



CURRICULUM
BS DENTAL TECHNOLOGY

INSTITUTE OF PARAMEDICAL SCIENCES
KHYBER MEDICAL UNIVERSITY
PESHAWAR

CURRICULUM FOR BS DENTAL TECHNOLOGY

Institute mission:

- IPMS is committed to provide window to all those students who aspire to become highly qualified health professionals and enable them to work as professionals. The IPMS KMU will endeavor to provide highly committed technologist to healthcare system of KPK.

Aims of BS Dental Technology:

- To produce highly knowledgeable and skilled dental technologists through training in dental clinics and dental laboratories under supervision of qualified faculty.
- To meet the future Dental care needs of the community and provision of trained dental Technology teachers and researchers.

Objectives:

- 1) To perform an effective role in the field of dentistry to improve the community dental health.
- 2) To provide dental therapist /technologists a status and recognition in the dental care delivery system through improving their capability and increasing awareness of their responsibilities.
- 3) To assist Maxillofacial surgeons during surgeries
- 4) To perform effective role in delivering the conservative treatment for the primary teeth
- 5) To enable the dental Technologists to fabricate prosthodontic appliances, crown and bridges, orthodontic appliances and surgical splints etc.
- 6) To provide primary dental care services to the community.
- 7) To enable the dental Technologist perform the exodontia of primary teeth and simple permanent teeth.
- 8) To enable the dental Technologist to perform the routine conservative treatment of permanent teeth.
- 9) To provide platform to conduct research in their respective field in pursuance of excellence.

Prepared By,

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**FRAME WORK FOR B.S. Dental Technology
(4 Year Programme)**

➤ Total numbers of Credit hours	130 (HEC recommended: 124-133)
➤ Duration	4 years
➤ Semester duration	16-18 weeks
➤ Semesters	8
➤ Course Load per Semester	15-18 Credit hours
➤ Number of courses per semester	5-8

SCHEME OF STUDIES FOR 4 YEAR B.S. DENTAL

Semester/Year	Name of Subject	CODE	Credits
First	BIOCHEMISTRY-I	PMS-101	3+1
	PHYSIOLOGY-I	PMS-102	3+1
	ANATOMY-I	PMS-103	3+1
	ENGLISH-I	PMS-104	2+0
	PAK STUDIES	PMS-105	2+0
	COMPUTER SKILLS	PMS-106	1+1
Second	BIOCHEMISTRY-II	PMS-107	3+1
	PHYSIOLOGY-II	PMS-108	3+1
	ANATOMY-II	PMS-109	3+1
	ENGLISH-II	PMS-110	2+0
	ISLAMIC STUDIES	PMS-111	2+0
Third	GENERAL PATHOLOGY-I	PMS-201	2+1
	PHARMACOLOGY-I	PMS-202	2+1
	COMMUNICATION SKILLS	PMS-206	2+0
	MEDICAL MICROBIOLOGY-I	PMS-207	2+1
	CHEMISTRY OF DENTAL MATERIALS-I	PMS-254	2+1
	ORAL HISTOLOGY	PMS-255	2+1
Fourth	BEHAVORAL SCIENCES	PMS-225	2+0
	TOOTH MORPHOLOGY	PMS-256	2+1
	DENTAL MATERIALS-II	PMS-257	2+1
	PERIODONTOLOGY	PMS-258	2+1
	ORAL PATHOLOGY AND ORAL MEDICINE	PMS-259	2+1
	PHARMACOLOGY II	PMS-220	2+1

Fifth	PARTIAL DENTURE PROSTHODONTICS	PMS-384	2+1
	REMOVABLE ORTHODONTICS	PMS-385	2+1
	BASICS OF MINOR ORAL SURGERY	PMS-386	2+1
	COMMUNITY DENTISTRY	PMS-387	2+1
	FUNDAMENTALS OF ORAL AND MAXILLOFACIAL RADIOLOGY	PMS-388	2+1
	CONSERVATIVE DENTISTRY-I	PMS-389	2+1
			18
Sixth			
	BIOSTATISTICS	PMS-308	2+1
	RESEARCH METHODOLOGY	PMS-310	2+1
	CONSERVATIVE DENTISTRY-II	PMS-390	2+1
	COMPLETE DENTURE PROSTHODONTICS	PMS-391	2+1
	MAXILLOFACIAL AND CRANIOFACIAL PROSTHESIS	PMS-392	2+1
	PAEDIATRIC DENTISTRY	PMS-393	2+1
			18
Seventh	FIXED ORTHODONTICS	PMS-453	2+1
	FIXED PROSTHODONTICS	PMS-454	2+1
	FUNDAMENTALS OF IMPLANTOLOGY	PMS-455	2+1
	ADVANCES IN DENTISTRY	PMS-456	2+1
	MEDICAL EMERGENCIES IN DENTAL PRACTICE	PMS-457	2+1
	MINOR ORAL SURGERY	PMS-458	2+1
			18
Eight	RESEARCH PROJECT	PMS-406	6
	SEMINAR	PMS-407	1
	BIOETHICS	PMS 410	1
			8
	TOTAL CREDIT HOURS		130

