

# CURRICULUM FOR BS EMERGENCY TECHNOLOGY



**KHYBERMEDICALUNIVERSITYPESHA WAR**

## **AIMS AND OBJECTIVES OF THE COURSE:**

### **AIMS:**

The aim of the 4 years degree programme in Emergency Technology is to equip the Students with relevant professional knowledge, skills, techniques and ethical values to enable them to apply their acquired expertise at the level between the doctors and the patient for Efficient health service delivery.

### **GENERAL LEARNING OBJECTIVES:**

Emergency Care Technology education and training should enable the student to:

- ‡ Express the knowledge, technical and non-technical skills in a standardized and reproducible environment.
- ‡ Generate the decision power and exercise appropriate judgment skills with matching application.
- ‡ Develop administrative skills in developing crisis management plan.
- ‡ Design effective communication skills to perform in his working environment effectively.
- ‡ Construct interdisciplinary team building strategies for effective co-ordination among different allied health disciplines.
- ‡ Schedule and maintain continuing education as a function of his personal development plan
- ‡ Show the expertise in legal implication of emergency cases and application of professional attitude.

## SPECIFIC LEARNING OUTCOMES

Following competencies will be expected from a student completing 4 years degree course in Emergency Technology. The students should be able to:

- ▮ Demonstrate knowledge of human structure, function, and disease process.
- ▮ Develop the knowledge, skills and attitudes necessary to perform safely and accurately all Basic and advanced life support procedures in emergency/critical care, trauma and Disaster management, etc
- ▮ Construct common sense, attention to detail, prioritizing skills and anticipation of potential problems in the care of the acutely ill or injured patient
- ▮ Deliver efficient and competent care to critically ill infants and children's.
- ▮ Generate experience in the analysis of data and management of acute medical and surgical crisis of the patients
- ▮ Plan the patient care in emergency, including the awareness of support services available  
Knowing when to activate them.
- ▮ Express experience in the ethical principles and practical management of end-of-life care
- ▮ Apply appropriate consultations where required.
- ▮ Choose asepsis in all such cases requiring an injection or having a contagious disease or operative procedures
- ▮ Establish rapport with all stakeholders to decrease the state of crisis.
- ▮ Judge and coordinate the transport of the patient by selecting the best available method(s) in conjunction with medical command authority/protocol.
- ▮ Justify clearly and concisely delivered educational information to staff in both formal and informal teaching settings.
- ▮ Do research on emergency technology
- ▮ Predict and be exposed to and gain understanding of administrative issues in critical care services.

## FRAMEWORKFORBSEMERGENCYTECHNOLOGY

### (4YEARPROGRAMME)

▯ Totalnumbers ofCredithours	133 (HEC recommended:124-136)
▯ Duration	4years
▯ Semesterduration	16-18weeks
▯ Semesters	8
▯ CourseLoadperSemester	15-18Credithours
▯ Numberofcourses persemester	4-6

Compulsory Requirements (the student has no choice)		General Courses to be chosen from other departments		Discipline Foundation Courses		Discipline Specific Courses	
07 courses		09 courses		09 courses		18 courses	
Subject	Cr. Hr	Subject	Cr. Hr	Subject	Cr. Hr	Subject	Cr. Hr
1. English I	2+0	1. Epidemiology	1+1	1. Human Physiology-I	3+1	1. Trauma Emergency-I	2+1
2. English II	2+0	2. Pharmacology-I	2+1	2. Human Physiology-II	3+1	2. Trauma Emergency-II	2+1
3. Pakistan Studies	2+0	3. Pharmacology-II	2+1	3. MEDICAL BIOCHEMISTRY-I	3+1	3. Surgical Emergency-I	2+1
4. Islamic Studies	2+0	4. Research Methodology	2+1	4. MEDICAL BIOCHEMISTRY-II	3+1	4. Surgical Emergency-II	2+1
5. Computer Skills	1+1	5. Fundamental Of Infections.	2+1	5. Human Anatomy-I	3+1	5. Medical Emergency I	2+1
6. Behavioral Sciences	2+0	6. Diagnostic Imaging.	1+1	6. Human Anatomy-II.	2+1	6. Medical Emergency II	2+1
7. Communication Skills.	2+0	7. Hematology-I	2+1	7. Medical Microbiology-I	2+1	7. Neurologic Emergency	2+1
8. Bioethics	2+0	8. Biostatistics	2+1	8. Medical Microbiology-II	2+1	8. Burns & Toxicology	2+1
		9. Research Project	6+0	9. Pathology-I	2+1	9. Cardiovascular Emergency.	2+1
				10. Pathology-II	2+1	10. Disaster Management	1+1
						11. Fundamental of Emergency care	1+1
						12. Obstetrical critical care-I	2+1
						13. Neonatal & Pediatric critical care	2+1
						14. Ambulance operation and management	2+1
						15. Obstetrical critical care-II	2+1
						16. Basic & Advance Life Support	2+1
						17. Anesthesia equipment	2+1
						18. Critical Care Laboratory Diagnostics	2+1
	<b>16</b>		<b>28</b>		<b>36</b>		<b>52</b>

