



**CURRICULUM**  
**BS DENTAL TECHNOLOGY**

**WAZIR MUHAMMAD INSTITUTE OF ALLIED HEALT  
SCIENCES**

**GANDHARA UNIVERSITY PESHAWAR**

**SCHEME OF STUDIES FOR 4 YEAR B.S. DENTAL**

<b>Semester/Year</b>	<b>Name of Subject</b>	<b>CODE</b>	<b>Credits</b>
<b>First</b>	ANATOMY-I	WMI-601	4(3+1)
	BIOCHEMISTRY-I	WMI-602	4(3+1)
	PHYSIOLOGY-I	WMI-603	4(3+1)
	PAKISTAN STUDIES	WMI-604	2(2+0)
	ENGLISH-I	WMI-605	2(2+0)
	COMPUTER SKILLS	WMI-606	2(1+1)
<b>Second</b>	ANATOMY-II	WMI-607	4(3+1)
	BIOCHEMISTRY-II	WMI-608	4(3+1)
	PHYSIOLOGY-II	WMI-609	4(3+1)
	ISLAMIC STUDIES	WMI-610	2(2+0)
	COMMUNICATION SKILLS	WMI-611	2(2+0)
<b>Third</b>	DENTAL ANATOMY & TOOTH MORPHOLOGY	DNT-601	3(2+1)
	BEHAVIORAL SCIENCES	WMI-614	2(2+0)
	BIOETHICS	WMI-615	2(2+0)
	GENERAL PATHOLOGY-I	WMI-616	3(2+1)
	GENERAL PHARMACOLOGY-I	WMI-617	3(2+1)
	MEDICAL MICROBIOLOGY-I	WMI-635	3(2+1)
<b>Fourth</b>	PARTIAL DENTURE PROSTHODONTICS	DNT-602	3(2+1)
	REMOVABLE ORTHODONTICS	DNT-603	3(2+1)
	ORAL PATHOLOGY AND ORAL MEDICINE	DNT-604	3(2+1)
	ORAL HISTOLOGY	DNT-605	3(2+1)
	GENERAL PHARMACOLOGY-II	DNT-617	3(2+1)

<b>Fifth</b>	PARTIAL DENTURE PROSTHODONTICS	DEN-606	3(2+1)
	REMOVABLE ORTHODONTICS	DEN-607	3(2+1)
	BASIC MINOR ORAL SURGERY	DEN-608	3(2+1)
	COMMUNITY DENTISTRY	DEN-609	3(2+1)
	CONSERVATIVE DENTISTRY	DEN-610	3(2+1)
			<b>15</b>
<b>Sixth</b>			
	CONSERVATIVE DENTISTRY-II	DNT-611	3(2+1)
	COMPLETE DENTURE PROSTHODONTICS	DNT-612	3(2+1)
	MAXILLOFACIAL AND CRANIOFACIAL PROTHESIS	DNT-613	3(2+1)
	PEDIATRIC DENTISTRY	DNT-614	3(2+1)
	BIOSTATISTICS	WMI-630	3(2+1)
	RESEARCH METHODOLOGY	WMI-631	3(2+1)
			<b>18</b>
<b>Seventh</b>	FIXED ORTHODONTICS	DNT-615	3(2+1)
	FIXED PROSTHODONTICS	DNT-616	3(2+1)
	ENDODONTICS AND MEDICAL EMERGENCIES IN DENTISTRY	DNT-617	3(2+1)
	MINOR ORAL SURGERY AND DENTAL IMPLANTOLOGY-I	DNT-618	3(2+1)
			<b>12</b>
<b>Eight</b>	MINOR ORAL SURGERY AND DENTAL IMPLANTOLOGY –II	DNT-619	3(2+1)
	FUNDAMENTAL OF ORAL AND MAXILLOFACIAL RADIOLOGY	DNT-620	3(2+1)
	RESEARCH PROJECT	WMI-633	6+1
	SEMINAR	WMI-634	1+0
	FUNDAMENTAL OF INFECTION CONTROL	WMI-641	2+1
			<b>15</b>
	<b>TOTAL CREDIT HOURS</b>		<b>126</b>

1<sup>st</sup> Semester

<b>First</b>	ANATOMY-I	WMI-601	4(3+1)
	BIOCHEMISTRY-I	WMI-602	4(3+1)
	PHYSIOLOGY-I	WMI-603	4(3+1)
	PAK STUDIES	WMI-604	2(2+0)
	ENGLISH-I	WMI-605	2(2+0)
	COMPUTER SKILLS	WMI-606	2(2+1)

**Course Objectives:**

- To understand the basic concepts of anatomy beginning from the cell organization to organ system function
- To understand the basic concepts of general anatomy including skeleton and musculoskeletal.
- To Understand the anatomy of Thorax Abdomen and pelvis

**Course contents:**

Musculo skeletal system (Axial and Appendicular), Axial Skeleton, Different bones of human body, Axial and Appendicular Skeleton, Classification on the basis of development, region and function, General concept of ossification of bones, parts young bone, Blood supply of long bones. Joints Structural Regional and functional classification of joints, Characteristics of synovial joints, Classification of synovial joints, Movements of synovial joints. Muscular System Parts of muscle Classification of muscles (skeletal, Cardiac, smooth) Thoracic wall: Muscles of thorax, Surface Anatomy, Trachea, lungs, pleura, mammary glands (breast), Heart and thoracic vessels. Thoracic cavity: Mediastinum, Lungs, bronchi, blood supply and lymphatic Abdominal wall: Skin, nerve and blood supply, Muscles of anterior abdominal wall. Abdominal cavity: General Arrangement of the Abdominal Viscera, Peritoneum, Omenta, mesenteries, Stomach, blood, nerve, lymphatic supply, small intestine, blood, nervous and lymphatic supply, Large intestine: blood nerve and lymphatic supply. The pelvic wall: Anterior, posterior wall, diaphragm. Pelvic cavity: Ureters, urinary bladder Male genital organs, Female genital organs, Muscles of pelvic region, blood supply, nerve supply.

**Practical's:**

- Study Axial and Appendicular skeleton on human Skeletal model.
- Study musculoskeletal system on human Musculo Skeletal model.
- Study organs of Special senses.
- Study and understand anatomy of Thorax, Abdomen and Pelvis through:
  - Human Models
  - Video demonstration.

**Recommended Books:**

Ross and Wilson Anatomy and Physiology in health and illness 11<sup>th</sup> Edition Waugh Grant.  
Clinical Anatomy (By regions) 9<sup>th</sup> edition, Richard Snell.

**Reference books:**

- Netter Atlas of Anatomy 5<sup>th</sup> Edition Saunders.
- Gray's Anatomy for student's 2<sup>nd</sup> Edition Drake Vogel Mitchell.

**Course objectives:**

- To understand the chemical composition, biochemical role, digestion and absorption of macro and micro molecules of the cell.
- To understand different biochemical reactions in cell.
- To understand mechanism of action of hormones.