Total credit hours= 130

HEC recommendation=124-136

1st SEMESTER COURSES

- 1. BIOCHEMISTRY -I**
- 2. HUMAN PHYSIOLOGY-I**
- 3. HUMAN ANATOMY-I**
- 4. ENGLISH-I**
- 5. PAK STUDIES**
- 6. COMPUTER SKILLS**

Course objectives:

By the end of semester students will be able to:

- Describe the chemical composition of macro and micro molecules of the cell and different biochemical reactions in the cell.

Course Detail:

Biochemical composition and functions of the cell, Chemistry of signals and receptors, Structure and function of Carbohydrates, Proteins and lipids, Classification of vitamins, their chemical structure & biochemical function, Sodium, potassium, chloride, calcium, phosphorus, magnesium, sulfur, iodine, fluoride, Composition, function and daily secretion of saliva, gastric juice, gastric acid(HCL), pancreatic juice, bile, and intestinal secretion, Digestion of proteins, carbohydrates, nucleic acids and lipids, Absorption of vitamins and minerals Sodium, potassium, chloride, calcium, phosphorus, magnesium, sulfur, iodine, fluoride, Respiratory chain and oxidative phosphorylation, components of respiratory chain, electron carriers, ATP synthesis coupled with electron flow, phosphorylation of ADP coupled to electron transfer, Ionization of water, weak acids and bases, pH and pK values, Body buffers and their mechanism of action, Acid base regulation in human body, Biochemical mechanisms for control of water and electrolyte balance, Types of particles in solution, Importance of selectively permeable membranes, osmosis and osmotic pressure, surface tension, viscosity, Structure & composition, Secretion, Mechanism of action of hormones

Practical:

1. Good laboratory Practices
2. Preparation of Solutions
3. Principles of Biochemistry analyzers (spectrophotometer, flame photometer)
4. Determination of Cholesterol, Tg, HDL, LDL, sugar, calcium and phosphorus in blood
5. Introduction to electrophoresis, PCR, gel documentation
6. SOP of centrifuge, water bath and microscope

Recommended Books:

1. Harper's Biochemistry Robert K. Murray, Daryl K. Granner 28th Edition 2009
2. Medical Biochemistry Mushtaq Ahmad vol. I and II 8th edition 2013th

Course Objectives:

By the end of semester students will be able to:

- Describe basic concepts of physiology beginning from the cell organization to organ system function.

Course Detail:

Introduction to the Human Physiology: Functional organization---relationship between structure and function of the human body, Homeostasis – its importance-- negative and positive feedback Mechanism, Control system of the body_ Nervous and Hormonal control systems
Integumentary System: Functions of the skin, hair, glands and nails, Body temperature and its regulation

The Musculoskeletal System: Functions of the bones and muscles, Functional characteristics of Skeletal Muscle, Smooth Muscle and Cardiac Muscle, The events of muscle contraction and relaxation in response to an action potential in a motor neuron, Distinguish between aerobic and anaerobic muscle contraction, Muscle hypertrophy and atrophy

The Endocrine System: An introduction to Glands and Hormone, Different types of glands and their Hormones, Functions of the Endocrine System, Chemical Signals, receptors and hormones, Other Hormones

Respiratory System: Different parts of respiratory system, Functions of the Respiratory System beginning at the nose and ending with the alveoli, Ventilation and Lung Volumes ,Gas Exchange and gas transport in the blood ,Control of Rhythmic Ventilation

The Digestive System: Different parts of digestive system. Accessory organs of digestive system, Functions of each organ of the Digestive System including major salivary glands, Movements and Secretions in each organ of the Digestive System and their regulation, Physiology of Digestion, Absorption, and Transport .