**SCHEME OF STUDY FOR "BSEMERGENCY CARE TECHNOLOGY" 4-YEARS**

Semester/Year	Name of Subject	CODE	Credit hours
<b>First</b>	MEDICAL BIOCHEMISTRY-I	PMS-601	4(3+1)
	HUMAN PHYSIOLOGY-I	PMS-602	4(3+1)
	HUMAN ANATOMY-I	PMS-603	4(3+1)
	ENGLISH-I	PMS-604	2(2+0)
	PAK STUDIES	PMS-605	2(2+0)
	COMPUTER SKILLS	PMS-606	2(1+1)
			<b>18</b>
<b>Second</b>	MEDICAL BIOCHEMISTRY-II	PMS-607	4(3+1)
	HUMAN PHYSIOLOGY-II	PMS-608	4(3+1)
	HUMAN ANATOMY-II	PMS-609	4(3+1)
	ENGLISH-II	PMS-610	2(2+0)
	ISLAMIC STUDIES	PMS-611	2(2+0)
			<b>16</b>
<b>Third</b>	PATHOLOGY-I	PMS-612	3(2+1)
	MEDICAL MICROBIOLOGY-I	PMS-613	3(2+1)
	PHARMACOLOGY-I	PMS-614	3(2+1)
	COMMUNICATIONS SKILLS	PMS-615	2(1+1)
	MEDICAL EMERGENCY-I	ECT-601	3(2+1)
	HEMATOLOGY-I	MLT-601	3(2+1)
			<b>17</b>
<b>Fourth</b>	PHARMACOLOGY-II	PMS-616	3(2+1)
	PATHOLOGY-II	PMS-617	3(2+1)
	MEDICAL MICROBIOLOGY-II	PMS-618	3(2+1)
	BEHAVIOURAL SCIENCES	PMS-619	2(2+0)
	MEDICAL EMERGENCY-II	ECT-602	3(2+1)
	DIAGNOSTIC IMAGING	RAD-610	2(1+1)
			<b>16</b>
<b>Fifth</b>	TRAUMA EMERGENCY-I	ECT-603	3(2+1)
	SURGICAL EMERGENCY-I	ECT-604	3(2+1)
	BURNS & TOXICOLOGY	ECT-605	3(2+1)
	BASIC AND ADVANCED LIFE SUPPORT	ECT-606	3(2+1)
	CRITICAL CARE LABORATORY DIAGNOSTICS	ICT-604	3(2+1)
	ANESTHESIA EQUIPMENTS	ANE-606	3(2+1)
			<b>18</b>
<b>Sixth</b>	TRAUMA EMERGENCY-II	ECT-607	3(2+1)
	SURGICAL EMERGENCY-II	ECT-608	3(2+1)
	NEONATAL AND PEDIATRIC CRITICAL CARE	ECT-609	3(2+1)
	CARDIOVASCULAR EMERGENCY	ECT-610	3(2+1)
	NEUROLOGIC EMERGENCY	ECT-611	3(2+1)
	FUNDAMENTAL OF EMERGENCY CARE	ECT-612	2(1+1)
			<b>17</b>