**Course contents:**

Acids, bases, pH and buffers, Biochemical composition and functions of the cell membrane, Transport across the cell membrane, Carbohydrates: Introduction, structure, function, digestion and absorption, Amino acids and proteins: Introduction, structure, function, digestion and absorption, Lipids: Introduction, structure, function, digestion and absorption, Vitamins and minerals, Fluid, electrolyte and acid base balance, Cell signaling and hormone action, Body secretions: Composition and function of saliva, gastric acid (HCL), pancreatic juice, bile, hormones and GI functions

**Practical's:**

- Blood sample collection for Biochemical analysis
- Preparation and calculation of Solutions
- Principles of Biochemistry analyzers (spectrophotometer, flame photometer)
- Determination of Cholesterol, TG, HDL, LDL, sugar, calcium and phosphorus in blood

**Recommended Books**

- Harper's Biochemistry Robert K. Murray, Daryl K. Graner 28<sup>th</sup> edition 2009
- Biochemistry by Dr. U. Satyanarayana, UChakrapani Lehninger Principles of Biochemistry, 6E
- Marks' Essentials of Medical Biochemistry A Clinical Approach, Second Edition

**Course Objectives:**

- To understand the basic concepts of physiology beginning from the cell organization to organ system function.
- To understand the organization of cell, tissue organ and system with respect to their functions.
- To Understand the physiology of Respiration, G.I.T, Urinary system and Endocrine system

**Course contents:**

Functional organization of human body, Mechanism of Homeostasis, Cell structure and its function, function of different Tissue, Functions of the skin, , Types and function of muscle, Neuromuscular junction, functions of the endocrine glands, Breathing Mechanism, Exchange of respiratory Gaseous, Transport of respiratory gases, Function of different part of Digestive system, Function of liver and pancreas, Digestion and Absorption in Gastrointestinal tract, Patho-Physiology of Gastrointestinal Disorders, Formation of Urine by the Kidney, Glomerular filtration, Renal and associated mechanism for controlling ECF, Regulation of Acid-Base Balance, Male Reproductive System ( Male ), Prostate gland, Spermatogenesis, Female Reproductive System, Menstrual Cycle and Pregnancy and parturition, Mammary Glands and Lactation and Fertility Control

**Practical's:**

- Introduction to microscope
- Bleeding time
- Clotting time
- WBCs count
- RBCs count
- Platelets count
- Reticulocytes count

**Recommended Books:**

- Essentials of Medical Physiology K Sembulingam, Prema Sembulingam Sixth Edition 2013
- Concise Physiology Dr. Raja Shahzad 1<sup>st</sup> Edition 2012
- Guyton And Hall Textbook of Medical Physiology John E. Hall, Arthur C. Guyton Professor and Chair 2006
- Ross and Wilson Anatomy and Physiology in Health and Illness 11<sup>th</sup> Edition Anne Waugh, Allison Grant 2010

**Course Objectives:**

- To develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.
- To study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

**Course Contents:**

Historical Perspective: Ideological rationale with special reference to Sir Syed Ahmed Khan, Allamah Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah, Factors leading to Muslim separatism, People and Land, Indus Civilization, Muslim advent, Location and Geo-Physical features. Government and Politics in Pakistan, Political and constitutional phases:1947-58,1958-71,1971-77,1977-88,1988-99,1999 onward  
Contemporary Pakistan: Economic institutions and issues, Society and social structure, Ethnicity, Foreign policy of Pakistan and challenges, Futuristic outlook of Pakistan.

**Books Recommended:**

Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press,2000.

Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, Nd.

Amin, Tahir. *Ethnos - National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad.

Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research,1998.



**Course Objective:**

- To enable the students to meet their real-life communication needs
- To enhance language skills and develop critical thinking

**Course Contents:**

Vocabulary Building Skills: Antonyms, Synonyms, Homonyms, One word Substitute, Prefixes and suffixes, Idioms and phrasal verbs, Logical connectors, Check spellings, Practical Grammar & Writing Skill: Parts of Speech, Tenses, Paragraph writing: Practice in writing a good, unified and coherent paragraph, Précis writing and comprehension, Translation skills: Urdu to English, Reading skills: Skimming and scanning, intensive and extensive, and speed reading, summary and comprehension Paragraphs, Presentation skills: Developing, Oral Presentation skill, Personality development (emphasis on content, style and pronunciation)

**Recommended books:**

- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0 19 4313506.
- Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 4534030.

**Course objectives:**

To understand the basic of computer

To utilize the MS office, internet and email

**Course Contents:**

Introduction to Computer and Window XP/7; MS Office 2007 (Word, Excel, PowerPoint); Internet access and different data bases available on the internet; Email.

**Recommended Books:**

Computer science by Muhammad Ashraf, edition 1<sup>st</sup>2010

2<sup>ND</sup> Semester

<b>Second</b>	ANATOMY-II	WMI-607	<b>4(3+1)</b>
	BIOCHEMISTRY-II	WMI-608	<b>4(3+1)</b>
	PHYSIOLOGY-II	WMI-609	<b>4(3+1)</b>
	ISLAMIC STUDIES	WMI-610	<b>2(2+0)</b>
	COMMUNICATION SKILLS	WMI-611	<b>2(2+0)</b>

**Course Objectives:**

- To understand the basic concepts of anatomy beginning from the cell organization to organs system function
- To understand the anatomy of upper limb, lower limb and head and neck.
- To understand the knowledge about endocrine system

**Course contents:**

The upper limb Bones of shoulder girdle and Arm, Muscles, Axilla, Brachial plexus, Cubital fossa, the forearm, hand bones, muscles, Blood supply, Nerve supply, lymphatics, The lower limb Fascia, Bones, Muscles, Femoral triangle, Blood supply, Nerve supply, Lymphatic supply. Head and neck Skull, Mandible, Cranial nerves, cranial cavity, Meninges, Brain, Orbit, Neck, Endocrine System Classification of endocrine glands, Pituitary glands, Thyroid Glands, Adrenal gland and differences between the cortex and medulla.

**Practical's:**

- Study and understand the anatomy of Upper limb, Lower limb, Head and Neck through:
- Human Models.
- Video demonstration
- Study radiographs of upper and lower limb.

**Recommended Books:**

- Essential books (text books)
- Ross and Wilson Anatomy and Physiology in health and illness 11<sup>th</sup> Edition Waugh Grant.
- Clinical Anatomy (By regions) 9<sup>th</sup> edition, Richard S. Snell.