Genito-Urinary System: Urine Production, Urine Movement ,Regulation of Urine Concentration and Volume ,Body Fluid Compartments ,Regulation of Extracellular Fluid Composition ,Regulation of Acid-Base Balance ,Physiology of Male Reproductive system— spermatogenesis and reproductive glands, hormones and their regulations, Physiology of Female Reproductive system--- ovulation, hormones and their regulations

Practical:

1. Introduction to microscope
2. Bleeding time
3. Clotting time
4. WBCs count
5. RBCs count
6. Platelets count
7. Reticulocytes count

Recommended Books:

- Seelay, Stephens, Tate, editors. *Essentials of Anatomy and Physiology*.
- Ross & Wilson. *Anatomy and Physiology*.
- Stuart Ira Fox. 7th edition, *Human Physiology*
- Text Book of Medical Physiology Guyton
- Mushtaq Ahmad, Vol.I&II .*Essential of Medical Physiology*
- Bray JJ, Cragg, PA MacKnight,.*Lecture notes on human physiology*

Course Objectives

By the end of semester students will be able to:

- Annotate general anatomy including skeleton, musculo-skeleton, thorax abdomen and pelvis.

Course Detail:

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 lymphatics, 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, Special Senses.

Practical:

1. Study Axial and Appendicular skeleton on human skeletal model.
2. Study musculo skeletal system on human musculoskeletal model.
3. Study organs of special senses.
4. Study and understand anatomy of Thorax, Abdomen and Pelvis through:
 1. Human Models
 2. Video demonstration.

Recommended Books:

- Ross and Wilson, 11th Edition Waugh Grant. Anatomy and Physiology in health and illness
- Richard S. Snell., 9th edition. Clinical Anatomy(By regions)
- Sauder,5th Edition s.Netter Atlas of human anatomy
- Drake VogalMitcell, 2nd Edition. Gray's Anatomy for students
- BD. Churasia Human Anatomy (All regions)

Course Objectives:

By the end of the semester students will be able to

- Express enhanced language skills and develop critical thinking

Course Detail:

Basics of Grammar, Parts of speech and use of articles, Sentence structure, Active and passive voice, Practice in unified sentence, Analysis of phrase, clause and sentence structure, Transitive and intransitive verbs, Punctuation and spelling

Comprehension: Answers to questions on a given text

Discussion: General topics and every day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening: To be improved by showing documentaries/films carefully selected by subject teachers)

Translation skills: Urdu to English

Paragraph writing: Topics to be chosen at the discretion of the teacher

Presentation skills: Introduction

Recommended books:

- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506
- Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.
- Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.

PMS-105 Pakistan Studies (Compulsory) Credit Hours: 2(2+0)

Course Objectives:

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

- Develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.

Course Detail:

Historical Perspective: Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-i-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.
- Mahmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
- Amin, Tahir. *Ethno -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 objectives:

By the end of semester students will be able to:

- Demonstrate the use of MS office, internet and email

Course Detail:

Introduction to Computer and Window XP/7.

MS Office 2007 (Word, Excel, PowerPoint).

Internet access and different data bases available on the internet, Email.

Practical:

- Demonstration of Window XP/7 ,MSOffice 2007

Recommended Books:

- Computer science by Muhammad Ashraf, edition 1st 2010

2nd SEMESTER COURSES

- 1. BIOCHEMISTRY-II**
- 2. PHYSIOLOGY-II**
- 3. ANATOMY-II**
- 4. ENGLISH-II**
- 5. ISLAMIC STUDIES**

Course Objectives:

By the end of semester students will be able to:

- describe the chemical composition of macro and micro molecules of the cell and different biochemical reactions in cell

Course Detail:

Balance food, Major food groups, Nutritional status of Pakistani nation, Metabolic changes in starvation, Protein energy malnutrition, Regulation of food intake, Obesity, Citric Acid Cycle, The Catabolism of Acetyl-CoA, Glycolysis & the Oxidation of Pyruvate, Metabolism of Glycogen, Gluconeogenesis & Control of the Blood Glucose, The Pentose Phosphate Pathway & Other Pathways of Hexose Metabolism, Oxidation of Fatty Acids, Ketogenesis, Metabolism of Unsaturated Fatty Acids & Eicosanoids, Metabolism of Acylglycerols & Sphingolipids, Metabolism of Purine & Pyrimidine Nucleotides, Catabolism of Proteins & of Amino Acid, Conversion of Amino Acids to Specialized Products, Porphyrins & Bile Pigments, Mechanism of Action, Enzymes Kinetics and regulation, clinical Enzymology, Urine, Feaces, CSF, Pleural, pericardial, Peritoneal and Synovial fluids, Semen analysis

Practical:

1. Determination of enzymes
2. Urine examination
3. CSF examination
4. Examination of pleural, pericardial, synovial fluids

Recommended Books:

- Harper's Biochemistry
- Medical Biochemistry vol. I and II

Course Objectives:

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

Describe organization and function of various systems and physiology of Blood, CVS, Nervous System and special senses

Course detail:

The Nervous System: The functional areas of the cerebral cortex and their interactions, Functions of the parts of the brainstem diencephalons, basal nuclei, Limbic system, cerebellum. Function of various cranial nerves. Functions of somatic motor nervous system Functions of the autonomic nervous system the function of neurons, neuroglial cells and their components. Resting membrane potential and an action potential, the function of a synapse and reflex arc.