<b>Seventh</b>	OBSTETRICAL CRITICAL CARE-I	ECT-613	3(2+1)
	DISASTER MANAGEMENT	ECT-614	2(1+1)
	RESEARCH METHODOLOGY	PMS-621	3(2+1)
	BIOSTATISTICS	PMS-622	3(2+1)
	EPIDEMIOLOGY	PMS-623	2(1+1)
	FUNDAMENTAL OF INFECTION CONTROL	PMS-624	3(2+1)
			<b>16</b>
<b>Eight</b>	OBSTETRICAL CRITICAL CARE-II	ECT-615	3(2+1)
	AMBULANCE OPERATION AND MANAGEMENT	ECT-616	3(2+1)
	BIOETHIC	PMS-625	2(2+0)
	RESEARCH PROJECT	PMS-626	6(0+6)
	SEMINAR	PMS-627	1(1+0)
			<b>15</b>
	<b>TOTAL CREDIT HOURS</b>		<b>133</b>

**Total credit hours=133**

**HEC recommendation=124-136**

**LIST OF GENERALCOURSES**  
**(15 Courses)**

1. Epidemiology
2. General.Pharmacology-I
3. MedicalMicrobiology-I
4. GeneralPathology-I
5. MedicalMicrobiology-II
6. GeneralPharmacology-II
7. GeneralPathology-II
8. ResearchMethodology
9. FundamentalofInfections.
10. DiagnosticImaging.
11. BehavioralSciences
12. CommunicationSkills.
13. Hematology-I
14. Biostatistics
15. ResearchProject



**Discipline Specific Courses**  
**(18 Courses)**

1. TraumaEmergency-I
2. TraumaEmergency-II
3. SurgicalEmergency-I
4. SurgicalEmergency-II
5. MedicalEmergency-I
6. MedicalEmergency-II
7. NeurologicEmergency
8. Burns & Toxicology
9. CardiovascularEmergency.
10. DisasterManagement
11. Fundamental of emergency care
12. ObstetricalCriticalCare-I
13. Neonatal&PediatricCriticalCare
14. Ambulanceoperationandmanagement
15. ObstetricalCriticalCare-II
16. Basic&Advance LifeSupport.
17. Anesthesia Equipment
18. CriticalCareLaboratoryDiagnostics

## **1<sup>st</sup>SEMESTERCOURSES**

**1. MEDICAL BIOCHEMISTRY-I**

**2. Human Physiology-I**

**3. HumanAnatomy-I**

**4. English-I**

**5. PakStudies**

**6. Computerskills**

**Course objectives:**

After successful completion of this course, students will be able to,

- Describe the chemical composition, biochemical role, digestion and absorption of macro and micro molecules of the cell.
- Discuss different biochemical reactions in cell
- Explain 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

**Practicals:**

1. Blood sample collection for biochemical analysis
2. Preparation and calculation of Solutions
3. Principles of Biochemistry analyzers (spectrophotometer, flame photometer)
4. Determination of Cholesterol, Tg, HDL, LDL, sugar, calcium and phosphorus in blood

**Recommended Books**

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



After successful completion of this course, students will be able to,

- Describe the basic concepts of physiology beginning from the cell organization to organ system function.
- Discuss the organization of cell, tissue, organ and system with respect to their functions.
- Explain 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, Function of the skin, Types and function of muscle, Neuromuscular junction, function 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:**

- ∩ Introduction to microscope
- ∩ Bleeding time
- ∩ Clotting time
- ∩ WBCs count
- ∩ RBCs count
- ∩ Platelets count
- ∩ Reticulocyte count

**Recommended books:**

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

**Course Objectives:**

After successful completion of this course, students will be able to,

- Identify the principle structures of tissues, organs and systems
- Discuss the different concepts and terms of general anatomy including skeleton and Musculo skeletal system.
- Explain the anatomy of Thorax, Abdomen and pelvis

**Course contents:**

Musculoskeletal 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 of young bone, Blood supply of long bones. Joints Structural Regional and functional classification of joints, Characteristics of synovial joints, Classification of synovial joints, Movement 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),

**Thoracic cavity:** Mediastinum, Lungs, bronchi, blood supply and lymphatic, Heart and thoracic vessels

**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:**

- ↓ Study Axial, Appendicular skeleton and musculoskeletal system on human skeletal models.
- ↓ Study and understand anatomy of Thorax, Abdomen and Pelvis through:
- ↓ Human Models
- ↓ Videodemonstrations.

**Recommended 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 human anatomy 5th Edition Saunders.
- ↓ Gray's Anatomy for students 2nd Edition Drake Vogal Mitcell.



**CourseObjective:**

After successful completion of this course, students will be able to,

- Compose a well-constructed essay that develops a clearly defined claim of interpretation which is supported by close textual reading.
- Utilize literary terminology, critical methods, and various lenses of interpretation in their writing.
- Apply the rules of English grammar.
- Adhere to the formatting and documenting conventions of our discipline

**Coursecontents:**

VocabularyBuildingSkills:Antonyms,Synonyms,Homononyms,One wordSubstitute,Prefixes and suffixes, Idioms andphrasalverbs,Logicalconnectors,Checkspellings,PracticalGrammar&WritingSkill:Partof Speech,Tenses,Paragraphwriting:Practiceinwritingagood,unifiedandcoherentparagraph,Préciswriting andcomprehension,Translation skills:Urdu toEnglish,Reading skills:Skimmingandscanning,intensiveand extensive,andspeedreading,summaryandcomprehensionParagraphs,Presentation skills:Developing,Oral Presentation skill,Personalitydevelopment(emphasis oncontent,styleandpronunciation)

**Recommendedbooks:**

- ∩ PracticalEnglishGrammarbyA.J.ThomsonandA.V.Martinet.Exercises 2.Thirdedition.Oxford UniversityPress 1986.ISBN0194313506.
- ∩ Reading.Advanced.BrianTomlinsonandRodEllis.OxfordSupplementarySkills.ThirdImpression 1991.ISBN0194534030.





**Course Objectives:**

After successful completion of this course, students will be able to,

- Develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.
- Study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.
- Inculcate patriotism in the hearts of students so that they may become a good citizen.

**Course contents:**

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.

**Recommended books:**

- ▮ 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. *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.



**Courseobjectives:**

After successful completion of this course, students will be able to,

- Use technology ethically, safely, securely, and legally.
- Identify and analyze computer hardware, software, and network components.
- Design basic business web pages using current HTML/CSS coding standards.
- Install, configure, and remove software and hardware

**Coursecontents:**

IntroductiontoComputerandWindowXP/7; MSOffice2007(Word,Excel,PowerPoint);Internetaccess anddifferentdatabases availableontheinternet;Email.

**Recommendedbooks:**

- ↓ Computerscienceby MuhammadAshraf,edition1st2010



## **2<sup>nd</sup>SEMERTERCOURSES**

- 1. Biochemistry-II**
- 2. Human Physiology-II**
- 3. Human Anatomy-II**
- 4. English-II**
- 5. IslamicStudies**

**Course objective:**

After successful completion of this course, students will be able to,

- Describe the synthesis of proteins, lipids, nucleic acids, carbohydrates and their role in metabolic pathways along with their regulation
- Discuss the clinical role of enzymes in human being.
- Interpret and apply nutritional concepts to evaluate and improve the nutritional health of individuals with medical conditions.

**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

McGraw Hill's Manual of laboratory and diagnostic tests by DENISE D. WILSON, PHD, APN, FNP, ANP





**Course Objectives:**

After successful completion of this course, students will be able to,

- Demonstrate a systematic and coherent knowledge of the physiological functioning of the central nervous system, special senses (CNS & SS), cardiovascular system and respiratory system.
- Describe the formation of the formed element components of blood.
- Identify the components and function of the lymphatic system and discuss the role of the innate immune response against pathogens

**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 vision, 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, haematopoiesis, 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:**

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

**Recommended books**

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

**Course Objectives:**

After successful completion of this course, students will be able to,

- Identify bones of the upper limb and bony landmarks that articulate at each joint with all muscular compartments of the upper limb.
- Discuss bones of the lower limb and bony landmarks that articulate at each joint with all muscular compartments of the lower limb and identify these structures on radiographic images.
- Describe the topographical and functional anatomy of the head and neck, in particular the arrangement, relations and structure of the major skeletal, muscular and neurovascular components of the head and neck

**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:**

Study and understand the 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:****Essential books** (textbooks)

- ↓ 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 human anatomy 5th Edition Saunders.
- ↓ Gray's Anatomy for students 2nd Edition Drake Vogal Mitcell.
- ↓ BD. Churasia Human Anatomy (All regions)



**Course Objectives:**

After successful completion of this course, students will be able to,

- Develop writing, reading and listening skills.
- Demonstrate integrative and independent thinking, originality, imagination, experimentation, problem solving, or risk taking in thought, expression, or intellectual engagement.
- Participate in discussions by listening to others' perspectives, asking productive questions, and articulating original ideas.