**Reference books**

- Netter Atlas of Anatomy 5<sup>th</sup> Edition Saunders.
- Gray's Anatomy for students 2<sup>nd</sup> Edition Drake Vogel Mitchell.
- BD. Chourasia Anatomy (Allregions)

**Course objective:**

By the end of this course the students of BS technology will be able to:

- Discuss the basic concept of biomolecules and its metabolism in human body
- Describe the significance of various enzymes and hormones in human body
- Demonstrate various enzymes and hormones on biochemistry analyzer and interpret its result for the diagnosis and monitoring

**Course Content:**

Carbohydrates metabolism (Glycolysis, Glycogenolysis, Gluconeogenesis, Glycogenesis, Pentose phosphate pathway, Fermentation and ethanol metabolism, Krebs cycle, ETC, Cori cycle, Glucose alanine cycle), Protein and amino acids metabolism (synthesis and degradation of amino acids, Lipid metabolism (Beta oxidation, Cholesterol metabolism), Nucleotide metabolism ( Purine and pyrimidine degradation, uric acid formation), Nutrition (Major food groups, Balanced diet , Metabolic changes in starvation, Protein energy malnutrition, Obesity, kwashiorkor, Marasmus), Clinical diagnostic enzymology: clinical significance of ALT, AST, ALP, GGT, LDH and isoenzymes, CK and isoenzymes, Pancreatic lipase and amylase, cholinesterase, G6PD, ACP, cardiac troponins, ANP, BNP and pro-BNP)

**Practical:**

- Determination of liver, cardiac, pancreatic enzymes
- Determination of urea and uric acid
- Demonstration of ELISA, CMIA and CLIA instrument

**Books:**

- Biochemistry by Dr. U. Satyanarayana, U Chakrapani
- Marks' Essentials of Medical Biochemistry A Clinical Approach, Second Edition Harper's Illustrated Biochemistry a LANGE medical book twenty-sixth edition Lehninger Principles of Biochemistry, 6E
- Mc Graw Hill's Manual of laboratory and diagnostic tests by DENISE D. WILSON, PHD, APN, FNP, ANP

**Course Objectives:**

- To understand the basic concepts of physiology beginning from the organization of the systems to their role in the body.
- Understand the organization and function of various systems
- Understand the physiology of Blood, CVS, Nervous System and special senses
- Students will be able to understand immunity, its types and immune reactions

**Course Contents:**

Physiology of Nervous System, Function of various cranial nerves, Functions of somatic motor nervous system Functions of the autonomic nervous system, function of neurons, neuroglial cells and their components. Resting membrane potential and an action potential, function of a synapse and reflex arc, functions of the specialized sense organs: Eye, physiology of sight, accommodation, optic nerve and optic chiasma, Ear, functions of the internal, middle and external ear Physiology of the hearing and balance, Smell, physiology of olfactory nerve. Taste, physiology of taste Location of the taste buds Physiology of speech, Blood: Composition and function of Blood , hematopoiesis, Blood grouping, Coagulation mechanism, Physiology of Cardiovascular system The Physiology of Pulmonary Systemic Circulation: Arteries Veins Local Control of Blood Vessels Nervous Control of Blood Vessels Regulation of Arterial Pressure, The function of Lymphatic System, tonsils, lymph nodes, the spleen and the thymus, Classification and physiology of Immune system, Antigens and Antibodies, Primary and secondary responses to an antigen Antibody- mediated immunity and cell-mediated immunity Role of lymphocyte in immunity regulation.

**Practical's**

- Spirometry
- Electrocardiography
- Blood Pressure Measurement.
- Normal and abnormal ECG interpretation.
- Pulse rate measurement
- Heart sounds

**Recommended Books**

- Essentials of Medical Physiology K Sembulingam, Prema Sembulingam Sixth Edition 2013
- Guyton And Hall Textbook Of Medical Physiology John E Hall, Arthur C. Guyton Professor and Chair 2006
- Ross and Wilson Anatomy and Physiology in Health And Illness 11<sup>th</sup> Edition Anne Waugh, Allison Grant 2010

**Course Objectives:**

- To learn about Islam and its application in day-to-day life.
- To provide Basic information about Islamic Studies
- To enhance understanding of the students regarding Islamic Civilization
- To improve Students skill to perform prayers and other worships
- To enhance the skill of the students for understanding of issues related to faith and religious life.

**Course contents:**

Fundamental beliefs of Islam, Belief of Towhead, Belief in Prophet hood, Belief in the Day of Judgment, Worships, Salaat / Prayer, Zakat /Obligatory Charity, Suam / Fasting, Hajj / Pilgrimage, Jihad, Importance of Paramedics In Islam, Ethics, Religion and Ethics, Higher Intents / Objectives of Islamic Sharia and Human Health, Importance and Virtues of Medical Profession, Contribution and Achievements of Muslim Doctors, Knowledge of the Rights, Wisdom and Prudence, Sympathy /Empathy, Responsible Life, Patience, Humbleness, Self Respect, Forgiveness, Kindhearted, Beneficence, Self Confidence, Observing Promise, Equality, Relation among the Doctors, Jealousy, Backbiting, Envy, Etiquettes of Gathering, Relation between a Doctor and a Patient, Gentle Speaking, Mercy and Affection, Consoling the Patient, To inquire the health of Patient, Character building of the Patient, Responsibilities of a Doctor,

**Recommended Books:**

Islamiyat (Compulsory) for Khyber Medical University, Medical Colleges and Allied Institutes

**Course Objectives**

By the end of the course students will be able to:

- Communicate effectively both verbally and non-verbally
- Apply the requisite academic communication skills in their essay writing and other forms of academic writing
- Use various computer-mediated communication platforms in their academic and professional work
- Relate to the interpersonal and organizational dynamics that affect effective communication in organizations.

**Course contents:**

Introduction to Communication , Meaning and definition of Communication, The process of communication, Models of communication, Effective Communications in Business, Importance and Benefits of effective communication, Components of Communication, Communication barriers, Non verbal communication, Principles of effective communication, Seven Cs, Communication for academic purposes, Introduction to academic writing, Summarizing, paraphrasing and argumentation skills, Textual cohesion, Communication in Organizations, Formal communication networks in organizations, Informal communication networks, Computer- mediated communication (videoconferencing, internet, e-mail, skype, groupware, etc.), Business Writing , Memos, Letters, Reports, Proposals, Circulars, Public Speaking and Presentation skills, Effective public presentation skills, Audience analysis, Effective argumentation skills, Interview skills.

**Recommended Books:**

- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0 19 4313506.
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN0194313492.
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN0194313506
- Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and35-41.
- Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 4534022.



### Third SEMESTER

<b>Third SEMESTER</b>	DENTAL ANATOMY & TOOTH MORPHOLOGY	DNT-601	3(2+1)
	BEHAVORAL SCIENCES	WMI-614	2(2+0)
	BIOETHICS	WMI-615	2(2+0)
	GENERAL PATHOLOGY-I	WMI-616	3(2+1)
	GENERAL PHARMACOLOGY-I	WMI-617	3(2+1)
	MEDICAL MICROBIOLOGY-I	DNT-635	3(2+1)

**DNT-601 DENTAL ANATOMY AND TOOTH MORPHOLOGY Credit Hours:3( 2+1)**

**Course Objectives:**

By the end of the semester students will be able to:

- Differentiate between primary and permanent dentition
- Describe general characteristics of permanent maxillary and mandibular teeth

**Course Content:**

General characteristics of permanent maxillary and mandibular central incisor, lateral incisor, first premolar, Second premolar, first molar, second molar, third molar, general characteristics of deciduous teeth

