CURRICULUM

BS Emergency Care Technology

WAZIR MUHAMMAD INSTITUTE OF ALLIED HEALT SCIENCES

GANDHARA UNIVERSITY PESHAWAR

SEMESTER WISE SUBJECTS BS EMERGENCY CARE TECHNOLOGY

FIRST SEMESTER (COMMON FOR ALL THE TECHNOLOGIES)		
Code	**Subject**	**Credits**
WMI-101	Biochemistry-I	3+1
WMI-102	Physiology-I	3+1
WMI-103	Anatomy-I	3+1
WMI-104	Pak Studies	2+0
WMI-105	Computer Skills	2+0
Total Semester Credit Hour		**16**
SECOND SEMESTER (COMMON FOR ALL THE TECHNOLOGIES)		
WMI-106	Biochemistry-II	3+1
WMI-107	Physiology-II	3+1
WMI-108	Anatomy-II	3+1
WMI-109	Islamic studies	2+0
Total Semester Credit Hour		**14**
THIRD SEMESTER		
WMI-612	General Pathology-I	2+1
WMI-613	General Pharmacology-I	2+1
WMI-614	Behavior Sciences	2+0
WMI-615	Bioethics	2+0
WMI-636	Haematology-I	2+1
WMI-637	Medical Microbiology	2+1
Total Semester Credit Hour		**16**
FORTH SEMESTER		
ECT-601	Medical Emergency-I	2+1
WMI-616	General Pathology-II	2+1
WMI-617	General Pharmacology-II	2+1
WMI-638	Medical Microbiology-II	2+1
WMI-642	Diagnostic Imaging	1+1
WMI-644	Chemical Pathology	2+1
Total Semester Credit Hour		**17**
FIFTH SEMESTER		
ECT-602	Medical Emergency-II	2+1
ECT-603	Surgical Emergency-II	2+1
ECT-604	Trauma Emergency-I	2+1
ECT-605	Burns and Toxicology	2+1
ECT-607	Applied Physics	1+1
WMI-640	Anesthesia Equipment	2+1
Total Semester Credit Hour		**17**
SIXTH SEMESTER		
ECT-608	Trauma Emergency-II	2+1
ECT-609	Surgical Emergency-I	2+1
ECT-610	Cardiovascular Emergency	2+1
ECT-611	Respiratory Therapy	1+1
WMI-630	Biostatistics	2+1
WMI-631	Research Methodology	2+1
Total Semester Credit Hour		**17**
SEVENTH SEMESTER		
ECT-612	Obstetrical Emergency -I	
ECT-613	Neonatal and Pediatric Emergency	2+1
ECT-614	Basic and Advance Life support	2+1
ECT-615	Neurological Emergency	2+1
WMI-632	Epidemiology	2+0
WMI-641	Fundamental of Infection Control	2+1
Total Semester Credit Hour		**17**
EIGHT SEMESTER		
ECT-606	Disaster Management	1+1
ECT-618	Obstetrical Emergency – II	2+1
ECT-619	Transportation of Critically Ill Patient	2+1
WMI-633	Research Methadology	6+0
WMI-634	Seminar	1+0

Total Semester Credit Hour	**15**
Total Course Credit Hour	**133**

1st Semester

First	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 11th Edition Waugh Grant.

Clinical Anatomy (By regions) 9th edition, Richard Snell.

Reference books:

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

WMI-602 BIOCHEMISTRY-I Credit Hours:4(3+1)

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 28th edition2009
- 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 Edition2013
- Concise Physiology Dr. Raja Shahzad 1st Edition2012
- 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 11th Edition Anne Waugh, Allison Grant2010

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.

WMI-605 ENGLISH–I Credit Hours:2(2+0)

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 1st2010

2ND Semester

Second	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)**

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 11th Edition Waugh Grant.
- Clinical Anatomy (By regions) 9th edition, Richard S. Snell.

Reference books

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

WMI-608 BIOCHEMISTRY-II Credit Hours:4(3+1)

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 it 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 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 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 Edition2013
- Guyton And Hall Textbook Of Medical Physiology JohnE Hall, ArthurC.GuytonProfessorandChair2006
- Ross and Wilson Anatomy and Physiology in Health And Illness 11th Edition Anne Waugh, Allison Grant2010

WMI-610 ISLAMIC STUDIES Credit Hours:2(2+0)

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

WMI-611 Communication skills Credit Hours: 2(2+0)

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 Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and35-41.
- Reading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 4534022.

THIRD SEMESTER		
WMI-612	General Pathology-I	2+1
WMI-613	General Pharmacology-I	2+1
WMI-614	Behavior Sciences	2+0
WMI-615	Bioethics	2+0
WMI-636	Haematology-I	2+1
WMI-637	Medical Microbiology	2+1
Total Semester Credit Hour		**16**

WMI -612 General Pathology-I Credit Hours: 3(2+1)

Aims and Objectives

- To describe cellular responses to stress and noxious stimuli and inflammation.
- To describe cell injury and cell death.
- To describe the mechanisms involved in wound healing.
- To Explain the pathology and pathogenesis of edema and shock
- To enumerate and describe the abnormalities of cell growth and differentiation