**Course contents:**

Writing Skill: CV and job application, Technical Report writing, Writing styles, Changing narration: Converting a dialogue into a report, Converting a story into a news report, Converting a graph or picture into a short report or story, Active and Passive voice, Letter/memo writing and minutes of the meeting, use of library and internet resources, Essay writing, Phrases-Types and functions, Clauses-Types and functions, Punctuation: Tenses-Types, Structure, Function, Conversion into negative and interrogative. Speaking Skill: Group Discussion (Various topics given by the teacher), Presentation by the students (individually), Role Play Activities for improving Speaking. Listening Skill: Listening Various Documentaries, Movies, and online listening activities to improve the listening as well as pronunciation of the words.

**Recommended books:**

- ∩ Practical English Grammar by A. J. Thomson and A. V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0194313506.
- ∩ 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 Brinard and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0194354057 Pages 20-27 and 35-41.
- ∩ Reading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0194534022



**Course Objectives:**

After successful completion of this course, students will be able to,

- Recognize basic concept of Islam (faith, pillars and systems etc.) and express their impact on society.
- Present Islam as complete code of life and demonstrate understanding of Islamic Ethics.
- Demonstrate the role of a medical professional in Islam.

**Course contents:**

Fundamental beliefs of Islam, Belief of Tawheed, Belief in Prophethood, 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

3<sup>rd</sup>SEMERTERCOURSES:

- 1. Pathology-I**
- 2. Medical Microbiology-I**
- 3. Pharmacology-I**
- 4. Communication Skills**
- 5. MedicalEmergency-I**
- 6. Hematology-I**

**Course Objectives:**

After successful completion of this course, students will be able to,

- Specify the abnormalities of cell growth and differentiation.
- Describe cellular responses to stress and noxious stimuli and inflammation.
- Discuss cell injury, cell death and mechanisms involved in wound healing.
- Explain the hemodynamic disorders and neoplasia.

**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**

1. Practical Copy for General Pathology
2. Specific Histopathological Slides

**Recommended books**

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



**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 characteristics, 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.

## Course Objectives

After successful completion of this course, students will be able to,

- Describe common terms related to pharmacology and drug therapy.
- Identify a range of drugs used in medicine and discuss their mechanisms of action.
- Report the clinical applications, side effects and toxicities of drugs used in medicine.

## 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 (textbook) by Mycek 2nd edition published by Lippincott Raven
- ∩ Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 8th Edition, Published by Appleton

**Course Objectives:**

After successful completion of this 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 the interpersonal and organizational dynamics that affect effective communication in organizations.

**Course Contents:**

- 1. Introduction to Communication**, Meaning and definition of Communication, The process of communication, Models of communication
- 2. Effective Communications in Business**, Importance and Benefits of effective communication, Components of Communication, Communication barriers, Nonverbal communication
- 3. Principles of effective communication**, Seven Cs.
- 4. Communication for academic purposes**, Introduction to academic writing, Summarizing, paraphrasing and argumentation skills, Textual cohesion
- 5. Communication in Organizations**, Formal communication networks in organizations, Informal communication networks; Computer-mediated communication (video conferencing, internet, e-mail, skype, groupware, etc)
- 6. Business Writing**, Memos, Letters, Reports, Proposals, Circulars, etc
- 7. Public Speaking and Presentations skills**, Effective public presentation skills, Audience analysis, Effective argumentation skills, Interview skills

**Recommended books:**

- ∩ Interpersonal Communication Paperback by Kory Floyd
- ∩ Reading into Writing 1: English for Academic Purposes: A Handbook- Workbook for College Freshman English (Mass Market Paperback) by Concepcion D. Dadu falza
- ∩ Lecture Notes/Presentations



**Course Objectives:**

- ↓ To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise in medical emergency.
- ↓ Student will be able to provide 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 emergencies:** Asthma & status asthmaticus, COPD, Pneumonia, Apnea, Management of Type I & II Respiratory Failure, Management of Upper & Lower Respiratory tract Infections, ARDS, Pulmonary Embolism, Pulmonary Edema.

**Gastrointestinal Emergencies:** Acute Abdomen Pain, Gastroenteritis, Cholera, Dysentery, Enteric Fever, Malaria, Dengue, Liver Failure, Measles

**Dermatological emergencies:** Urticaria & Angioedema, Herpes zoster, Erythroderma.

**Shock** Assessment and management of hypovolemic, septic, Anaphylactic, Neurogenic and Cardiac shock.

**Acute Pain Management.** Earache, toothache, general body pain.

**Practical:**

1. Recognize a medical emergency, assess the situation, obtain a basic history and physical examination, manage emergency care, and, if needed, extricate the patient.
2. Blood Pressure Recording
3. Peripheral Venous Access
4. Central Venous Access
5. Cardiopulmonary Resuscitation
6. ECG taking and monitoring
7. Portable Suction
8. Portable Vital Signs Monitor
9. Patient transfer trolleys

**Recommended books:-**

- ↓ EMERGENCY Medicine manual. John. 2005
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005
- ↓ Oxford book of emergency medicine.
- ↓ Critical care medicine At a Glance. Richard Leasch.
- ↓ Oxford handbook of acute medicine 4<sup>th</sup> edition
- ↓ First aid for emergency board
- ↓ Critical care Emergency Medicine.

**Course Objectives:**

By the end of this semester the students of BS technology 3rd semester will be able to

- Discuss basic concepts in Hematology and acquire skill in practical work to produce students steeped in knowledge of Hematology
- Interpret the test results of the basic hematological procedures for accurate diagnosis and patient's monitoring

**Contents:**

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 extrauterine), factors governing hematopoiesis, Erythropoiesis, different stages and factor effecting on erythropoiesis, Granulopoiesis, different stages and factor effecting on granulopoiesis, Introduction to hemoglobin, structure, synthesis and function of hemoglobin, complete blood count (CBC) and its importance, Morphology of red blood cells and white blood cells and its importance in various hematological disorders, Introduction to anemia its classification, 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, Eosinophilia, condition related to eosinophilia, Monocytosis, condition related to monocytosis, Lymphocytosis, condition related to lymphocytosis, 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, rbcc 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

**Books:**

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

## **4<sup>th</sup>SEMERTERCOURSES:**

- 1. Pharmacology-II**
- 2. Pathology-II**
- 3. Medical Microbiology-II**
- 4. Behavioral Sciences**
- 5. Medical Emergency-II**
- 6. Diagnostic Imaging**

**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-anginal drugs, Anti-Hyperlipidemic drugs, Blood drugs (Anticoagulants), Diuretics, Chemotherapeutic drugs ([Anti-protozoal, Anti-Malarial], Anti-Fungal, Anthelmintic), Antibiotics (Penicillin's, cephalosporin's, macrolides, aminoglycosides, fluoroquinolones), Drugs acting on Respiratory system.

**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 of Sulfurointment
8. Preparation of pilocarpine drops
9. Prescription writing

**Recommended books:**

- ∴ Lippincott's pharmacology (textbook) by Mycek 2nd Edition published by Lippincott Raven 2000.
- ∴ Katzung textbook of pharmacology (Reference Book) by Bertram Katzung 8th Edition, Published by Appleton. Dec 2007.



**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, bronchiectasis, 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

**Practical:**

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 Textbook of Pathology Moh. Inam Danish 3rd Edition 2006

**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, bio medical 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 principles 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 bio medical 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.
- ▮

**Course Objectives:**

- ↓ To Conduct the diagnostic interviews
- ↓ To Formulate and clarify 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

**Course objectives:**

- ↓ To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise.
- ↓ Student will be able to provide patient care in medical emergency, including the awareness of support services available and knowing when to activate them.
- ↓ To deliver efficient care to acutely ill patient in medical emergency.

**Course contents:**

**Renal emergencies:** Acute Renal failure, Acute Urinary retention, Renal Colic, Hematuria, UTI.

**Endocrine emergencies:** Diabetes (type-I, II), Diabetic ketoacidosis, Hypo & