face bow - Use of articulators - Articulation techniques including split cast technique - Establishing jaw relations for mandibular removable partial denture opposing a maxillary complete denture.
19.	Selection of teeth	<p>Discuss anterior teeth selection according to size, form and color of teeth on the basis of various patient factors.</p> <p>Discuss posterior teeth selection on the basis of size and form of teeth by taking the following into considerations;</p> <ul style="list-style-type: none"> - Condylar inclination, - Height of residual ridge, - Patients age, - Ridge relationship.
20.	Laboratory procedures. 1.Construction of wax pattern and casting procedures 2. Arrangement of teeth.	<p>Demonstrate the procedure of</p> <ul style="list-style-type: none"> - Duplicating a stone cast - Waxing the removable partial denture framework. - Spruing, investing, burnout, casting, removing the casting from investment and finishing. - Making record bases. - Making a stone occlusal template from a functional occlusal record.

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	3. Processing and finishing denture.	<ul style="list-style-type: none"> - Arranging anterior and posterior teeth - Characterization of teeth - Waxing and flasking the removable partial denture before processing acrylic resin bases - Processing the denture - Remounting the denture for occlusal correction - Polishing the denture. <p>Discuss duplicating materials, flasks and duplicating procedures.</p>
21.	Insertion and post insertion instructions and recall.	<p>Discuss:</p> <ul style="list-style-type: none"> - Adjustment to denture bearing area - Occlusal interferences from denture framework - Evaluation of occlusal interferences - Adjustment of occlusion in harmony with natural and artificial dentition. - Instructions to the patient - Follow up
22.	Types of partial denture 1. Interim partial denture 2. Every denture 3. Spoon denture 4. Swing lock denture	<p>Demonstrate for all these partial dentures:</p> <ul style="list-style-type: none"> - Impression making, - Laboratory procedure, - Insertion, - Follow up.

COURSE TOPIC: COMPLETE DENTURE

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Definitions	<p>Define the following terms:</p> <ul style="list-style-type: none"> - Conventional - Immediate - Overdenture - Single complete denture - Implant supported CD
2.	Applied anatomy and physiology of complete denture	<p>Discuss extra-oral landmarks of prosthetic importance</p> <ul style="list-style-type: none"> - Inter-pupillary line - Ala-tragus line - Canthus-tragus line - Nasolabial sulcus - Vermillion border - Philtrum - Modiolous - Angle of the mouth <p>Discuss intra-oral landmarks of prosthetic importance in Maxilla:</p> <ul style="list-style-type: none"> - Residual ridge - Maxillary tuberosity - Palate - Mid-palatine raphae - Incisive papilla - Palatine rugae

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		<ul style="list-style-type: none"> - Torus palatinus - Fovea palatinae - Post palatal seal - Hamular notch - Cuspid eminence - Zygomatic process <p>Discuss intra-oral landmarks of prosthetic importance Mandible:</p> <ul style="list-style-type: none"> - Residual ridge - External oblique ridge - Buccal shelf area - Mental foramen - Retromolar pad area - Mylohyoid ridge - Torus mandibularis - Internal oblique ridge - Genial tubercle
3.	Peripheral tissue attachment of denture bearing area	<p>Discuss the border structures that limit the periphery of the denture in maxilla:</p> <ul style="list-style-type: none"> - Labial frenum and vestibule - Buccal frenum and vestibule - Hamular notch - Posterior palatal seal - Muccogingival fold - Fovea palatinae <p>Discuss the border structures that limit the periphery of the denture in mandible:</p> <ul style="list-style-type: none"> - Labial frenum and vestibule - Buccal frenum and vestibule - Lingual frenum - Alveololingual sulcus - Retromolar pad - Pterygomandibular raphae
4.	Tongue Form	<p>Classify tongue form according to House.</p> <p>Describe Selection of occlusion depending on tongue condition:</p> <ul style="list-style-type: none"> - Tongue position - Examination of floor of mouth posture - Tongue biting
5.	Saliva	<p>Discuss the importance of saliva in complete denture retention</p> <ul style="list-style-type: none"> - Salivary flow and viscosity - Medical conditions affecting the salivary flow and viscosity - Xerostomia <p>Discuss factors contributing to complete denture retention</p> <ul style="list-style-type: none"> - Adhesion - Cohesion - Interfacial surface tension - Capillary attraction <p>Manage patients with altered salivary flow.</p>

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6.	Systemic disorders and applied pathology	<p>Describe oral-systemic considerations that may influence an adaptive prosthodontic experience:</p> <ul style="list-style-type: none"> - Mucosal conditions - Vesiculoerosive - Oral lichen planus - Erythema multiforme - Mucous membrane pemphigus/pemphigoid - Systemic lupus erythematosus - Burning mouth syndrome - Oral movement disorders - Salivary dysfunction - Xerostomia - Sjogren's syndrome - Diabetes - Nutrition - Fungal infection
7.	Identification and evaluation of patients	<p>Demonstrate history taking and diagnosis.</p> <p>Take medical and dental history of patients presenting to OPD.</p> <p>Perform clinical examination of patient including:</p> <ul style="list-style-type: none"> - Extraoral Examination - Facial examination - TMJ Examination - Intraoral Examination - Residual alveolar ridge classification - Oral mucosa examination - Salivary flow (xerostomia) - Inter-arch space - Bony prominences - Gag reflex - Undercuts - Frenum attachments - Tongue examination <p>Formulate a treatment plan for edentulous patients keeping the following in consideration:</p> <ul style="list-style-type: none"> - Adjunctive Care - Elimination of infection - Elimination of pathoses - Preprosthetic surgery - Alveoloplasty - Excision of flabby tissue - Frenectomy - Tissue conditioning - Nutritional counseling
8.	General Conditions	<p>Discuss the impact of edentulism in old age on:</p> <ul style="list-style-type: none"> - Mucosa - Bone - Saliva - Jaw movements in old age - Taste and smell sensations - Nutrition - Teeth