Course Contents

Cell Injury & adaptation Cell injury, Cellular adaptation
Inflammation Acute Inflammation, Chronic Inflammation
Cell Repair & Wound Healing Regeneration & Repair, Healing Factors affecting Healing
Hemodynamic Disorders Define & classify the terms, Edema, Hemorrhage, Thrombosis, Embolism, Infarction & Hyperemia, Shock, compensatory mechanism of shock, possible consequences of thrombosis & difference between arterial & venous emboli
Neoplasia Dysplasia& Neoplasia Difference between benign & malignant neoplasm, etiological factors for Neoplasia, different modes of metastasis

Practicals

- Practical Copy for General Pathology
- Specific Histopathological Slides

Recommended Books

- Robbins and Cotran Pathologic Basis of Disease, Professional Edition, 8th Edition

WMI -613 General Pharmacology – I Credit Hours: 3(2+1)

Course Objectives

- To discuss the roles and responsibilities of the various members of the health care team in maintaining patient safety during drug therapy.
- To define common terms related to pharmacology and drug therapy.
- To discuss relevant historical, legal, and ethical issues related to pharmacology and drug therapy.
- To describe the process through which a drug must go as it is being developed and tested for safety.
- To describe basic facts about drugs such as names, sources, classification systems, preparations, and routes of administration

Course Contents:

Introduction to Pharmacology, Pharmacokinetics, Pharmacodynamics ,Adverse effects of drugs, Classification of drugs, Drugs affecting the Autonomic Nervous System, Opioids, Drugs Affecting CVS, Drugs Affecting Endocrine system, Gastrointestinal Drugs, Autacoids & Antagonists ,Anesthetics, Analgesics, Narcotics**,** Muscle Relaxants, Non-Narcotic Analgesics

RECOMMENDED BOOKS:

1. Lippincott's pharmacology (text book) by Mycek 2nd edition published by Lippincott Raven

2. Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 8th Edition, Published by Appleton

WMI-614 BEHAVIORAL SCIENCES Credit Hours:3(2+1)

Course Objectives:

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

WMI-615 BIOETHICS Credit Hours :2(2+0)

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 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, 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, Communication Skills

Recommended Books:

1. M.H Rana .Behavioral Sciences
2. William Kornblum.Sociology in a Changing World
3. Georgiana Donadio.Changing Behavior: Immediately Transform Your Relationships with Easy-to-Learn, Proven Communication by skills.

WMI-636 HEMATOLOGY-I Credit Hours: 3(2+1)

Course Objectives:

- To introduce the students about the basic concepts in Hematology and acquire skill in practical work to produce students steeped in knowledge of Hematology.
- To equip students with latest advancements in the field of hematology.

Course Outlines:

Introduction to hematology, physiology of blood and composition, introduction to bone marrow, structure and function of bone marrow, blood formation in the body (Intra-uterine and extra-uterine), factors governing hematopoiesis, erythropoiesis, different stages and factor effecting on erythropoiesis, granulopoiesis, different stages and factor effecting on granulopoiesis, megakariopoiesis, different stages and factor effecting on megakariopoiesis, introduction to hemoglobin structure, synthesis and function, complete blood count and its importance, morphology of red blood cells and white blood cells, introduction to anemia and classification of anemia, introduction to hemolysis (physiological and pathological), introduction to WBC disorders, introduction to leukemia, etiology, pathogenesis and its classification, leukocytosis, leukopenia, neutrophilia, condition related to neutrophilia, neutropenia, condition related to neutropenia, eosinophilia, condition related to eosinophilia, eosinopenia, condition related to eosinopenia, monocytosis, condition related to monocytosis, monocytopenia, condition related to monocytopenia, lymphocytosis, condition related to lymphocytosis, lymphopenia, condition related to lymphopenia, basophilia, condition related to basophillia, introduction to hemostasis, mechanism of hemostasis, function of platelets and coagulation factors, coagulation cascade, quantitative disorder of platelets, , qualitative disorder of platelets.

Practical:

1. collection of blood sample
2. preparation and staining of peripheral blood smear
3. total leucocyte count, RBC count
4. determination of absolute values
5. differential leucocyte count; platelets count and reticulocytes count
6. to determine the ESR
7. determine bleeding time; prothrombin time; activated partial thromboplastin time

Recommended Books:

- Essential of Hematology, A.V Hoff Brand, 6th edition 2006
- Clinical Hematology, G.C Degrunchi, 5th edition 2002
- Practical Hematology, Dacie J.V. 10th edition 2012

WMI-2637 MEDICAL MICROBIOLOGY-I Credit Hours: 3(2+1)

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 Equipments 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.
11. Gram stain for candida.

Recommended books:

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

FORTH SEMESTER		
ECT-601	Medical Emergency-I	2+1
WMI-616	General Pathology-II	2+1
WMI-617	General Pharmacology-II	2+1
WMI-638	Medical Microbiology-II	2+1
WMI-642	Diagnostic Imaging	1+1
WMI-644	Chemical Pathology	2+1
Total Semester Credit Hour		**17**

ECT-601 MEDICAL EMERGENCY-I Credit Hours3(2+1)

Course Objectives:

- To equip the student with professional knowledge, skill, techniques &ethical values to enable them to apply their acquired expertise in medical emergency.
- To understand the total patient care in medical emergency, including the awareness of support services available and knowing when to activate them.
- To Deliver efficient and competent care to acutely ill patient in medical emergency.

Course Contents:

Respiratory Emergency, Asthma, COPD, Pneumonia, Pneumothorax, Heamothorax, Tension Pneumothorax, Hydrothorax, Management of Type I &II Respiratory Failure, Management of Upper & Lower Respiratory Tract Infection, Tuberculosis Management by Aseptic Technique. Cardiac Emergency, Acute Coronary Syndrome, Heart Failure, Myocardial Infarction. Gastro Intestinal Emergency Acute Abdomen Pain, Gastroenteritis, Acute Management of Liver Failure.