The functions of the specialized sense organs: Eye, physiology of site, 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 of Blood and Plasma Functions of Blood, Formed Elements, Stages of cell development, Blood grouping, Coagulation mechanism

The Cardiovascular system: Functions of the Heart Electrical Activity of the Heart origin and propagation of cardiac impulse Phases of the Cardiac Cycle Heart Sounds Regulation of Heart Functions--- intrinsic and extrinsic Functions of the Peripheral Circulation The Physiology of Circulation Pulmonary Circulation 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.

Immunity: Define immunity, Innate Immunity, Adaptive Immunity Antigens and Antibodies Primary and secondary responses to an antigen Antibody-mediated immunity and cell-mediated immunity Role of lymphocyte in immunity regulation

Practicals

1. Spirometry
2. Electrocardiography
3. Blood Pressure Measurement
4. Normal and abnormal ECG interpretation
5. Pulse rate measurement
6. Heart sounds

Recommended Books

- Seelay, Stephens, Tate, editors. *Essentials of Anatomy and Physiology*.
- Ross & Wilson Anatomy and Physiology.
- Stuart Ira Fox. 7th edition Human Physiology.
- Text Book of Medical Physiology Guyton
- Mushtaq Ahmad, Vol. I& II. Essential of Medical Physiology
- Bray JJ, Cragg, PA Mac Knight. Lecture notes on human physiology

Course Objective:

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

- Annotate the anatomy of upper limb, lower limb and head and neck.

Course Detail:

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,Cranialnerves,Cranialcavity,Meaninges,Brain,Orbit,Neck, Endocrine System Classification of endocrine glands, Pituitary glands, Thyroid Glands, Adrenal gland and differences between the cortex and medulla.

Practicals:

Study and understand anatomy of Upper limb, Lower limb, Head and Neck through:

1. Human Models
2. Video demonstration
3. Study radiographs of upper and lower limb

Recommended Books:

- Ross and Wilson 11th Edition Waugh Grant. Anatomy and Physiology in health and illness
- Richard S. Snell, 9th edition. Clinical Anatomy(By regions)
- Netter Atlas of human anatomy 5th Edition Saunders.
- Drake VogalMitcell, 2nd Edition. Gray's Anatomy for students
- BD. Churasia Human Anatomy (All regions)

Course Objective:

By the end of semester students will be able to:

- Match their real life communication needs.

Course Detail:

Paragraph writing: Practice in writing a good, unified and coherent paragraph
Essay writing: Introduction CV and job application

Translation skills: Urdu to English
Study skills: Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension

Academic skills: Letter / memo writing and minutes of the meeting, use of library and internet resources
Presentation skills: Personality development (emphasis on content, style and pronunciation)
Technical Report writing, Progress report writing

Note: Documentaries to be shown for discussion and review

Recommended books:

- Grammar
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0 19 431350 6.
- b) Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 019 435405 7 Pages 45-53 (note taking).
- Writing. Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 19 435406 5 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).
- Reading
- Reading. Advanced Brian Tomlinson and Rod Ellis Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.
- Reading and Study Skills by John Langan
- Study Skills by Richard Y

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 Tawheed, Belief in Prophet hood, Belief in the Day of Judgment, Worships, Salaat / Prayer, Zakat /Obligatory Charity, Saum / Fasting, Hajj / Pilgrimage, Jihad, Importance of Paramedics In Islam, Ethics, Religion and Ethics, Higher Intentions / 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

3rd Semester Courses

- 1. GENERAL PATHOLOGY-I**
- 2. PHARMACOLOGY-1**
- 3. COMMUNICATION SKILLS**
- 4. MEDICAL MICROBIOLOGY-I**
- 5. CHEMISTRY OF DENTAL MATERIALS-I**
- 6. ORAL HISTOLOGY**

Course Code-201 General Pathology-I Credit Hours: 3(2+1)

Course Objectives:

By the end of semester students will be able to:

- To describe blood coagulation and embolism and mechanism of wound healing and regeneration

Course outlines:

Introduction to pathology, Cell injury, Cellular adaptation, Acute Inflammation, Chronic Inflammation, Cell Repair & Wound Healing, Regeneration & Repair, Hemodynamics 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

Practicals:

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

Recommended Books:

- Kumar, Abbas and Aster; 9th edition. Robbins Basic Pathology.