**Practical's :**

1. Identification of important landmarks of Teeth on study models
2. Diagram sketching of various teeth

**Recommended Book:**

- Dental Functional Morphology By Peter W. Lucas, Cambridge University Press
  - Dental Morphology: An Illustrated Guide by G. C. Van Beek BDS(Brist) (Author) Butterworth-Heinemann; 2 edition (27 Jan. 1983)
  - Dental Anatomy and Tooth Morphology by P. Sampath Kumar (Author) JPB (2007)
- Concise Dental Anatomy and Morphology 4th Edition by James L.Fuller(Author)

**Course Objectives**

- Conducting diagnostic interviews
- Formulating and clarifying diagnostic findings and treatment recommendations
- Documenting evaluation and treatment procedures, involving duties such as recording results of diagnostic interviews, lab studies, and/or treatment plans in a timely way according to the medical records protocols of the rotation site

**Course Contents:**

Introduction to Behavioral Sciences and its importance in health: Bio-Psycho-Social Model of Health Care and the Systems Approach, Normality vs Abnormality, Importance of Behavioral sciences in health, Desirable Attitudes in Health Professionals Understanding Behavior: Sensation and sense organs, Perception, Attention and concentration, Memory, Thinking, Communication, Individual Differences: Personality, Intelligence, Emotions, Motivation, Learning, Stress and Stressors, Life Events, Stress, Management, Interviewing / Psychosocial History Taking, Allied Health Ethics-Hippocratic oath, Culture and Allied Health practice, Psychological reactions, Breaking Bad News, Pain, Sleep, Consciousness.

**Recommended Books:**

- Behavioral Sciences by M.H Rana 2007, edition 5<sup>th</sup>
- Sociology in a Changing World by William Kornblum 8<sup>th</sup> edition 2007
- Changing Behavior: Immediately Transform Your Relationships with Easy-to-Learn, Proven Communication Skills by Georgiana Donadio 2011, edition 5<sup>th</sup>

**Course Objectives:**

- Use the approach of ethical principles the safety and benefits of the patients
- Analyze bioethical issues in practice

**Course Contents:**

Introduction of bioethics ,ethical principles ,autonomy ,informed consent, intentional non disclosure ,patient self determination act ,the health insurance portability and accountability act of 1996(HIPAA),privacy and security rules , non maleficence ,slippery slope arguments, beneficence, paternalism, justice, social justice , the patient protection and affordable care act, professional patient relationships ,unavoidable trust ,human dignity , patient advocacy ,moral suffering ,ethical dilemmas

**Recommended Books:**

- Introduction to bioethics and ethical decision making by Karen L. Rich (chapter 2).2015

**Course Objectives:**

- To understand different pathological processes.
- To the processes blood coagulation and embolism
- To understand the mechanism of wound healing and regeneration

**Course Contents:**

Introduction to pathology, Cell injury, Cellular adaptation, Acute Inflammation, Chronic Inflammation, Cell Repair & Wound Healing, Regeneration & Repair, Hemodynamic Disorders, Edema, Hemorrhage, Thrombosis, Embolism, Infarction & Hyperemia, Shock, compensatory mechanism of shock, possible consequences of thrombosis & difference between arterial & venous emboli, Neoplasia, Dysplasia, benign and malignant neoplasms, metastasis

**Practical's:**

1. Estimation of Prothrombin Time
2. Estimation of Clotting Time
3. Estimation of Bleeding Time
4. Estimation of Activated Partial Thromboplastin Time

**Recommended Books:**

- Robbins Basic Pathology Kumar Abbas Aster 9<sup>th</sup> Edition 2013
- Review Of General Pathology Moh. Firdaus 9<sup>th</sup> Edition
- Short Text Book of Pathology Moh. Inam Danish 3<sup>rd</sup> Edition 2006

**Course Objectives:**

By the end of semester students will be able to:

- Define common terms related to pharmacology and drug therapy.
- Discuss relevant historical, legal, and ethical issues related to pharmacology and drug therapy.

**Course Contents:**

Introduction to Pharmacology, Pharmacokinetics, Pharmacodynamics, Adverse effects of drugs, Classification of drugs, Drugs affecting the Autonomic Nervous System, NSAID, Opioids, Drugs Affecting Endocrine system (Corticosteroids, Thyroid and Anti Thyroid), Gastrointestinal Drugs (PPI, H2 blockers and Antacids), Anti-Histamines, Anesthetics (General and local anesthetics),

**Practical:** 1. Introduction to drug dosage form 2. Study of the action of drugs (Atropine) on the rabbit's eye

**Recommended books:**

- Lippincott's pharmacology (text book) by Mycek 6th Edition published by Lippincott Raven 2012.
- Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 12th Edition, Published by Appleton.

**Course objectives:**

- To introduce the students with basic concepts in bacteriology and mycology.
- To introduce the students with common bacterial and fungal infections.
- To introduce the students with diagnosis of common bacterial and fungal infections.

**Course contents:**

Historical review and scope of microbiology, sterilization, disinfection and antisepsis, structure and function of prokaryotic cell, difference between prokaryotic and eukaryotic cell, bacterial growth and metabolism, bacterial classification, normal microbial flora of human body, mechanism of bacterial pathogenesis, host parasite interaction, Immune response to infection, common bacterial pathogen prevailing in Pakistan, introduction to fungi, fungal characteristic, morphology, structure, replication and classification, mechanism of fungal pathogenesis, common fungal pathogen prevailing in Pakistan.

**Practical:**

1. Introduction and demonstration of Laboratory Equipment's used in Microbiology.
2. Inoculation and isolation of pure bacterial culture and its antibiotic susceptibility testing.
3. Demonstration of different types of physical and chemical methods of sterilization, and disinfection.
4. Students should be thorough to work with compound microscope.
5. Detection of motility: Hanging drop examinations with motile bacteria, non-motile bacteria.
6. Simple staining methods of pure culture and mixed culture
7. Gram's staining of pure culture and mixed culture
8. AFB staining of Normal smear, AFB positives smear
9. KOH preparation for fungal hyphae.
10. Germ tube test for yeast identification.
11. Gram stain for candida.

**Recommended books:**

- Sherris Medical Microbiology: An Introduction to Infectious Diseases. Ryan, K. J., Ray, C. G., 4<sup>th</sup> ed. McGraw-Hill,2003.
- Clinical Microbiology Made Ridiculously Simple. Gladwin, M.,& Trattler, B., 3<sup>rd</sup> ed. Med Master, 2004.
- Medical Microbiology and Infection at a Glance. Gillespie, S., H., Bamford, K., B., 4<sup>th</sup> ed. Wiley- Blackwell,2012.
- Medical Microbiology, Kayser, F., H., &Bienz, K., A., Thieme,2005.
- Review of Medical Microbiology and Immunology.Levinson,W., 10<sup>th</sup> ed. McGraw Hill Professional,2008.
- Jawetz, Melnick, & Adelberg's Medical Microbiology. Brooks, G., Carroll, K., C., Butel, J., &Morse, S., 26<sup>th</sup> ed. McGraw-Hill Medical,2012.

## FOURTH SEMESTER

<b>Fourth Semester</b>	PARTIAL DENTURE PROSTHODONTICS	DNT-602	3(2+1)
	REMOVABLE ORTHODONTICS	DNT-603	3(2+1)
	ORAL PATHOLOGY AND ORAL MEDICINE	DNT-604	3(2+1)
	ORAL HISTOLOGY	DNT-605	3(2+1)
	GENERAL PHARMACOLOGY-II	DNT-617	3(2+1)



**Course Objectives:**

By the end of semester students will be able to:

- Describe properties and manipulation of different impression materials
- How to take impression with different impression materials
- Differentiate different types of dental materials

**Course Content:**

Properties of dental materials, Classification of impression materials, Dental plasters, Plastic impression compound, zinc oxide eugenol, Elastic hydrocolloids, Elastomers, Addition silicones, condensation silicones, Gypsum products, Dental waxes, Dental investments, Gypsum bonded investment, silicone bonded, phosphate bonded investment, Base metal alloys, Gold alloys, Soldering and welding, Casting

**Practical:**

1. Identification of dental materials
2. Manipulation of dental plasters
3. Manipulation of impression materials
4. Identification of different waxes
5. Identification of different casting techniques

**Recommended Books:**

- Basic dental materials by John Jay Manapalil, 2<sup>nd</sup> edition Jaypee
- Essentials of dental materials SH Sotratur, 1<sup>st</sup> edition Jaypee
- Applied dental materials by John F McCabe and Angus W.G. Walls, 9<sup>th</sup> edition Blackwell publishing Ltd.
- Dental biomaterials by Zohaib Khursheid and Zeshan Sheikh, 2nd edition paramount books

**Course objectives:**

By the end of semester students will be able to:

- To describe structure and composition of enamel, dentin-pulp complex and periodontium
- To explain development of tooth and its supporting structures

**Course Content:**

Structure of oral tissues, Development of mandible and maxilla, Development of tooth and its Supporting structures, Composition of enamel, Formation of enamel, Structure of enamel, Structure, composition and formation of dentin-pulp complex. Composition, formation and structure of periodontium, Physiological tooth movement, Shedding of teeth, eruption of teeth, Function of saliva, Histology of major and minor Salivary glands, Functions of oral mucosa, Structure of oral mucosa,

**Practical:**

1. Microscopic slides and images of enamel and dentine
2. Explaining the structural organization of oral tissues

**Recommended Books:**

1. Ten Cates's oral histology:Development,structure andfunctionbyAntonio Nanci Elsevier Health Sciences
2. Orban's Oral Histology and Embryology, Bhaskar S.: 11th edition, 1991, Mosby.
3. Fundamentals of Oral Histology and Physiology by R. Hand, Marion E. FrankWiley-Blackwell
4. Textbook of Dental and Oral Histology with Embryology and Multiple Choice Questions by Chandra Girish, Chandra Mithilesh, Chandra Nidhee, Chandra Satish, Chandra ShaleenEdition 2/ejaypee

**Course objectives:**

By the end of the semester students will be able to:

- Describe etiology and classification of periodontal diseases
- Diagnose different periodontal diseases.

**Course Contents:**

Anatomy of periodontium, Basic etiology of periodontal disease, Classification of periodontal diseases, Gingivitis, Gingival enlargement, Periodontitis, Early onset periodontitis, Gingival recession, Occlusal Trauma, Pericoronitis, Gingival abscess, Periodontal examination, diagnosis, prognosis and treatment plan, Plaque control in periodontal therapy

**Practical:**

- Hospital based scaling and polishing.

**Recommended Book:**

1. A Text Book Of Clinical Periodontology By JanLindhe
2. Essentials Of Periodontology ByElizabeth

**Course Objectives:**

By the end of the semester students will be able to:

- Describe different disorders of teeth and supporting structures
- Interpret pathological changes clinically and radiographically

**Course Outlines:**

Disorders of development of teeth, Dental caries, disorders of dental pulp, disorders of Periodontium, cysts of jaws and oral tissues, diseases of salivary glands, disorders of bone, diseases of temporo-mandibular joint, , Diseases of the oral mucosa: Non-infective stomatitis, Tongue disorders, Common benign mucosal swellings.

**Practical:**

- Identification of slides of different oral pathologies
- Visit to maxillofacial ward to observe patients with oral pathologies and their management along with history taking

**Recommended Book:**

- Textbook of Oral Pathology by Sanjay Saraf, Jaypee Brothers Publishers
- Clinical Outline of Oral Pathology, 4th Edition by Lewis R. Eversole (Author) Pmph USA
- Cawson's Essentials of Oral Pathology and Oral Medicine, 8e 8th Edition by Roderick A. Cawson, Churchill Livingstone

**Course objectives:**

To provide quality patient care in routine as well as advanced procedures.

To understand the mechanism of drug action at molecular as well as cellular level, both desirable and adverse.

To understand the principles of pharmacokinetics i.e. drug absorption, distribution, metabolism and excretion and be able to apply these principles in therapeutic practice.

**Course contents:**

Drugs acting on cardiovascular system; Drugs for heart failure, anti-hypertensive drugs, antianginal drugs, Anti Hyperlipidemic drugs, Blood drugs(Anticoagulants), Diuretics, Chemotherapeutics drugs([Anti- protozoal, Anti-Malarial], Anti-Fungal, Anthelmintic), Antibiotics(Penicillin's, cephalosporin's, macrolides, aminoglycosides, fluroquinolones), Drugs acting on Respiratory system(Asthma).

**Practical:**

1. Routes of drug administration 2. Study of action pilocarpine on rabbit eye.

**Recommended books:**

Lippincott s pharmacology (text book) by Mycek 6th Edition published by Lippincott Raven 2012. Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 12<sup>th</sup> Edition, Published byAppleton.

<b>Fifth</b>	PARTIAL DENTURE PROSTHODONTICS	DNT-606	3(2+1)
	REMOVABLE ORTHODONTICS	DNT-607	3(2+1)
	BASIC MINOR ORAL SURGERY	DNT-608	3(2+1)
	COMMUNITY DENTISTRY	DNT-609	3(2+1)
	CONSERVATIVE DENTISTRY	DNT-610	3(2+1)
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**Course objectives:**

To introduce students with basic concepts of prosthodontics  
To fabricate removable partial denture  
To describe functions and parts of articulator  
To describe indications and merits, demerits of immediate denture and over denture.

**Course contents:**

Introduction to prosthodontics, Biological and mechanical considerations of partial denture, component parts of partial Denture, Maxillary major connector, Mandibular major connector, Minor connectors, Direct retainers, Indirect retainers Denture base materials, Materials of artificial teeth, Designing of partial denture, Surveying, Parts of surveyor, Selection Of major connector, Selection of denture base materials, Selection of artificial teeth, Arrangement of teeth, Try-In, Curing, Finishing and polishing, Insertion of partial denture, Over denture,

**Practical:**

- Surveying
- Designing
- Construction of wax pattern, spruing, investing, casting, finishing and polishing of metal framework
- Repair and relining and rebasing of partial denture

**Recommended books:**

- Boucher's Prosthodontics
- Fenn's Clinical Dental Prosthetics
- A Color Guide To Removable Partial Denture Design Davenport JC, BaskerRM, Heath JR, Ralph JP &Glantz
- by Roderick A. Cawson, ChurchillLivingstone

**Objectives:****At the end of this module the students will be able:**

- To diagnose various mal occlusions.
- To describe development of occlusion
- To understand removable orthodontic appliances.
- To describe Myofunctional orthodontic appliances
- To know preventive and interceptive procedures

**Course contents:**

Development of occlusion, classification and etiology of malocclusion, orthodontic diagnosis, parafunctional habits, general concepts for orthodontic appliances, removable appliances, Myofunctional appliances, vestibular screen, activators, bionators, frankel appliances, inclined plane, headgear, space maintainers, interceptive orthodontics.