Practical:

- Recognize a medical emergency, assess the situation, obtain a basic history and physical examination, manage emergency care, and, if needed, extricate the patient.
- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Cardiopulmonary Resuscitation
- ECG taking and monitoring

Recommended Books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

WMI-616 GENERAL PATHOLOGY-II Credit Hours : 3(2+1)

Course Objectives:

- To introduce students with different environmental hazards
- To gain knowledge of some basic systemic diseases

Course contents:

Health effects of climate change, toxicity of chemical and physical agents, environmental pollution, effect of tobacco, effect of alcohol, injury by therapeutic drugs and drugs of abuse, general principles of microbial pathogenesis, special techniques for identifying infectious agents, agents of bioterrorism, heart failure, congenital heart diseases, ischemic heart diseases, hypertensive heart diseases, arrhythmias, atelectasis, chronic obstructive pulmonary disease, asthma, bronchiactasis, pneumonias, pneumothorax, hemothorax, nephrotic syndrome, renal stone, hydronephrosis, aphthous ulcer, gastritis, peptic ulcer, hemorrhoid, jaundice, liver cirrhosis, viral hepatitis, cholecystitis, urinary tract infections, arthritis, facial palsy

Practicals:

1. Helicobacter pylori test
2. Diagnosis methods of UTI
3. Determination of renal function tests
4. Determination of liver function tests
5. Determination of cardiac profile

Recommended Books:

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

WMI-617 GENERAL PHARMACOLOGY-II Credit Hours: 3(2+1)

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, anti arrhythemic drugs, antianginal drugs, Anti Hyperlipidemic drugs, Blood drugs, Diuretics, Insulin and glucose lowering drugs, Chemotheraputic drugs, Antibiotics, Drugs acting on Respiratory system, Anesthetics.

Practical:

1. Routes of drug administration
2. Dose-Response Curves
3. Affect of adrenaline on pulse rate
4. Affect of beta blockers on heart rate after exercise
5. Source of drug and identification of some raw materials that are source of drug
6. Weight conversions and measurements
7. Preparation Sulfur ointment
8. Preparation of pilocarpine drops
9. Prescription writing

Recommended Books:

- Lippincott's pharmacology (text book) by Mycek 2ndEdition published by Lippincott Raven 2000.
- Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 8th Edition, Published by Appleton.dec 2007.

WMI-638 MEDICAL MICROBIOLOGY-II Credit Hours: 3(2+1)

Course objectives:

• To introduce the students with basic concepts in virology and parasitology.
• To introduce the students with common viral and parasitic infections.
• To introduce the students with diagnosis of common viral and parasitic infections.

Course contents:

Biosafety levels, control of hospital infection, biomedical waste management, introduction to virology, Viral morphology, structure, replication and classification, general properties of virus, pathogenesis and control of virus, common viral pathogen prevailing in Pakistan, introduction to parasitology, Parasite (protozoan and helminthes) morphology and classification, general principal of pathogenesis, immunology and diagnosis of parasitic infection, common parasitic pathogen prevailing in Pakistan.

Practical:

1. Cleaning of new and used glass wares for microbiological purposes.
2. Students should be familiar to use autoclave, hot air oven, water bath, steamer etc.
3. Macroscopic and microscopic examination of stool for adult worms, ova, cysts, larvae.
4. Visit to hospital for demonstration of biomedical waste management.
5. Demonstration of common serological tests used for the diagnosis of viral and parasitic infection.
6. Demonstration of malarial parasites in blood and bone marrow.
7. Demonstration of leishmania in blood film.
8. Concentration techniques for intestinal parasites in stool.

Recommended books:

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

WMI-642 DIAGNOSTIC IMAGING Credit Hours2(1+1)

Course objectives:

- To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise in diagnostic imaging.
- To understand the total patient care imaging diagnostic study, including the awareness of support services available and knowing when to activate them.
- To deliver the efficient and competent care to acute and chronically ill patient in imaging and diagnostic study.

Course contents:

Normal chest X-ray, Normal anatomy, Basic physics of X-ray and assessment of film quality, cardiac configuration, Lung field and airway, Optimum position of ET-NG-CENTRAL LINE, Abnormal X-ray, Identification of (Trauma, Hemothorax, Pneumothorax, Lung contusion) on X-Ray film.

Pulmonary Oedema, Cardic Deviation, ARDS, Pneumonia (Broncho pneumonia, Lobar pneumonia, Aspiration pneumonia).

Practical:

- Identification of the Structures of different organs
- Radiological Presentation & Pathological Findings on Radiographs
- Films demonstrating Anatomy

Recommended books:

1. Diagnostic Imaging by Peter Armstrong Martin Wastie Andrea G Rockall 6th Edition.
2. Clinical Radiology Made ridiculously simple.

WMI-644 CHEMICAL PATHOLOGY Credit Hours: 3(2+1)

Course Objectives:

- To introduce students with advance techniques in Chemical Pathology and acquire skill in practical work to produce a team of Medical technologists steeped in knowledge of Pathology.
- To equipped Medical Technologists with latest advances in the field of Pathology.

