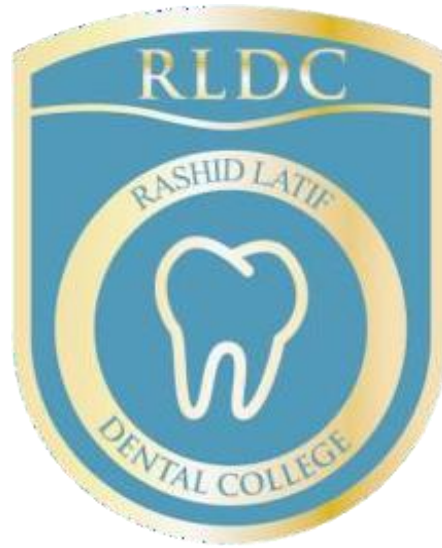




Rashid Latif Dental College
BDS Integrated 1st Year 2k25
Version 2.0
Study Guide

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Mission & Vision

MISSION:

To educate dental students with the knowledge, clinical skills, and professional values required to address oral health needs while fostering ethical and patient-centered practice.

VISION:

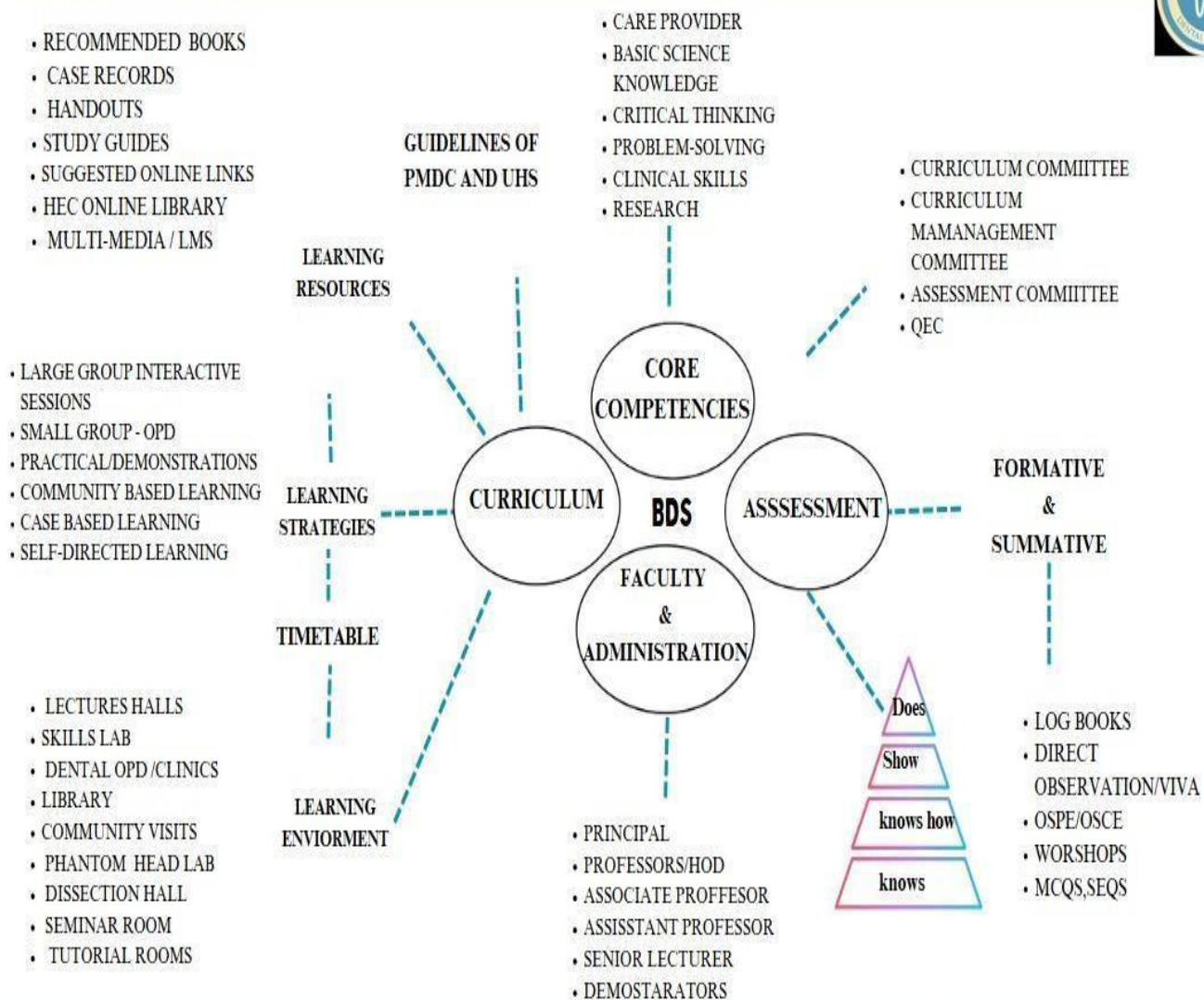
To prepare competent dental professionals through hands-on clinical training, structured teaching standards, and ethical patient care.

CURRICULUM DETAILS Curricular Framework (PMDC)

BDS			
Basic Dental Sciences / Preclinical Year		Clinical Dental Sciences / Clinical Years	
1st Professional Year	2nd Professional Year	3rd Professional Year	4th Professional Year
Integrated 2k25 (Version 1)	Integrated 2k25 (Version 2)	General Medicine	Operative Dentistry
		General Surgery	Prosthodontics
		Oral Pathology	Orthodontics
		Oral Medicine	Oral & Maxillofacial Surgery
		Periodontology	Pediatric Dentistry
		Clinical Operative	General Education (Research, ICT)
		Clinical Prosthodontics	
		Clinical Oral & Maxillofacial Surgery	
		General Education (Research, Humanities, ICT)	
1200 hours	1200 hours	1200 hours	1200 hours

BDS Curriculum

Rashid Latif Dental College



Academic and Assessment Framework of RLDC

Academic Year	PMDC Credit Hours	Educational strategies	Learning Outcomes	Assessment	Yearly Session			Sendup	UHS Professional Examination	Internal Assessment 20%
					Block 1	Block 2	Block 3			
1 st Year	1200	• CBL • Assignments • Chairside Teachings • Practical's • SDL	Knowledge	Cognitive: MCQ, SEQ, VIVA	Anatomy +Physiology+ Oral Biology+ Biochemistry+ Islamic/Pak Studies+ Research			MCQ+SEQ, OSPE/OSCE+VIVA	MCQ+SEQ, OSPE/OSCE+VIVA	Continuous Assessment (Class Test+ Mock Exams, Assignments+ Attitudes) Block Result+ Attendance
2 nd Year			Competence	Psychomotor OSPE OSCE Practical Logbook	Dental Materials+ Pharmacology+ General Pathology+ Community Dentistry+ Behavior Sciences+ Pre Operative +Pre Prosthetics+ Research					
3 rd Year			Behavior	Affective: OSCE Viva Logbook	Oral Pathology+ Oral Medicine+ Periodontology+ General Medicine+ General Surgery+ Research Operative Dentistry+ Prosthodontics+ Oral and Maxillofacial Surgery					
Final Year					Operative Dentistry+ Prosthodontics+ Oral and Maxillofacial Surgery+ Orthodontics+ Research					

Timetable= Course Duration:4 years

Timings: 8:00am to 3:00pm

Venue: Lecture Halls, Dental Clinics, Clinical Wards, Phantom Heads.

Learning Resources: Text Books, Study Models, Case Records, Histology Slides, Dental Materials and Dental Instruments, Study Guide, Google Classes.

Faculty involved in Integrated BDS 1st year.....2025-26

Department	Designation	Name of Faculty
Anatomy	Associate Professor	Dr. Afifa Waseem
	Demonstrators	Dr. Muhammad Naeem Naseer Dr. Sumbhal Rashid
Physiology	Assistant Professor	Dr. Sumbal Khalid
	Demonstrators	Dr. Haseeb Aman Dr. Muhammad Sameer Khan
Biochemistry	Associate Professor	Dr. Sumera Saghir
Oral Biology	Assistant Professor	Dr. Yusra Jamil Khattak Dr. Sadia Hassan
	Demonstrators	Dr. Tahreem Fayyaz Dr. Reeda Kamran Dr. Fatima Asif
Pharmacology & Dental Therapeutics	Assistant Professor	Dr. Samra Sulaiman
	Demonstrators	Dr. Momina Munir
General Pathology	Professor	Prof. Dr. Bushra Adeel
	Demonstrators	Dr. Saad Shahid Dr. Suman Shujaat
Community Dentistry & Public Health	Professor	Prof. Dr. Faiza Awais Qureshi
	Demonstrators	Dr. Zain Hussain Dr. Bisma Khalil
Oral Pathology	Associate Professor	Dr. Asifa Iqbal
	Demonstrators	Dr. Muhammad Talha Hassan Dr. Abdul Razzaq
Operative Dentistry	Professor	Prof. Hanna Abdul Majeed
	Assistant professor	Dr. Mahrukh Anwar
	Senior Registrar	Dr. Qurat ul Ain
	Demonstrators	Dr. Zahra Malik Dr. Huzaiifa Munawar
Dental Radiology	Assistant Professor	Dr. Zain Akram
Periodontology	Assistant Professor	Dr. Moeez Ansari
	Demonstrators	Dr. Zia ud Din Dr. Usama Akram
Psychiatry & Behavioral Sciences	Assistant Professor	Dr. Khadija Tul Kubra
Islamiyat/Pak Studies	Lecturer	Miss Ulfat Jahangir
PRISME	Assistant Professor	Dr. Faiza Salman Dr. Khadija Tul Kubra

Extracurricular, Co-Curricular & Holidays Calendar Session 2026-27

 Rashid Latif Dental College Proposed '1st Year BDS 'Academic Calendar' (Session 2026)																																																							
Weeks							National Holidays & Vacations																												Weeks																				
Jan-26							Feb-05							25-26 June 2026							Youm-e-Ashura							Jul-26																											
M	T	W	T	F	S	S	Kashmir Day							Eid ul-Fitar							05-17 July 2026							Summer Vacations							M	T	W	T	F	S	S														
				1	2	3																																1	2	3	4	5													
5	6	7	8	9	10	11																													6	7	8	9	10	11	12														
12	13	14	15	16	17	18																													13	14	15	16	17	18	19														
19	20	21	22	23	24	25																													20	21	22	23	24	25	26														
26	27	28	29	30	31																														27	28	29	30	31																
							May-28							Youm-e-Takbeer							28 Dec 2026 - 1st January 2027							Winter Break																											
Weeks							Session Commencement:																												Weeks																				
Feb-26							02-Mar-26																												Weeks																				
M	T	W	T	F	S	S	Session End:																												Weeks																				
						1	28-Jan-27																												Weeks																				
2	3	4	5	6	7	8	Block Exam Schedule																												Weeks																				
9	10	11	12	13	14	15	Block 1 : 16/05/2026																												Weeks																				
16	17	18	19	20	21	22	Block 2 : 02/11/2026																												Weeks																				
23	24	25	26	27	28	29	Block 3 : 18/01/2027																												Weeks																				
30	31						Test Schedule																												Weeks																				
Mar-26							Date																												Week #							Department / Subject							Weeks						
M	T	W	T	F	S	S	Block 1																												1 to 10							Integrated							Weeks						
						1	Class Test (5)																																										Weeks						
2	3	4	5	6	7	8	Block 2																												1 to 12														Weeks						
9	10	11	12	13	14	15	Class Test (6)																																										Weeks						
16	17	18	19	20	21	22	Block 3																												1 to 9														Weeks						
23	24	25	26	27	28	29	Class Test (5)																																			Weeks													
30	31																																									Weeks													
Apr-26																																										Weeks													
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27	28	29	30																																							Weeks													
May-26																																										Weeks													
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21	22	23	24	25	26	27																																				Weeks													
28	29	30	31																																							Weeks													
Prepared By: Department of Dental Education																																																							
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Teaching Methodologies

Sr.#	Pedagogical Methodologies	
1.	Lectures	The traditional method is where an instructor presents information to a large group of students (large group teaching).
2.	Tutorial	Tutorials involve small group discussions (SGD) where students receive focused instruction and guidance on specific topics.
3.	Practical's	Hands-on sessions where students apply theoretical knowledge to real-world tasks. This might include lab work, clinical procedures, or simulations.
4.	Community-based Learning	RLDC provides the environment and training that would enable professionals to successfully contribute to the improvement of the health sector, particularly in less privileged communities
5.	Student Presentations & Assignment	Students prepare and deliver presentations on assigned topics. Tasks given to students to complete outside of class. Assignments can include research papers, case studies, or practical reports.
6.	Self-directed Learning	Students take initiative and responsibility for their learning process. Students are encouraged to seek resources, set goals, and evaluate their progress. This is a learner-centered approach where students take the initiative to plan, execute, and assess their learning activities.
7.	Case-based Learning (CBL)	A structured form of small group learning where students work in teams on application-based tasks and problems. Teams are responsible for achieving learning objectives through collaborative efforts, promoting accountability, and deeper understanding of the material.
8.	Problem-based Learning (PBL)	Students work on complex, real-world problems without predefined solutions. They research, discuss, and apply knowledge to develop solutions. PBL fosters critical thinking, problem-solving skills, and the ability to integrate knowledge from various disciplines.

Time Allocation and Academic Framework

The 1st Professional BDS academic year consists of a minimum of 1200 teaching hours.
The curriculum is structured into three blocks, each further divided into modules.

Block 1			
Module 1	Module 2	Module 3	
Foundation I	Craniofacial I	Cariology I -	
Weeks: 4	Weeks: 3	Weeks: 3	
TOTAL WEEKS	10		
Block 2			
Module 4	Module 5	Module 6	Module 7
Foundation II	Craniofacial II	Neurosciences	Alveolocemental Complex I
Weeks: 4	Weeks: 2	Weeks: 5	Weeks: 4
TOTAL WEEKS	15		
Block 3			
Module 8	Module 9	Module 10	
Blood and CVS	GIT	Occlusion I	
Weeks: 5	Weeks: 4	Weeks: 2	
TOTAL WEEKS	11		
PRISME (Professionalism, Research, Informatics (Dental), Social Responsibility and Accountability, Management / Entrepreneurship and Evidence Based Dentistry) CFRC-I			
Islamiyah / Pakistan studies			

DISTRIBUTION AND DURATION OF TEACHING ACTIVITIES AMONG DIFFERENT DISCIPLINES

Subjects Integrated in Module				
Block 1			Total Teaching Hours	Practical/Lab Work
Module 1	Foundation I	● Anatomy	32	4
		● Physiology	10	
		● Biochemistry	22	
		● Oral Biology and Tooth Morphology	16	7
		● Community Dentistry & Public Health	4	0
		● General Pathology & Microbiology	4	1
Module 2	Craniofacial 1	● Anatomy	27	5
		● Biochemistry	22	
		● Oral Biology & tooth Morphology	13	5
		● General Pathology Microbiology	4	0
		● Oral Pathology		
Module 3	Cariology 1	● Biochemistry	2	
		● Oral Biology & tooth Morphology	14	8
		● Oral Pathology	4	
		● Operative Dentistry	2	
		● Community Dentistry and Public Health	6	
		● Psychiatry& Behavioral Sciences	6	2

Subjects Integrated in Module				
Block 2			Total Teaching Hours	practical/Lab Work
Module 4	Foundation II	● Physiology	9	
		● Biochemistry	17	
		● Oral Biology & Tooth Morphology	18	5
		● Pharmacology & Therapeutics	9	I hour 40 min
		● General Pathology Microbiology	28	5
		● Oral Pathology	2	
		● Dental Radiology	2	1
Module 5	Craniofacial II	● Physiology	22	
		● Anatomy	26	4
		● Biochemistry	14	
		● Oral Biology & Tooth Morphology	5	3
		● Pathology & Microbiology	3	0
Module 6	Neurosciences-I	● Anatomy	32	2
		● Physiology	33	5
		● Biochemistry	9	
		● Pharmacology & Therapeutics	5	
		● General Pathology Microbiology	7	0
Module 7	Alveolocemental Complex I	● Oral Biology & Tooth Morphology	26	8

		General Pathology Microbiology	8	1
		Periodontology	1	1
		Dental Radiology	2	3
		Community & Preventive Dentistry	4	0

Subjects Integrated in Module				
Block 3			Total Teaching Hours	practical/Lab Work
Module 8	Blood and CVS I	Anatomy	11	5
		Biochemistry	15	
		Physiology	58	
		General Pathology & Microbiology	23	CFRC: 1
		Pharmacology Therapeutics	5	
Module 9	Gastro Intestinal Tract (GIT)	Anatomy	15	3
		Oral Biology & Tooth Morphology	23	10
		Physiology	10	
		Biochemistry	7	
		Pharmacology Therapeutics	3	
		General Pathology and Microbiology	6	0
		Oral Pathology	0	0
Module 10	Occlusion 1	Oral Biology & Tooth Morphology	19	10
		Anatomy	7	3

		General Pathology & Microbiology	2	0
PRISME				
Islamiyat & Pakistan Studies				

NOTIFICATIONS



www.pmdc.pk

PAKISTAN
MEDICAL & DENTAL COUNCIL
G-10/4, MAJUVE AREA
ISLAMABAD
Tel: (92 51) 9190000

PF-1-C-PM&DC/Notification/2025/911

3rd November 2025

NOTIFICATION

SUBJECT: CLARIFICATION REGARDING MINIMUM PASSING PERCENTAGE AND ATTENDANCE REQUIREMENTS IN MBBS / BDS PROGRAMS

The Council, in its meeting held on 21st October 2025, deliberated on the matter concerning the minimum passing percentage in annual professional MBBS and BDS examinations, along with feedback received from universities, comments from medical and dental colleges, and representations and petitions submitted by students and parents regarding the retrospective enforcement of revised benchmarks during the ongoing academic session (2024–25).

After detailed consideration, the Council resolved that there shall be no retrospective enforcement of revised attendance or passing mark requirements. Students already enrolled up to and including the academic session 2024–25 shall continue under the previously applicable criteria, namely 50% minimum passing marks and 75% minimum attendance, as stipulated at the time of their admission or enrolment in MBBS or BDS programs.

For future admissions, a proposed increase of 5% each in both attendance and passing mark requirements shall be reviewed in consultation with universities, medical educationists, and other relevant stakeholders. The finalized criteria will be communicated in due course.

This notification is issued in compliance with the decision of the PM&DC Council and supersedes earlier Notifications dated 31st January 2025, 10th February 2025, and 15th April 2025 on the same subject. All medical and dental institutions and their affiliated universities are directed to ensure strict compliance with the above.


Deputy Registrar
Head of Council Department

Distribution:

- PM&DC Recognized Medical / Dental Colleges (All)
- Affiliating / Admitting Universities (All)
- Regional / Provincial Health Departments
- Head of IT Department PM&DC, Islamabad
- P S to Secretary M/o NHC&C Islamabad



UNIVERSITY OF HEALTH SCIENCES LAHORE

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NOTIFICATION

Syndicate, in its 93rd meeting held on 4th November 2025, approved the adoption and implementation of the PM&DC Notification No. PF-1-C-PM&DC/Notification/2025/911 dated 03-11-2025, with the following provisions:

- I. Students already enrolled up to and including the academic session 2024-2025 shall continue under the previously applicable criteria, namely 50% minimum passing marks and 75% minimum attendance, as stipulated at the time of their admission or enrollment in MBBS or BDS program.
- II. However, the policy for assessment, for the session 2025-2026, will be notify separately.
- III. The minimum number of marks required to pass the professional examination for each subject/paper shall be fifty percent (50%) in 'Theory' and fifty percent (50%) in the 'Oral/Practical/Clinical' components of the examination and fifty percent (50%) in aggregate, independently, and concomitantly.
- IV. To become eligible to appear in the professional examinations conducted by the university the candidates shall be required having attended not less than cumulative 75% of the full course of lectures delivered and practical/clinical classes conducted in the particular academic session, as well as in the individual block/semester for the Modular Integrated Curriculum/Semester scheme of studies.
- V. The above criteria shall also be applicable to all undergraduate degree programs of the university, on parity basis.

This is in supersession of this office Notification No. UHS/REG-25/1121 dated 21-05-2025.

REGISTRAR

No. UHS/REG-25/2351

Dated: 13-11-2025

Copy forwarded for information to:

- i. Principals/Heads of all the constituent & affiliated undergraduate colleges/Institutions of UHS
- ii. Director, Institute of Allied Health Sciences, UHS
- iii. Head, College of Pharmacy, UHS
- iv. Head, Institute of Nursing, UHS
- v. Controller of Examinations, UHS
- vi. Treasurer, UHS
- vii. Director, Directorate of Undergraduate Studies, UHS
- viii. Director Students' Affairs, UHS
- ix. Additional Registrar (Registration), UHS
- x. PSO to Vice Chancellor
- xi. PS to Pro-Vice Chancellor
- xii. PS to Registrar

Signature
REGISTRAR



RASHID LATIF DENTAL COLLEGE

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Ref No. RLDC/0376/25

1st December, 2025

Notification

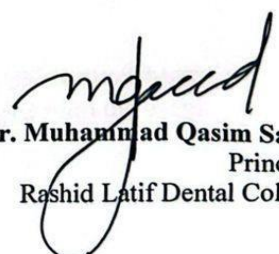
This is to inform the faculty that the following distribution of marks has been proposed for Internal Assessment criteria of UHS for Integrated BDS. The following matter shall be discussed in the upcoming assessment meetings of the respective class. The Internal Assessment carries 20% of the total marks for each block, divided equally between Theory and Practical/Tutorial components. The detailed allocation for each block is as follows:

1. Internal Assessment for Theory Examination – 30 Marks

- **Attendance in Lectures:** 20% → 6 marks
- **Block Examination (Theory):** 50% → 15 marks
- **Continuous Assessment (Class Tests, Mock Exams, Assignments, Attitudes):** 30% → 9 marks

2. Internal Assessment for Practical/Tutorial Examination – 30 Marks

- **Attendance in Practical's/Tutorials:** 20% → 6 marks
- **Block Examination (Practical/Oral):** 50% → 15 marks
- **Continuous Assessment / Log Books / PRISME Portfolio / Practical Notebooks / Assignments / Attitudes:** 30% → 9 marks


Prof. Dr. Muhammad Qasim Saeed
Principal
Rashid Latif Dental College

C.C:
Vice Principal, RLDC
Director Medical Education
All HODs & Conveners of Integrated 1st Year BDS
Office Copy

LIST OF ABBREVIATIONS:

Abbreviation	Subject
UHS	University of Health Sciences
BDS	Bachelor of Dental Surgery
PRISME	Professionalism, Research, Informatics, Social Responsibility and Accountability, Management & Entrepreneurship, Ethics Evidence Based Dentistry
WHO	World Health Organization
A	Anatomy
AI	Artificial Intelligence
B	Biochemistry
GDC	General Dental Council
Ph	Pharmacology
P	Physiology
Pa	Pathology
OB	Oral Biology
OP	Oral Pathology
CD	Community Dentistry
OD	Operative Dentistry
AIMA	American Medical Informatics Association
AMEE	Association of Medical Education in Europe
BhS	Behavioral Sciences
CNS	Central Nervous System
GIT	Gastrointestinal Tract
CVS	Cardiovascular System
TMJ	Temporomandibular Joint
CBC	Complete Blood Count
ESR	Erythrocyte Sedimentation Rate
PCR	Polymerase Chain Reaction
ED50	Median Effective Dose
LD50	Median Lethal Dose
TD50	Median Toxic Dose
AUC	Area Under Curve
MCV	Mean Corpuscular Volume
MCH	Mean Corpuscular Hemoglobin
MCHC	Mean Corpuscular Hemoglobin Concentration
Na	Sodium
K	Potassium
DNA	Deoxyribonucleic Acid
TORCH	Toxoplasmosis, Other, Rubella, Cytomegalovirus, Herpes simplex

CF	Craniofacial
CFII	Craniofacial II
Car	Cariology
DEJ	Dentin enamel Junction
HERS	Hertwig's Epithelial Root Sheath
FDI	Fédération Dentaire Internationale
GAGs	Glycosaminoglycans
EFA	Essential Fatty Acids
Hb	Hemoglobin
HbA1c	Glycated Hemoglobin
ATP	Adenosine Triphosphate
RBC	Red Blood Cell
NMJ	Neuromuscular Junction
ID50	Median Infectious Dose
RCTs	Randomized Control Trials

INTRODUCTIN TO STUDY GUIDE

This study guidebook has been thoughtfully developed for dental undergraduates through the collaborative efforts of faculty across all disciplines. It serves as a valuable resource for the students of Rashid Latif Dental College, emphasizing key aspects of the curriculum. The guide aims to foster self-regulated learning by empowering students to take ownership of their academic journey.

Entering dental college marks the beginning of a new academic chapter, and this guide has been carefully crafted to support students through this transitional phase. It encompasses undergraduate competencies, assessment policies, and curriculum coordination, all systematically mapped within this guidebook.

The study guide provides a comprehensive overview of the intended course outcomes and objectives in alignment with the course content. It outlines the institution's tailored assessment methodologies, offering students a clear understanding of the strategies used to evaluate their progress.

BLOCK 1

FOUNDATION I

INTRODUCTION TO MODULE 1

Foundation I establishes the basic scientific framework for understanding the structure and function of the human body in health and disease, with direct relevance to dental practice. The module integrates anatomy, histology, physiology, biochemistry, and oral biology, while introducing concepts of pathology and community dentistry, enabling students to relate foundational biomedical knowledge to clinical care and population health.

THE MODULAR OUTCOME

- Describe normal human structure and function, with emphasis on head, neck, and oral tissues.
- Explain physiological mechanisms maintaining homeostasis relevant to dental practice.
- Correlate biochemical pathways with cellular functions in oral and systemic health.
- Identify microscopic features of cells, tissues, and organs and relate them to function.
- Recognize basic mechanisms of cell injury, necrosis, and apoptosis underlying disease.
- Apply principles of community and preventive dentistry to health promotion and disease prevention.
- Integrate basic medical sciences to explain links between general health and oral health.
- Demonstrate professional attitudes toward scientific learning, teamwork, and ethical practice.

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ANATOMY					
F1-A-001	Introduction to Human Anatomy: Definitions, Terminology, and Planes	Define the various branches of Anatomy Describe the anatomical position, anatomical planes of the body, and anatomical terms related to position, movement, and laterality.	Lecture	MCQs OSPE OSVE	General anatomy by Laiq Hussain Ed. Eight
FI-A-002	Osteology	Classify bones based on region, size and shape providing examples of each from the head and neck Discuss the structural characteristics of compact and spongy bones Describe the structure of an adult long bone. Define ossification and rule of ossification. Describe the blood supply of various types of long bones	Lecture	MCQs OSPE OSVE	General anatomy by Laiq Hussain Ed. Eight
FI-A-003	Joints	Describe the structural classification of Joints (fibrous, cartilaginous and synovial) along with their sub-classifications with examples of each Enlist the general characteristics of synovial joints Enlist the factors stabilizing a synovial joint Describe Hilton's Law	Lecture	MCQs OSVE OSPE	General anatomy by Laiq Hussain Ed. Eight
FI-A-004	Cartilage	Discuss and differentiate the gross features of hyaline, elastic and fibrocartilage	Lecture	MCQs OSVE OSPE	General anatomy by Laiq Hussain Ed. Eight
HISTOLOGY					
F1-A-005	Cell	List the membranous and non-membranous organelles of the cell, describe their structure, and correlate each with its	Lecture	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.

		function Describe the structure of different types of cell junctions			
FI-A-006	Epithelia	1. Classify and exemplify the epithelia with their histological structure, locations, and functions 2. Describe apical specializations of epithelia (microvilli, stereocilia and cilia) and the basement membrane. 3. Classify and exemplify the exocrine glands on the basis of the shape of secretory portions and ducts, mode of secretion, and type of secretion 4. List the cells of connective tissue with their functions.	Lecture	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.
FI-A-007	Connective Tissue	1. Describe the composition of the ground substance and the types and structure of fibers in connective tissue. 2. Classify connective tissue and describe its functions and provide relevant examples.	Lecture	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.
EMBRYOLOGY					
F1-A-008	Cell Division and Gametogenesis	1. Briefly describe mitosis and meiosis. 2. Describe oogenesis, spermatogenesis, spermiogenesis, and embryological basis of teratoma.	Lecture	MCQs OSPE OSVE	Embryology by Langmen 10th Ed.
F1-A-009	Fertilization and Early Development	1. Define fertilization, phases of fertilization, capacitation and acrosomal reaction. 2. Explain outcomes of fertilization. 3. Describe cleavage, morula, blastocyst formation, and implantation.	Lecture	MCQs OSPE OSVE	Embryology by Langmen 10th Ed.

F1-A-010	Formation of the Embryonic Disc and Germ Layers	1. Describe embryonic disc, amniotic cavity, yolk sac, and gastrulation. 2. Explain gastrulation and derivatives of the three germ layers. 3. Explain derivatives of ectoderm, mesoderm, and endoderm.	Lecture	MCQs OSPE OSVE	Embryology by Langmen 10th Ed.
PHYSIOLOGY					
F1-P-001	Homeostasis: Control of Internal Environment	1. Define homeostasis and explain its importance in maintaining the internal environment. 2. Differentiate between extracellular and intracellular Fluids (with special emphasis on comparing the concentration of sodium, potassium, and calcium ions)	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
F1-P-002	Control Systems of the body	Explain the principles of positive, negative, and feed-forward control mechanisms with examples.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
F1-P-003	Cell and its organelles and their Functions	1. Explain the principles of positive, negative, and feed-forward control mechanisms with examples. 2. Differentiate between the functions of smooth and rough endoplasmic reticulum	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
F1-P-004	Cell Structure and Membrane Organization	1. Enumerate the components and functions of the cytoskeleton 2. Describe the structure of the cell membrane and fluid mosaic model.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
F1-P-005	Functional Systems of Cell	Explain the mechanisms of endocytosis and exocytosis, including pinocytosis and phagocytosis.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
F1-P-006	Transport of Substance through Cell Membrane	1. Describe the mechanisms of simple diffusion, facilitated diffusion, osmosis, and active transport, and ion channels 2. Compare features of simple	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition

		and facilitated diffusion with examples 3. Describe primary and secondary active transport with examples			
BIOCHEMISTRY					
F1-B-001	Carbohydrate	1. Define and classify Carbohydrates. Draw the straight chain and Pyranose form of D-glucose. 2. Define and quote suitable examples of the following Aldo-keto isomers D & Lisomers(Enantiomers)Epimers, Alpha and beta Anomers 3. Define and quote suitable examples of Reducing sugars Non-reducing sugars 4. Give sources, structure and Importance of glucose, galactose, fructose and ribose. Give normal fasting blood sugar level. 5. Enumerate types of Diabetes Mellitus and give cause of hyperglycemia in each type. 6. Describe the formation, hydrolysis, naming and types of glycosidic bond (N and O - Glycosidic bonds). Give Importance of glycosidic bond. 7. Enumerate sources, linkages and building blocks of maltose, iso- maltose, lactose, lactulose and sucrose. Give importance of maltose, iso-maltose, lactose, Lactulose and sucrose. 8. Give significance of Oligosaccharides in cell membrane. Give sources, structure and importance of Dextrin and dextrans. Enlist sources of starch. Elaborate the structure of starch. Give importance of starch in human diet.	Lecture	MCQs OSPE OSVE	Lippincott harper and Mushtaq Ahmed

		9. Elaborate the structure of Glycogen. Give importance of Glycogen in human body. Give structure and sources of Cellulose. Appraise the role of dietary fiber in health and disease 10. Elaborate the structure and enlist the functions of Glycosaminoglycan (GAGs). 11. Define glycemic index. Evaluate the effect of various dietary carbohydrates on blood sugar level (BSL) and appraise their clinical significance.			
F1-B-002	Lipids	Define lipids and give their Classification along with biological importance of main classes	Lecture	MCQs OSPE OSVE	Lippincott harper and Mushtaq Ahmed
F1-B-003	Vitamins	Define vitamins and classify vitamins according to their solubility	Lecture	MCQs OSPE OSVE	Lippincott harper and Mushtaq Ahmed
F1-B-004	Cell	Describe the biochemical structures of cell membranes Explain biochemical compartmentalization	Lecture	MCQs OSPE OSVE	Lippincott harper and Mushtaq Ahmed
F1-B-005	Signal Transduction Pathways	Describe receptors and signal Transduction pathways (Gs,Gq).	Lecture	MCQs OSPE OSVE	Lippincott harper and Mushtaq Ahmed
ORAL BIOLOGY & TOOTH MORPHOLOGY					
F1-OB-001	Structure Oral Tissues (A Brief Introduction)	1. identify the different dental tissues and supporting structures present in the oral cavity 2. the oral mucosa, salivary glands and bones of the jaw	LGD+Practical	MCQ OSVE OSPE	Tencate oral Histology and development 9th edition
FI-OB_002	Cytoskeleton	1. the structure, types, and functions of the cytoskeleton, including microfilaments, intermediate filaments, and microtubules, within oral tissues.	LGD+Practical	MCQ OSPE OSVE	Tencate oral Histology and development 9th edition

FI-OB-003	Cell Junctions	1. intercellular junctions, including tight junctions, adherens junctions, desmosomes, gap junctions, and the role of desmosomes and hemidesmosomes in oral epithelium	LGD+Practical	MCQ OSPE OSVE	Tencate oral Histology and development 9th edition
FI-OB-004	Fibroblast	1. describe the structure, secretory functions, and role of fibroblasts in the maintenance of the extracellular matrix in oral tissues 2. Describe briefly collagen synthesis and assembly highlighting its importance in oral connective tissue.	LGD	MCQs+presentations	Tencate oral Histology and development 9th edition
FI-OB-005	Introduction and Nomenclature of dentition	1. Name the three major functions of the human dentition 2. Describe various ways of classifying human dentition 3. Define the three dentition periods (deciduous, mixed, permanent). 4. Identify each period's approximate time intervals, initiation, and termination events 5. Differentiate primary vs permanent dentition, including timing. 6. Describe the dental Formula for permanent and Deciduous dentition 7. Define "succedaneous" and identify succedaneous teeth 8. Describe the eruption pattern of primary and permanent dentition 9. Demonstrate understanding of various dental numbering systems (e.g., universal, FDI, Palmer).	LGD Tutorial	MCQs + practical	Concise dental anatomy and morphology 4th Edition

GENERAL PATHOLOGY					
F1-Pa-001	Introduction	Define the terms: pathology, etiology & pathogenesis	Lecture	MCQs, OSVE	Robbin's 10th Edition
FI-Pa-002	Cell Injury	Define cell injury. Differentiate between reversible and irreversible cell injury. Discuss mechanism of cell injury	Lecture Tutorial	MCQs, OSVE	Robbin's 10th Edition
FI-Pa-003	Cell Death	1. Define necrosis with examples; classify; describe briefly morphological features of coagulative, liquefactive, caseous, and fat necrosis. give their pathway. 2. Define apoptosis with examples; describe mechanisms and morphological features. give their pathway.	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Robbin's 10th Edition
COMMUNITY & PREVENTIVE DENTISTRY					
F1-CD-001	Introduction to Dental Public Health	1. Define dental public health as the science and art of preventing and controlling dental diseases and promoting dental health through organized community efforts. 2. Differentiate between the roles of a private dental practitioner and a dental public health specialist, focusing on the community as the primary patient.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-002	Concepts of Health and Disease	1. Describe the evolving definitions of health, moving from the simple "absence of disease" to the WHO holistic definition of physical, mental, and social well-being. 2. Explain the "Epidemiological Triad" (Agent, Host, and Environment) and how their interaction determines the onset and distribution of disease in a community	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

F1-CD-003	Public Health vs Clinical Practice	Compare the unit of study, identifying that clinical medicine focuses on the individual "case," while public health focuses on the "defined population". Distinguish between the goals of each field, where clinical practice seeks diagnosis and specific treatment, whereas public health focuses on identifying sources of infection and implementing control measures for the whole community	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-004	Disease Importance in Public Health	Evaluate the significance of the "Iceberg of Disease," recognizing that clinical cases seen by physicians are often just the tip of a much larger submerged mass of undiagnosed or presymptomatic cases. Explain the criteria for a disease to be considered a public health priority, such as high prevalence, a recognizable latent stage, and the availability of effective treatment.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-005	Levels of Prevention	Identify the five stages of prevention, ranging from health promotion and specific protection (Primary) to early diagnosis (Secondary) and disability limitation or rehabilitation (Tertiary). Apply these levels specifically to oral health, such as using water fluoridation for primary prevention and simple restorations for secondary prevention.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

F1-CD-006	Health Promotion Principles	Explain health promotion as the process of enabling people to increase control over and improve their health through social and environmental interventions. Describe the shift in health promotion from focusing solely on individual behavior to modifying the social environment to support healthy lifestyles.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-007	Health Education and Promotion	Define the main objectives of health education: informing people with scientific knowledge, motivating them to change habits, and guiding them into sustained healthy actions. Identify the four major approaches to health education: regulatory (legal), service-based, educational, and the primary health care approach.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-008	Health Education and Communication	Identify the four key elements of effective communication: the communicator, the message, the channel (medium), and the audience. Distinguish between "one-way" (didactic) and "two-way" (Socratic) communication, noting that two-way methods are more effective for influencing behavior.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
F1-CD-009	School and Community Based Programs	1. List the essential components of a school dental health program, including dental health education, preventive services like pit and fissure sealants, and a healthy school environment. 2. Discuss the benefits of community-based interventions, such as the use	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

		of dental auxiliaries and water fluoridation, to reach large populations efficiently and cost-effectively.			
PRACTICAL / LAB WORK					
HISTOLOGY					
CODE	TOPIC	SPECIFIC LEARNING OUTCOME			
F1-A-011	Epithelium	Draw and label light microscopic diagram of epithelia			
F1-A-012	Connective Tissue	Draw and label light microscopic diagram of different types of Connective Tissue			
ORAL BIOLOGY & TOOTH MORPHOLOGY					
CODE	TOPIC	SPECIFIC LEARNING OUTCOMES			
F1-OB-006	Structures of Tooth	Drawing of oral structures+ identifying landmarks on models			
F1-OB-007	Cytoskeleton	Drawing of cytoskeletal elements			
F1-OB-008	Junction	Draw & label the diagram of tight junctions, desmosomes, hemidesmosomes, and gap junctions			
PATHOLOGY					
CODE	TOPICS	SPECIFIC LEARNING OUTCOME			
F1-Pa-004	Necrosis	Identify necrosis.			

MODULE 2:

CRANIOFACIAL I

INTRODUCTION TO MODULE 2

Craniofacial I provide a foundational understanding of the structural, developmental, and biochemical basis of the craniofacial region. Integrating anatomy, embryology, histology, biochemistry, oral biology, and pathology, the module emphasizes normal development, craniofacial structures, tooth development, and related anomalies, preparing students for clinical dental practice and advanced modules in oral and systemic disease

THE MODULAR OUTCOME

- Describe the gross anatomy of the skull and mandible, including their foramina, sutures, and applied clinical relevance.
- Explain the embryological processes involved in the formation of the head, neck, skull, meninges, and craniofacial structures.
- Identify and interpret microscopic features of bone, cartilage, muscle, and skin.
- Describe and relate the biochemical pathways of carbohydrates, proteins, and vitamins to cellular function and oral health.
- Explain the stages of tooth development, formation of supporting tissues, and developmental anomalies of the craniofacial region.
- Recognize basic genetic principles, types of mutations, and chromosomal abnormalities relevant to craniofacial development and dental disorders.
- Correlate structural, developmental, and biochemical knowledge with common craniofacial and dental pathologies encountered in clinical practice

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ANATOMY					
CF1-A-001	Skull	Describe the gross anatomy of the skull, its features, foramina, and applied aspects relevant to head and neck anatomy. Describe the features and structures of different views of skull (Anterior, Posterior, Superior, Inferior, Lateral) Discuss the sutures and fontanelles of skull, their age changes and clinical significance.	Lecture + practical	MCQs OSVE OSPE	Clinical anatomy by Snell's 10th Ed.
CF1-A-002	Mandible	Describe the bony features of mandible.	Lecture + practical	MCQs OSVE OSPE	Clinical anatomy by Snell's 10th Ed
CF1-A-003	Cranial Nerves	Enlist names of the cranial nerves.	Lecture + practical	MCQs OSVE OSPE	Clinical anatomy by Snell's 10th Ed
EMBRYOLOGY					
CF1-A-004	Neurulation and Early Organogenesis	Describe neurulation, formation of the neural tube, and migration of neural crest cells. Enlist derivatives of neural crest cells. Describe development of the head and neck region, including contributions of pharyngeal arches, pouches, and cranial nerves. Explain development of the skull and meninges (including craniosynostosis correlation), and vasculogenic (basic).	Lecture	MCQs OSPE OSVE	Embryology by Langmen 10th Ed.
CF1-A-005	Advanced Development and Anomalies	Discuss growth and differentiation of the embryonic disc, trophoblast development and anomalies (situs inversus, sirenomelia, holoprosencephaly). Describe the embryological basis of hydatidiform mole and its pathological significance. Describe common chromosomal anomalies related to early embryonic development.	Lecture	MCQs OSVE OSPE	Embryology by Langmen 10th Ed.

HISTOLOGY

CF1-A-006	Cartilages	Describe the microscopic and ultramicroscopic structure of all types of cartilages Draw and label light microscopic diagram of different types of cartilages	Lecture Practical	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.
CF1-A-007	Bones	List the bone cells and their origin along with their functions Describe the composition of bone matrix (organic, inorganic) Describe the histology of compact and spongy bone	Lecture Practical	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.
CF1-A-008	Muscles	Describe the microscopic structure and ultramicroscopic structure of skeletal, cardiac, and smooth muscle	Lecture Practical	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.
CF1-A-009	Skin	Describe the layers and microscopic structure of the epidermis and dermis of the skin.	Lecture Practical	MCQs OSVE OSPE	Histology by Laiq Hussain 12th Ed.

BIOCHEMISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF1-B-001	Overview of Metabolism	Differentiate between anabolism and catabolism, and list the metabolic pathways associated with each process	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CF1-B-002	Carbohydrate Metabolism	1. Explain metabolism: glycolysis and TCA cycle (steps, regulation, Energetics). 2. Differentiate aerobic and anaerobic glycolysis. 3. Describe the transport systems for glucose entry into cells, including sodium- and ATP-independent (GLUTs) and sodium- and ATP-dependent Cotransport.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CF1-B-003	Amino Acids: Structure, Classification and	Define amino acids and classify standard amino acids according to side chain and nutritional importance.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed

	Properties				
CF1-B-004	Protein Structure and Function	1. Explain the levels of protein organization (primary, secondary, tertiary, and quaternary structures) and their relevance to protein function 2. Define conjugated proteins and provide suitable examples of conjugated proteins in the human body (lipoproteins, glycoproteins, nucleoproteins, chromo proteins, and metalloproteins) 3. Elaborate the role of chaperones in protein folding. 4. Differentiate between denaturation and coagulation. 5. Define limiting amino acids and provide suitable examples of limiting amino acids. 6. Understand the nutritional importance of proteins and correlate this information to protein energy malnutrition. 7. Compare and contrast the salient features of kwashiorkor and marasmus.	Lecture +SGD	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CF1-B-005	Enzymes: Structure, Classification, Mechanism, and Regulation	1. Explain enzyme structure, classification with examples, properties, mechanism of action, kinetics, regulation, and inhibitors. 2. Add diagnostic and therapeutic roles of enzymes (ALT, AST, CK-MB, ALP, LDH)	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CF1-B-006	Vitamins	Describe vitamins (B1, B2, B3, B5, B7), their active forms, sources, RDA, biochemical roles, and deficiency manifestations.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
ORAL BIOLOGY & TOOTH MORPHOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference

CF1-OB-001	Early Tooth Development	At the end of the chapter student should be able to 1. Describe the primary epithelial band and explain its role in the initiation of tooth development. 2. Explain the mechanisms involved in tooth type specification during odontogenesis. 3. Describe the process of regionalization of the oral epithelium and its significance in tooth development. 4. Explain the histological and morphological stages of tooth development (bud, cap, and bell)	Lecture + Practical	MCQs+ Drawings assignments OSPE	Tencate oral Histology and development 9th edition
CF1-OB-002	Tooth Development	At the end of the chapter the student should be able to 1. identify nerve and vascular contributions to tooth development during early developmental stages. 2. Describe root development, Hertwig's epithelial root sheath, and supporting tissues.	Lecture + Practical	MCQs+ Drawing assignments OSPE OSVE	Tencate oral Histology and development 9th edition
CF1-OB-003	Formation of the Face, Palate and Tongue	At the end of the lesson the student should be able to 1. Describe the embryonic development of the face, palate & tongue, contributions of key structures (lateral lingual swellings, tuberculum impar, and copula), muscle derivation, and sensory/motor innervation and Developmental Defects associated with it like Ankyloglossia.	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
CF1-OB-004	Development of the Mandible and Maxilla	At the end of the lecture the student should be able to 1. Describe the role of Meckel's cartilage in mandibular development and 2. The process of intramembranous ossification in forming the mandible and maxilla. 3. Define jaw size anomalies and their embryological basis and clinical impact (Micrognathia and Macrognathia)	Lecture + Practical	MCQs OSVE OSPE	Tencate oral Histology and development 9th edition

CF1-OB-005	Craniofacial anomalies	At the end of the lesson the student should be able to 1.Describe basic developmental anomalies relevant to craniofacial region (e.g., cleft palate, anomalies of tooth number and size)	Lecture	MCQ OSVE	Tencate oral Histology and development 9th edition
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PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF1-Pa-001	Genetic Disorders: Introduction and causes	Define genetic disorders and their causes.	Lecture	MCQs, OSVE	Robbin's 10th Edition
CF1-Pa-002	Types of Mutations	Describe types of mutations (point, insertions, deletions).	Lecture	MCQs, OSVE	Robbin's 10th Edition
CF1-Pa-003	Mendel principles and genetic disorders	Explain Mendelian principles applied to autosomal and X-linked disorders.	Lecture Tutorial	MCQs	Robbin's 10th Edition
CF1-Pa-004	Genetic testing	Describe genetic testing methods: PCR, sequencing, karyotyping, biochemical tests, prenatal screening	Lecture	MCQs	Robbin's 10th Edition

ORAL PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF1-OP-001	Chromosomal abnormalities	Discuss the clinical presentation of numerical and structural chromosomal abnormalities	Lecture	OSPE	Robbin's pathology

PRACTICAL / LAB WORK

GROSS ANATOMY

Code	Topic	Learning Outcome
CF1-A-010	Skull	Demonstrate the ability to accurately orient a dry human skull in normal verticals, occipitalis, frontalis, lateralis, and basalis views; and identify key anatomical and surface landmarks, sutures, and foramina with their content relevant to each view

		Identify and describe the anatomical features, boundaries, and foramina of the anterior, middle, and posterior cranial fossae, including the grooves of the dural venous sinuses Identify and enlist all the foramina of the skull along with their neurovascular contents
CF1-A-011	Mandible	Identify and locate the major anatomical landmarks, foramina (with their contents), and surface features of the mandible; articulate it the skull
HISTOLOGY		
Code	Topic	Learning Outcome
CF1-A-012	Bones	Draw and label light microscopic diagram of compact and spongy bones
CF1-A-013	Cartilage	Draw and label light microscopic diagram of cartilage
CF1-A-014	Muscle	Draw and label light microscopic diagram of muscle
CF1-A-015	Skin	Draw and label light microscopic diagram of thick and thin skin
ORAL BIOLOGY & TOOTH MORPHOLOGY		
Code	Topic	Learning Outcome
CF1-OB-006	Development of Human embryo with special emphasis on tooth-related structures.	Identify images of different stages of human development
CF1-OB-007	Tooth & Root Development	Observe and draw images of tooth and root development

Module -3

CARIOLOGY-1

INTRODUCTION TO MODULE 3

Cariology I introduce the biological, structural, biochemical, and behavioral foundations of dental caries. Integrating oral biology, oral pathology, biochemistry, operative dentistry, community dentistry, and behavioral sciences, the module enables students to understand caries development, progression, and prevention, forming a foundation for clinical practice and patient-centered preventive care.

THE MODULAR OUTCOME

- Explain the biochemical basis of dental caries, including carbohydrate metabolism, acid production, and the role of fluoride in caries prevention.
- Describe the structure, composition, and developmental biology of enamel and dentin, and relate these features to caries susceptibility.
- Identify normal and abnormal enamel and dentin structures on slides, models, and radiographs.
- Describe the etiology, microbiology, and histopathology of dental caries and developmental defects such as enamel hypoplasia and amelogenesis imperfecta
- Explain the types, clinical features, and progression of pit and fissure, smooth surface, and root caries, along with preventive and management approaches.
- Apply the principles of caries prevention at both individual and community levels through dietary counseling, oral hygiene practices, and fluoride use.
- Demonstrate effective communication, empathy, and professionalism while addressing behavioral aspects that influence oral health and patient cooperation.
- Correlate biological and behavioral concepts with preventive strategies to promote oral health across diverse populations.

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
BIOCHEMISTRY					
Car1-B-001	Biochemical Role of carbohydrates in Dental Caries	Explain cariogenic potential of Carbohydrates.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
Car1-B-002	Fluoride's Biochemical Mechanism	Explain biochemical mechanism of fluoride in disrupting bacterial glycolysis and acid production.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
ORAL BIOLOGY & TOOTH MORPHOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
Car1-OB-001	Enamel	At the end of the lesson the student should be able to 1.Describe physical and chemical properties of enamel; explain their role in caries resistance and susceptibility. 2. Describe structural organization of enamel; identify enamel on radiographs. 3. Explain differentiation and life cycle of ameloblasts 4. Describe amelogenesis stages (pre-secretory, secretory, maturation), Tom's process, and pH regulation. 5. Describe enamel proteins; explain incremental lines, Hunter-Schreger bands, tufts, lamellae, spindles, and gnarled enamel. 6. Explain fluoride effects, enamel etching, age changes and repair	Lecture	MCQs OSPE OSVE Drawing assignments	Tencate oral Histology and development 9th edition
Car1-OB-002	Tooth Morphology	At the end of the lesson the student should be able to 1.Describe the anatomical surfaces and land marks	Long group discussion (LGD)	MCQs Drawings OSPE	Concise dental anatomy

		of both anterior and posterior teeth, including the roots, using standardized dental terminology. 2. Identify and name tooth surfaces and thirds of tooth surfaces from diagrams or descriptions 3. Differentiate between the crown surfaces of teeth by matching them with their correct general shape (triangular, trapezoidal, or rhomboidal), or by relating the shape to the specific function of the tooth 4. Identify and name line and point angles, embrasures and curves based on diagrams or descriptions. 5. Define elevations and depressions on the tooth surface. 6. Describe lobes, contact points, embrasures, cervical line, pits, and fissures and relate to caries susceptibility. 7. Describe the components, boundaries and functions of interproximal space and embrasures 8. Describe the depressions on tooth surface (developmental grooves)	Short group discussions (SGDs) Practicals (wax carvings)	OSVE	and morphology 4th edition
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ORAL PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
Car1-OP-001	Enamel Developmental Anomalies	Describe etiology and pathogenesis of enamel hypoplasia. Enamel Explain Amelogenesis imperfecta (types, clinical and radiological features).	Lectures	MCQs, OSPE	Contemporary Oral Pathology

Car1-OP-002	Microbiology and Pathogenesis of Caries	1. Describe etiology and pathogenesis of dental caries. 2. Describe the microbiological aspect of caries; the role and characteristics of cariogenic bacteria. 3. Define plaque and stages of plaque development Describe the changes that develop in enamel of erupted teeth in association with microorganisms. 4. Describe histopathological changes in enamel during dental caries, with emphasis on microbial invasion	Lecture	MCQ	Contemporary Oral Pathology
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OPERATIVE DENTISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
Car1-OD-001	Pit and Fissure Caries	Describe the anatomy of pits and fissures, explain their role in caries susceptibility, and outline preventive strategies such as sealant application and fluoride use	lecture	MCQ OSPE OSVI	Sturdevants Art & Science of Operative Dentistry
Car1-OD-002	Smooth Surface Caries	Describe etiology, risk factors, and clinical features of smooth surface caries; explain role of fluoride in prevention.	Lecture	MCQ OSPE OSVI	Sturdevants Art & Science of Operative Dentistry
Car1-OD-003	Root Caries	Describe etiology, clinical features, and progression of root caries	Lecture	MCQ OSPE OSVI	Sturdevants Art & Science of Operative Dentistry
Car1-OD-004	Active and Arrested Caries	Differentiate active caries based on clinical features; explain clinical Significance; outline management strategies. identify the factors that Promote caries arrest.	Lecture	MCQ OSPE OSVI	Sturdevants Art & Science of Operative Dentistry
Car1-OD-005		Differentiate arrested caries; describe biological processes and Contributing factors.	Lecture	MCQ OSPE OSVI	Sturdevants Art & Science of Operative Dentistry

COMMUNITY & PREVENTIVE DENTISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
Car1-CD-001	Diet and Dental Caries	Analyze the Vipeholm Study Findings: Understand the relationship between sugar consumption and caries, specifically how the frequency and physical form (stickiness) of sugar are more critical than the total amount consumed. Evaluate Dietary Counseling: Identify the steps in dietary assessment, such as the 24-hour recall or 5-day diet diary, to identify cariogenic habits and suggest non-acidogenic alternatives.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
Car1-CD-002	Dental Biofilm and Caries Prevention	Define Biofilm Dynamics: Describe dental biofilm as a complex, functional community of microorganisms and explain how the transition from a healthy "pellicle" to a "pathogenic biofilm" leads to demineralization. Identify Mechanical Control: Understand the rationale behind disrupting the biofilm through professional cleaning and personal oral hygiene to prevent the "Stephan Curve" from dropping below the critical pH of 5.5.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
Car1-CD-003	Principles of Caries Prevention	Address the Multi-factorial Etiology: Apply the concept that caries prevention must target at least one of the four primary factors: the host (tooth), the agent (microorganisms), the substrate (diet), and time. Compare Strategies: Differentiate between the "High-Risk Strategy" (targeting individuals at high risk) and the "Population Strategy" (aiming to shift the risk level of the	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

		entire community).			
Car1-CD-004	Fluoride and Community Based Caries Prevention	Explain Mechanisms of Action: Describe how fluoride prevents caries through three primary methods: increasing enamel resistance (fluoroapatite formation), promoting remineralization, and inhibiting bacterial enzyme activity. Evaluate Systemic vs. Topical Programs: Compare the cost-effectiveness and reach of community water fluoridation and salt fluoridation with school-based programs like fluoride mouth-rinsing or tablet distribution.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
Car1-CD-005	Oral Hygiene Caries Prevention	Assess Plaque Control Methods: Identify various mechanical aids (toothbrushes, interdental cleaners) and chemical agents (chlorhexidine, triclosan) used to maintain a plaque-free environment. Demonstrate Patient Education: Formulate effective methods for teaching tooth-brushing techniques and emphasizing the importance of fluoride toothpaste as the most widely used "preventive medicine" in dentistry.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

PSYCHIATRY & BEHAVIORAL SCIENCES

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
Car1-BhS-001	Introduction to Behavioral Sciences	Explain biopsychosocial model and it's relevance to holistic dental care	Lecture	MCQ	Mowdat Rana 3rd edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-	Determinants of Oral Health	Describe how psychology , sociology and anthropology contribute to	Lecture	MCQ	Mowdat Rana 3rd

002	Behavior	understanding oral health behaviour			edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-003	Understanding Human Behavior	Differentiate between normal and abnormal behaviour and discussion their implications for dental care	Lecture	MCQ	Mowdat Rana 3rd edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-004	Emotional and Behavioral Factors in Dentistry	Recognize the influence of emotions and behaviour on patient dentist interactions and oral health outcomes	Lecture	MCQ	Mowdat Rana 3rd edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-005	Communication Skills	Demonstrate the effective communication and interpersonal skills in clinical and community dental settings	Lecture/Clinical	MCQ/OSVI	Mowdat Rana 3rd edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-006	Emotional Intelligence	Apply principles of empathy and emotional intelligence In role play	Lecture/practical	MCQ/OSVI	Mowdat Rana 3rd edition, Integrating behavioral sciences in healthcare by Asma Humayun
Car1-BhS-007	Professional Ethics and Responsibilities	Describe ethical principles, professional roles and responsibilities of dentist	Lecture	MCQ	Mowdat Rana 3rd edition,

	s				Integrating behavioral sciences in healthcare by Asma Humayun
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PRACTICAL /LAB WORK

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome
Car1-OB-003	Tooth Morphology and Structural Features	Students should be able to 1. Identify major morphological features of teeth — including the lobes, contact areas, embrasures, height of contour, and the cervical and gingival lines — using models, and anatomical specimens. 2. Locate pits, fissures, and different types of embrasures on teeth through direct inspection of specimens/typodont models/clinical images.
Car1-OB-004	Enamel	At the end of the practical student should be able to 1. Draw and label lifecycle of ameloblast 2. Draw and label Secretory stage ameloblast 3. Draw and label Maturation stage ameloblast 4. Draw and label different histological/organizational features of the enamel (enamel rods, striae of Retzius, Hunter-Schreger bands, gnarled enamel, DEJ, enamel tufts, lamellae, spindles, & neonatal lines.)