**Practical:**

- Laboratory procedures for different appliances
- Wire bending techniques
- Fabrication of Adam's clasp, labial bows, springs and retractors
- Fabrication of Myofunctional appliances, Removable appliances

**Recommended Books:**

- Orthodontics, The art and science by S. Iyengar
- Orthodontics at a glance by Daljit Gill, Blackwell



**Objectives:**

**At the end of this module the students will be able:**

- To understand the composition of Local Anesthesia
- To perform diagnostic procedures of minor oral surgery
- To administrate the local anesthesia on patients.
- To know about infection control in surgical setup

**Course contents:**

History taking, Clinical examination, Clinical Evaluation, patient surgeon positions, chair positioning, principles of surgery, Wound repair, Infection control in surgical practice, Principles of routine exodontia, indications & contraindications, Instrumentations for basic oral surgery, Pharmacology of local anesthetics, Classification and Compositions, Administration of local anesthesia, Infiltration techniques, Nerve block techniques, Complications of local anesthesia

**Practical:**

- Administration of local anesthesia
- Instruments sterilization
- Extraction of primary teeth
- Simple extraction of permanent teeth

**Recommended books:**

- J Peterson, Tucker, Edward Ellis. Contemporary Oral & Maxillofacialsurgery
- Hand book of local anesthesia by Stanley F. Malamed

***Course objectives:***

To produce awareness towards dental problem of the community prior to occurrence

**Course contents:**

Basic concepts of health, disease and infection, Relationship of environment and health, Role of Nutrition in health and disease, Objectives and principles of health education, Epidemiological methods, Epidemiology of oral diseases, Prevention of oral diseases, primary preventive services, fluorides in caries Prevention.

**Recommended books:**

- Community Oral Health by Cynthia M.Pine
- Preventive Dentistry by John O.Forrest

### SIXTH SEMESTER

<b>Sixth Semester</b>			
	CONSERVATIVE DENTISTRY-II	DNT-611	3(2+1)
	COMPLETE DENTURE PROSTHODONTICS	DNT-612	3(2+1)
	MAXILLOFACIAL AND CRANIOFACIAL PROTHESIS	DNT-613	3(2+1)
	PEDIATRIC DENTISTRY	DNT-614	3(2+1)
	BIOSTATISTICS	WMI-630	3(2+1)
	RESEARCH METHODOLOGY	WMI-631	3(2+1)
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**OBJECTIVES:** -

- Enables to diagnose dental caries lesion
- Enable to form the tooth cavities according J.V black classification Enable to know the properties and requirements of restorative material

**COURSE CONTENTS:** -

Injury to the permanent teeth, Pulp therapy for the young permanent teeth, Apexification, Apexogenesis, Anesthesia, Rampant caries, Fluorides, Treatment of handicapped children, Endodontics, Diagnostic Procedures, Clinical Classification of pulpal & Peri apical disease, Reversible pulpitis. Irreversible pulpitis. Acute apical periodontitis. Acute apical abscess, Chronic apical periodontitis, Instruments, Internal Morphology & Access opening, Pulpectomy – diagnostic & working length, cleaning filing, shaping, Bio-mechanical canal preparation etc., Irrigants & intra canal medicaments. Root canal sealers & obturation. Failures in endodontic, Endo–periosteal lesion, Internal, external resorption, Radiographic Analysis.

**PRACTICALS:** -

- Access cavity preparation
- Canal locations on mounted teeth.
- Root canal preparation and obturation steps on mounted teeth

**RECOMMENDED BOOKS:**

- Operative Dentistry by M.A. Marzouk
- Art and Science of Operative Dentistry by Sturtevant Inlays Crowns and Bridges by Colin R Cowel
- Introduction to Metal Ceramic Technology by W. Patrick Naylor Endodontics- Problem Solving in Clinical Practice – Ford Textbook of Endodontics, 3<sup>rd</sup> Edition Nisha & Amit Garg (2014)
- Mastering Endodontic Instrumentation, John T. McSpadden, D.D.S. Cloudland Institute

**Course objectives:**

- To describe steps involved in complete denture fabrication To fabricate complete denture

**Course contents:**

Biomechanics of edentulous state. Tissue response to complete denture. Construction of special tray from primary impression construction of secondary denture base from secondary impression. Formation of occlusal wax rims articulators and articulation. Biological consideration in jaw relation and jaw movements biological consideration in vertical jaw relation. Biological consideration in horizontal jaw relation recording and transferring bases and occlusion rims. Relating the patient to articulator selection of artificial teeth for edentulous patient. Set up of teeth completion of try- in . laboratory procedures tooth supported complete denture. Single complete denture opposing natural teeth. Relining and rebasing of complete denture. Management of manufacturing defects repair of denture.

**Practical:**

- Construction of special tray from primary impression.
- Construction of permanent denture base from secondary impression
- Formation of occlusal wax rims
- Articulators and articulation
- Selection of teeth
- Set up of teeth
- Flasking, dewaxing and processing procedures
- Finishing and polishing techniques
- Relining and rebasing
- Immediate dentures

**Recommended books:**

- Boucher's Prosthodontics
- Fenn's Clinical Dental Prosthetics
- A Color Guide To Removable Partial Denture Design Davenport JC, Basker RM, Heath JR, Ralph JP & Glantz
- Removable Denture Construction. Bates JF, Huggett R & Stafford GD
- Over Dentures in General Dental Practice. Basker RM, Harrison A, Ralph JP & Watson C

**Course Objectives:**

- To introduce students with different maxillofacial prosthesis and their applications.

**Course Contents:**

Elementary knowledge of various maxillofacial prosthesis, Trauma, Orthognathic surgery, Classification Of obturators and its uses, Various types of jaw splints and their uses, Classification of gunning splints and Uses, various types of jaw exercises and uses, Various types of stunts and uses.

**Practical:**

- Clinical diagnosis of various maxillofacial and cranio facial defects
- Lab procedures involved in fabrication of splints, stunts and obturators.

**Recommended Books:**

- J Peterson, Tucker, Edward Ellis. Contemporary Oral & Maxillo facial surgery
- Oral and Maxillofacial Surgery by Kruger

**Objectives;**

- To enable the dental therapist to perform the simple restorative procedure in children
- To enhance the dental and oral status of children
- Able to early detect caries in children and manage it.

**Course Contents:**

local anesthesia for children, diagnosis and prevention of dental caries, treatment of dental caries in the preschool child, operative treatment of dental caries in the primary dentition, operative treatment of dental caries in the young permanent dentition, advanced restorative dentistry in children's, periodontal disease in children, anomalies of tooth formation and eruption pulp therapy for primary teeth, one step and two step pulpotomy. Fissure sealants and fluoride applications, space management, space maintainers, splinting.

**Practical;**

- Application of fluoride in primary teeth
- Application of fit and fissure sealant in primary teeth
- Pulpotomy
- Simple restorative procedures in primary teeth

**References;**

- pediatric dentistry - 3rd ed. (2005) Richard Welbury, Monty Duggal
- dentistry for the child by Ralph McDonald

**Course objectives:**

- After studying this course the students will be able to:
- Describe basic terms used in Biostatistics
- Use various statistical test depending up on data
- Select sample and sampling technique
- Categorize various variables
- Illustrate various types of hypothesis
- Estimate various variables and their significance
- Assemble and analysis of data

**Course Contents:**

Introduction to Biostatistics and its types; Descriptive and inferential statistics, Measure of central tendency, Measure of dispersion, Statistical data, Presentation of Data by Graphs, Data and its types, Data collection tools, Data analysis tools Health Related Data, Presentation of quantitative data, The concept of sampling, types and methods of sample, sample distribution, error of sampling, Variable and its types, Tests used in biostatistics their use and interpretation (t-tests, Chi-square ANOVA, Regression and correlation) Hypothesis formulation and testing on the basis of statistics and statistical tests, Sample and population, Basic considerations in sampling, random sampling, stratified random sampling, cluster sampling, systematic sampling, determination of sample size, elimination of sampling bias, two types of errors, acceptance and rejection Regions, Two sided and one sided tests, general steps in hypothesis testing, test about means, confidence interval for mean, Preparing data analysis by various software, Use of SPSS

**Practical Work:**

- Manual calculation related to measure of central tendency and measure of Dispersion
- Defining variables in SPSS
- Entry of data in SPSS
- Analysis of data in SPSS

**Recommended Books:**

- A guide to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
- Reading understanding multivariate statistics by Gimm LG Yard ADPR, publisher American Psychological Association
- Ilyas Ansari's community medicine (Text Book) by Ilyas and Ansari 2003 published by Medical division Urdu Bazaar Karachi



**Course Objectives:**

After studying this course the students will be able to:

- Write various types of research
- Planning of research
- Choose appropriate sampling methodology
- Design a comprehensive questionnaire
- Develop proposal for there search project
- Describe and use Literature review
- Recognize various variables
- Write are search report/Thesis

**Course Contents:**

Introduction to research (in simple term and a scientific term), concept of research, why do need research, advantage and scope of research, identification of research needs and its qualities, Types of research; Qualitative, Quantitative and their subtypes, Research process Introduction (Deciding, formulating research questions, planning, conduct of study, data collection, processing and analysis, Research writing and reporting), Literature review (What, why, where from, how and qualities of good literature and its use), Writing a research problem/question and selection of the title of study, Identification of various research variables, Hypothesis its types, formulation and testing of hypothesis, Research study designs used in qualitative and quantitative studies, Designing of data collection tools/questionnaires, Selection of appropriate sampling technique in various study designs, Concept of validity and reliability, Research proposal writing, Ethical principles of Research and their examples to apply those principles, Data collection and processing/displaying techniques, Writing of research report (Chapters in research report/thesis, Outline/Abstract of research, Referencing and Bibliography)

**Practical Work:**

- Literature Search
- Survey conduct
- Citation and Referencing
- Proposal writing
- Data collection and displaying

**Recommended Books:**

- Research Methodology by Ranjit Kumar 3<sup>rd</sup> Edition
- Foundation of Clinical Research by Portney LG Walkais MP in 1993, Publisher by Appleton and lauge U SA
- A guide to Research Methodology, Biostatistics and Medical writing by college of physicians and surgeons Pakistan by WHO collaboration center Health system research project by Corlien M Varkerisser, Ind ra Pathmanathan, Ann Brownlee

### Seventh Semester

<b>Seventh Semester</b>	FIXED ORTHODONTICS	DNT-615	3(2+1)
	FIXED PROSTHODONTICS	DNT-616	3(2+1)
	ENDODONTICS AND MEDICAL EMERGENCIES IN DENTISTRY	DNT-617	3(2+1)
	MINOR ORAL SURGERY AND DENTAL IMPLANTOLOGY-I	DNT-618	3(2+1)

**Objectives:**

- At the end of this module the students will be able:
- To demonstrate various fixed orthodontic appliances.
- To plan treatment planning for some common malocclusion.
- To understand different lab procedures related to fixed orthodontics like soldering and welding etc.

**Course contents:**

Cephalometrics types uses landmarks soft tissue landmarks line and planes down analysis Model analysis Carrey's analysis and Bolton's analysis, fixed appliances, Methods of gaining spaces, Arch Expansion, extraction in routine orthodontic treatment, Treatment planning, Anchorage, Management of common malocclusion, Lab procedures, welding, soldering, study model, acrylicization.

**Practical:**

- Model analysis
- Land marking of Cephalometric
- Fabrication of Arch expansion appliance
- Fabrication, Soldering and welding of molar tubes
- Cephalometric Analysis

**Recommended Books:**

- Orthodontics, The art and science by S. Iyengar
- Orthodontics at a glance by Daljit Gill, Blackwell
- Laura Mitchell orthodontics

**Objectives:**

- To demonstrate cavity designs for inlays or onlays To describe different types of crown sand bridges
- To fabricate different types of crown sand bridges

**CourseContents:**

Crowns Terminology, Indications & Contra indications, Diagnosis & Treatment Planning, Basic Principles of preparation, Porcelain Jacket Crowns, Indications & Contraindications, Clinical assessment, and steps of preparation. Porcelain Fused to metal crowns Indications, Contraindications, Clinical assessment ,Steps of preparation Full Crowns Indications, Contraindications, Elementary knowledge of cavity design for inlays (MOD, Class II, Class V) and on lays Principles of bridge design, Wax pattern of inlays, on lays, full veneer crown, jacket crown, Partial veneer crown, Resin bonded bridges, Types of crown sand bridges, Pontic designs, and Causes Of bridge failure, Porcelain fused to metal post and core crowns, full crowns.