Course Contents:

Synthesis, function and clinical significance of urea, uric acid and creatinine, determination of Lipids in blood, Cortical hormone, sex hormone, thyroid hormones, Tumour markers: alpha feto protein, CEA, HCG, CA, PSA, CA 125, Phenylketonuria, Aminoaciduria, Glycogen storage disease, Proteinuria, Ketonuria. Nephrotic syndrome, Malabsorption syndrome, Hyperbilirubinaemia & Jaundice, Hypoalbuminaemia, Cushing disease, Myxedema, Hypo & Hyperpituitarism, Amenorrhea, Hirsutism, Rickets, Osteomalacia, Chronic renal failure, OGTT.

Practicals:

1. Analysis of kidney function test
2. Analysis of lipids profile test
3. Analysis of hormones and different tumors markers

Recommended Books:

- John A. Koepre, Guide to clinical laboratory diagnosis 3th edition 2013
- Todd Sanford, Clinical diagnosis Saunders Co. USA By laboratory Method 13th edition 2009
- Fundamental of clinical chemistry, Carl A. Burtis. Saunders Elsevier, 6th edition,

FIFTH SEMESTER		
ECT-602	Medical Emergency-II	2+1
ECT-603	Surgical Emergency-II	2+1
ECT-604	Trauma Emergency-I	2+1
ECT-605	Burns and Toxicology	2+1
ECT-607	Applied Physics	1+1
WMI-640	Anesthesia Equipment	2+1
Total Semester Credit Hour		**17**

ECT-602 MEDICAL EMERGENCY-II Credit Hours3(2+1)

Course objectives:

- To equip the student with professional knowledge, skill, techniques &ethical values to enable them to apply their acquired expertise.
- To Understand the total patient care in medical emergency, including the awareness of support services available and knowing when to activate them.
- To Deliver efficient and competent care to acutely ill patient in medical emergency.

Course contents:

Management of Diabetic Emergency, Uncontrolled Diabetic Mellitus Type I & II ,Diabetic Ketoacidosis, Management of Anaphylactic Reaction & Anaphylactic Shock, Management of Acute Thyroid Crisis Hyperthyroidism & Hypothyroidism, Urologic Emergency, Acute Renal Failure, Acute Retention of Urine, Renal Colic

Practical:

- ECG taking and monitoring
- Usage of Infusion pumps
- Usage of Analyzers
- Usage of Defibrillators
- Usage of Patient monitors
- Usage of Blood Pressure Accessories

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-603 Surgical Emergency-I Credit Hours3(2+1)

Course objectives:

- To save patient from secondary injury and enable student to deliver efficient and competent care to acutely ill patient in surgical emergency.
- To acquire common sense, attention to detail pritorizing skills and anticipation of potential problem in surgical emergency.
- To give any patient requiring an injection or having a contagious disease or operative procedure the student will maintain asepsis in all such cases to the standards maintained, by the affiliated hospitals.

Course contents:

Management of Acute Air Way Bleed, Management of Gastrointestinal Intestinal Upper & Lower Bleed. Management of Hemorrhagic & Non Hemorrhagic Shock, Hemorrhagic Control .Management of Pneumothorax Heamothorax & Hydrothorax, Application of Chest Tube Insertion. Drainage of abnormal Pleural Fluid in Respiratory Emergency & Compromise. Indication and of Endotracheal intubation, Difficult Intubation & its Complication. Management of Laceration Abrasions & Bruises.

Practical:

- Usage of Enteral feeding pumps
- Usage of Blood gas and electrolyte analyzer
- Resuscitation & airway teaching learning simulators
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets.
- Hemodialysis machine
- Cardiopulmonary Resuscitation
- ECG taking and monitoring
- External cardiac resuscitation
- Use of Conventional Defibrillator and Monitors
- Use of Transcutaneous Pacing Devices
- Endotracheal Intubation & Laryngeal Mask Airway
- Urinary & Gastric Catheterization

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At A Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-604 Trauma Emergency -I Credit Hours3(2+1)

Course objectives:

- To equip the student with professional knowledge, skill, techniques &ethical values to enable them to apply their acquired expertise in trauma situations.
- To understand the total patient care in medical emergency, including the awareness of support services available and knowing when to activate them.
- To deliver efficient and competent care to acutely ill traumatically injured patient in trauma centres.

Course contents:

Basic concept about trauma, Trauma types, Initial assessment &management , Primary survey, Trauma score& Trauma flow sheet, Trauma management pre & in hospital phase, Injury prevention, Bio mechanics of injury, Triage, Mass causality & multiple causality, Chest trauma, Head trauma, Neck trauma, Musculoskeletal trauma, Air way management with cervical injury, Disability and neurological examination , Circulation &hemorrhage control, Breathing & ventilation.

Practical:

- Recognize trauma emergency, assess the situation, obtain a basic history and physical examination, manage emergency care, and, if needed, extricate the patient.
- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Interosseous Access

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.

ECT-605 Burns & Toxicology Credit Hours3(2+1)

Course objectives:

- To Recognize a medical emergency, assess the situation, obtain a basic history and physical examination,
  manage burn care, and, if needed, extricate the patient.
- To Confidently handle crisis situations and safely and accurately perform all basic and advanced life support procedures.

Course contents:

Burn management, Burn types, Management of bums and scald, Management of electric burn and shock, Suicidal attempt in poisoning, Animal Bite management, Organophosphate poisoning, Wheat pill intake, Black stone intake poisoning, Gastric Lavage, Inhalational poisoning, Usage of Charcoals & Olive Oils, Inorganic poisoning.