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		Discuss functional and parafunctional considerations of occlusion.
9.	Muscle tone and muscle development	<p>Discuss the following:</p> <ul style="list-style-type: none"> - Movements of facial expressions - Movements of tongue muscles - Muscles of mastication - Muscles that move the mandible and floor of the mouth - Muscles of soft palate - Muscles and movements of TMJ - Conditions that affect motor function of muscles (trigeminal neuralgia, Bell's palsy, Hemiplegia and Dyskinesia).
10.	Occlusion	<p>Discuss occlusion</p> <p>Define:</p> <ul style="list-style-type: none"> - Centric occlusion - Maximum intercuspation - Excursive movements - Working - Non-working - Mandibular movements <p>Draw the Posselt's Envelope of motion</p> <p>Classify various occlusal schemes.</p> <p>Define the following occlusal schemes:</p> <ul style="list-style-type: none"> - Lingualized Occlusion - Monoplane occlusion with balance - Linear occlusion - Balanced occlusion <p>Discuss requisites for these occlusal schemes.</p>
11.	Oral lesions with skin manifestations	<p>Discuss various skin conditions with oral manifestations</p> <ul style="list-style-type: none"> - Oral erythroplakia - Drug induced lichenoid reaction - Oral lichen planus - Systemic lupus erythematosus - Reaction to dentifrices and chlorhexidine - Reaction to smokeless tobacco - Benign migratory glossitis - Leukoedema - White sponge nevus
12.	Psychiatric evaluation of patients	<p>Discuss the psychological needs that are of special importance to all dentists such as:</p> <ul style="list-style-type: none"> - Personality Types - The Doctor's behavior - Dentist-Patient communication - Patient satisfaction in prosthetic dentistry
13.	Oral conditions of Denture Bearing Area	Discuss the following oral mucosal conditions associated with denture wearing and their management:

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		<ul style="list-style-type: none"> - Denture induced stomatitis - Flabby ridge - Traumatic ulcer - Epulisfissuratum - Burning mouth syndrome - Gaging - Residual ridge resorption - Denture hyperplasia - Angular cheilitis - Frictional Keratosis - Irritation Fibroma - Candidiasis - Chronic atrophic candidiasis - Inflammatory hyperplasia - Papillary hyperplasia of palate
14.	Ridge form and ridge relations	<p>Discuss:</p> <ul style="list-style-type: none"> - Residual ridge configuration given by Atwood; - Parallelism of ridges; - Ridge relations.
15.	Oral mucosa: Resistant and Non resistant	<p>Discuss the types and distribution of oral mucous membrane.</p> <p>Describe the mucosal response to oral prosthesis.</p>
16.	Alveolar bone resorption	<p>Discuss the importance of preservation of natural dentition.</p> <p>Describe Alveolar bone resorption:</p> <ul style="list-style-type: none"> - After tooth extraction,, - In complete denture wearer\, - In patients wearing overdentures. <p>Discuss factors affecting the resorption of residual ridge.</p> <p>Differentiate bone resorption rate in maxilla and mandible.</p> <p>Discuss bone conditions (osteoporosis and arthritis).</p> <p>Describe surgical options for highly resorbed ridges.</p>
17.	Face Forms	<p>Classify face forms and facial profiles.</p> <p>Determine lower facial height</p>
18.	Fundamentals of denture retention and contributing factors	<p>Define Retention</p> <p>Discuss the following factors affecting the retention:</p> <ul style="list-style-type: none"> - Size and quality of the denture bearing area, ridge walls. - Quality and quantity of saliva. - Adhesion, cohesion, interfacial surface tension, capillarity, atmospheric pressure and gravity. - Undercuts, retentive springs, magnetic forces denture adhesive, suction chamber and discs, palatal implants. - Oral and facial musculature. - Mastication, adhesive food, surrounding musculature, occlusal prematurities and parafunctional habits.
19.	Mouth preparation including preprosthetic surgery	<p>Discuss the Nonsurgical methods for mouth preparation</p> <p><u>Discuss the following Surgical methods of mouth preparation:</u></p> <ul style="list-style-type: none"> - Removal of retained dentition, - Elimination of infections,

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		<ul style="list-style-type: none"> - Removal of hyperplastic ridge tissue, papillary hyperplasia and hyperplastic epulis fissuratum - Correction of hypertrophic labial and lingual frenum, - Correction of ridge undercuts, prominent mylohyoid and internal oblique ridges, - Reduction of pandulus maxillary tuberosity and tori, - Vestibuloplasty.
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COURSE TOPIC: IMPRESSION PROCEDURES