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:

- By the end of the course students will be able to:
- Communicate effectively both verbally and non-verbally

Course Outlines:

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 431350 6.
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492.
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506
- Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41. Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2

Course Objectives:

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

- Identify different diseases caused by microorganisms.
- Describe basic concepts of microbiology
- Diagnose common bacterial and fungal infections

Course Outlines:

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.

Practicals:

1. Introduction and demonstration of Laboratory Equipment 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 positive smear.
9. KOH preparation for fungal hyphae.
10. Germ tube test for yeast identification.

Recommended Book:

- Sherris's medical microbiology: An introduction to infectious diseases .Ryan,K.J,Ray,C.G.,4THEd.McGraw –Hill,200
- Review of Microbiology and immunology.Levinson, W.,10th ed.McGraw –Hill Professional,2008
- Medical Microbiology,Kayser,F, H,&Beinz,K,A ,Thieme,2005
- Clinical Microbiology Made Ridiculously Simple. Gladwin, M., &Trattler ,B,3rd ed.Med Master,2004

Course Code-254 Chemistry of Dental Materials-I Credit Hours: 3(2+1)

Course Objectives:

By the end of semester students will be able to:

- Describe properties and manipulation of 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 euginol, 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, 2nd edition Jaypee
- Essentials of dental materials SH Sotratur, 1st edition Jaypee
- Applied dental materials by John F McCabe and Angus W.G.Walls, 9th 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 and function by Antonio 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. Frank Wiley-Blackwell
4. Textbook of Dental and Oral Histology with Embryology and Multiple Choice Questions by Chandra Girish, Chandra Mithilesh, Chandra Nidhee, Chandra Satish, Chandra Shaleen Edition 2/e Jaypee

4th Semester Courses

- 1. BEHAVIORAL SCIENCES**
- 2. TOOTH MORPHOLOGY**
- 3. DENTAL MATERIALS -II**
- 4. PERIODONTOLOGY**
- 5. ORAL PATHOLOGY**
- 6. PHARMACOLOGY-II**

Course Objectives:

By the end of semester students will be able to:

- Conduct diagnostic interviews
- Formulate the diagnostic findings and treatment recommendation

Course Outlines:

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, And 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, 5th edition
- Sociology in a Changing World by William Kornblum 8thedition 2007
- Changing Behavior: Immediately Transform Your Relationships with Easy-to-Learn, Proven Communication Skills by Georgiana Donadio 2011, 5th edition

Course Code-256 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

Practicals:

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:

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

- Describe composition and manipulation of different filling materials.

Course Content:

Tooth cutting materials, Different types of burs, Finishing and polishing materials, Ceramics, Dental cements, Zinc oxide eugenol cement, zinc phosphate cement, Zinc poly carboxylate cement, Calcium hydroxide cement, Silicate cement, Glass ionomer cement, Direct filling gold, Properties and composition of Dental amalgam, Manipulation of dental amalgam, lining materials, Denture base resins, Composition and manipulation of acrylic resins, Composite resins

Practical:

1. Identify different shapes of burs
2. Identify diamond and carbide burs
3. Manipulation of ceramics
4. Manipulation of dental cements
5. Manipulation of resins

Recommended Books:

- Basic Dental Materials by John J. Manappallil, 2nd edition, Jaypee
- Essentials of dental materials by SH Soratur, 1st edition, Jaypee
- Applied Dental Materials by Jhon F. McCabe and Angus W.G. Walls 9th edition, Blackwell publishing Ltd.
- Dental Biomaterials by Zohaib Khurshid and Zeeshan Sheikh, 2nd edition, paramount Books

Course Code-258 PERIODONTOLOGY Credit Hours: 3(2+1)

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, Gingival enlargement, Periodontitis, Early onset periodontitis, Gingival recession, Pericoronitis, Gingival abscess, Cysts, 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 Jan Lindhe
2. Essentials Of Periodontology By Elizabeth

Course Code-259 ORAL PATHOLOGY AND ORAL MEDICINE Credit Hours: 3(2+1)

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 radio graphically

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- protozol, 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 12th Edition, Published by Appleton. Dec 2007.