Practical:

- Application of rule of nine for estimation of total burn surface area.
- Fluid input & output Recording & measurement.
- ECG taking and monitoring
- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Interosseous Access
- External cardiac resuscitation
- Monitoring Arterial Pulse Oximetry
- Urinary & Gastric Catheterization

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell

ECT-607 Applied Physics Credit Hours2(1+1)

Course objectives:

- To acquire knowledge about introductory physics, transducers, Reynolds no, laminar or turbulent flow.
- To demonstrate knowledge various gas laws in anesthesia & their application in invasive & non invasive ventilation.
- To plan the how to utilize various oxygen delivery & therapy devices during critical situation & their troubleshooting

Course contents:

Introductory physics, Physical quantities & units, Scalar Quantity, Vector Quantity their units & measurements

Physical properties, S I Units, Common SI prefixes for units, Characteristics of Gases, Various Gas Laws,

Kinetic Molecular theory, Real Gases, Oxygen therapy & delivery devices & their flows/min. Complication of excess oxygen, Mechanical ventilation, Reynolds no, Laminar & Turbulent flow, Barometers, Venturi Law, Sensors & Transducers.

Practical:

- Ventilators settings according patient weight age & disease.
- Sterilization of ventilator equipments ,circuits & filters.
- Application of various breathing circuits Venturi masks
- Application of High & low flow oxygen Face masks
- Application of Ventilator setting modes alarms & their troubleshooting
- Setting of air way management devices
- Application of cardiac monitor accessories
- Application of spirometery, pulmonary function test, Capnometer usage

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell

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WMI-640 Anesthesia Equipments Credit Hours3(2+1)

Course objectives:

- To explore his/her cognition about different instrument, working principles & its importance for safe anesthesia practice in the health care system.
- To manage technical fault during anesthesia
- To make sure correct calibration of different instrument.

Course contents:

Anesthesia machine its different parts & working principle, Medical gas supply devices,Laryngoscope,

Breathing curcits Face masks, Anesthesia ventilators working principles, Monitoring devices, Manual Resusitation bag,

Defibrillator ,LMA,ETT,S, Air ways oral & nasal, Suction machine, Stethoscope, Spinal needles, Epidural needls & Catheres, Magill Forcep, Blood gas Analyzer

Practical:

- Ventilators settings according patient weight age & disease.
- Sterilization of Anesthesia equipments.
- Application of various breathing circuits. Venturi masks
- Application of Face masks
- Application of Epidural Anesthesia.
- Setting of air way management devices.

Recommended books:

1. Clinical Anesthesiology by Morgan & Mikhail Fifth Edition.
2. Essential of Anesthesia Equipments by Bahal –al –Sakaih & Simon Stacey 3rd edition.

SIXTH SEMESTER		
ECT-608	Trauma Emergency-II	2+1
ECT-609	Surgical Emergency-I	2+1
ECT-610	Cardiovascular Emergency	2+1
ECT-611	Respiratory Therapy	1+1
WMI-630	Biostatistics	2+1
WMI-631	Research Methodology	2+1
Total Semester Credit Hour		**17**

ECT-608 Trauma Intensive care-II Credit Hours3(2+1)

Course objectives:

- To equip the student with professional knowledge, skill, techniques &ethical values to enable them to apply their acquired expertise in trauma situations.
- To understand the total patient care in medical emergency, including the awareness of support services available and knowing when to activate them.
- To deliver efficient and competent care to acutely ill traumatically injured patient in trauma centres.

Course contents:

Spine & Spinal cord trauma, Abdominal trauma, Management of obstetrical trauma, Injuries due to burns & cold, Near drowning, Resuscitation, History, Physical examination, Primary survey& resuscitation, Air way breathing ventilation & circulation, Adjuncts to primary survey & resuscitation, ECG Monitoring, Urinary & gastric catheters, Monitoring, Ventilation, Arterial blood gases interpretation, Pulse- Oximeter, Blood pressure, Log rolling patient transfer, Secondary survey, Adjuncts to secondary survey, RE-evaluation, Definitive care.

Practical:

- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Interosseous Access
- Usage of Defibrillator
- Usage Patient monitors
- Usage of Blood Pressure Accessories
- Portable Suction
- Portable Vital Signs Monitor
- Patient transfer trolleys
- Ambulance stretcher
- Preparation of Medicine trolley
- Preparation Dressing trolley

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.200
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.

ECT-609 Surgical Intensive care-II Credit Hours3(2+1)

Course objectives:

- To save patient from secondary injury and enable student to deliver efficient and competent care to acutely ill patient in surgical emergency.
- To acquire common sense, attention to detail pritorizing skills and anticipation of potential problem in surgical emergency.
- To give any patient requiring an injection or having a contagious disease or operative procedure the student will maintain asepsis in all such cases to the standards maintained, by the affiliated hospitals.

Course contents:

Management of head & neck Injury in Emergency. Management of unstable spine & protection, Hepatic coma, Pancreatitis, Indication of tracheostomy Tube its Complication & care, Indications & application of central venous Line & its pressure measurement, Assessment of brain death. Indication of Peripheral Venous Access, Intra Osseous Access, Venous Cut Down in Dehydrated Patients & its Complications. Orthopedic Emergency and its Management, Administration of drugs. Suturing skills, Management of bomb blast injured patients.

Practical:

- Usage of Enteral feeding pumps
- Usage of Blood gas and electrolyte analyzer
- Resuscitation & airway teaching learning simulators
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets.
- Hemodialysis machine
- Cardiopulmonary Resuscitation
- ECG taking and monitoring
- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Interosseous Access

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At A Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-610 Cardiovascular Emergency in Intensive Care Credit Hours3(2+1)

Course Objectives:

- To understand the total patient care about cardiovascular support in emergency room, including the awareness of support services available and knowing when to activate them.
- To deliver efficient and competent care to acute and chronically ill patient in cardiovascular support in emergency room.

Course contents:

Management of Ventricular Tachycardia, & Ventricular Fibrillation, Management of Pulse Less Electrical Activity, Management of A systole, Management Of Stable & Unstable Tachycardia. Management of Acute Coronary Syndrome. Management of Acute Myocardial infarction & Chronic Heart Failure.

Practical:

- External cardiac resuscitation
- Use of Conventional Defibrillator and Monitors
- Use of Transcutaneous Pacing Devices
- Endotracheal Intubation & Laryngeal Mask Airway
- Urinary & Gastric Catheterization
- Resuscitation & airway teaching learning simulators
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets.
- Hemodialysis machine
- Cardiopulmonary Resuscitation
- ECG taking and monitoring
- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At A Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-611 Respiratory Therapy Credit Hours2(1+1)

Course Objectives:

- The aim of respiratory therapy is to equip the student with professional knowledge, skill, techniques &ethical values to enable them to apply their acquired expertise.
- To Understand the total patient care in medical, surgical,& neurological emergency, including the awareness of support services available and knowing when to activate them.

Course contents:

Setting ap and Trouble Shooting, Oxygen Administration, Non Invasive Ventilation, NIV on Standard Ventilator, Bipap, CPAP, Invasive Ventilation, Setting up Ventilator, Oxygenation Ventilation, Alarm, Trigger, Evaluate and Trouble Shoot the Patient- Ventilator System, Interpret Ventilator Graphic Waveform, Detect And Measure Auto-Peep, Monitoring of Patient who are Assisted by Mechanical Ventilation and are in Sudden Distress.

Practical:

- Resuscitation & airway teaching learning simulators.
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets.
- Usage of CPAP & BIPAP devices.
- Endotracheal Intubation & Laryngeal Mask Airway & Tracheostomy Care
- External cardiac resuscitation
- Use of Conventional Defibrillator and Monitors
- Use of Transcutaneous Pacing Devices
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets

Recommended books:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At A Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

WMI-630 Biostatistics Credit Hours3(2+1)

Course Objectives:

- To introduce the student with the significance of bio-statistics, statistics means basic concept, describing and exploring data, normal distribution, sapling 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 sensus, information collection during sensus, 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 neumerical data, application of statistics in social research, percentages, measure of central tendencies, means, Meidan, Mode, Quatile, decile and percentile

Recommended Books:

- Statistical methods for psychology by howell DC in 7th edition 2013.
- A guide to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
- Reading understanding multivanant statistics giimm 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 Bazzar Karachi.

WMI-631 Research Methodology Credit Hours3(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, Physibility, 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

SEVENTH SEMESTER		
ECT-612	Obstetrical Emergency -I	
ECT-613	Neonatal and Pediatric Emergency	2+1
ECT-614	Basic and Advance Life support	2+1
ECT-615	Neurological Emergency	2+1
WMI-632	Epidemiology	2+0
WMI-641	Fundamental of Infection Control	2+1
Total Semester Credit Hour		**17**

ECT-612 Obstetrical Emergency-I Credit Hours3(2+1)

Course Objectives:

- To gain experience in the analysis of data and management of hemodynamic and electrolyte instability, particularly shock, cardiac disease states, obstetrical emergencies and other medical and surgical crisis.
- To Confidently handle crisis situations and safely and accurately perform all basic and advanced life support procedures

Course contents:

Management of Obstetrical emergency, Medical emergency during pregnancy, Mother with Breathing difficulty, Severe bronchial asthma, Acute lower respiratory tract infection, Heart Failure, Anemia, Sickle cell disease, Management of diabetic ketoacidosis, Anaphylaxis management, pulmonary embolism, Severe Dehydration, Mother with severe gastroenteritis, mother with acute renal failure, mother in coma convulsion, HIV in pregnancy, Emergency Relating to Pregnancy, Mother with severe abdomen pain, Ectopic pregnancy, Abortion, Mother with severe abdomen pain in later pregnancy, Mother with large ante partum hemorrhage, Mother with large post partum hemorrhage.

Practical:

- External cardiac resuscitation
- Use of Automated External Defibrillator
- Use of Conventional Defibrillator and Monitors
- Use of Transcutaneous Pacing Devices
- Endotracheal Intubation & Laryngeal Mask Airway
- Lung ventilation and/or administering oxygen
- Use of End Tidal $C0_2$ Measuring Devices
- Monitoring Arterial Pulse Oximetry
- Urinary & Gastric Catheterization
- Use of Episiotomy scissor
- Cardiopulmonary Resuscitation

RECOMENDED BOOKS:-

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-613- Neonatal & Pediatric Emergency Credit Hours: 3(2+1)

Course Objectives:

- To develop the knowledge, skills and attitudes necessary to be clinically proficient in the care of the acutely ill or injured child.
- To recognize a neonatal/pediatric emergency, assess the situation, obtain a basic history and physical examination, manage emergency care, and, if needed, extricate the patient.

Course contents:

Structural approach towards a serious ill or injured child, Child with breathing difficulty, Asthma, Child with abnormal pulse rate and rhythms, Convulsing child, child in shock, Shock types and its management, Child with bums and Scald, Child with decrease conscious level, Child with abdominal Trauma, Acute chest trauma, Child with acute spinal cord injury, Child with head injury and its management, Near Drowning.

Practical:

1. Usage of Blood gas and electrolyte analyzer
2. Resuscitation & airway teaching learning simulators
3. Usage of Portable Suction
4. Usage of Portable Vital Signs Monitor
5. Usage of Transport Incubators
6. Advance Pediatric life support
7. Neonatal life support
8. Log rolling.

Recommended books:

- Nelson Text Book of Pediatrics 20th edition.
- Text Book of Pediatrics by Prof Dr Azam Khan.
- EMERGENCY Medicine manual.O .John.2005
- Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
- Oxford book of emergency medicine.
- Oh;s manual of intensive care by Andrew bersten.
- The ICU book of paul l marino.

ECT-614 Basic & Advance Life Support Credit Hours4(3+1)

Course Objectives:

- To enable the student to perform accurate & effective Cardio Pulmonary Resuscitation to secure life in time without any permanent loss.
- To gain experience in the analysis of data and management of hemodynamic and electrolyte instability, particularly in cardiac arrestand cardiac disease states

Course contents:

Basic life support, Advance cardiac life support, Basic trauma life support, Advance trauma life support, New born life support, pediatric life support, Cardio pulmonary resuscitation.

Practical:

- External cardiac resuscitation
- Use of Automated External Defibrillator
- Use of Conventional Defibrillator and Monitors
- Endotracheal Intubation & Laryngeal Mask Airway
- Lung ventilation and/or administering oxygen
- Use of End Tidal $C0_2$ Measuring Devices
- Monitoring Arterial Pulse Oximetry
- ECG taking and monitoring
- CPR on the simulators

RECOMENDED BOOKS:

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell

COURSEOBJECTIVES:

- Student will be able to recognize the neurological emergency timely to prevent from secondary insult.
- To confidently handle crisis situations safely and accurately performal basic and advanced life supports procedures.

COURSECONTENTS:
Neurological examination in the E.D (myotomes, dermatomes, spinalnerve distribution, reflexes, AVPU scale) Headache, itstypes & facial pain, trigeminal neuralgia, is chemics troke & TIA , hemorrhagic stroke, epidural haematoma, subdural haematoma, intracranial bleed, altered mental status and coma, vertigo & dizziness, seizure, epilepsy and status epilepticus, CNS &spinal infections (viral, bacterial and fungal meningitis, encephalit is, brain abscess), lumbar puncture & Its complications, neuro muscular respiratory failure, mysthenic crises, tetanus, brain death assessment, cerebral venous thrombosis, trigeminal neuralgia, botulism, GBS, sciatic pain, cerebral edema, spinal cord compression, neuro leptic malignant syndrome, spinal shock, spinal cord syndromes, GCS assessment.

PRACTICAL:

1. Measurement of Glasgow coma scale.
2. Assessment of brain death.
3. Usage of gluco meter
4. Usage of pulse oximeter
5. Cardio pulmonary Resuscitation
6. Endotracheal Intubation& Laryngeal MaskAirway
7. Lung ventilation and/oradministering oxygen
8. Use offend Tidal $C0_2$Measuring Devices
9. Monitoring Arterial Pulse Oximetry
10. Urinary& Gastric Catheterization
11. Usage of Enteral feeding pumps
12. Usage of Bloodgas an delectrolyte analyzer
13. Resuscitation & airway teaching learning simulators

RECOMMENDEDBOOKS:

- EMERGENCYMedicinemanual.O.John.2005
- Rosen's emergencymedicine;concepts &clinicalpracticeJohn.AMarx.2005
- Oxfordbookofemergencymedicine.
- Oh;smanualofintensivecarebyAndrewbersten.
- The ICUbookofpaullmarino.
- Churchill,s pocketbookofintensivecarebysimonM.whitely.
- Quickcriticalcare referencebySusanB Stillwell.

ECT-632 Epidemiology Credit Hours2(1+1)

Course objectives:

- To introduce to the students the know-how of the subject of epidemiology in order to apply the knowledge of the subject regarding the community and community relate disease.

Course Contents:

Introduction to epidemiology, Determinants: Primary and Secondary, Clinical epidemiology, Occupational epidemiology, Importance of epidemiology, Definitions of common terms related to epidemiology, Health indication

Recommended Books:

- Public Health by Ilyas Ansari
- Public Health by J Park

WMI-641 Fundamentals of Infections control Credit Hours3(2+1)

Course Objectives:

- To introduce the students with basic concepts in infection control.
- To introduce the students with infection control principles and practices.
- To introduce the students with importance of immunization and hand hygiene in infection control.
- To introduce the students with the role of clinical laboratory in infection control.

Course contents:

Introduction to infection control, principle of infection control, source and transmission of infection, infection in the hospital environment, immunization prophylaxes, exposure prophylaxes, sterilization, disinfection and antisepsis, practical disinfection, epidemiology of infectious disease, antimicrobial agents, antibiotic and their uses (prophylactic, empirical , and therapeutic), antibiotic resistance and policy, principles of laboratory diagnosis of infectious diseases, biomedical waste management, biosafety levels, hand hygiene, standard precautions and PPE.

Practical:

1. Demonstration of hand washing and hand rubbing technique.
2. Preparation of different disinfection and antiseptic solutions.
3. Demonstration of biomedical waste managements in hospitals.
4. Demonstration of cleaning and disinfection of working premises.
5. Demonstration of how to handle spills and aseptic handling.
6. Demonstration of standard precautions and PPE.

Recommended Books:

- Fundamentals of Infection Prevention and Control: Theory and Practice. Weston, D., Wiley-Blackwell, 2013.
- Sherris Medical Microbiology: An Introduction to Infectious Diseases. Ryan, K. J., Ray, C. G., 4th ed. McGraw-Hill, 2003.
- District Laboratory Practice in Tropical Countries, Part1 & Part 2. Cheesbrough, M., 2nd ed. Cambridge University Press, 2006.
- Medical Microbiology and Infection at a Glance. Gillespie, S., H., Bamford, K., B., 4th ed. Wiley-Blackwell, 2012.

EIGHT SEMESTER		
ECT-606	Disaster Management	1+1
ECT-618	Obstetrical Emergency – II	2+1
ECT-619	Transportation of Critically Ill Patient	2+1
WMI-633	Research Methadology	6+0
WMI-634	Seminar	1+0
Total Semester Credit Hour		**15**

ECT-614 Disaster Management CreditHours:2(1+1)

Course objectives:

- To acquire knowledge and clinical competence in performing triage multiple tasks of emergency medicine, trauma, disaster management.
- To demonstrate knowledge of human structure, function, and disease process.

Course contents:

Disaster management, types of disaster, preparation for disaster, transfers to definitive care, Log Rolling & transfer hours, Triage & levels oftriage, Community Medicine, Immunization, Vaccination, Communicable & Non Communicable disease, Mode of Infection & transmission, Disease Prevention.

Practical:

1. Preparation of rescue ambulance equipped with all emergency drugs and instrumentation.
2. Usage of Portable Suction
3. Usage of Portable Vital Signs Monitor
4. Usage of Transport Incubators
5. Advance Pediatric life support
6. Logrolling.

Recommended books:

- HYNDMAN, Donaldand Hyndman, David(2010)NaturalHazards and Disasters.BrooksCole,3rdRevised Edition, Stamford, Connecticut, USA.
- KREBS, RobertE.(2003) The Basics of Earth Science. Greenwood, Westport, Connecticut ,USA.
- STRAHLER, AlanH.andStrahler,Arthur(2004)Physical Geography: Science and Systems of the Human Environment. John Wiley & Sons, 3rdEdition, Hoboken, New Jersey,USA.

ECT-618 Obstetrical Intensive Care-II Credit Hours3(2+1)

Course Objectives:

- To gain experience in the analysis of data and management of hemodynamic and electrolyte instability, particularly shock, cardiac disease states, obstetrical emergencies and other medical and surgical crisis.
- To Confidently handle crisis situations and safely and accurately perform all basic and advanced life support procedures

Course contents:

Mother with dangerous fever during pregnancy and labor, Loss of fetal movement after 22 week of gestation, severe puerperal sepsis, Mother with pre-Eclampsia and Eclampsia, Mother with complication of labor, Fetal distress, Obstructed labor, Shouldered dystocia, prolapsed cord, uterine inversion, rupture uterus, mal position& presentation, lithotomy position, perimortem caesarian section, Failed intubation, Partogram, vento use delivery, forceps delivery, symphiosiotmy, caesarian section, Episiotomy, Manual removal of placenta, Repair of cervical tear.

Practical:

- External cardiac resuscitation
- Use of Automated External Defibrillator
- Use of Conventional Defibrillator and Monitors
- Use of Transcutaneous Pacing Devices
- Endotracheal Intubation & Laryngeal Mask Airway
- Lung ventilation and/or administering oxygen
- Use of End Tidal $C0_2$ Measuring Devices
- Monitoring Arterial Pulse Oximetry
- Urinary & Gastric Catheterization
- Use of Episiotomy scissor
- Cardiopulmonary Resuscitation
- ECG taking and monitoring

RECOMENDED BOOKS:-

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
5. Oh;s manual of intensive care by Andrew bersten.
6. The ICU book of paul l marino.
7. Churchill,s pocket book of intensive care by simon M. whitely.
8. Quick critical care refrence by Susan B Stillwell.

ECT-619 Transportation of Critically ill Patient Credit Hours3(2+1)

Course Objectives:

- To Direct and coordinate the transport of the patient by selecting the best available method(s) in conjunction with medical command authority/protocol.
- To Record in writing the details related to the patient's emergency care and the incident.
- To Communicate with the medical care facility receiving the patient about the patient's condition, status, and arrival time

Course contents:

Transportation of critical ill patient enter and intra hospital, Transportation of critical ill patient for surgical procedure and for diagnostic evaluation with all emergency medicine.

Practical:

- Resuscitation & airway teaching learning simulators
- Usage of Portable Suction
- Usage of Portable Vital Signs Monitor
- Usage of Patient transfer trolleys
- Ambulance stretcher
- Preparation of Medicine trolley
- Preparation Dressing trolley
- Usage of infusion pumps

RECOMENDED BOOKS:-

1. EMERGENCY Medicine manual.O .John.2005
2. Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
3. Oxford book of emergency medicine.
4. Critical care care medicine At a Glance. Richard Leasch.
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WMI-633 Research Project Credit Hours3(2+1)

Course 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

WMI--407 SEMINAR Credit Hours: 1(1+0)

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