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Objectives of impression	Discuss the following objectives of impression making: <ul style="list-style-type: none"> - Retention, - Support, - Stability, - Preservation of remaining structures, - Esthetics.
2.	Theories and techniques	Discuss theories of impression making: <ul style="list-style-type: none"> - Minimal-pressure impressions, - Selective-pressure impressions, - Definite-pressure impressions, - Functional impression technique.
3.	Impression technique: minimum pressure, definite pressure, selective pressure impression	Discuss the indications, technique, advantages, disadvantages and materials used for following impression techniques: <ul style="list-style-type: none"> - Minimum pressure - Definite pressure - Selective pressure
4.	Pascal's law and its corollaries.	Define Pascal's law Discuss the procedure and mechanism of evaluation of retention.
5.	Impression techniques: primary, wash and secondary impression, impression trays, impression materials	Discuss the Impression techniques based on: <ul style="list-style-type: none"> - Mouth opening, - Types of trays used, - Theories of impression, - Purpose of impression, - Material used.
6.	Stability	Define stability Discuss the factors affecting stability <ul style="list-style-type: none"> - Vertical height of the residual ridge - Quality of the soft tissue covering the ridge - Quality of the impression - Occlusal rims - Arrangement of teeth - Contour of the polished surface
7.	Maxillomandibular relations	Discuss how to establish the labial form of occlusal rims using <ul style="list-style-type: none"> - facial landmarks as a guide - fullness of upper lip - Philtrum - Nasolabial fold

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		<ul style="list-style-type: none"> - Commissures of the mouth <p>Demonstrate how to establish the occlusal plane and maxillomandibular relations</p> <p>Classify maxillomandibular relations on the basis of:</p> <ul style="list-style-type: none"> - Orientation relations - Vertical relations - Resting vertical dimensions - Occlusal vertical dimension - Methods of determining vertical relations - Effects of decreased vertical dimensions - Effects of increased dimensions - Horizontal relations - Centric and eccentric relations - Method of determining centric relation
8.	Articulators and theories of articulation	<p>Define articulators</p> <p>Discuss function, types, uses, advantages and disadvantages, purpose and requirements of an articulator</p> <p>Classify articulators:</p> <ul style="list-style-type: none"> - Based on the theories of occlusion - Based on the stability to stimulate jaw movements - Based on adjustability of the articulators <p>Discuss protrusive and lateral records</p> <p>Write down the Hanau's formula</p>
9.	Occlusion	<p>Define occlusion</p> <p>Describe different types of occlusion:</p> <ul style="list-style-type: none"> - Balanced occlusion - Mono plane(non- balance) occlusion - Lingualized occlusion <p>Discuss characteristics, importance, general considerations and types of balanced occlusion.</p> <p>Discuss advantages, disadvantages, indications, contraindications of types of occlusion.</p> <p>Describe factors influencing balanced occlusion:</p> <p>Describe compensatory curves:</p> <ul style="list-style-type: none"> - Curve of Monsoon, - Curve of Spee, - Curve of Wilson.
10.	<u>Facebow</u>	<p>Define facebow.</p> <p>Discuss the purpose, use and parts of different types of facebow:</p> <ul style="list-style-type: none"> - Arbitrary facebow, - Kinematic face bow. <p>Discuss errors in facebow recording.</p> <p>Describe situations where facebow is not required.</p> <p>List the steps for recording the transverse hinge axis.</p>

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11.	Teeth selection and arrangement	<p>Discuss the objectives, general considerations, methods in teeth selection</p> <p>Describe factors that are considered while selecting the size, shape, color of teeth</p> <p>Correlate positioning and relationship of teeth in skeletal class I,II, III.</p> <p>Discuss advantages and disadvantages of:</p> <ul style="list-style-type: none"> - Anatomic teeth - Non- anatomic teeth - Cuspless teeth
12.	Try in	<p>Define try in.</p> <p>Discuss:</p> <ul style="list-style-type: none"> - Preliminary evaluation in articulator, - Evaluation of individual trial denture in mouth, - Evaluation of lip and cheek support, - Evaluation of the occlusal plane, - Evaluation of vertical height, - Evaluation of centric relation, - Evaluation of posterior palatal seal.
13.	Insertion	<p>Demonstrate the checking of the fit of the prosthesis at insertion of denture by:</p> <ul style="list-style-type: none"> - Examining the denture and the patient's mouth, - Checking for adaptation, border extension and frenal relief, - Evaluation the denture aesthetics. <p>Demonstrate the checking of the denture function at insertion appointment by:</p> <ul style="list-style-type: none"> - Evaluation of retention and stability, - Checking the jaw relation, speech and occlusal harmony, - Checking fitting surface, esthetics and occlusal surfaces, - Checking for any pain, discomfort or ulcers.
14.	Post insertion instructions	<p>Demonstrate to patients:</p> <ul style="list-style-type: none"> - Instruction regarding insertion and removal of the prosthesis - Maintenance of the prosthesis - Night wear of the prosthesis - Periodic recall
15.	Post insertion complains	<p>Demonstrate how to deal with post insertion complains of patients related to:</p> <ul style="list-style-type: none"> - Fitting surface, - Esthetics, - Occlusal surface, - Pain, - Discomfort, - Mastication problems, - Ulcers.