**Practical:**

- Inlays(classII,M.O.D.,andClassV).
- Onlayandlabpreparation
- Bridgedesign(Cantilever,fixed).Andlabpreparation
- Inlays(ClassI,ClassV,ceramicinlays).Andlabpreparation
- Fullveneercrown.Andlabpreparation
- Jacketcrown.
- Inlays, onlays and lab preparation
- Bridge design and lab preparation
- Crown and lab preparation

**Recommended Books:**

- Contemporary of fixed prosthodontics by 4<sup>th</sup> adition by Rossential. land. Fujimoto  
Prosthodontics at a Glance by Irfan Ahmad

**OBJECTIVES:**

- To enable the students to identify the medically compromised patient before the oral procedures
- To assist and help the complicated and complex cases
- Enable the students to manage the medically compromised patient

**COURSE CONTENTS:**

Biographic Data, Chief Complaint History of Chief Complaint, Medical History, Review of Systems, physical examination, management of patients with compromising Medical conditions, Cardiovascular Problems, Ischemic Heart Disease, Cerebrovascular Accident (Stroke), Dysrhythmias, Heart Abnormalities that Pre dispose to Infective Endocarditis, Congestive Heart Failure (Hypertrophic Cardiomyopathy), Pulmonary Problems, Asthma , Chronic Obstructive Pulmonary Disease ,Renal Problems ,Renal Failure, Transplant and Transplant of Other Organs, Hypertension, Hepatic Disorders Endocrine Disorders ,Diabetes Mellitus ,Adrenal Insufficiency ,Hyperthyroidism, Hypothyroidism ,HematologicProblems,HereditaryCoagulopathies,TherapeuticAnticoagulation,NeurologicDisorders,SeizureDisorders,Ethanolism(Alcoholism)managementofpatientsduringandafterpregnancy,Pregnancy,PostpartumPeriod,

**PRACTICALS:**

- History taking and evaluation of the patients in OPDS and wards
- Emergency Management of medically compromised patient in dentistry

**RECOMMENDED BOOKS:**

- Operative Dentistry by M.A. Marzouk (Oral Surgery and Contemporary) Author Tucker
- Ford Textbook of Endodontics, 3E Nisha & Amit Garg (2014)
- Mastering Endodontic Instrumentation, John T. McSpadden, D.D.S. Cloudland Institute

**Objectives:**

At the end of this module the students will be able:

- To describe diseases of oral cavity
- To perform diagnostic procedures of minor oral surgery
- To manage complications of minor oral surgical procedures
- To understand the composition of Local Anesthesia
- To perform diagnostic procedures of minor oral surgery
- To administer the local anesthesia on patients.
- To know about infection control in surgical setup

**Course contents:**

Tooth extraction, specific technique for removal of each tooth, modification for primary teeth extraction, principles of flap design & management, techniques for open extractions, multiple extractions, indications and contra indications of impacted teeth, classification for third molar impaction, removal of impacted teeth and surgical procedure, post-operative patient management, management of extraction complications, Management of dental alveolar fracture, extractions of broken down root, suturing, excision of mucocele, apicectomy, operculectomy, epulis removal, frenectomy biopsy taking.

**Practical:**

- Administration of local anesthesia
- Instruments sterilization
- Extraction of primary teeth
- Simple extraction of permanent teeth
- Demonstration of patient and chair positioning
- Top form of all minor oral surgical procedure
- Extraction of Permanent teeth, impacted teeth
- Post extraction management

**Recommended Books:**

- J Peterson, Tucker, Edward Ellis. Contemporary Oral & Maxillofacial Surgery
- Oral and maxillofacial surgery by Kruger

### **EIGHT SEMESTER**

<b>Eight Semester</b>	MINOR ORAL SURGERY AND DENTAL IMPLANTOLOGY –II	DNT-619	3(2+1)
	FUNDAMENTAL OF ORAL AND MAXILLOFACIAL RADIOLOGY	DNT-620	3(2+1)
	RESEARCH PROJECT	WMI-633	6+1
	SEMINAR	WMI-634	1+0
	FUNDAMENTAL OF INFECTION CONTROL	WMI-641	2+1
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**Objectives:**

**At the end of this module the students will be able:**

- To describe diseases of oral cavity
- To perform diagnostic procedures of minor oral surgery
- To manage complications of minor oral surgical procedures
- To introduce the students with the types and classification of implants
- To describe implant placement.
- To prepare implant supported prosthesis.

**Course contents:**

Tooth extraction, specific technique for removal of each tooth, modification for primary teeth extraction, principles of flap design & management, techniques for open extractions, multiple extractions, indications and contraindications of impacted teeth, classification for third molar impaction, removal of impacted teeth and surgical procedure, post-operative patient management, management of extraction complications, Management of dent alveolar fracture, extractions of broken down root, suturing, excision of mucocele, apicectomy, operculectomy, epulis removal, frenectomy biopsy taking. Introduction of dental implants Types of implants, Sub perio steal implants, Endo steal implants, Osseo integration, Uses of dental implants, Planning of implants, Biomechanical considerations of implants, Main surgical procedures, placing the implant, Timing of implants aftertoothextraction,Healingtime,Onstagesurgery–twostagesurgery,Immediateplacement, Additional surgical procedures, Hard tissue reconstruction, Soft tissue reconstruction, Recovery, Prosthetic procedures for single teeth, bridges and fixed dentures, Prosthetic procedures for removable denture, Maintenance, Risks and complications.

**Practical:**

- Demonstration of patient and chair positioning
- To perform of all minor oral surgical procedure
- Extraction of Permanent teeth, impacted teeth
- Post extraction management
- Practical demonstration of surgical procedures involved in placement of implants Fabrication of implant supported prosthesis.

**Recommended Books:**

- J Peterson, Tucker, Edward Ellis. Contemporary Oral & Maxillofacial surgery
- Oral and maxillofacial surgery by Kruger
- Misch, Carl E (2007). Contemporary Implant Dentistry. St. Louis, Missouri: MosbyElsevier.
- Balaji, S. M. (2007). Textbook of Oral and Maxillofacial Surgery. New Delhi: Elsevier India.



**Course objectives:**

- To understand biology of radiation and radiation safety in dentistry along with the knowledge of radiologic techniques for procuring, exposing and developing dental films.
- Identification of the anatomical features and common pathology visible on dental radiographs
- Interpretation of dental radiographs as relevant to dentistry

**Course contents:**

Legislation and regulations relating to dental radiography and ionizing radiation, Dental x- ray tube and apparatus, ionizing radiation and its effects on body tissues hazards involved in dental radiography, and measures to be taken to protect patients and operator during the taking of radiographs, A knowledge of the different types of radiographs and their uses e.g; Peri apical radiographs, Bitewing radiographs, Occlusal radiographs, PA view of skull, Lateral view, OPG, CEPH, Digital radiography, Identification of the anatomical features and common pathology visible on dental radiographs, Interpretation of dental radiographs as relevant to dentistry

**Practical:**

- The techniques for taking dental radiographs
- Preparation of developer and fixer solution
- Dry processing of radiographs
- The principles of processing dental radiographs and the faults which may occur,
- The importance of quality assurance in dental radiographs

**Recommended books:**

- CLARK'S POSITIONING IN RADIOGRAPHY 12<sup>TH</sup> EDITION
- Stewart Whitley Charles Sloane Graham Hoadley Adrian D. Moore Chrissie W. Alsop

**Objectives:**

- Students will learn some basic research methodology and gain knowledge about research.
- It will hopefully result in some of presentation or publication for the students and will provide a research oriented environment

**Course contents:**

During last year each student should select a topic of research report with consultation of his/her supervisor and shall prepare and submit research report to Khyber Medical University by the end of last year.

**Practical:**

A hard copy of research project should submit to examination for degree requirements fulfillment.

During last year each student should select a topic of research work with consultation of his/her supervisor and shall present his/her research work through a seminar