ORAL PATHOLOGY

Code	Topic	Learning Outcome
Car1-OP-003	Microscopic Analysis of Plaque	Observe prepared slides of plaque samples.
Car1-OP-004	Radiographic Identification of Tooth Structures and Developmental Anomalies	Radiographic Identification of Tooth Structures and Developmental Anomalies

OPERATIVE DENTISTRY

Code	Topic	Learning Outcome
Car1-OD-006	Prevention of Dental Caries	1. Identify fluoride gel and demonstrate application procedure. 2. Identify pits, fissures, smooth surface, and root caries on models, or Images 3. Differentiate active versus arrested caries on prepared slides or images

BLOCK-2
Module -4
FOUNDATION-II

INTRODUCTION TO MODULE 4

Foundation II builds on basic biomedical concepts by integrating anatomy, physiology, biochemistry, and pathology with dental relevance. It focuses on blood, vascular and nervous systems, early disease mechanisms, and introduces microbiology, pharmacology, and dental radiology to prepare students for clinical learning.

THE MODULAR OUTCOME

- Describe the organization and functions of the vascular and nervous systems.
- Explain blood composition, formation, and functions, including regulation of erythropoiesis.
- Correlate biochemical pathways of hemoglobin synthesis and RBC metabolism with clinical conditions.
- Describe dentin and pulp structure, development, and age-related changes in dental disease.
- Explain basic pharmacokinetic principles relevant to dental therapeutics.
- Identify cellular adaptations, inflammation, and wound healing under microscopy.
- Describe microbial structure, growth, and infection control principles in dentistry.
- Relate oral microbiology concepts to dental infections and antibiotic resistance.
- Interpret dental radiographs for normal anatomy and common anomalies.
- Demonstrate safe laboratory practice, microscopy, staining, and drug dosage calculation.

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
PHYSIOLOGY					
F2-P-001	Composition and Properties of Blood	Enlist the composition of blood, its cellular elements, and plasma. (Expanded with hematocrit, PCV, plasma proteins).	Lecture	MCQs OSVE OSPE	Guyton and Hall 14th edition
F2-P-002	Red Blood Cells	Explain the structure, morphology, and lifespan of red blood cells, including factors affecting RBC production and destruction.	Lecture	MCQs OSVE OSPE	Guyton and Hall 14th edition
F2-P-003	Anemias and Polycythemias	Classify anemia; describe mechanisms of iron deficiency anemia, hemolytic anemia, and megaloblastic anemia at a basic level. Define sickle cell anemia Discuss the effects of anemia on circulation Define and enlist types of polycythemias Discuss the effects of polycythemias on circulation	Lecture	MCQs OSVE OSPE	Guyton and Hall 14th edition
F2-P-004	Erythropoiesis and Its Regulation	Explain erythropoiesis and regulation by erythropoietin. Enumerate and elaborate role of factors/nutrients that are required and regulate erythropoiesis	Lecture	MCQs OSVE OSPE	Guyton and Hall 14th edition
F2-P-005	Blood Indices and Diagnostic Interpretation	Define blood indices mentioned as: MCV (mean corpuscular volume), MCH (mean corpuscular hemoglobin), and MCHC (mean corpuscular hemoglobin concentration).	Lecture	MCQs OSVE OSPE	Guyton and Hall 14th edition

		Give their normal values & enumerate the conditions in which these values are disturbed			
BIOCHEMISTRY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-B-001	Structure, Synthesis, and Functions of Hemoglobin	1. Describe the structure of heme and briefly describe the steps of heme synthesis with its regulation. 2. Explain the metabolism of iron, including its absorption, transport (transferrin), storage (ferritin, hemosiderin), and regulation 3. How does heme combine with globin to form hemoglobin and enlist the functions of hemoglobin 4. Enlist the types of hemoglobin along with their percentage and chain Composition. 5. Understand the oxygen-binding mechanism of hemoglobin, including the Concepts of cooperative binding and allosteric regulation. 6. Describe hemoglobin structure, functions, and oxygen dissociation curve. Include hemoglobinopathies (sickle cell anemia, thalassemia). 7. Explain the significance of HbA1c. 8. Describe the structure and functions of myoglobin; compare and	Lecture	MCQ OSPE OSVI	Lippincott harper and Mushtaq Ahmed

		contrast with hemoglobin in terms of oxygen-binding and clinical relevance (MI marker).			
F2-B-002	Porphyria	1. Define and explain the biochemical basis of porphyria along with its classification. 2. Describe the oral and dental manifestations of porphyria, including erythrodontia, photosensitivity, mucosal lesions, and delayed healing.	Lecture	MCQ OSVI	Lippincott harper and Mushtaq Ahmed
F2-B-003	Red Blood Cell Metabolism and Energy Pathways	1. Describe RBC metabolism (glycolysis, pentose phosphate pathway, G6PD deficiency) and role of trace elements (iron, selenium). 2. Explain RBC metabolism, including glycolysis, pentose phosphate pathway, and G6PD deficiency 3. Describe and outline the steps in hexosemonophosphate pathway (HMP) and its significance in RBCs. 4. Compare and contrast glycolysis and the HMP shunt. 5. Explain hemolytic anemia due to pyruvate kinase and glucose 6 phosphate dehydrogenase deficiencies.	Lecture	MCQ OSVI	Lippincott harper and Mushtaq Ahmed
F2-B-004	Vitamins	Describe vitamins (A, B6, B9, B12, E), their active forms, sources, RDA, biochemical roles, and deficiency manifestations.	Lecture	MCQ OSVI	Lippincott harper and Mushtaq Ahmed

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-OB-001	Pulp–Dentin Complex	Describe the composition and functions of dentin and pulp; correlate structural features with clinical conditions.	Lecture Practical Drawing	MCQs OSVE OSPE	Tencate oral Histology and development 9th edition
F2-OB-002	Extracellular Matrix	Explain the structure, functions, and degradation of extracellular matrix in oral Tissues	Lecture	MCQs	Tencate oral Histology and development 9th edition
F2-OB-003	Dentine	1. Describe the process of Dentinogenesis. 2. Differentiate between the three main types of dentin: primary, secondary and tertiary, and describe their locations and formation. 3. Describe the mechanisms that control dentin mineralization, and differentiate between the pattern of mineralization in mantle dentin and circumpulpal dentin. 4. Explain the processes of secondary and tertiary dentinogenesis, including the stimuli that trigger their formation. 5. Describe the structure and function of dentinal tubules. 6. Differentiate between peritubular and intertubular dentin, and explain their respective compositions and roles. 7. Explain the formation and significance of sclerotic	LGDs Practical's Drawings	MCQs OSVE OSPE	Tencate oral Histology and development 9th edition

		dentin and interglobular dentin. 8. Describe the structural features of dentin, including incremental growth lines and granular layer of Tom's.			
F2-OB-004	Pulp	At the end of the lesson the student will be able to 1. Describe the cellular contents and zones of the dental pulp. Pulp 2. Discuss the innervation, vascular supply, and lymphatic supply of the dentin–pulp complex. 3. Explain the mechanisms of dentin sensitivity, focusing on the hydrodynamic theory. 4. Describe the formation and clinical significance of pulp stones (denticles). 5. Explain the age-related changes that occur in the dentin–pulp complex. 6. Analyze the pulp's cellular response to dental caries and the mechanical trauma of cavity preparation.	Lectures Practical's	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
F2-OB-005	Developmental Timeline and Chronology of Dentition	Develop a detailed timeline chart illustrating the calcification stages and eruption periods for deciduous and permanent dentition.	Lecture	MCQs	Concise dental anatomy and morphology 4th edition
F2-OB-006	Pulp Anatomy	Describe the anatomy of the pulp tissue and pulp cavities in teeth	Lecture	MCQs	Concise dental anatomy and morphology 4th edition
F2-OB-007	Age-Related Changes in the Pulp	Explain the age-related morphological and physiological changes	Lecture	MCQs	Tencate oral Histology and development

		occurring in the pulp cavity.			9th edition
PHARMACOLOGY & THERAPEUTICS					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-Ph-001	General Pharmacology	Should be able to differentiate and interpret general pharmacological concepts	Lecture	MCQ/ OSVE	Mini katzung and Trevor, Latest edition
F2-Ph-002	Drug Transport	Explains routes and mechanism of drug transport in the human body	Lecture	MCQ/ OSVE	Mini katzung and Trevor, Latest edition
F2-Ph-003	Drug Metabolism	Explains how a drug is metabolised in the human body	Lecture	MCQ/ OSVE	Mini katzung and Trevor. Latest edition
F2-Ph-004	Drug Excretion	Explains removal of the drug from the human body after pharmacological action has been acheived	Lecture	MCQ/ OSVE	Mini katzung and Trevor. Latest edition
F2-Ph-005	Plasma Half Life	Must know plasma half-life of the drugs	Lecture	MCQ/ OSVE	Mini katzung and Trevor.Latest edition
F2-Ph-006	Pharmacodyna mics	Must be able to understand all the concepts of pharmacodynamics in pharmacology	Lecture	MCQ/ OSVE	Mini katzung and Trevor.Latest edition
F2-Ph-007		Must be able to understand all the concepts of pharmacodynamics in pharmacology	Lecture	MCQ/ OSVE	Mini katzung and Trevor Latest edition
PATHOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-Pa-001	Intracellular Accumulations and	1. Describe intracellular accumulations (lipids, proteins, glycogen,	Lecture Tutorial	MCQs, OSVE	Robbin’s 10th Edition

	Calcification	pigments). 2. Define calcification differentiate between dystrophic and metastatic calcification.;			
F2-Pa-002	Pigmentation and Amyloidosis	1. Define pigmentation; describe endogenous (melanin, hemosiderin) and exogenous pigments (carbon, tattoos). 2. Define amyloidosis; describe pathogenesis and morphology.	Lecture Tutorial	MCQs, OSVE	Robbin's 10th Edition
F2-Pa-003	Cellular Adaptations	Define hyperplasia, metaplasia and dysplasia	Lecture Tutorial	MCQs, OSVE	Robbin's 10th Edition
F2-Pa-004	Aging	Define aging; describe theories of aging and morphological features.	Lecture	MCQs	Robbin's 10th Edition
F2-Pa-005	Inflammation	1. Define acute and chronic inflammation and enlist cardinal signs. 2. Enumerate the differences between acute and chronic inflammation	Lecture	MCQs, OSVE	Robbin's 10th Edition
F2-Pa-006	Wound healing	Define wound healing (primary vs secondary intention).	Lecture	MCQs, OSVE	Robbin's 10th Edition

MICROBIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-Pa-007	Introduction to Microbiology	1. Define microbes and describe their role in health and disease.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Differentiate between prokaryotic and eukaryotic microorganisms.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Classify bacteria according to morphology and staining	Lecture Practical	MCQs, OSVE,	Levinson 18th Edition

		characteristics.		OSPE	
		Describe bacterial structure, spores, and growth curve.	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Levinson 18th Edition
		Describe the composition and types of culture media (selective, differential, enrichment).	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Levinson 18th Edition
		Compare and contrast applications of different culture media used in microbiology and oral diagnostic labs.	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Levinson 18th Edition
F2-Pa-008	Microbial Physiology and Genetics	Define aerobic and anaerobic growth and explain fermentation in oral bacteria.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss the role of iron metabolism in bacterial growth and virulence.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Define mutation and its types; explain recombination.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss DNA transfer within and between bacterial cells (conjugation, transformation, transduction).	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Explain the mechanisms of bacterial resistance to antibiotics.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
F2-Pa-009	Infection Control in Dentistry	Define sterilization, disinfection, cross infection and antisepsis.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Describe common methods of sterilization and disinfection (physical and chemical).	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Levinson 18th Edition
		Explain the application of these methods in dental	Lecture Tutorial Practical	MCQs, OSVE, OSPE	Levinson 18th Edition

		clinical practice to prevent cross-infection.			
F2-Pa-010	Normal Flora and Host Interaction	Define normal flora, colonizer, and dysbiosis.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Discuss the normal flora of different body sites, especially the oral cavity and skin.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Describe their distribution, beneficial roles, and contribution to opportunistic infections.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
F2-Pa-011	Bacterial Pathogenesis and Virulence	Define pathogen, pathogenesis, virulence factors, ID ₅₀ , and LD ₅₀ .	Lecture	MCQs, OSVE	Levinson 18th Edition
		Identify factors influencing microbial pathogenicity, including host and immune evasion mechanisms.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss principles and stages of bacterial pathogenesis.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Explain determinants of pathogenesis: transmission, adherence, invasion, inflammation, toxin production, immune pathogenesis.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss the role of biofilm and glycocalyx in infections, particularly dental plaque and chronic oral infections.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Enlist different bacterial strains that cause distinct diseases.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Define typical stages of an infectious disease.	Lecture	MCQs, OSVE	Levinson 18th Edition
F2-Pa-012	Antibiotic Agents	Summarize the mechanism of action of major antimicrobial classes (e.g., β -lactams, aminoglycosides).	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Identify appropriate antibiotic agents for bacterial infections	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition

		of dental relevance.			
		Explain mechanisms of bacterial resistance and their implications in dental practice.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
F2-Pa-013	Oral Microbiology and Related Infections	Define osteomyelitis and list microorganisms commonly associated with it.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Discuss Actinomycetes with emphasis on epidemiology, virulence factors, and pathogenesis in cervicofacial infections.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
F2-Pa-014	Introduction to Virology	Describe the structure and classification of viruses (DNA and RNA).	Lecture	MCQs, OSVE	Levinson 18th Edition
		Explain basic principles of viral replication and its clinical relevance in oral infections.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
F2-Pa-015	Mycology	Describe the structure and classify fungi.	Lecture	MCQs, OSVE	Levinson 18th Edition

ORAL PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
F2-OP-001	Dentinogenesis imperfecta	Describe developmental disturbances in dentin. Explain dentinogenesis imperfecta, regional odontodysplasia and dentin dysplasia (clinical, radiographic, histopathological).	Lectures & Practical	MCQs OSPE	Contemporary oral pathology
F2-OP-002	Dentinal Caries	Describe dentinal caries.	Lectures & Practical	OSPE	Contemporary oral pathology

DENTAL RADIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/	Assessment Tools	Reference
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			Practical/ Clinical)		
F2-DR-001	Introduction to Dental Radiology	1.Describe the basic principles of dental imaging and its role in diagnosis. 2. Identify the types and indications of conventional radiographs, including periapical, bitewing, and orthopantomogram (OPG).	Lecture	MCQ	Dental and maxillofacial Radiology, Eric Whaites
PRACTICALS/LAB WORK					
ORAL BIOLOGY & TOOTH MORPHOLOGY					
Code	Topic	Learning Outcome			
F2-OB-008	Dentine and Pulp	1.Draw and label dentin types (primary, secondary, tertiary), tubules, pulp zones, odontoblasts, interglobular dentin, dead tracts, pulp stones. 2. Identify the dentin and pulp radiographically 3. Identify the Dento-enamel junction radiographically			
PHARMACOLOGY & THERAPEUTICS					
Code	Topic	Learning Outcome			
F2-Ph-008	Dose calculation	Should be able to calculate dosage rate of IV infusions in adults and children using drop factor and microburette			
PATHOLOGY					
Code	Topic	Learning Outcome			
F2-Pa-016	Microscopic Identification	Identify cellular adaptations (metaplasia) in pictures.			
ORAL PATHOLOGY					
Code	Topic	Learning Outcome			
F2-OP-003	Dentinogenesis is Imperfecta	Identify dentinogenesis imperfecta, pulp cavity, and dentin on radiographs.			
MICROBIOLOGY					
Code	Topic	Learning Outcome			
F2-Pa-017	Microscopic Identification	Perform Gram staining on bacterial smears and identify Gram-positive and Gram-negative bacteria & ZN for MTB under the microscope.			
F2-Pa-018	Disinfection	Demonstrate appropriate disinfection methods for dental instruments and materials.			
F2-Pa-019	Sterilization	Demonstrate appropriate sterilization methods (autoclave, dry heat, & moist heat) for dental instruments.			

F2-Pa-020	Culture Media	Identify culture media used in Microbiology laboratory for identification of pathogens (blood agar, chocolate agar, Mc Conkey agar, Nutrient agar, SDA, LJ medium, TSI, Citrate, Urease).
DENTAL RADIOLOGY		
Code	Topic	Learning Outcome
F2-DR-002	Interpretation of Conventional Radiographs	Interpret basic dental radiographs to recognize normal anatomy and general radiological appearances of common pathology (radiolucency, radiopacity, and resorption)

MODULE -5 **CRANIOFACIAL II**

INTRODUCTION TO MODULE 5

Craniofacial II advances understanding of head and neck structure and function relevant to dentistry, integrating anatomy, physiology, biochemistry, and oral biology to support future clinical practice.

THE MODULAR OUTCOME

- Describe the anatomy of the scalp, face, orbit, temporal, infratemporal, and pterygopalatine fossae with their neurovascular components.
- Explain the anatomical basis of facial infections, scalp injuries, and facial skeletal fractures.
- Identify muscles of facial expression, mastication, and extraocular muscles with their nerve supply and actions.
- Describe the course and clinical relevance of cranial nerves III, IV, V, VI, and VII.
- Explain the structure and innervation of the ear, nose, and paranasal sinuses with dental relevance.
- Explain nerve impulse generation, conduction, synaptic transmission, and their role in local anesthesia.
- Describe skeletal muscle structure and contraction, including sarcomeres, motor units, and energy use.
- Correlate biochemical energy pathways with muscle function and fatigue.
- Describe connective tissue components (collagen, elastin, ECM) and their role in musculoskeletal integrity.
- Explain bone microstructure and the roles of osteoblasts, osteocytes, and osteoclasts in remodeling.
- Demonstrate identification of major head and neck muscles and neurovascular structures on specimens and image

GROSS ANATOMY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF2-A-001	Scalp	1. List the layers of the scalp and describe their anatomical features, including neurovascular supply and lymphatic drainage 2. Give anatomical justification of spread of scalp infections, profuse bleeding in superficial scalp lacerations, gaping of scalp wounds 3. Define the routes of spread of infection from scalp to brain	Lecture	MCQs OSVE OSPE	Clinical anatomy by Snell's 10th Ed.
CF2-A-002	Face	1. Enlist in tabulated manner the muscles of facial expression, giving their nerve supply and actions. 2. Describe the extracranial course, branches, and distribution of the facial Nerve. 3. Explain the causes and clinical consequences of damage to the nerve. 4. Describe the vascular supply and lymphatic supply of face. 5. Describe the danger area of face with its clinical significance. 6. Describe the danger area of face with its clinical significance. 7. Define the routes of spread of infection from face to brain	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.
CF2-A-003	Eye	1. Define the boundaries and openings of orbital cavity. List the structures traversing these openings. enlist a tabulated manner enlist the extraocular and intraocular muscles of eyeball and eyelid muscles giving their nerve supply and actions 2. List and define the movements of eyeball with special reference to the axis	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.

		List the parts of Lacrimal apparatus giving their location and anatomical features. Describe the nerve supply of lacrimal gland 3. Describe the extracranial course, distribution and branches of oculomotor, trochlear and abducent nerves. 4. Describe the location, roots and distribution of ciliary ganglion 5. Give the clinical correlates of nerves supplying the muscles of the eyeball 6. Describe the course and branches of ophthalmic artery mentioning its origin and termination 7. Give the anatomical structure of eyeball emphasizing on its three coats and their neurovascular supply (including optic nerve and central retinal vessels).			
CF2-A-004	Temporal, Infratemporal and Pterygopalatine fossa	Describe the boundaries contents and primary communications of temporal, infratemporal and pterygopalatine fossa Describe the location, roots and distribution of pterygopalatine ganglion	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.
CF2-A-005	Ear	1. Describe the anatomical features and neurovascular supply of external ear 2. Describe the boundaries, contents, neurovascular supply and communications of middle ear cavity 3. Describe the anatomical features of auditory tube. 4. Describe the anatomical features of auditory tube. 5. Describe the parts, anatomical features and neurovascular supply of internal ear 6. Describe the course and distribution of vestibulocochlear nerve	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.
CF2-A-006	Nose	1. Describe the anatomical features and neurovascular supply of external nose Describe the boundaries of nasal cavity (nasal septum, lateral wall, roof and floor) with their anatomical features, olfactory and trigeminal nerve supply, and vascular supply 2. Discuss the clinical correlates of nose: Epistaxis, Foreign body in the nose.	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.

CF2-A-007	Sinuses	1. Identify the paranasal sinuses (maxillary, frontal, ethmoidal, sphenoidal) and describe their location, neurovascular supply, relations, and drainage pathways. Explain the lining and basic functions of the paranasal sinuses 2. Relate the maxillary sinus to posterior maxillary teeth and discuss its clinical importance in dentistry (e.g., extractions, implants, sinus lift). 3. Discuss the clinical features of sinusitis and its differentiation from odontogenic pain.	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.
CF2-A-008	Fractures	1. Classify fractures of the maxilla based on anatomical patterns (Le fort classification) 2. Classify fractures of the mandible based on anatomical regions	Lecture	MCQs OSPE OSVE	Clinical anatomy by Snell's 10th Ed.
PHYSIOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF2-P-001	Membrane Potentials and Action Potentials (Nerve)	Describe the physiological anatomy of a neuron, including its structure and function.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-002	Myelinated and Unmyelinated Nerve Fibers.	Enlist the neuroglia cells responsible for myelination in Central Nervous System (CNS) & Peripheral Nervous System (PNS) Enlist the steps of myelination in peripheral nervous system. Define Multiple sclerosis	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-003	Membrane Potentials	Explain Nernst potential of Na & K. Derive the Nernst equation. Explain the physiological basis of the Goldman equation and write the equation.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-004	Resting membrane potential	Describe the resting membrane potential of a nerve fiber and the role of various ion channels.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th

		Discuss Role of different channels in calculating Resting membrane potential of a nerve fiber			edition
CF2-P-005	Action Potentials	Define Action potential and ionic basis. Discuss the role of voltage-gated channels in generating action potential Define threshold stimulus Define the All-or-None Law. Define absolute refractory period, and relative refractory period also mention their physiological basis. Discuss the effects of hypocalcemia on nerve excitability. Explain the mechanism of local anesthetics on nerve excitability	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-006	Propagation of the action potential	Explain the propagation of action potentials Define Saltatory conduction and its benefits. Explain mechanism of tetany	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-007	Contraction of Skeletal Muscle	Describe the physiological anatomy of skeletal muscles Describe the structure of Sarcomere	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-008	General mechanism of muscle Contraction	Explain general mechanism of skeletal muscle contraction (walk along theory)	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
CF2-P-009	Characteristics of whole muscle Contraction	Define and differentiate isotonic and isometric contraction with 2 examples of each Give physiological basis of tetanization and multiple fiber summation Defining a motor unit and explain the mechanism of muscle contraction by illustrating the role of motor units in regulating force and precision of movement. Give physiological basis of Rigor mortis Explain muscle fatigue Describe physiology of muscle contraction, including sliding filament theory, excitation–contraction coupling, neuromuscular junction, end plate potential, and muscle fatigue.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition

CF2-P-010	Smooth Muscles	Describe the types of smooth muscle and explain their functional properties, including the latch phenomenon.	Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
BIOCHEMISTRY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF2-B-001	Biochemistry and Structural Basis of Muscle Function and Integrity	1. Describe the structure, types, biosynthesis, and functions of collagen and elastin, and explain their roles in maintaining the mechanical strength and elasticity of muscle connective tissue. 2. Identify disorders associated with collagen and elastin defects, particularly those affecting muscle support structures and connective tissue integrity 3. Explain the composition and function of the extracellular matrix (ECM) in muscle tissue, including the roles of proteoglycans, collagen, fibronectin, and integrins in muscle cell adhesion, signaling, and repair.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
CF2-B-002	Energy Production in Muscles	1. Explain the structure and basic function of the electron transport chain (ETC) and describe how oxidative phosphorylation generates ATP in muscle cells. 2. Explain the processes of glycogenesis and glycogenolysis in muscle tissue, including their regulation, the role of key enzymes, and their contribution to ATP production during exercise. 3. Discuss the role of muscle glycogen as an energy source during different exercise intensities, its depletion and recovery, and how regular exercise influences glycogen storage capacity and muscle adaptation. 4. Describe the ATP–phosphocreatine (ATP-PC) system and its role in	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed

		providing immediate energy during short-term, high-intensity muscle activity. 5. Differentiate muscle fiber types (Type I, IIa, IIb) based on structure, metabolism, and functional properties.			
CF2-B-003	Vitamins	Describe vitamin C and its active forms, sources, RDA, biochemical roles, and deficiency manifestations.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF2-OB-001	Bone	1. Describe the functions of osteoblasts, osteocytes, and osteoclasts in Bone Formation and Remodeling 2. Describe the process of intramembranous and endochondral ossification 3. Describe the microscopic Structure of Bone: (Osteon, central canal, lamellae, lacunae, canaliculi, and blood vessels)	Lecture Practical	MCQs OSVE	Tencate oral Histology and development 9th edition

MICROBIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CF2-Pa-001	Microbial Teratogens	Define microbial teratogens, Define TORCH infections and identify the impact of maternal infections (TORCH complex) on embryonic development and their dental implications.	Lecture	MCQs, OSVE	Levinson 18th Edition+Oral Pathology Textbook
CF2-Pa-002	Staphylococcus aureus	Briefly discuss Staphylococcus aureus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition

CF2-Pa-003	Mucormycosis	Briefly discuss mucormycosis with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
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PRACTICAL/LAB WORK

GROSS ANATOMY

Code	Topic	Learning Outcome
CF2-A-009	Surface Anatomy	Demonstrate and systematically identify major arteries, veins, and nerves on anatomical models or cadaveric dissections; locate their course, branches, and anatomical relations; and correlate their clinical significance with surrounding structures
CF2-A-010	Jaw Muscles	Identify and demonstrate the origin, insertion, nerve supply, and actions of the muscles of facial expression on models or cadaveric specimens
CF2-A-011	Neurovascular Supply of face	Demonstrate surface marking of extracranial branches of the facial nerve and trigeminal nerve in relation to relevant structures, and identify their anatomical pathways and clinical relevance.

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome
CF2-OB-002	Bone	Draw and label osteoblasts, osteocytes, and osteoclasts and correlate each with its function.
CF2-OB-003	Ossification	Draw and label the stages / histological features of intramembranous and endochondral ossification

MODULE -6

NEUROSCIENCES I

INTRODUCTION TO MODULE 6

The **Neurosciences Module** introduces the structural and functional organization of the nervous system with direct relevance to dental practice. Integrating anatomy, physiology, biochemistry, pharmacology, pathology, and microbiology, it emphasizes neural control of sensation, movement, and autonomic functions, along with common neurological disorders. The module prepares students for clinical applications in anesthesia, pain management, and oral surgery.

THE MODULAR OUTCOME

- Describe the gross and microscopic organization of the central and peripheral nervous systems.
- Explain the structure and function of the spinal cord, brainstem, cerebellum, cerebrum, cranial nerves, and major neural tracts.
- Correlate lesions of ascending and descending pathways with clinical signs, including upper and lower motor neuron lesions.
- Describe cerebrospinal fluid formation, circulation, and function in intracranial homeostasis.
- Explain neural conduction, synaptic transmission, sensory processing, and reflex mechanisms.
- Interpret somatosensory and pain pathways, emphasizing trigeminal and dental pain physiology.
- Relate motor control to the functions of the motor cortex, cerebellum, and basal ganglia.
- Describe the biochemical basis of neurotransmission and relate molecular mechanisms to neurological disorders.
- Explain the pharmacodynamics of autonomic nervous system drugs and receptor regulation

ANATOMY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
NS-A-001	Nervous System Overview	Briefly describe general organization of nervous system	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-002	Neuron	Define neuron and describe its structure	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-003	Neuron Classification	Classify neurons morphologically and functionally with examples	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-004	CNS & PNS Overview	Briefly describe components of central and peripheral nervous system	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-005	Neuroglia	Describe the supporting cells in central and peripheral nervous system	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-006	Receptors and Effectors	Define & classify receptors and effectors	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-007	Sympathetic vs. Parasympathetic System	Describe the major subdivisions of ANS into sympathetic and parasympathetic nervous system with comparison of anatomical differences.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-008	Cranial Nerves	Enlist all cranial nerves and their distribution.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-009	Spinal Nerve Anatomy	Explain the classification, structure, and functions of peripheral nerve fibers in a typical spinal nerve	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-010	Dermatome	Define dermatome	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-011	Brain Regions	Enlist the parts of the brain.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-012	Spinal Cord Overview	Identify the location, extent, coverings, and blood supply	SGD+Lecture	MCQs OSPE	Neuroanatomy by Snell's

		of spinal cord		OSVE	11th Ed.
NS-A-013	Spinal Cord Nuclei	Discuss & tabulate nuclear organization at different levels of spinal cord	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-014	Spinal Cord Cross-Section	Describe, draw & label the transverse section of spinal cord at mid cervical level showing ascending & descending tracts	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-015	Spinal Cord Gray & White Matter	Elaborate the cross-sectional details of white and gray matter of cervical and thoracic segments of spinal cord	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-016	Ascending Tracts	Tabulate the sensory nerve endings, and anatomical sites of first, second, third order neurons of ascending tracts.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-017	Descending Tracts	Trace the descending tracts.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-018	UMN vs. LMN Lesions	Differentiate clearly between upper and lower motor neuron lesions	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-019	Brainstem Cross Sectional Anatomy	Describe the key structures and the distribution of grey and white matter in cross-sections of the brainstem at the levels of the midbrain, pons, and medulla	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-020	Cranial Nerve Nuclei and Pathways	Describe the location of cranial nerve nuclei, their functional components, and distribution, and its exit from respective skull foramina.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-021	Cerebellar Lobes	Identify the lobes of cerebellum	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-022	Cerebellar Clinical Correlates	Define important clinical correlates, vermis syndrome, ataxia, dysarthria, dysdiadochokinesia, nystagmus, and vertigo.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-023	Cerebral	Identify the lobes, sulci &	SGD+Lecture	MCQs	Neuroanatom

	Cortex Anatomy	gyri and cortical areas of cerebrum		OSPE OSVE	y by Snell's 11th Ed.
NS-A-024	Functional Cortex	Describe functional areas of cerebrum	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-025	Cerebral Hemisphere Structure	Describe internal structure of cerebral hemisphere (white matter, basal ganglia, lateral ventricle)	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-026	Ventricular System	Describe ventricular system (Lateral, 3rd & 4th ventricles)	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-027	Internal Capsule	Describe various parts of internal capsule	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-028	Circle of Willis	Discuss and label the formation of Circle of Willis	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-029	Meninges	Describe meninges of the brain	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-030	Dural Venous Sinuses	Discuss the location, origin and termination of dural venous sinuses.	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-031	Cavernous Sinus	Discuss the important structures associated with the cavernous sinus and its clinical significance in relation to the danger area of the face	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-032	Intracranial Hemorrhages	Discuss the anatomical basis of extradural, subdural and subarachnoid hemorrhages	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-033	CSF Physiology	Explain the formation, circulation and absorption of CSF (Cerebrospinal fluid)	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-034	Brain Blood Supply	Discuss the origin, course, branches and distribution of internal carotid and vertebral artery	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.
NS-A-035	Thalamus & Hypothalamus Connections	Enlist the nuclei of thalamus and hypothalamus along with its functions	SGD+Lecture	MCQs OSPE OSVE	Neuroanatomy by Snell's 11th Ed.

PHYSIOLOGY

Code	Topic	Learning Outcome	Teaching	Assessment	Reference
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			Methodology (Lecture/ Practical/ Clinical)	Tools	
NS-P-001	Organization of the Nervous System, Basic Functions of Synapses, and Neurotransmitters	1. Classify synapse and explain the physiological anatomy of chemical synapse. 2. Elaborate the role of synapse in processing information. 3. Classify the substances that act as neurotransmitters or synaptic transmitters. 4. Enlist functions related to dentistry of each group. 5. Define Excitatory and inhibitory postsynaptic potential and explain their mechanism of generation. 6. Explain spatial and temporal summation. 7. Explain the mechanism of synaptic fatigue (its significance) and synaptic delay. 8. Discuss the effects of hypoxia, acidosis and alkalosis on synaptic transmission	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-002	Sensory Receptors, Neuronal Circuits for	Define and classify the sensory receptors in the body on the basis of stimuli they detect.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-003	Processing Information	Discuss tonic and phasic receptors with 2 to 3 examples of each.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-004	Receptors Transduction of sensory stimuli into nerve impulses	Classify the nerve fibers on the basis of diameter and speed of conduction	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-005	Somatosensory cortex	1. Classify somatic sensations. 2. Explain two main ascending pathways (DCML	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition

		and Anterolateral system) for transmitting sensation to CNS. 3. Enlist sensations carried by dorsal column medial Lemniscal system and Anterolateral Pathway with special reference to Trigeminal sensory system. Trace these pathways from receptors to sensory cortex and compare their features. 4. Give location and functions of Primary somesthetic area and sensory association area of sensory cortex. 5. Name the sensations perceived by these areas . 6. Describe the sensations lost when there is damage to somesthetic areas. 7. Discuss representation of body parts in sensory cortex			
NS-P-006	Pain, Headache, and Thermal Sensations	1. Classify pain. Discuss location and stimulation of pain receptors 2. Discuss dual pain pathway of spinal cord and brain for transmission of pain signals into CNS with especial reference to tooth pain compare the features of dual pain pathways 3. Explain Analgesia system/pain suppression system of brain and spinal cord. Discuss its significance 4. Define and give physiological basis of referred pain with two examples. 5. Define Trigeminal Neuralgia.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-007	Cortical and	1. Name the motor areas of	SGD+Lecture	MCQs	Guyton and

	Brain Stem Control of Motor Function	cerebral cortex and give representation of body parts. 2. Discuss the functions of motor areas 3. Enlist the functions of brain stem 4. Name the descending motor tracts. 5. Describe the functions of corticospinal tract.		OSPE OSVE	Hall 14th edition
NS-P-008	Spinal Cord Motor Functions and Reflexes	1. Give Functional organization of spinal cord. 2. Define reflex action and identify the components of a reflex arc. 3. Define, classify and enlist components of stretch reflex with special reference to jaw reflex).	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-009	Effect of Lesions in the Motor Cortex or in the Corticospinal Pathway	Define and give types of cerebrovascular accident along with their salient features.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-010	The Limbic System and the Hypothalamus	1. Enlist the components of limbic system and its general functions. 2. Enlist functions of different portions hypothalamus. 3. Explain the physiological basis and features of Alzheimer 's disease	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-011	Memory	Define memory. Classify memory on the basis of duration and information stored.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-012	The Autonomic Nervous System and the Adrenal Medulla	1. Define retrograde and anterograde amnesia 2. Explain the effects of sympathetic and parasympathetic on various organs/ system of body 3. Enlist types of autonomic receptors present in heart,	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition

		blood vessels, smooth muscles, GIT, & EYE. Give features of Alarm or stress response			
NS-P-013	Cerebral circulation	Enlist the functions of CSF	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-014	Cerebellum and Basal Ganglia Contributions to Overall Motor Control	1. Give functional divisions of cerebellum along with their functions. 2. Enlist cerebellar nuclei 3. Enlist features of cerebellar dysfunction	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-015	Contributions to Overall Motor Control	1. Enlist components of basal ganglia in relation to other structures of the brain 2. Discuss functions of basal ganglia Discuss pathophysiology and features of Parkinson's disease.	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition
NS-P-016	The Chemical Senses—Taste and Smell	1. Enlist the primary taste sensations. 2. Trace the taste pathway 3. Enlist the primary sensations of smell 4. Describe the physiological anatomy and location of olfactory membrane and olfactory receptors	SGD+Lecture	MCQs OSPE OSVE	Guyton and Hall 14th edition

BIOCHEMISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
NS-B-001	Osmotic diuretic	Elaborate the structure of mannitol & give its clinical uses	Lecture+ Practical	MCQ OSPE OSCE	Lippincott harper and Mushtaq Ahmed
NS-B-002	Neuropathies	Discuss neuropathies associated with deficiency/ toxicity of B1, B6 & B12.	Lecture	MCQ OSPE OSCE	Lippincott harper and Mushtaq Ahmed
NS-B-003	Neurotransmitt	1. Explain the biosynthesis,	Lecture	MCQ	Lippincott

	ers	mechanism of action, and physiological role of acetylcholine, and discuss the clinical consequences of its deficiency 2. Outline the reactions involved in biosynthesis of catecholamines 3. Elaborate the mechanism of action of catecholamines.		OSPE OSCE	harper and Mushtaq Ahmed
NS-B-004	Inherited disorders of amino acid metabolism	1. Briefly describe the cause, clinical features & management of Phenylketonuria 2. Outline the metabolism of branched chain amino acids (BCAA). 3. Briefly describe the cause, clinical features & management of maple syrup urine disease (MSUD)	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
NS-B-005	Protein misfolding	Briefly describe the consequences of protein misfolding (Alzheimer's disease and prion diseases)	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed

PHARMACOLOGY & THERAPEUTICS

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
NS-Ph- 001	Introduction to ANS	Should know about autonomic nervous system, its functions, receptors	lecture	MCQs/OSV E	Mini katzung and Trevor. Latest edition
NS-Ph- 002	Classification	Explains the drugs that act on autonomic nervous system	lecture	MCQs/OSV E	Mini katzung and Trevor. Latest edition

PATHOLOGY & MICROBIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference

NS-Pa-001	Infections of CNS	Define meningitis.	Lecture	MCQs, OSVE	Levinson 18th Edition
		Identify different types of meningitis according to etiology.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Differentiate between the CSF findings of different types of meningitis	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Define encephalitis. Describe its etiology and pathogenesis	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss Streptococcus pneumoniae with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss Treponema pallidum with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss herpes simplex virus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss varicella zoster virus with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
		Discuss Clostridium tetani and Clostridium botulinum with its virulence factors, pathogenesis, lab diagnosis	Lecture Tutorial	MCQs, OSVE	Levinson 18th Edition
NS-Pa-002	Trauma to CNS	Define concussion and contusion. Enlist their clinical features	Lecture	MCQs, OSVE	Robbin's 10th Edition
NS-Pa-003	Demyelinating diseases of CNS	Enumerate various demyelinating diseases of CNS Enlist clinical features and diagnosis of Multiple Sclerosis & Guillain-Barre syndrome	Lecture	MCQs, OSVE	Robbin's 10th Edition

PRACTICAL /LAB WORK

NEUROANATOMY

Code	Topic	Learning Outcome
NS-A-036	Nervous system	Demonstrate gross neuroanatomical knowledge of the brain and brainstem with particular focus on the cranial nerves, including identification of their origin, course, nuclei, associated foramina, functional components, and clinical correlations using anatomical models and dissected cadaveric specimens

PHYSIOLOGY

Code	Topic	Learning Outcome
NS-P-017	CN V	Examination of trigeminal nerve.
NS-P-018	CN VII	Examination of facial nerve.
NS-P-019	CN IX, X, XI, XII	Examination of 9th, 10th, 11th & 12th nerve.
NS-P-020	Motor System	Demonstrate Plantar reflex.
NS-P-021		Demonstrate deep tendon reflex.