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16.	Immediate dentures and Replacement dentures	<p>Define immediate and replacement dentures</p> <p>Classify immediate and replacement dentures</p> <p>Discuss Indications and contraindications, objectives, clinical and laboratory procedures for immediate and replacement dentures</p> <p>Discuss the importance of Multidisciplinary approach including care during surgery</p> <p>Demonstrate the Insertion, follow up and maintenance of immediate dentures</p>
17.	Single complete denture	<p>Define single complete denture</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Problems with single complete denture - Common occlusal disharmonies and ways to adjust them - Single complete denture opposing natural teeth - Single complete denture opposing - Implant supported prosthesis - Methods to achieve balanced occlusion - Clinical procedure of making single complete denture - Occlusal materials for single complete dentures
18.	Combination syndrome	<p>Define combination syndrome</p> <p>Discuss the diagnosis, etiology and treatment strategies for combination syndrome</p>
19.	Speech consideration with Complete denture	<p>Discuss the following for a complete denture:</p> <ul style="list-style-type: none"> - Bilabial sounds - Labiodental sounds - Linguoalveolar sounds - Liguodental sounds - Velar sounds
20.	Relining, rebasing, repair and copy denture	<p>Discuss the indications and contraindications, principles and procedure for relining, rebasing, repair and copy denture</p>

COURSE TOPIC: FIXED PROSTHODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	An introduction to fixed Prosthodontics	<p>Define the following terms:</p> <ul style="list-style-type: none"> - Fixed prosthodontics - Crown - Bridge - Inlay - Onlay - Laminated veneers - Partial veneer crown - Full veneer crown - Retainers

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		<ul style="list-style-type: none"> - Connectors - Pontics - Abutment - Saddle area <p>Discuss the Applied Anatomy and Physiology for:</p> <ul style="list-style-type: none"> - Temporomandibular joint - Muscles of mastication - Posselt envelop of motion - Dentition
2.	History and examination	<p>Take a complete history from patients coming to OPD.</p> <p>Perform the following examination of patient:</p> <ul style="list-style-type: none"> - General Examination (gait, complexion and personality, cosmetic index, mental attitude of patient) - Extra Oral examination (facial features, facial form, facial profile, lower facial height, muscle tone, complexion, lip competency) - TMJ examination (including muscles of mastication, deviation, deflection, clicking/crepitation of TMJ and mouth opening). - Neuromuscular examination - Intra Oral Examination (Hard and soft tissues, saliva, occlusion) - Radiographic examination (crown to root ratio, periapical pathology, retained residual roots, thickness of mucosa, bone support and quality, root configuration of abutment teeth) - Cast Examination (lingual and palatal surfaces of all teeth, size of saddle area, centric relation, wear facets).
3.	Diagnosis and treatment planning	<p>Discuss the differential Diagnosis based on Kennedy Class I ,II and III with modifications Or Kennedy class IV.</p> <p>Formulate a treatment plan based on following adjunctive care</p> <ul style="list-style-type: none"> - Elective endodontic procedure, - Crown lengthening procedure, - Restorations, - Correction of occlusal plane, - Scaling and root planning. <p>Discuss the following treatment options:</p> <ul style="list-style-type: none"> - Full veneer Crown, - Bridge, - Inlay, - Onlay, - Laminated veneers, - Partial Veneer crown (Three quarter, seventh-eight, Proximal half crown, Reverse three quarter crown).
4.	Biomechanics of oral cavity and contributory factors	<p>Discuss the following mechanical considerations for a fixed prosthesis:</p> <ul style="list-style-type: none"> - Retention and resistance form, - Magnitude of dislodging force, - Geometry of tooth preparation, - Taper, - Surface area, - Stress concentration,

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		<ul style="list-style-type: none"> - Type of preparation, - Roughness of fitting surface of restoration, - Material being cemented, - Factors affecting retention in FPD, - Occlusion.
5.	Oral manifestations of local and systemic diseases	<p>Discuss the problems for fixed prosthesis related to:</p> <ul style="list-style-type: none"> - Xerostomia - Poor healing - Osteoporosis - Osteopenia - Autoimmune diseases

COURSE TOPIC: CROWN AND FIXED PARTIAL DENTURE (INDIRECT RESTORATIONS)

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction of fixed partial denture	<p>Define fixed partial denture.</p> <p>Discuss the Indications and contraindications for fixed partial dentures.</p>
2.	Components of Fixed partial denture	<p>Define the following:</p> <ul style="list-style-type: none"> - Connector, - Pontic, - Retainer, - Abutment.
3.	Classification of Fixed Partial Denture	Classify fixed partial dentures.
4.	Fixed Partial Denture types	<p>Discuss the following types of fixed partial dentures</p> <ul style="list-style-type: none"> - Conventional bridges - Minimum preparation bridges - Fixed – fixed bridge - Fixed – moveable bridge - Cantilever bridge - Spring cantilever bridge
5.	Crown and types of crowns	<p>Discuss the various partial and full coverage indirect restorations.</p> <p>Describe the principles of tooth preparation for indirect restorations.</p> <p>Discuss the indications, contraindications, clinical assessment required and the steps of preparation for provision of Inlay and Onlay.</p> <p>Discuss the:</p> <ul style="list-style-type: none"> - Materials available for these restorations. - Fluid management and soft tissue management. - Impression making and laboratory steps for inlays and onlays. - Materials used and clinical procedure for cementation. - Latest innovations including cad-cam technology.
6.	Porcelain laminated veneers	Discuss the indications and contraindications for veneers.

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		<p>Describe diagnostic procedures involved in treatment planning.</p> <p>Discuss the importance of quality and quantity of enamel for predictable bonding.</p> <p>Demonstrate following:</p> <ul style="list-style-type: none"> - Tooth preparation, soft tissue management and impression making for veneers. - Methods of temporization. - Steps of veneer placement. - Techniques for intra oral repair of indirect restorations.
7.	Full Veneer	<p>Discuss the indications and contraindications for:</p> <ul style="list-style-type: none"> - Porcelain fused to metal crown, - All metal crown, - All ceramic crown. <p>Elaborate the factors that influencing shade selection.</p> <p>List various methods of shade selection.</p> <p>Demonstrate the clinical assessment required, steps of preparation, soft tissue management, impression making, laboratory steps and cementation procedure for:</p> <ul style="list-style-type: none"> - Porcelain fused to metal crown, - All metal crown, - All ceramic crown. <p>Discuss materials available for these restoration fabrication and cementation.</p> <p>Discuss the indications, contra indications and technique for the use of electro surgery.</p> <p>Discuss the latest innovations including CAD-CAM technology.</p>
8.	Implant Supported Restorations	<p>Discuss indications and contraindications of implant supported restorations.</p> <p>Describe various implant supported restorations that can be used for replacement of missing teeth.</p>
9.	Fixed Partial Denture Design	<p>Discuss the following:</p> <ul style="list-style-type: none"> - Design consideration for individual conditions - Material selection - Biomechanical considerations - Abutment selection - Special cases - Condition of residual ridge - Occlusion with opposing teeth
10.	Abutment and retainer selection	<p>Discuss the types of retainers based on:</p> <ul style="list-style-type: none"> - Tooth coverage - Material being used <p>Discuss criteria for selection of retainers and abutments:</p> <ul style="list-style-type: none"> - Alignment of abutment teeth and retention - Appearance and condition of abutment teeth - Cost Preservation of tooth structure - Location, condition and position of tooth - Root configuration and support,

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		<ul style="list-style-type: none"> - Crown root ratio - Periodontal ligament area - Assessment of pulpal health <p>Discuss various types of abutments:</p> <ul style="list-style-type: none"> - Healthy/ideal abutments - Cantilever abutments - Pier abutments - Tilted abutments - Extensively damaged abutments - Implant abutments
11.	Margin placement and pontic design	<p>Discuss the types, general design consideration and characteristics of margin designs:</p> <ul style="list-style-type: none"> - Shoulder - Chamfer - Slope shoulder - Shoulder with bevel - Feather edge - Chisel edge - Bevel <p>Discuss factors affecting pontic design:</p> <ul style="list-style-type: none"> - Available space - Contour of ridge - Amount of occlusal load
12.	Material considerations and cementation	<p>Discuss the types composition, properties, merits and demerits of materials used for cementation</p>
13.	Tooth preparation	<p>Discuss the following Principles of Tooth preparation</p> <ul style="list-style-type: none"> - Biological consideration - Mechanical consideration - Esthetic consideration <p>Demonstrate the following:</p> <ul style="list-style-type: none"> - Impression procedures - Double mix technique - Single mix technique - Triple tray technique - Copper tube impression - Post space impression - Lab procedures - Waxing - Spruing - Investing - Burnout - Casting - Soldering - Ceramic veneering - Cementation final - Post cementation follow up - Complication and management
14.	Resin bonded bridge	<p>Discuss the indications, contraindications, advantages and disadvantages of different types of resin bonded bridges:</p> <ul style="list-style-type: none"> - Rochette bridge,

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		<ul style="list-style-type: none"> - Maryland bridge, - Cast mesh fixed partial dentures, - Virginia bridge.
15.-	Temporization	Discuss the biological, mechanical and esthetic considerations for temporization.

COURSE TOPIC: IMPLANTOLOGY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Types of implants	<p>Discuss the following types of implants</p> <ul style="list-style-type: none"> - Endosteal. - Sub periosteal. - Transosteal. <p>Describe the following components of implants</p> <ul style="list-style-type: none"> - Implant body - First stage cover screw - Second stage (healing cap) - Abutment <ul style="list-style-type: none"> - for screw retention - for cement retention - for attachment - hygiene screw - transfer coping - abutment or implant body - analog - abutment or implant body - coping - prosthesis screw <p>Discuss the Advantages, disadvantages, indications and contraindications of implants.</p> <p>Demonstrate the Impression techniques for implants</p>
2.	Osteointegration and biocompatibility.	<p>Discuss the following:</p> <ul style="list-style-type: none"> - Osteointegration. - Bio integration. - Mechanism of osteointegration. - Stages of osteointegration. - Theories of bone to implant interface <p>Classify factors influencing the osteointegration.</p> <p>Discuss the advantages, disadvantages, indications and contraindications of hydroxyapatite crystal and titanium plasma coating</p> <p>Demonstrate methods to check osteointegration:</p> <ul style="list-style-type: none"> - Percussion test, - Radiographs, - Probing depth.
3.	Prosthetic options	<p>Discuss the following prosthetic options for implants:</p> <ul style="list-style-type: none"> - FP1

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		<ul style="list-style-type: none"> - FP2 - FP3 - RP4 - RP5 <p>Discuss the Advantages and disadvantages of screw retained and cement retained prosthesis.</p>
4.	Limitation of implants	<p>Discuss the following limitations of implants:</p> <ul style="list-style-type: none"> - Age, - Patient desire and fear, - Time and cost of treatment, - Consequence of failure, - Adjacent tooth mobility, - Bone height, length and width, - Soft tissue drape, - Challenging aesthetics, - Systemic diseases, - Crown height space.
5.	Clinical and laboratory procedure	<p>Discuss the clinical procedures for implant restorations:</p> <ul style="list-style-type: none"> - One stage implant placement technique - Two stage implant placement technique - Impression technique - Jaw relation - Try in <p>Discuss laboratorial procedures for implant restorations.</p>

COURSE TOPIC: MAXILLO FACIAL PROSTHESIS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Classification of congenital and acquired defects.	<p>Discuss:</p> <ul style="list-style-type: none"> - Congenital maxillary defects (Cleft lip and palate) - Acquired maxillary defects (Total and partial maxillectomy) - Mandibular defects - Velo-pharyngeal defects
2.	Principles governing management of patients presenting with various defects	<p>Describe the treatment of mandibular defects</p> <p>Discuss mandibular guidance prosthesis</p> <p>Discuss treatment of soft and hard palate defects.</p>
3.	Obturator	Discuss the advantages and retention of Surgical obturator prosthesis
4.	Cleft palate prosthesis	Define Pre surgical nasoalveolar molding appliance
5.	Speech aid prosthesis	<p>Classify the speech aid prosthesis based on:</p> <ul style="list-style-type: none"> - physiological and anatomical insufficiency - types of speech aid <p>List advantages of speech aid prosthesis.</p>

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6.	Facial prosthesis	Discuss the following defects: <ul style="list-style-type: none"> - Auricular defects - Nasal defects - Ocular defects - Lip and cheek defects.
7.	TMD splints	Discuss the following types of splints and its indications: <ul style="list-style-type: none"> - Stabilization appliance - Anterior positioning appliance - Soft or resilient appliance
8.	Bite raising appliance	Discuss the Dahl appliance and anterior bite plane.
9.	Splints and stents	Describe the Shielding and positioning stents

COURSE TOPIC: OCCLUSION INCLUDING TMD/MPD

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Theories and principles of occlusion	Describe optimum functional occlusion Discuss the following occlusal schemes: <ul style="list-style-type: none"> - Canine guided - Group function - Mutually protected Discuss determinants of occlusal morphology: <ul style="list-style-type: none"> - Posterior controlling factors(condylar guidance) - Anterior controlling factors(anterior guidance) - Vertical determinants of occlusal morphology - Horizontal determinant of occlusal morphology
2.	Concept, etiology, treatment planning and options	Discuss the etiology of TMDs Formulate a management plan for patients presenting with TMDs including: <ul style="list-style-type: none"> - Supportive therapy - Definitive therapy

COURSE TOPIC: GERODONTOLOGY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Effects of medication on oral health	Discuss the following conditions of oral cavity: <ul style="list-style-type: none"> - Xerostomia - Sialorrhoea(increased salivation) - Lichen planus - Aphthous like ulcers - Pigmentation - Gingival enlargement - Burning mouth syndrome - Loss of taste - Pseudomembranous candidiasis - Angular cheilitis - Osteonecrosis of jaw

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2.	Medical conditions having oral manifestation	<p>Discuss the following medical conditions having oral manifestations:</p> <ul style="list-style-type: none"> - Pulmonary conditions - Skin diseases - Connective tissue disorders - Liver disease - Hematological disorders - Autoimmune disease
3.	Xerostomia	<p>Define xerostomia</p> <p>Discuss the causes, clinical features, effects on prosthesis of xerostomia and its diagnosis and management.</p>
4.	Root caries	<p>Discuss clinical features, microbiology, diagnosis and factors which predispose to root caries.</p>
5.	Geriatric nutrition	<p>Discuss the nutritional balance based on:</p> <ul style="list-style-type: none"> - Complex carbohydrates - Protein enriched diet - Calcium rich food - Excessive water <p>Discuss the disadvantages to limit the intake of:</p> <ul style="list-style-type: none"> - Simple sugar - Fat - Sodium.

ORTHODONTICS

COURSE CONTENT & OBJECTIVES

- 1. Introduction to Orthodontics**
- 2. Growth and Development**
- 3. Occlusion**
- 4. Diagnostic Aids in Orthodontics**
- 5. Development of Dentition and Occlusion**
- 6. Malocclusion and Etiology of Malocclusion**
- 7. Preventive and Interceptive Orthodontics**
- 8. Bone Metabolism**
- 9. Biomechanics**
- 10. Removable Appliance**
- 11. Growth Modification**
- 12. Fixed Appliances**
- 13. Treatment Planning**
- 14. Cleft Lip and Palate**
- 15. Adult Orthodontics and Periodontal Considerations**

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COURSE TOPIC: INTRODUCTION TO ORTHODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction, Overview and branches of Orthodontics	Define the terminologies related to orthodontics Discuss the following:
2.	Indications/contraindications; Aims and need of Orthodontic Treatment	<ul style="list-style-type: none"> - Types of Orthodontic Treatments - Objectives - Preventive treatment - Interceptive treatment - Corrective Treatment

COURSE TOPIC: -GROWTH AND DEVELOPMENT

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	<p>Basic Concepts of Growth and Development</p> <p>Prenatal and Postnatal craniofacial growth</p> <p>Theories of Growth</p> <p>Clinical application of growth and development</p>	<p>Define basic concepts of growth and development</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Variables affecting growth - Prenatal and postnatal craniofacial growth - Methods of studying growth - Theories of growth <p>Discuss TMJ Development</p>

COURSE TOPIC: OCCLUSION

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	<p>Basic Concepts of Occlusion</p> <p>Development of dentition</p>	<p>Classify malocclusion</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Clinical Features of Normal Occlusion - Difference between Occlusion and class I malocclusion - Andrews Six Keys of Occlusion

COURSE TOPIC: DIAGNOSTIC AIDS IN ORTHODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	<p>Diagnosis and clinical evaluation</p> <p>Record Keeping</p> <p>Cast analysis</p>	<p>Take a comprehensive History of patients coming to OPD</p> <p>Perform:</p> <ul style="list-style-type: none"> - Clinical Evaluation - Extraoral examination - Intraoral examination - Cephalometric Tracing and analyses

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	Mixed dentition analysis and Bolton analysis	<ul style="list-style-type: none"> - Tooth mass and size analyses - Cast analysis - Bolton Analysis - Mixed Dentition analysis
	Cephalometrics- I	Formulate a problem list Interpret Cephalometric radiograph
	Cephalometrics- II	Identify relevant anatomical structures and landmarks on: <ul style="list-style-type: none"> - OPG (Orthopantomogram) - Occlusal View - SLOB rule (periapical view) Justify use of various radiographs in different scenarios.

COURSE TOPIC: DEVELOPMENT OF DENTITION AND OCCLUSION

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Theories of Tooth Eruption Classification of occlusion Development of Occlusion	Discuss the following: <ul style="list-style-type: none"> - Prenatal development of dentition - Features of primary, mixed and permanent dentition period - Dimensional changes in dental arch - Variations in development including size, form, number and position of teeth - Factors affecting development.

COURSE TOPIC: MALOCCLUSION AND ETIOLOGY OF MALOCCLUSION

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Classification of Malocclusion Etiology of malocclusion	Define malocclusion Classify malocclusion Discuss Local and hereditary environmental factors that can cause malocclusion: <ul style="list-style-type: none"> - Parafunctional Habits - Thumb Sucking - Bruxism - Tongue Thrusting - Lip sucking - Mouth Breathing - Syndromes related to Orthodontics - Treacher-collins - Pirre-Robin Syndrome - Ectodermal Dysplasia - Down's Syndrome - Cleido Cranial Dysplasia - Hemifacial Microsomia - Acchondroplasia

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COURSE TOPIC: PREVENTIVE AND INTERCEPTIVE ORTHODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Preventive Orthodontics Interceptive Orthodontics Space supervision and Gross discrepancy	Discuss the following: <ul style="list-style-type: none">- Diagnosis and Management of Habits- Space supervision- Space maintainers- Space regainers- Serial Extractions

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COURSE TOPIC: BONE METABOLISM

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Bone Biology Orthodontic Tooth Movement Mechanism Factors affecting OTM	Discuss the following: <ul style="list-style-type: none"> - Normal Structure of Periodontal Ligament and Bone - The role of bone in eruption and stabilization - Effects of Orthodontic force - Factors affecting tooth movement

COURSE TOPIC: BIOMECHANICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Basic concepts of Biomechanics Orthodontic Materials	Discuss: <ul style="list-style-type: none"> - Structure and Function of PDL - Types of Wires and Alloys used in orthodontics - Ideal properties of Orthodontic wires and comparison of different alloys - Deleterious effects of Orthodontics forces - Skeletal Effects of Orthodontic Forces

COURSE TOPIC: ANCHORAGE, RETENTION, RELAPSE AND STABILITY

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Anchorage Principles of Orthodontic Retention Types of Retainers	Discuss the concept and types of: <ul style="list-style-type: none"> - Control of Anchorage - retention and relapse - Occlusal Stability and factors related to retention - Strategies of management


COURSE TOPIC: REMOVABLE APPLIANCE

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Classification Biomechanics of Removable appliances	Discuss types, indications, and construction of Functional appliances and other extra oral appliances for tooth movement

COURSE TOPIC: GROWTH MODIFICATION

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S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Biomechanics of Functional Appliances Expanders	Discuss Concept, indications, drawbacks, components and accessories of removable functional appliances Classify removable functional appliances



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COURSE TOPIC: FIXED APPLIANCES

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Fixed appliances I Fixed appliances II Bonding and Banding	Discuss the background of different fixed appliances systems Discuss the indications, draw backs, components and accessories of fixed appliances. Describe the following: <ul style="list-style-type: none"> - Wire systems - Bonding and Banding material - Edgewise and Straight

COURSE TOPIC: TREATMENT PLANNING

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Management of non-skeletal problems Management of Class I malocclusion Management of Class II Div 1 malocclusion Management of Class II Div 2 malocclusion Management of Class III malocclusion Crowding, Spacing Open bite Deep bite Cross bite Impacted Canine Management	Discuss the following: <ul style="list-style-type: none"> - Non-skeletal problems including Class I malocclusion, crowding, spacing, crossbite, open bite, deep bite - Skeletal problems Class II Division 1 and Division 2, Class III - Extractions in Orthodontics - Adjunctive treatment goals and principles

COURSE TOPIC: SURGICAL ORTHODONTICS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction and Orthognathic Surgical Principles, Indications/ Contraindications of Surgical management	Discuss the following: <ul style="list-style-type: none"> • Principles of Orthognathic Surgery • Class II Surgical Treatment options • Class III Surgical Treatment Options • Indication and Contraindications.

COURSE TOPIC: CLEFT LIP AND PALATE

CURRICULUM

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Introduction, Etiology & Clinical Features Nasoalveolar Molding Techniques Clinical & Orthodontic Management	Discuss the Etiology, management, and orthodontic management of Cleft Lip and Palate patients.

COURSE TOPIC: ADULT ORTHODONTICS AND PERIODONTAL CONSIDERATIONS

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Anatomy of Periodontal Structures Etiology & Clinical Features of Periodontal Diseases Minor adjunctive Procedures in Orthodontics Clear aligner therapy Orthodontic management of Periodontal diseases	Discuss anatomy. Etiology, clinical features of periodontal diseases Classify periodontal Diseases Discuss Role of Orthodontist in management of Periodontal Diseases

COURSE TOPIC:

S. No.	LECTURE TOPIC	LEARNING OBJECTIVES
1.	Wire bending exercise Comprehensive orthodontic case presentation of a non-skeletal malocclusion.	Demonstrate the following: <ul style="list-style-type: none"> - Adams clasp - Labial Bow - Canine retractor - Cantilever and Z spring - Arch wire fabrication+ - Making of removable appliances (Hawley's Retainer) Take a complete history of patient presenting to OPD. Perform: <ul style="list-style-type: none"> - Clinical Examination - Cast analysis - Mixed dentition analysis - Ceph Analysis - OPG Analysis Diagnose malocclusion. Write down a problem List Formulate a Treatment Plan Justify the type of fixed Appliance type and retention plan to be given.

PROFESSIONALISM, ETHICS, COMMUNICATION & LEADERSHIP

COURSE CONTENT & OBJECTIVES

- 1. Professionalism & Ethics**
- 2. Communication**
- 3. Leadership**

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COURSE TOPIC: PROFESSIONALISM & ETHIC

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Professional conduct of a dental practitioner	<ul style="list-style-type: none"> • Attributes of a professional dentist • PMDC code of ethics • Legal rights and protection for patients and professionals
2	Importance of law and ethics in dentistry	
3	Relationships	<ul style="list-style-type: none"> • Doctor and patient • Pharmaceuticals, vendors and suppliers • Coworkers • Community members
4	Concerns in ethical practice	<ul style="list-style-type: none"> • Consent • Confidentiality • Privacy • Conflict of interest • Justice
5	Ethical dilemmas	
6	Research ethics	
		<ul style="list-style-type: none"> • Definition • Approaches for resolution
		<ul style="list-style-type: none"> • Ethical concerns in conducting research • Ethical concerns in publishing research

COURSE TOPIC: COMMUNICATION

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Modes of communication	<ul style="list-style-type: none"> • Written • Verbal • Body-language
2	Effective communication skills	
3	Challenges in communication	<ul style="list-style-type: none"> • Patients and coworkers • Public speaking and presentations
		<ul style="list-style-type: none"> • Dealing with difficult situations and complains • Conflict resolution

COURSE TOPIC: LEADERSHIP

S. No	LECTURE TOPIC	TOPIC OBJECTIVES
1	Practitioners as leader	<ul style="list-style-type: none"> • Leadership roles in dental practice • Attributes required to manage and lead

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2	Teamwork	<ul style="list-style-type: none">• Importance of managing and leading a team• Methods for working with teams
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Assessment

Assessment Philosophy

An annual assessment system runs in BDS program at DUHS. Achievement and level of competence is assessed according to the outcomes and objectives listed for each discipline. Assessment methods vary across different exams, and may include:

- Written examinations (MCQ, SAQ, SEQ, etc.)
- Practical exercises (lab-assessment, OSPE, others)
- Tutorial assignments
- Group projects and presentations
- Clinical examinations (case-based assessment, OSCE, others)

The assessment procedures will:

- Assess students' ability to apply knowledge, attitudes and skills, not just recall information
- Test for problem analysis, problem solving and management as important aspects, as well as the use of evidence-based basic science knowledge in justifying decisions and critical thinking
- Encourage students to monitor their own progress and plan remedial studies
- Provide an open system where standards are explicit, and the required levels of competence are stated beforehand
- Assess capability of teamwork and multi-professional tasks
- Encourage students to measure peers' performance as an essential part of their own further education

Method of reporting results

Results for annual examinations in the BDS program are reported as percentages and grades.

Clinical Rotations

The clinical rotations for students during the 3rd and 4th years are as follows:

Clinical rotations	Duration	Year
Oral surgery	2 days/week for 2 Month	3 rd year
Periodontology	2 days/week for 2 Month	3 rd year
Prosthodontics	2 days/week for 2 Month	3 rd year
Operative/oral medicine	2 days/week for 2 Month	3 rd year
General Surgery	2 days/week for 4 Month	3 rd year
General Medicine	2 days/week for 4 Month	3 rd year
Prosthodontics	2.5 month	4 th year
Oral Surgery	2.5 Month	4 th year

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Operative	2.5 Month	4 th Year
Orthodontics	2.5 Month	4 th Year

Program Evaluation

Evaluation of the 4-year BDS program will be conducted by the Quality Enhancement Cell of DUHS, as per policy.