Fifth Semester

- 1. PARTIAL DENTURE PROSTHODONTICS**
- 2. REMOVABLE ORTHODONTICS**
- 3. BASICS OF MINOR ORAL SURGERY**
- 4. COMMUNITY DENTISTRY**
- 5. FUNDAMENTALS OF ORAL AND MAXILLOFICIAL RADIOLOGY**
- 6. CONSERVATIVE DENTISTRY -I**

PMS-384 Partial Denture Prosthodontics Credit Hours: 3(2+1)

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, Basker RM, Heath JR, Ralph JP & Glantz

Course objective:

To fabricate removable orthodontic appliances
To fabricate Myofunctional appliances
To describe development of dentition and occlusion

Course contents:

Growth of maxilla and mandible, Development of dentition and occlusion, Malocclusion, Para functional Habits, Removable appliances, Hollow's retainer, Robert's retractor, Finger spring, Z spring, Labial bow, Myofunctional appliances, oral screen, bionator, activator, Frankel appliance, Inclined plane, Headgears

Practical:

1. Laboratory procedures for different appliances
2. Wire bending techniques
3. Wire work for Adams clasps, labial bows, springs and retractors
4. Lab procedures involved in fabrication of removable appliances
5. Lab procedures involved in fabrication of Myofunctional appliances

Recommended books:

- A Text Book of Orthodontics by W.J.Houston
- Orthodontic Appliances by Adam and Phillips

Objectives:

To describe composition of Local Anesthesia

To perform diagnostic procedures of minor oral e.g.' History taking, clinical examination

To administrate the local anesthesia on patients.

Course contents:

History taking , clinical examination , evaluation ,introduction of exodontia indication of exodontia , contra indication of exodontia complications of exodontia ,basic minor oral surgery instruments , pharmacology of local anesthetics ,Composition of Local anesthesia, Administration of local anesthesia, Infiltration techniques, Nerve block techniques, Complications of Local anesthesia,

Practical:

- Administration of local anesthesia

Recommended books:

- J Peterson, Tucker, Edward Ellis. Contemporary Oral & Maxillofacial surgery
- Oral and Maxillofacial Surgery by Kruger
- Geoffrey L. Howe's Local Anesthesia in Dentistry

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

PMS-388 Fundamentals of Oral & Maxillofacial Radiology Credit Hours: 3(2+1)

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; Periapical 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:

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

Recommended books:

CLARK'S POSITIONING IN RADIOGRAPHY 12TH EDITION

A. Stewart Whitley Charles Sloane Graham Hoadley Adrian D. Moore Chrissie W. Alsop

COURSE OBJECTIVES:

To introduce students with different moisture control methods
To design cavity according J.V blacks classification
To introduce cavity preparation for inlay and on lay wax

COURSE CONTENTS:

Oral examination and diagnosis of dental caries, cavity preparation, class I, class II, class III, permanent restorative material, amalgam alloy, tooth colored restorative materials
Control of moisture, isolation, Tissue Management, Restorative failure, Postoperative problems

PRACTICALS:

1. Cavity preparation on mounted teeth
2. Oral examination and treatment planning
3. Saliva control techniques (rubber dam)

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
A Colour Atlas of Clinical Operative Dentistry, Crowns and Bridges 2nd Edition. Grundy and Glyn Jones
Resin Bonded Bridges Tay W-M

Sixth Semester

- 1. BIOSTATISTICS**
- 2. RESEARCH METHODOLOGY**
- 3. CONSERVATIVE DENTISTRY-II**
- 4. COMPLETE DENTURE PROSTHODONTICS**
- 5. MAXILLOFACIAL AND CRANIOFACIAL PROSTHESIS**
- 6. PEDIATRIC DENTISTRY**

Course objectives:

To introduce the student with the significance of bio-statistics, statistics means basic concept, describing and exploring data, normal distribution, sampling distribution and hypothesis testing, basic concept of probability and application of statistics and social research.

Course contents:

Topics in univariate statistics: basic, Introduction, important terms, senses, method uses for taking census, information collection during census, method of estimating the population of any year, measurement scale, describing and exploring data, measures of central tendency and variability, health statistics, percentiles, quartiles and deciles, normal distribution, the standard normal distribution SND, using tables of SND, measures related to, Z scores, sampling distribution and hypothesis testing, basic concepts of probability, data collection(purpose and technique), categorical data and numerical data, application of statistics in social research, percentages, measure of central tendencies, means, Median, Mode, Quartile, decile and percentile.

Recommended books:

- Statistical methods for psychology by Howell DC in 7 edition 2013.
- A guide to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
- Reading understanding multivariate statistics Gimm LG Yard AD PR, in 1995 publisher American Psychological association Ilyas
- Ansari s community medicine (Text Book) by Ilyas and Ansari 2003 published by Medical division Urdu Bazar Karachi.

PMS-310 RESEARCH METHODOLOGY Credit Hours: 3(2+1)

Course objectives:

To introduce the significance of research methodology foundation, concept of measurement, design clinical research and health system research to the students.

Course contents:

Introduction to research (in simple term and a scientific term), concept of research, why do need research, advantage of research, identification of research need and its qualities, component of research, ethical and legal aspect of research and objective of research (definition, purpose, structure) Relevance, Avoidance of duplication, Feasibility, Political acceptability, Applicability, Cost efficiencies, work plan, budget required for research work, literature searching, statistical help, material, type of manuscript, printing of manuscript for Submission and postage, Principles and reliability of measurement, errors and sources of measurement, types of measurement, measure of disease frequency and screening (introduction, validity and screening test) Studies design (introduction, selection of design), research questionnaire, validity and reliability of research finding, confounding factors, strategies to deal with threats to validity, hypothesis testing, sampling, collect data, data collection procedure, step and data collection survey questionnaire, starting questionnaire

Recommended books:

- Foundation of Clinical Research by Portney LG Walkais MP in 1993, Publisher by Appleton and lauge USA
- 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, Indra Pathmanathan, Ann Brownlee in 1993 by International Development Research Center in New Dehli, Singapore.

PMS-390 CONSERVATIVE DENTISTRY-II Credit Hours: 3(2+1)

OBJECTIVES:

Enables to diagnose dental caries lesion

Enables to form the tooth cavities according J.V black classification

Enables 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 & Periapical 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 endodontics, Endo – perio lesion, Internal, external resorption, Radiographic Analysis.

PRACTICALS:

- Access cavity preparation
- Cannal 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, 3E Nisha & Amit Garg (2014)

Mastering Endodontic Instrumentation, John T. McSpadden, D.D.S. Cloudland Institute

PMS-391 Complete Denture Prosthodontics Credit Hours 3(2+1)

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

PMS -392 Maxillofacial & Craniofacial Prosthetics Credit Hours: 3(2+1)

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 craniofacial defects
- Lab procedures involved in fabrication of splints, stunts and obturators

Recommended Books:

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

Objectives;

1. To enable the dental therapist to perform the simple restorative procedure in children
2. To enhance the dental and oral status of children
3. 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;

1. Application of fluoride in primary teeth
2. Application of fit and fissure sealant in primary teeth
3. Pulpotomy
4. Simple restorative procedures in primary teeth

References;

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

Seventh Semester

- 1. FIXED ORTHODONTICS**
- 2. FIXED PROSTHODONTICS**
- 3. FUNDAMENTALS OF IMPLANTOLOGY**
- 4. ADVANCES IN DENTISTRY**
- 5. MEDICAL EMERGENCIES IN DENTAL PRACTICES**
- 6. MINOR ORAL SURGERY**

Objectives:

To introduce students with various fixed appliances

To fabricate TPA, lingual arch, distal jet, surgical splints

Course Content:

Fabrication of trans palatal arch, Distal jet, TPA Nance, TPA Nance with extending arm
Lingual holding arch, Space maintainers, Surgical splints, Orthognathic wafers, Jigs Splints,

Practical:

- TPA (articulation, wax up, flasking, processing, Finishing and polishing)
- Distal jet (Articulation, wax up, flasking, processing, finishing and polishing)
- Soldered and splinted hyrax (Articulation, wax up, flasking, processing, finishing and polishing)
- TPA Nance (articulation, wax up, flasking, processing, finishing and polishing)
- TPA Nance with extended arm (articulation, wax up, flasking, processing, finishing and polishing)

Recommended Books:

- A Text Book of Orthodontics by W.J.Houston
- Orthodontic Appliances by Adam and Phillips

Objectives:

To demonstrate cavity designs for inlays or onlays
To describe different types of crowns and bridges
To fabricate different types of crowns and bridges

Course Contents:

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 onlays Principles of bridge design, Wax pattern of inlays, onlays, full veneer crown, jacket crown, Partial veneer crown, Resin bonded bridges, Types of crowns and bridges, Pontic designs, and Causes Of bridge failure, Porcelain fused to metal post and core crowns, full crowns.