Module -7

ALVELOCEMENTAL COMPLEX I

INTRODUCTION TO MODULE 7

The Alveolo-Cemental Complex module focuses on the structure and function of periodontal tissues that support teeth, integrating biological concepts with clinical relevance for periodontal health and disease

THE MODULAR OUTCOME

- Describe the structure, composition, and functions of the periodontium and its components.
- Explain development, maturation, and age-related changes of periodontal tissues.
- Differentiate cellular and acellular cementum and their roles in tooth attachment and repair.
- Identify periodontal ligament fiber groups and relate them to mastication and tooth movement.
- Describe gingival histology, epithelial zones, and gingival junctions.
- Explain mechanisms of tooth eruption, movement, and shedding and related abnormalities.
- Discuss vascular, neural, and biochemical components of periodontal tissues relevant to dental practice.
- Explain inflammatory mechanisms and key microorganisms involved in periodontal disease.
- Identify factors in plaque and calculus formation and their role in disease progression.
- Demonstrate mechanical plaque control methods for periodontal health.
- Interpret radiographic features of the normal and diseased periodontium.
- Apply periodontal indices to assess and monitor oral health in community settings

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ALC-OB-001	Periodontium Overview	Define the alveolo-cemental complex (periodontium) and explain its role in dental support.	Lecture	MCQs	Tencate oral Histology& development 9th edition
ALC-OB-002	Components of Periodontium	Identify its components (cementum, PDL, alveolar bone, gingiva) and their diagrammatic arrangement around the tooth.	Lecture + Practical	MCQS OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-003	Cementum	1. Define cementum and explain its biochemical properties 2. Classify, explain and differentiate between different types of cementum and its properties	Lecture+ Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-004	Cementogenesis	1. Describe the process of cementogenesis 2. Explain molecular factors associated with cementogenesis	Lecture+ Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-005	Types of Cementum	Classify and explain the structure of different types of Cementum and their properties.	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-006	Age-related changes of cementum	Explain age-related changes of cementum.	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-007	CEJ	Describe cemento-enamel junction (CEJ) and attachment of cementum onto dentin	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-	Cellular vs	Differentiate between the	Lecture	MCQs	Tencate oral

008	Acellular Cementum	structure of cellular and acellular cementum.			Histology and development 9th edition
ALC-OB-009	Alveolar Bone Structure and Function	Describe the structure and functions of alveolar bone	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-010		Elaborate its changes with age and its clinical considerations	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-011	Bone Repair and Remodeling in the Extraction Socket	Outline the chronological stages of healing in an Extraction Socket, from the formation of the blood clot to the final replacement by lamellar bone.	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-012	Development of PDL	Discuss the development of Periodontal Ligament (PDL)	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-013	PDL Structure & Function	Enlist the structure and function of the periodontal ligament	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-014	PDL cellular Component	Describe the cellular component of PDL	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-015	PDL Fiber Bundles	Describe the principal fiber bundles of PDL.	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-016	Functional Adaptation of Periodontal Ligament	Describe the adaptation of the periodontal ligament to the functional demands.	Lecture	MCQs	Tencate oral Histology and development 9th edition

ALC-OB-017	Blood and Nerve Supply of PDL	Describe the blood supply and nerve supply of PDL	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-018	PDL remodeling and Regeneration.	Describe the mechanisms of PDL cell recruitment during tissue turnover and repair	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-019	Gingival Histology	Describe the histological aspects of gingiva.	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-020	Gingival Fibers	Enumerate gingival fibers & their functions.	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-021	Gingival Blood and Nerve Supply	Tabulate blood and nerve supply of gingiva	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-022	Gingival Epithelium	Describe the structural and functional characteristics of different areas of Gingival epithelium	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-023	Dentogingival Junction	Describe gingival sulcus and explain the development and structure of dentogingival junction (DEJ)	Lecture+ Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-024	Healing and Regeneration of the DEJ	Explain the histological mechanisms of repair at the DEJ	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-025	Mucogingival junction.	Explain the structure of mucogingival junction	Lecture + Practical	MCQs OSPE OSVE	Tencate oral Histology and development 9th edition
ALC-OB-	Tooth Eruption	1.Describe eruption and	Lecture	MCQs	Tencate oral

026	Phases Pre-eruptive Tooth Movement	phases of tooth movement 2. Elaborate pre-eruptive tooth movement			Histology and development 9th edition
ALC-OB-027	Eruptive Tooth Movement Mechanisms	Discuss the mechanism and factors responsible for eruptive tooth movement.	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-028	Post-eruptive Tooth Movements	Describe the types of movement a tooth makes post- eruption to maintain its functional position in the jaw in terms of mechanism and significance.	Lecture	MCQs	Tencate oral Histology and development 9th edition
ALC-OB-029	Tooth Shedding	Discuss histology and causes of tooth shedding	Lecture	MCQs	Tencate oral Histology and development 9th edition

PATHOLOGY & MIRCROBIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ALC-Pa-001	Acute Inflammation In Dental Conditions	Define acute inflammation and its pathological basis relevant to dental conditions.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
ALC-Pa-002	Stimuli of Acute Inflammation in Oral Health	Enlist stimuli for acute inflammation, including microbes, trauma, and chemical irritants relevant to oral infections.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
ALC-Pa-003	Chemical Mediators of Acute Inflammation in Dentistry	Classify chemical mediators of acute inflammation and their role in dental diseases such as dental abscess formation.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
ALC-Pa-004	Vascular and Cellular Events in Acute Inflammation	Explain vascular and cellular events in acute inflammation and its relation to dental conditions like pulpitis and	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition+Oral Pathology

		periodontitis.			Textbook
ALC-Pa-005	Systemic Effects of Acute Inflammation	Describe systemic effects of acute inflammation, such as fever and leukocytosis, and their impact on dental treatment.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
ALC-Pa-006	Microbes Causing Dental Infections	Identify and explain the role of microbes causing acute inflammation in dental infections, such as Streptococcus mutans and Porphyromonas gingivalis.	Lecture	MCQs	Levinson's Microbiology, 18th Edition
ALC-Pa-007	Morphological Patterns of Acute Inflammation in Oral Diseases	Analyze morphological patterns of acute inflammation, such as purulent or fibrinous types, in oral diseases.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition+Oral Pathology Textbook
ALC-Pa-008	Chronic Inflammation and Its Oral/Systemic Significance	Define chronic inflammation and its significance in persistent oral and systemic conditions.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition+Oral Pathology Textbook
ALC-Pa-009	Chronic Inflammatory Cells and Mediators	Identify chronic inflammatory cells, such as macrophages and lymphocytes, and mediators like TNF-a and IL-1.	Lecture + Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
ALC-Pa-010	Pathogenesis of Porphyromonas and Fusobacterium	Discuss Porphyromonas and Fusobacterium with its pathogenesis.	Lecture	MCQs	Levinson's Microbiology, 10th Edition

PERIODONTOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ALC-Pe- 001	Periodontal Disease Terminology	Define key terminologies related to periodontal diseases: Gingivitis, periodontitis, periodontal pockets, clinical attachment level and	Lecture	MCQ OSVE	Newman & Carranza 14 edition

		periodontal bone loss			
ALC-Pe- 002	Periodontal Disease	Define & Classify Periodontal Diseases	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 003	Healthy Microbial Composition and Periodontal Homeostasis	Identify the microbial composition of healthy gingival and periodontal tissues.	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 004	Pathogenic Bacterial Species in Periodontal Disease	Enlist key red complex bacterial species involved in periodontal disease (e.g., Porphyromonas gingivalis, Tannerella forsythia, Treponema denticola).	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 005	Plaque Biofilm Formation and Role in Disease	What is Plaque biofilm and how is it formed and what is its role in periodontal diseases	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 006		Describe dental plaque biofilm as the major factor contributing to development of periodontal disease, and its relationship with host, genetic and local predisposing factors in exacerbating periodontal conditions	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 007	Plaque Visualization, Disclosure, And Mechanical Removal	1. Explain the adherent nature of dental plaque and why it is not easily visualized. 2. Describe the importance of plaque disclosure and justify the need for mechanical plaque removal by both the patient and oral health professionals.	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 008	Dental Calculus Formation, Composition, and Role in Disease	1. Explain the role of dental calculus in periodontal disease. 2. Differentiate between supragingival and subgingival calculus, 3. Describe the formation, mineralization, and microbial	Lecture	MCQ OSVE	Newman & Carranza 14 edition

		composition of calculus, and explain how calculus acts as a plaque-retentive surface contributing to periodontal disease progression.			
ALC-Pe- 009	Other Predisposing Factors for Plaque Formation	Enlist other predisposing factors (other than calculus) that predispose to plaque formation and consequent periodontal disease like gingivitis.	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 010	Scurvy and Vitamin C Role in Periodontal Health	Describe the etiology and pathogenesis of scurvy with emphasis on the biochemical role of Vitamin C in collagen synthesis and its clinical implications on periodontal tissue integrity	Lecture	MCQ OSVE	Newman & Carranza 14 edition
ALC-Pe- 011	Plaque removal techniques	Enlist methods of plaque removal techniques	Lecture	MCQ OSVE	Newman & Carranza 14 edition

DENTAL RADIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
ALC-DR-001	Role of Radiology in Periodontal Disease	Define the role of radiology in diagnosing and assessing periodontal diseases. Explain radiological features of healthy periodontium	Lecture	MCQ OSVE	Eric Whaites Essentials of Dental Radiology 6 th Edition
ALC-DR-002	Interpretation of Radiographic Signs in Periodontal Disease	Interpret key radiographic signs of periodontal disease, including crestal bone loss, widening of the periodontal ligament space, and calculus deposits	lecture	MCQ OSVE	Eric Whaites Essentials of Dental Radiology 6 th Edition

COMMUNITY & PREVENTIVE DENTISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/	Assessment Tools	Reference
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			Clinical)		
ALC-CD-001	Periodontal Indices	Explain the Role of Indices: Understand how periodontal indices provide a quantitative method for measuring the status of oral health in a population, allowing for the comparison of disease prevalence and severity across different groups. Classify Periodontal Indices: Differentiate between reversible indices (measuring conditions like gingival inflammation that can return to health) and irreversible indices (measuring permanent bone loss or attachment destruction).	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
ALC-CD-002	Periodontal Conditions	Classify Gingival and Periodontal Diseases: Identify and differentiate between various conditions, such as chronic gingivitis (inflammation limited to the soft tissues) and periodontitis (involvement of the deeper supporting structures). Recognize Clinical Signs: Describe the hallmark signs of periodontal disease, including changes in gingival color, contour, consistency, and the presence of bleeding on probing or pathological migration of teeth.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
ALC-CD-003	Disease Progression	Understand the Pathogenesis of Periodontal Breakdown: Explain the transition from a stable lesion to a progressive one, focusing on the destruction of the periodontal ligament and the resorption of alveolar bone. Analyze Models of	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

		Progression: Contrast the "Continuous Model" of slow, steady attachment loss with the "Random Burst Theory," where disease progression occurs in short, episodic periods of activity followed by periods of quiescence.			
ALC-CD-005	CPITN and Treatment Needs Assessment	Master the CPITN Procedure: Describe the use of the WHO CPI probe and the division of the mouth into sextants to record the Community Periodontal Index of Treatment Needs (CPITN). Interpret Treatment Categories: Assign the appropriate treatment need (TN) based on the recorded score, ranging from TN 0 (no treatment) to TN 3 (complex periodontal therapy like deep scaling and root planing).	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)
ALC-CD-006	Oral Health Assessment and Risk Evaluation	Conduct Comprehensive Screening: Identify the essential components of an oral health assessment, including the medical history, extra-oral examination, and intra-oral charting of teeth and soft tissues. Evaluate Risk Factors: Analyze individual risk profiles by correlating clinical findings with behavioral factors (such as tobacco use) and systemic conditions (such as diabetes) that influence oral disease progression.	Lecture	MCQs OSPE OSVE	Textbook of Preventive and Community Dentistry (3rd Edition)

PRACTICAL/LAB WORK		
PATHOLOGY & MICROBIOLOGY		
Code	Topic	Learning Outcome

ALC-Pa-011	Histological Identification	Identify histological slides of acute, chronic & granulomatous inflammation.
PERIDONTOLOGY		
Code	Topic	Learning Outcome
ALC-Pe-011	Brushing and Flossing Techniques	Demonstrate plaque removal techniques including proper brushing and Flossing.
DENTAL RADIOLOGY		
Code	Topic	Learning Outcome
ALC-DR- 003	Normal Periodontal Structures on Radiographs	Identify normal periodontal structures on radiographs (OPG and periapical)
ALC-DR-004	Alveolar Bone Observation and Level Assessment	Observe alveolar bone and assess bone levels
ALC-DR-005	Periodontal Ligament Space Identification	Identify the periodontal ligament (PDL) space on radiographs.
ALC-DR-006	Lamina Dura Identification	Identify the lamina dura on radiographs.
ALC-DR-007	Cementoenamel Junction Recognition	Recognize the cementoenamel junction (CEJ) on radiographs.
ALC-DR-008	Cortical vs. Cancellous Bone Differentiation	Differentiate between cortical and cancellous bone on radiographs.
ORAL BIOLOGY & TOOTH MORPHOLOGY		
Code	Topic	Learning Outcome
ALC-OB- 030	Cement oblast	Draw and label the differentiation of cementoblasts from ectomesenchyme cells & the fragmentation of Hertwig's epithelial root sheath
ALC-OB- 031	CEJ	Draw and label the types of cement enamel junction
ALC-OB- 032	Cellular Cementum	Draw and label cellular cementum
ALC-OB- 033	Alveolar & Bundle Bone	Draw and label the alveolar and bundle bone
ALC-OB- 034	PDL cross Section	Draw and label the periodontal ligament in a cross-section between teeth
ALC-OB- 035	Principal fibers group of PDL	Draw and label the arrangement of principal fiber group within the periodontium.
ALC-OB- 036	Gingival group of Fibers	Draw and label the gingival group of fibers (gingival ligament)
ALC-OB- 037	Gingiva & its Junctions	Draw and label different anatomical zones of gingiva; mucocutaneous junction, mucogingival junction, & dent gingival junction.

BLOCK 3
MODULE -8
BLOOD & CARDIOVASCULAR SYSTEM -I

INTRODUCTION TO MODULE 8

The Blood & Cardiovascular System module provides foundational understanding of blood and circulatory function essential for maintaining homeostasis, immunity, and tissue perfusion. Integrating anatomy, physiology, biochemistry, pathology, pharmacology, and microbiology, the module emphasizes clinical relevance to dental practice, including management of bleeding disorders, cardiovascular conditions, and infections, supporting safe and effective patient care.

THE MODULAR OUTCOME

- Describe the structure and functions of the cardiovascular and lymphatic systems.
- Explain blood composition, hemostasis, immunity, inflammation, and their physiological basis.
- Correlate biochemical aspects of plasma proteins, lipoproteins, and cholesterol metabolism with systemic health.
- Interpret basic hematological and cardiovascular parameters, including blood groups, bleeding/clotting times, and ECG.
- Recognize the pathophysiology of common hematologic and cardiovascular disorders.
- Explain the classification and mechanisms of major cardiovascular drugs.
- Relate oral infections to cardiovascular disease using microbiological and pathological principles.
- Integrate interdisciplinary concepts to understand the impact of cardiovascular health on dental care

ANATOMY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CVS-A-001	Organization of the Vascular System	Describe the general organization of the vascular system, including the structure and functions of arteries, veins, and capillaries.	Lecture +SGD	MCQs OSPE OSVE	General anatomy By Laiq Hussain 8th Ed.
CVS-A-002	Organization of the Nervous System	Describe the general organization of the nervous system, including the central nervous system and peripheral nervous system overview.	Lecture +SGD	MCQs OSPE OSVE	General anatomy By Laiq Hussain 8th Ed.
CVS-A-003	Circulatory system	Describe and exemplify various types of anastomoses Describe three circulatory routes Define portal system and describe its two varieties Describe how the walls of blood vessels receive their blood supply, including the role of vasa vasorum and diffusion from the lumen. Describe various components of lymph vascular system	Lecture +SGD	MCQs OSPE OSVE	General anatomy By Laiq Hussain 8th Ed.
HISTOLOGY					

CVS-A-004	Lymphoid organs	Describe the structure of lymphoid organs.	Lecture +SGD	MCQs OSPE OSCE	HISTOLOGY by Laiq Hussain 11th Ed.
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PHYSIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CVS-P-001	Blood: White Blood Cells and Body Defense Mechanisms	1. Describe the blood components. Enumerate the types of white blood cells along with their normal blood count. 2. Discuss their site of genesis. 3. Describe the characteristics and functions of neutrophils. 4. Explain the process of phagocytosis and lysis of invading agents by neutrophils. 5. Explain the process of phagocytosis and lysis of invading agents by macrophages. 6. Explain the process of opsonization. 7. Describe the process of inflammation. 8. Enlist different lines of defense during inflammation. 9. Explain the process of migration of neutrophils from the blood into inflamed tissue. 10. Explain the functions of eosinophils and basophils. 11. Give normal lifespan of white blood cells. 12. Classify lymphocytes. Classify T lymphocytes and enlist their salient functions.	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-002	Immunity	1. Define immunity. 2. Describe innate immunity. 3. Describe and classify acquired immunity.	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition

		4. Define passive immunity. Discuss the role of T cells and B cells in acquired immunity. 5. Define plasma cells. 6. Describe the structure of antigen and immunoglobulin. 7. Enlist types of immunoglobulins. 8. Describe the mechanism of direct action of antibodies.			
CVS-P-003	Blood Types and Transfusion	1. Enumerate different blood group types. 2. Explain the basis of ABO and Rh blood systems. 3. Discuss the features and complications of mismatched blood transfusion reaction.	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-004	Hemostasis and Blood Coagulation	1. Define hemostasis. Enlist and explain the mechanisms that secure hemostasis. 2. Give characteristics and functions of platelets. 3. Mention normal platelet count in blood and life span of platelets. 4. Explain the steps involved in formation of primary platelet plug to seal small vascular holes.	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-005	Conditions Causing Excessive Bleeding	1. Define thrombocytopenia. 2. Enlist causes of thrombocytopenia. 3. Explain consequences of thrombocytopenia. 4. Enlist the clotting factors in blood. 5. Name vitamin K–dependent clotting factors. 6. Explain the intrinsic and extrinsic clotting pathways. 7. Describe mechanism of clot formation after injury. 8. Name and give mechanism of anticoagulants (heparin, oxalate, citrate) used in laboratory. 9. Enlist and explain the conditions that cause excessive bleeding	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition

		(Vitamin K deficiency, Hemophilia, Thrombocytopenia). 10. Define prothrombin time and mention its significance.			
CVS-P-006	Heart: Cardiac Muscle, Pump Function, and Heart Valves	1. Describe the structure of heart and functioning of heart. 2. Classify and exemplify various types of blood vessels.	Lecture+ SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-007	Rhythmical Excitation the Heart	1. Explain the physiological anatomy of cardiac muscle. 2. Describe and draw the phases of action potential of ventricle 3. Describe and draw the phases of action potential of SA node and explain mechanism of self-excitation. 4. Draw and explain the conducting system of heart. 5. Describe the mechanism of excitation–contraction coupling in cardiac muscle. 6. Draw and explain pressure and volume changes of left ventricle during cardiac cycle. 7. Define and give the normal values of cardiac output, stroke volume, end diastolic volume, end systolic volume, and venous return. 8. Describe the Frank–Starling mechanism. 9. Describe the autonomic regulation of heart pumping. 10. Describe the effect of potassium, calcium ions, and temperature on heart function.	Lecture+ SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-008	Fundamentals Of Electrocardiography	1. Define electrocardiogram. 2. Enlist, draw, and explain the physiological basis and durations of waves, intervals, and segments of normal ECG.	Lecture+ SGD	MCQ OSPE	Guyton and Hall 14th edition
CVS-P-009	Cardiac Arrhythmias	1. Define tachycardia and enlist its causes. Cardiac Arrhythmias 2. Define bradycardia and enlist its causes. 3. Define sinus arrhythmia and its	Lecture+ SGD	MCQ OSPE	Guyton and Hall 14th edition

		physiological basis.			
CVS-P-010	Circulation	1.Explain the functional parts of circulation (arteries, arterioles, capillaries, veins, venules). 2.Circulation Mention the pressures in systemic and pulmonary circulation. 3.Describe nervous regulation of blood vessels and functioning of vasomotor centers. 4.Explain vasovagal syncope.	Lecture+ SGD	MCQ OSPE	Guyton and Hall 14th edition
CVS-P-011	Microcirculation and Lymphatic System: Capillary Exchange and Lymph Flow	1. Identify vessels constituting microcirculation. 2. Enumerate Starling forces (hydrostatic and osmotic) and explain their role in capillary filtration and interstitial fluid formation. 3. Define edema.	Lecture	MCQ OSVE	Guyton and Hall 14th edition
CVS-P-012	Local and Humoral Control of Tissue Blood Flow	1. Describe local control of blood flow in response to tissue needs. 2. Discuss role of humoral factors in control of blood flow. 3. Explain acute mechanism of local blood flow control (tissue metabolism & oxygen demand). 4. Describe autoregulation of blood flow during changes in arterial pressure (metabolic and myogenic mechanisms).	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-013	Arterial Blood Pressure: Measurement and Clinical Significance	1. Define blood pressure and its two primary determinants (cardiac output and total peripheral resistance). 2. Define pulse pressure and mean arterial pressure 3. Give normal blood pressure and mean arterial pressure values.	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-014	Primary (Essential) Hypertension	Define hypertension.	Lecture	MCQ	Guyton and Hall 14th edition
CVS-P-015	Cardiac Output, Venous Return, and Their Regulation	Define cardiac output and venous return and give their normal values.	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition

CVS-P-016	Cardiac Output, Venous Return, and Their Regulation	Enlist and explain factors that affect cardiac output and venous return.	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-017	Nervous Regulation of Circulation and Rapid Control of Arterial Pressure	1. Describe role of the nervous system in rapid control of arterial pressure. 2. Enumerate nervous reflex mechanisms for regulation of blood pressure. 3. Explain the role of baroreceptors in regulation of arterial blood pressure. 4. Explain the role of chemoreceptors in regulation of arterial blood pressure. 5. Explain CNS ischemic response. 6. Explain Cushing reaction.	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-018	Role of Kidneys in Long-Term Control of Arterial Pressure	1. Describe role of renin–angiotensin–aldosterone mechanism in blood pressure regulation. 2. Explain stress relaxation and capillary fluid shift. 3. Enlist immediate, intermediate, and long-term mechanisms of blood pressure regulation.	Lecture +SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-019	Circulatory Shock and Its Treatment	1. Define and enlist different types of shock. 2. Explain the causes, features, and pathophysiology of hypovolemic/hemorrhagic shock. 3. Explain the causes, features, and pathophysiology of septic shock. 4. Explain the causes, features, and pathophysiology of neurogenic shock. 5. Explain the causes and features of anaphylactic shock. 6. Explain cardiogenic shock. 7. Explain stages of shock. 8. Enlist and explain compensatory mechanisms during non-progressive	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition

		shock.			
CVS-P-020	Coronary Circulation and Ischemic Heart Disease	Define angina pectoris and myocardial infarction.	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
CVS-P-021	Heart Valves and Heart Sounds	1. Enlist the different types of heart sounds and explain the physiological basis of each. 2. Enlist the causes of 3rd and 4th heart sounds. 3. Define murmur.	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
BIOCHEMISTRY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CVS-B-001	Chemistry and classification of amino acids	Define zwitter ion and isoelectric pH.	Lecture	MCQ	Lippincott harper and Mushtaq Ahmed
CVS-B-002	Electrophoresis	Understand the principle, procedure and uses of electrophoresis (demonstration only).	Lecture	MCQ	Lippincott harper and Mushtaq Ahmed
CVS-B-003	Plasma proteins	1. Describe the types of plasma proteins and explain their general functions. 2. Enlist the functions and give the clinical importance of plasma proteins (albumin, fibrinogen, and transferrin). 3. Describe serum albumin and globulins and explain their biological roles in the human body.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CVS-B-004	Immunoglobulin classes and their functions	1. Describe the general structure of an antibody and identify its key components. 2. Enlist five major types of immunoglobulins and give functions/significance their functions	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed

		of each class separately			
CVS-B-005	Eicosanoids	1. Define eicosanoids. 2. Outline classification and biomedical importance of eicosanoids. 3. Enlist functions of prostaglandins, leukotrienes and thromboxanes. 4. Explain how low-dose aspirin therapy helps in the management of patients with IHD.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CVS-B-006	Cholesterol	Describe the structure, functions, metabolism & biomedical importance of cholesterol.	Lecture	MCQ OSPE OSVE	Lippincott harper and Mushtaq Ahmed
CVS-B-007	Plasma lipoproteins	Describe the structure, functions, metabolism & biomedical importance of plasma lipoproteins.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
CVS-B-008	Lipid profile	List the components of a lipid profile and describe the significance of cardiac enzyme markers (TropT, CK-MB) in cardiovascular health.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
CVS-B-009	Vitamins	Describe vitamin K, its active forms, sources, RDA, biochemical roles, and deficiency manifestations.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed

PHARMACOLOGY & THERAPEUTICS

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
CVS-Ph-001	Classification	Should be able to classify and identify the drugs acting on cardiovascular system	Lecture	MCQ OSVE	MIni katzung & Trevor. Latest edition

PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology	Assessment Tools	Reference
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			(Lecture/ Practical/ Clinical)		
CVS-Pa-001	Disorders of WBCs	Define white blood cell (WBC) disorders and classify them into benign and malignant types.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Recognize the causes of reactive leukocytosis (infections, stress, inflammation) that result in elevated WBC counts and its impact on planning and post-operative healing.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Differentiate between reactive and neoplastic WBC disorders based on clinical and laboratory findings.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Explain the pathophysiology of leukemoid reactions and leukemias.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-002	Immunity	Define the clinical aspects of innate and acquired immunity, including active and passive immunity.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Enlist the types of immune cells, such as phagocytes, T cells, B cells, and NK cells, and explain their roles in immunity and disease progression.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Describe the complement activation pathways (classical, alternative, and lectin)	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Enlist the types of antibodies (IgG, IgA, IgM, IgE, IgD) and discuss their relevance in hypersensitivity reactions.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-003	Hypersensitivity reactions	Explain the types and pathogenesis of hypersensitivity reactions (Type I–IV).	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-004	Blood grouping & complications	Define the principles of ABO and Rh blood grouping systems.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th

	Of Blood transfusion				Edition
		State the importance of compatibility testing, including crossmatching, for safe transfusions.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Enlist the Hazards of blood transfusion.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Identify scenarios in dentistry where blood grouping knowledge is essential, such as surgeries or trauma management.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Describe the pathophysiology, features and treatment of Rh compatibility.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-005	Hemodynamic disorders	Define thrombosis, embolism, infarction, and hemorrhage as hemodynamic disorders relevant to systemic health.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Describe the types of thrombosis, including arterial and venous, and their potential impact on dental procedures, such as delayed healing or increased bleeding risks.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Discuss the pathophysiology of thrombosis, focusing on Virchow's triad(endothelial injury, stasis, and hypercoagulability).	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Explain the mechanisms and clinical features of embolism, including pulmonary and systemic embolism.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Explain the pathophysiology of embolism, including detachment of thrombi and subsequent vascular occlusion.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Outline the types of infarctions (white and red) and their effects on oral tissues, such as necrosis or ischemic	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition

		lesions.			
		Describe the pathophysiology of infarction, focusing on ischemia and necrosis in systemic context.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-006	Hemodynamic s Platelets & Bleeding disorders	Define bleeding disorders.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Classify bleeding disorders into vascular, platelet, coagulation, and mixed types.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Enlist causes of thrombocytopenia, such as decreased production, increased destruction, or sequestration of platelets.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Enlist first-line laboratory investigations for bleeding disorders, including complete blood count (CBC), platelet count, bleeding time (BT), clotting time (CT), prothrombin time (PT), activated partial thromboplastin time(aPTT), and international normalized ratio (INR).	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
		Discuss interpretation of laboratory findings and their clinical correlation in diagnosing bleeding disorders (platelet & coagulation related disorder).	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-007	Microbiology of Blood: Relevance and Implications in Dentistry	Apply knowledge of Streptococcus viridans and Staphylococcus aureus and epidermidis to recognize their role in infective endocarditis and bacteremia, and their implications for dental care.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiol ogy18th Edition
		Discuss HIV with its virulence factors, pathogenesis, lab diagnosis & prevention, recognize oral manifestations of HIV, including candidiasis, and periodontal disease, in immunosuppressed patients.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiol ogy18th Edition
		Identify oral ulcerations caused by	Lecture	MCQs,	Levinson'

		Cytomegalovirus and Epstein-Barr Virus (Oral Hairy leukoplakia, candidiasis, oral ulceration) in immunocompromised individuals	Tutorial	OSVE	s Microbiology 18th Edition
		Identify the role of enterococcus in infective endocarditis and bacteremia, and their implications for dental care.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition
		Describe the dengue virus, its mode of transmission, key clinical features, and preventive measures, with emphasis bleeding risk and implications for dental care.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition
		Apply infection control protocols to prevent cross-contamination and transmission of bloodborne pathogens and parasites	Lecture Tutorial	MCQs, OSVE	Institutional Guidelines
CVS-Pa-008	Shock	Define and classify types of shock (hypovolemic, cardiogenic, septic) and evaluate their pathophysiology.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition
CVS-Pa-009	Microbiology related to CVS & dentistry	Correlate septicemia caused by cardiovascular pathogens (e.g., Staphylococcus aureus, Pseudomonas aeruginosa) with oral manifestations such as petechiae or splinter hemorrhages.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition
		Identify microbial causes of myocarditis, such as Coxsackievirus and their systemic effects influencing dental care.	Lecture	MCQs	Levinson's Microbiology 18th Edition
		Assess the role of oral pathogens like Treponema denticola and Porphyromonas gingivalis in contributing to cardiovascular diseases, including atherosclerosis, and integrate this knowledge into periodontal therapy.	Lecture	MCQ	Levinson's Microbiology 18th Edition+Institutional Guidelines

PRACTICAL/ LAB WORK

ANATOMY

Code	Topic	Learning Outcome
CVS-A- 005	Arteries	Identify under light microscope/ draw and label arteries
CVS-A- 006	Veins	Identify under light microscope/ draw and label veins and capillaries

HISTOLOGY

Code	Topic	Learning Outcome
CVS-A- 007	Lymphoid Organs	Draw and label light microscopic diagram of lymphoid organs

PHYSIOLOGY

Code	Topic	Learning Outcome
CVS-P- 022	Blood Grouping	Observe the demonstration of blood grouping procedure and explain its clinical relevance in dental practice, including its role in managing medical emergencies.
CVS-P- 023	Bleeding Time	Observe the demonstration of bleeding time measurement and explain its importance in assessing bleeding risk in dental procedures
CVS-P- 024	Clotting Time	Observe the demonstration of clotting time measurement and explain its relevance to safe dental practice.
CVS-P- 025	ECG Waveform Recognition	Observe and identify the normal waveforms and intervals on a sample ECG tracing.
CVS-P- 026	ECG-Based Heart Rate Calculation	Calculate heart rate from a provided normal ECG tracing and describe its clinical significance
CVS-P- 027	Cardiac Examination	Demonstrate how to locate and palpate the apex beat on a simulation model or peer under supervision.
CVS-P- 028	Cardiac Auscultation	Demonstrate the correct method to auscultate the precordium for heart sounds under supervision.

Module -9

GASTROINTESTINAL TRACT (GIT)

INTRODUCTION TO MODULE 9

This module provides an integrated understanding of the structure and function of the gastrointestinal system, from the oral cavity to the esophagus, with emphasis on digestion and its regulation. By integrating anatomy, physiology, biochemistry, pathology, pharmacology, microbiology, and oral biology, the module highlights oral–systemic relationships and common disorders such as GERD, peptic ulcers, and xerostomia, reinforcing the relevance of digestive health to dental practice.

THE MODULAR OUTCOME

- Describe the anatomy and histology of the oral cavity, salivary glands, tongue, and upper GIT.
- Explain GIT functions and their neural and hormonal regulation.
- Discuss the biochemical role of digestive juices in nutrient digestion and absorption.
- Recognize development and histology of key oral and GI structures.
- Explain common GI and oral disorders such as GERD, peptic ulcers, and xerostomia.
- Identify drugs used in GI disorders and their dental relevance.
- Relate microbial and viral agents to oral and GI lesions.
- Correlate mastication, swallowing, and taste with clinical dental practice

ANATOMY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
GIT-A- 001	Oral Cavity Anatomy	Describe the parts and boundaries of oral cavity.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 002	Tongue Structure and Vascular Supply	Describe the anatomical features of tongue with emphasis on its musculature, vascular supply and lymphatic drainage.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 003	Palate Anatomy and Neurovascular Supply	Describe the anatomical features of hard and soft palate with their neurovascular supply.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 004	Muscles of Soft Palate	Describe the attachments of muscles of soft palate along with their actions and nerve supply.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 005	Salivary Glands Anatomy and Neurovascular Supply	Describe anatomical features, blood supply, and nerve supply of salivary glands.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 006	Parotid Gland Clinical Correlates	Discuss the clinical correlates of parotid gland: Mumps, Frey's syndrome.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 007	Submandibular and Otic Ganglia	Describe the location, roots and distribution of submandibular and otic ganglia.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 008	Pharynx Anatomy and Neurovascular Supply	Name the parts of pharynx giving their extent, anatomical features, structure and neurovascular supply	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 009	Muscles of Pharynx	Describe the attachments of muscles of pharynx along with their actions and nerve supply	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 010	Palatine Tonsil Anatomy and Vascular	Discuss the location, anatomical features and vascular supply of palatine tonsils.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.

	Supply				
GIT-A- 011	Piriform Fossa and Tonsils Clinical Correlates	Discuss the clinical correlates of piriform fossa and tonsils: Adenoids, Quinicy, Tonsilitis.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 012	Waldeyer's Ring of Lymphatic Tissue	Enlist the structures forming the Waldeyer's ring of lymphatic tissue.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.
GIT-A- 013	Cervical Esophagus Anatomy and Neurovascular Supply	Describe the anatomical features of cervical part of esophagus with its neurovascular supply.	Lecture	MCQs OSVE OSPE	ClinicalAnatomy by Snell's 11th Ed.

HISTOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
GIT-A- 014	Oral Cavity	Describe the light microscopic structure of lip Describe the light microscopic structure of tongue	Lecture +Practical	MCQs OSPE OSVE	Histology by Laiq Hussain 11th Ed.
EMBRYOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	Reference
GIT-A- 015	Tongue	Describe the development of tongue	Lecture +Practical	MCQs OSPE OSVE	Langman's 14th ed.
PHYSIOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/	Assessment Tools	Reference

			Practical/ Clinical		
GIT-P- 001	General Principles of GIT Function - Motility, Nervous Control	1. Describe physiologic anatomy of gastrointestinal tract. 2. Discuss electrical activity of smooth muscles of GIT. 3. Describe the mechanism of excitation of smooth muscle of gastrointestinal tract. 4. Discuss the factors that depolarize and hyperpolarize GI membrane.	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 002	Neural and Hormonal Regulation of Gastrointestinal Function	1. Describe the role of autonomic nervous system in regulation of GIT's function. 2. Describe enteric nervous system. 3. Describe the Meissner's plexus and differentiate between myenteric and Meissner's plexuses 4. Enlist the gastrointestinal reflexes & explain the functions of these reflexes. 9. Give the stimuli, site of release and actions of cholecystokinin, Gastrin, Secretin & Motilin (enteroendocrine cells) 10. Differentiate between sympathetic and parasympathetic modulation of the enteric nervous system and the effector organs of the GI tract	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 003	Functional types of movements in the GI tract	Discuss functional movements of GIT (propulsive & mixing)	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 004	Esophagus	Discuss the pathophysiology & features of achalasia & Mega esophagus.	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 005	Vomiting Reflex	1. Describe the stages of vomiting act. 2. Appraise the location and function of vomiting center/ chemoreceptor	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition

		trigger zone in the brain			
GIT-P- 006	Motor function of Stomach	1.Explain motor function of stomach. 2.Explain factors which regulate stomach emptying	Lecture	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 007	Gastric secretion	1. Describe characteristics & functions of the gastric secretions. 2. Discuss the role of Intrinsic factor from gastric parietal cells	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 008	Pathophysiology of Stomach	1. Define and discuss basic causes of gastritis and Pernicious anemia. 2. Define & enumerate the causes and pathophysiology of peptic ulcer	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 009	Movements of the small intestine General	1. Enumerate the types of movements taking place in small intestine and mention their function. 2. What is peristaltic rush and enteritis?	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition
GIT-P- 010	Movements of the Colon	Enumerate the types of movements taking place in colon and give their functions	Lecture + SGD	MCQ OSPE OSVE	Guyton and Hall 14th edition

BIOCHEMISTRY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	References
GIT-B- 001	Saliva	Elaborate the composition and functions of saliva.	Lecture	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
GIT-B- 002	Gastric secretions	Give composition and functions of gastric juice. Correlate chronic use of NSAIDs with development of peptic ulcer	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
GIT-B- 003	Pancreatic Juice, bile and succus	Give composition and functions of pancreatic juice, bile and succus entericus	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq

	entericus				Ahmed
GIT-B- 004	Digestion and Absorption	Describe the mechanism of digestion and absorption of dietary carbohydrates	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
GIT-B- 005		Give cause, clinical features, diagnosis and management of lactose intolerance.	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
GIT-B- 006		Describe the mechanism of digestion and absorption of dietary proteins.	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq Ahmed
GIT-B- 007		Explain the process of digestion and absorption of dietary lipids.	Lecture + SGD	MCQ OSVE	Lippincott harper and Mushtaq Ahmed

PHARMACOLOGY & THERAPEUTICS

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical	Assessment Tools	References
GIT-Ph-001	Acid Peptic disease	Should be able to learn MOA, classify and interpret the drugs that act to relieve Acid peptic disease	lectures	MCQS/OSVE	Mini katzung & Trevor. Latest edition
GIT-Ph-002	Antiemetic and Prokinetics	Should be able to learn MOA, uses and side effects of prokinetic drugs and the drugs that act to relieve emesis	lectures	MCQS/OSVE	Mini katzung & Trevor. Latest edition
GIT-Ph-003	Classification of laxatives & antidiarrheal	Should be able to learn classification, MOA,uses and side effects of drugs that are laxatives and act as anti diarrheal	lectures	MCQS/OSVE	Mini katzung & Trevor. Latest edition

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical	Assessment Tools	References
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GIT-OB-001	Oral Mucosa	1. Define oral mucosa 2. Explain the histological structure of oral mucosa with elaboration of keratinized and non-keratinized epithelium. 3. Explain the cellular events in maturation of oral mucosa 4. Enumerate and discuss the details of the non-keratinocytes in the oral epithelium and lamina propria. 5. Describe the blood supply and nerve supply of oral mucosa 6. Explain the structural variation in oral mucosa. 7. Explain the mucocutaneous junctions in the oral mucosa. 8. Describe the biological stages of wound healing in the oral mucosa, highlighting the role of the inflammatory response and granulation tissue formation. 9. Describe the age-related changes in oral mucosa	Lecture PRACTICAL	MCQ Presentations OSVE	TenCate oral Histology and development 9th edition
GIT-OB-002	Physiology of Taste	Describe the process of taste perception and identify the major systems involved in supporting the sense of taste. Physiology of Taste Describe the structure, location, and function of taste buds along with the mechanism of taste sensations Identify the basic taste modalities and recognize the major conditions that affect the sense of taste	LGD/PRACTICAL	MCQS	Nelson s.j, (2015), Wheelers dental anatomy, physiology and occlusion
GIT-OB-003	Salivary Glands	At the end of the lecture the student should be able to answer: Define saliva, describe its composition and function. Salivary Glands	LGD/PRACTICALS	MCQS/OSVE/OSPE	TenCate oral Histology and development 9th

		Classify salivary glands			edition
GIT-OB-004	Saliva	At the end of the lecture the student should be able to answer: Discuss the mechanism saliva formation and its ductal modification.	LGD/SGD	Mcqs/Ospe	Tencate oral Histology and development 9th edition
GIT-OB-005	Physiology of Swallowing	At the end of the lecture the student should be able to answer: 1. Define the terms swallowing and deglutition 2. Describe the stages of swallowing, outlining the sequence and key physiological events involved in each stage. 3. Describe the pathway involved in swallowing and its neural control mechanisms.	LGD/Practical/tutorial	Mcq/Ospe/Ospe	Tencate oral Histology and development 9th edition

PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	References
GIT-Pa-001	GERD	Define heartburn and describe its pathophysiology as a symptom of gastroesophageal reflux disease (GERD).	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology , 10th Edition
		Enumerate the etiology and clinical features of GERD and peptic ulcer disease.	Lecture Tutorial	MCQs, OSVE	Robbin's Pathology 10th Edition

MICROBIOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	References
GIT-Pa-002	Microbial Agents Associated with Oral	Enlist different organisms causing oral lesions.	Lecture	MCQs, OSVE	Levinson's Microbiology 18th

	Lesions				Edition
		Briefly discuss HPV, as disease causing organisms, their epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition
GIT-Pa-003	Microbial Agents Associated with Diarrhea	Enlist different organisms causing diarrhea.	Lecture	MCQs, OSVE	Levinson's Microbiology 18th Edition
		Briefly discuss shigella & vibrio cholera as disease causing organisms, their epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition
GIT-Pa-004	Helicobacter pylori Infection	Briefly discuss Helicobacter pylori with its epidemiology, virulence factors, pathogenesis, lab diagnosis & prevention.	Lecture Tutorial	MCQs, OSVE	Levinson's Microbiology 18th Edition

ORAL PATHOLOGY

Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical)	Assessment Tools	References
GIT-OP-001	Abnormalities of salivary secretions	1. Discuss clinical abnormalities of Salivary secretions. 2. Describe the etiology and clinical features of xerostomia. 3. Explain the management options available for patients suffering from xerostomia. 4. Explain the biochemical mechanisms that contribute to the development of rampant caries in patients with xerostomia	Lecture+Practical	MCQ OSPE	Contemporary oral pathology
GIT-OP-002	Apthous ulcers	Define and enlist the types and salient features of ulcers (acute, chronic and recurrent)	Lecture + Practical	MCQ OSPE	Contemporary oral pathology
GIT-OP-003	Anomalies of tongue and	Describe the anomalies of tongue (ankyloglossia, aglossia,	Lecture + Practical	MCQ OSPE	Contemporary oral

	lips	macroglossia, microglossia) and Lips			pathology
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PRACTICAL /LAB WORK

HISTOLOGY

Code	Topic	Learning Outcome
GIT-A-016	Lip	Identify under light microscope and draw and label the light microscopic structure of lip.
GIT-A- 017	Tongue	Identify under light microscope and draw and label the light microscopic structure of tongue

ORAL BIOLOGY & TOOTH MORPHOLOGY

Code	Topic	Learning Outcome
GIT-OB-006	Oral Epithelium and Specialized Mucosa	Draw and label the keratinized and non-keratinized oral epithelium, specialized mucosa including tongue papillae and mucocutaneous junction.
GIT-OB-007	Taste Bud Structure and Tongue Sensory Map	Draw and label the histological structure of the taste bud, and mention the specificity of the tongue for different taste sensations
GIT-OB-008	Tongue Papillae and Taste Bud Identification	Identify in images or slides the histological section of the tongue showing different tongue papillae and the location of taste buds
GIT-OB-009	Salivary Gland Histology	Draw and label the histological section of major salivary glands, showing serous and mucous acini, serous demilunes, and cells of intercalated, striated, and excretory ducts

MODULE 10

OCCLUSION I

INTRODUCTION TO MODULE 10

Occlusion I introduces the basic principles of occlusion, mastication, and TMJ function, providing foundational knowledge for understanding occlusal relationships in dental practice.

THE MODULAR OUTCOME

- Describe TMJ anatomy, movements, supporting structures, and nerve supply.
- Explain maxillofacial sensory innervation, focusing on the trigeminal nerve.
- Correlate TMJ biomechanics with mandibular movements and functional disorders.
- Identify muscles of mastication with their actions and innervation.
- Describe morphology and anatomy of incisors and canines, including anomalies.
- Interpret periapical radiographs of anterior teeth.
- Define centric and eccentric occlusion, overjet, and overbite with clinical relevance.
- Explain the physiology of mastication and neuromuscular coordination.
- Demonstrate carving, drawing, and microscopic evaluation of anterior teeth.
- Recognize microbial teratogens and infections affecting craniofacial development.
- Appreciate the role of forensic odontology in dental identification

ANATOMY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical	Assessment Tools	References
Oc1-A- 001	Trigeminal Nerve and Sensory Innervation	1.Describe the extracranial course, branches, and distribution of trigeminal nerve. 2.Explain the causes and clinical consequences of damage to the nerve. 3.Describe the innervation of the maxillary and mandibular teeth, and their supporting structures and the anatomical basis of common variations in sensory innervation of the teeth.	Lecture	MCQs OSPE OSVE	Clinical Anatomy by Snell's
Oc1-A- 002	Temporomandibular Joint (TMJ)	Describe temporomandibular joint mentioning its ligaments, nerve supply and movements.	Lecture	MCQs OSPE OSVE	Clinical Anatomy by Snell's
Oc1-A- 003	Muscles of Mastication	Identify and describe the muscles of mastication along with origin, insertion, action, and innervation of each muscle Identify and demonstrate the origin, insertion, nerve supply, and actions of the muscles of mastication on models or cadaveric specimens	Lecture	MCQs OSPE OSVE	Clinical Anatomy by Snell's
ORAL BIOLOGY AND TOOTH MORPHOLOGY					
Code	Topic	Learning Outcome	Teaching Methodology (Lecture/ Practical/ Clinical	Assessment Tools	References

Oc1-OB- 001	Temporomandibular Joint	At the end of the lecture, student should be able to: Describe the histology of the temporomandibular joint (temporal and condylar bone, muscles, capsule, disk, synovial membrane, and ligaments)	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Tencate oral Histology and development 9th edition
Oc1-OB- 002	Muscle Contraction (TMJ)	At the end of the lecture, student should be able to: Describe the biomechanics of TMJ	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Tencate oral Histology and development 9th edition
Oc1-OB- 003		At the end of the lecture, student should be able to: Describe the nerve supply of the joint emphasizing the role of nerve endings	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Tencate oral Histology and development 9th edition
Oc1-OB- 004		At the end of the lecture, student should be able to: Identify the common TMJ associated clinical manifestations	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Tencate oral Histology and development 9th edition
Oc1-OB- 005	Mastication	At the end of the lecture, student should be able to: 1. Define mastication Elaborate chewing cycle of mastication. 2. What are the different stages of mastication? What are the different muscles involved in mastication. Give their origin, insertions, innervation, and functions	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Wheeler's dental anatomy, physiology and occlusion
Oc1-OB- 006	Occlusion	Define occlusion. Describe centric & eccentric occlusion	LGD/PRAC TICAL	MCQ'S/OS VE/OSPE	Wheeler's dental anatomy, physiology and occlusion
Oc1-OB- 007	Deciduous & Permanent Incisors	At the end of the lecture student should be able to: 1. Describe the crown morphology of deciduous &	LGD/SGD/ PRACTICALS	MCQ'S/OS VE/OSPE	James fuller, 5th edition

		permanent incisors. 2. Describe the key identification points of deciduous & permanent incisors 3. Describe the normal root and pulpal morphology of maxillary and mandibular incisors 4. Identify and classify common structural anomalies of incisors Interpret periapical radiographs of incisors, recognizing normal anatomy and common anomalies.			
Oc1-OB- 008	Deciduous & Permanent canines	At the end of the lecture student should be able to: 1. Describe the crown morphology of deciduous & permanent canines Describe the normal root and pulpal morphology of maxillary and mandibular canines 2. Describe the key identification points of deciduous & permanent canines 3. Identify and classify common structural anomalies of canines Interpret periapical radiographs of canines, recognizing normal anatomy and common anomalies. 4. Define and differentiate between overjet and overbite and explain their clinical significance.	LGD/SGD/ PRACTICAL	MCQ'S/OS VE/OSPE	James fuller, 5th edition
Oc1-OB- 009	Forensic odontology	Define forensic odontology and explain the significance of forensic odontology in dental identification and legal investigations.			
MICROBIOLOGY					
Code	Topic	Learning Outcome	Teaching Methodolo	Assessment Tools	References

			gy (Lecture/ Practical/ Clinical		
Oc1-Pa-001	Infectious diseases	Describe microbial teratogens associated with craniofacial and dental anomalies, with examples (e.g., traponema, rubella, cytomegalovirus, HIV).	Lecture	MCQs, OSVE	Levinson’s Microbiology18th Edition+Oral Pathology Textbook
PRACTICALS/LAB WORK					
ANATOMY					
Code	Topic	Learning outcome			
Oc1-A- 004	Jaw Muscles	Demonstrate basic functional mandibular movements and differentiate the role of muscles of Mastication and accessory muscles in protrusion, lateral excursion, opening, and closing. Identify and demonstrate the origin, insertion, nerve supply, and actions of the muscles of mastication on models or cadaveric specimens			
Oc1-A- 005	Neurovascular Supply of face	Demonstrate surface marking of trigeminal nerve in relation to relevant structures and identify their anatomical pathways and clinical relevance.			
ORAL BIOLOGY AND TOOTH MORPHOLOGY					
Code	Topic	Learning Outcome			
Oc1-OB- 010	Temporomandibular Joint	At the end of practical/lab work student should be able to: Draw & label the histological section of the temporomandibular joint, showing temporal bone, disc, condylar bone, capsule, articular disc, and synovial membrane Demonstrate basic functional mandibular movements and differentiate the role of muscles of Mastication and accessory muscles in protrusion, lateral excursion, opening, and closing			
Oc1-OB- 011	Deciduous & Permanent Incisors	At the end of the practical student should be able to: Label each aspect pointing their morphological features (Incisal corners, marginal ridges, fossa, cingulum, pit, developmental depressions, imbrication lines & contact points Identify Permanent Incisors			
Oc1-OB- 012	Deciduous & Permanent canines	At the end of the practical student should be able to:Label each aspect pointing their morphological features (Incisal slopes, labial/lingual ridges, marginal ridges, fossa, cingulum, developmental depressions, imbrication lines & contact points)			

		Identify Permanent Canines Draw the outlines of all deciduous & permanent canines: labial, lingual, mesial, distal & incisal aspects
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Assessment guidelines

- Assessment in dental education is a critical component designed to ensure dental students acquire the necessary knowledge, skills, and competencies for effective dental practice.
- Written examinations, including multiple-choice and essay questions, will test your grasp of theoretical concepts and subject matter.
- Practical assessments will require you to demonstrate your clinical skills and ability to apply knowledge in real-world scenarios.
- Oral exams will evaluate your communication and reasoning skills through case discussions and problem-solving exercises.

As per the UHS policy, students failing to fulfill the assessment criteria will result in withholding of their admissions for the professional exam.

ASSESSMENT METHODS:

- MCQs (Multiple Choice Questions)
- SEQ
- Objective Structured Practical/Clinical Examination (OSPE or OSCE)
There is a policy of ongoing or formative assessment of all students and summative assessment during the academic year.
- Formative or ongoing assessment: Formative assessment will be done as class tests every week, assignments, projects, etc.
- Summative Assessment: • The end-of-block test comprises the OSCE or OSPE examination
- Viva voce exam.
- Written theory examination. The written examination has 2 parts: an MCQ and a short answer or short essay-type examination.
10% MARKS of internal assessment will be calculated from each end-of-block exam and overall yearly performance

ATTENDANCE POLICY FOR STUDENTS

- UHS rules for eligibility in annual examinations.
- The minimum attendance requirement is 90%: attendance is for lectures, clinics, CBLs, Tutorials, presentations, etc. This attendance is not simply for lectures.
- Every teaching session is essential. You are expected to have at least 90% attendance in all subjects individually to be allowed to appear in the professional examinations.
- Lecture Attendance is marked at the start of the class. Students who come more than 10 minutes late will be marked absent.
- The attendance is entered into the spreadsheet, and no corrections will be made later than 24 hours with the Principal's permission as the system is locked.



STUDENT CONDUCT RULES

These rules apply to all students who are admitted to RLDC and include undergraduate and postgraduate students:

1. No student or group shall form a society/ association/ organization.
2. The student will invite no outsider to address any meeting at the college without seeking prior permission from the Principal of RLDC.
3. Students cannot paste posters, pamphlets, or fixed banners on the wall. Graffiti on walls (wall chalking) on the premises
4. During teaching hours, students are prohibited from roaming the premises. Staging, inciting, or participating in or abetting any walk-out, strike, or other form of agitation against students, teachers, or authorities; inciting others to violence; disrupting the peaceful atmosphere in any way is prohibited.
5. No students or groups of students shall arrange any program, Picnic, musical concert, or sports. Etc., on their own, without prior written permission from the authorities.
6. Coming late for classes. The student may be considered absent and marked accordingly.
7. Loud and aggressive behavior within college premises.
8. No student or group of students is allowed to collect money for any purpose whatsoever.
9. The college Identity Card (ID) should be displayed at all times when the students are on the premises of the college. Faculty members and security staff are authorized to check the ID—cards at any time.
10. Students are forbidden to address higher authorities directly. Any communication intended for higher authorities must be routed through the proper channel (Vice Chancellor / Principal / Dean /Director).
11. Students are expected to arrive in class well on time. All cell phones, smartphones, and other electronic devices (e.g. iPods) must be turned off. Talking and other disruptive behaviors are not permitted while classes are in session.
12. Smoking, pan chewing, littering, spitting, vaping, and other activities prejudicial to the conduct are prohibited on the college premises during and even after college hours. Any student caught with the following will be taken under the D.C. action.
13. Unless specifically permitted, no students or groups of students are allowed to enter the administrative department.
- 14. POLICY ON DISCIPLINARY ACTION AGAINST THE USE OF UNFAIR MEANS**
Zero tolerance for cheating/use of unfair means is to be maintained during Examinations. A committee will consider all the unfair means in exams, leading to a fine and D.C. action.
15. Policy for using mobile phone during exam: Any student caught using a mobile phone during a test or examination will have the device immediately confiscated, and the student will not be allowed to continue the exam or remain in the examination room and the device will be returned only after the parents/guardians submit a written undertaking ensuring that such misconduct will not be repeated.
- 16. Policy regarding the use of Vape:**
17. Any student caught using, possessing, or sharing vape devices on campus will be subject to disciplinary penalties, and a monetary fine will be levied in accordance with institutional regulations.

PUNCTUALITY:

If the students miss a class, they are responsible for the missed part of the course. There will be no relaxation for absent students. Please inform your parents of this and make your travel arrangements accordingly. Avoid taking leave for personal reasons like weddings during the academic year.

DRESS CODE:

All students must wear white coats on campus (With a tag with their name) and decent shoes/sandals but no slippers; in case of default, they will not be allowed to enter, and disciplinary action will be taken.

ATTENDANCE POLICY FOR STUDENTS

- UHS rules for eligibility in annual examinations.
- The minimum attendance requirement is 75%: attendance is for lectures, clinics, CBLs, Tutorials, presentations, etc. This attendance is not simply for lectures.
- Every teaching session is essential. You are expected to have at least 75% attendance in all subjects individually to be allowed to appear in the professional examinations.
- Lecture Attendance is marked at the start of the class. Students who come more than 10 minutes late will be marked absent.
- The attendance is entered into the spreadsheet, and no corrections will be made later than 24 hours with the principal's permission as the system is locked.

ATTENDANCE POLICY FOR STUDENTS APPEARING IN SUPPLEMENTARY EXAMS

- Only students who have appeared in professional examinations can appear in supplementary examinations.
- Students who were not eligible for the annual exam will not be eligible for the supplementary exam, without completing their attendance requirements.
- Those students who do not attend classes will be marked absent, may face a shortage of attendance and will be asked to repeat the year.