Practical:

- Inlays (class II, M.O.D., and Class V).
- Onlay and lab preparation
- Bridge design (Cantilever, fixed). And lab preparation
- Inlays (Class I, Class V, ceramic inlays). And lab preparation
- Full veneer crown. And lab preparation
- Jacket crown.

- Inlays, onlays and lab preparation
- Bridge design and lab preparation
- Crown and lab preparation

Recommended Books:

Contemporary of fixed prosthodontics by 4th edition by Rossential. and. fujimoto

Prosthodontics at a Glance by Irfan Ahmad

PMS 455 FUNDAMENTALS OF IMPLANTOLOGY Credit Hours 3(2+1)

Objectives:

To introduce the students with the types and classification of implants

To describe implant placement.

To prepare implant supported prosthesis.

Course Content:

Introduction of dental implants Types of implants, Sub periosteal implants, Endosteal implants, Osseo integration, Uses of dental implants, Planning of implants, Biomechanical considerations of implants, Main surgical procedures, placing the implant, Timing of implants after tooth extraction, Healing time, Onstage surgery –two stage surgery, Immediate placement, 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:

Practical demonstration of surgical procedures involved in placement of implants

Fabrication of implant supported prosthesis.

Recommended Books:

- Misch, Carl E (2007). Contemporary Implant Dentistry. St. Louis, Missouri: Mosby Elsevier.
- Balaji, S. M. (2007). Textbook of Oral and Maxillofacial Surgery. New Delhi: Elsevier India.

Objectives:

To introduce the students with advances in dental technology and their uses

Course Content:

Introduction to advances in dental technology, Air abrasion, Bone replacement, Bone Grafting bone replacement, CAD/CAM, Caries detection solution, CAT Scans, Composite materials, Diagnodent, Dental implants, Desensitizer, Digital X-rays, Electric hand pieces, Intra-oral camera, Lasers, Optical scanners, Microscope, Periodontal antibiotics, Velscope, The Wand.

Practical:

1. Demonstration of Air abrasion and bone replacements
2. Demonstration of CAD/CAM
3. Demonstration of implants and the wand.

Books Recommended:

- CAD/CAM: Principles, Practice and Manufacturing Management (2nd Edition) by Chris McMohan,
- Jimmie Brown Misch, Carl E (2007). Contemporary Implant Dentistry. St. Louis, Missouri: Mosby Elsevier. Text book of dental and maxillofacial radiology Ed (2006) Jaypee Brothers.

Course 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 Predispose 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 ,Hematologic Problems ,Hereditary Coagulopathies ,Therapeutic Anticoagulation , Neurologic Disorders, Seizure Disorders, Ethanolism (Alcoholism) management of patients during and after pregnancy, Pregnancy, Postpartum Period,

Practical:

History taking and evaluation of the patients in opds and wards

Recommended Books:

CONTEMPORARY ORAL AND MAXILLOFACIAL SURGERY,
SIXTH EDITION ., James R. Hupp, DMD, MD, JD, MBA , Edward Ellis III, DDS, MS, Myron R. Tucker, DDS

PMS--458 MINOR ORAL SURGERY Credit Hours: 3(2+1)

OBJECTIVES:

To describe diseases of oral cavity
To diagnose the disease.
Management of Minor Oral Procedures

COURSE CONTENTS:

Minor Oral Surgery, Extraction of teeth, Surgical Removal of teeth and other oral surgical Procedures. Pre and Post-operative care and Instructions, Identification, care and maintenance of instruments, appliances and apparatus used in minor oral surgical procedures, usage of instruments in different surgical operations. hemostasis , suturing , extraction of broken down roots, excision of mucocele , opercolectomy, frenectomy ,biopsy taking , treatment and management of dento alveolar fracture.

PRACTICAL:

1. Demonstration of all the relevant Minor oral surgical procedures in surgical wards.
2. Identifications of different surgical instruments

RECOMMENDED BOOKS:

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

Eight Semester

1. RESEARCH PROJECT

2. SEMINAR

3. BIOETHICS

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 Semester 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

Course Objectives:

To introduced the students with medical ethics, their behavior with patients and medical Staff.

Course Contents:

Ethical conduct, relationship with patient, surgeon, physician, nurse, social workers and co-workers, Preparation and uses of records, report, physical plant, equipment. The implementation of and confirmation to the rules of professional context and understanding, the paramedic liability and obligations in the case of medico legal action, a wider knowledge of ethics relating to current social and medical policy in the paramedic society as a professional association, the role of international health agencies such as world health organization.

Recommended Books:

Medical ethic by Dr. Mahmood Alam in 2006 by Health Department KPK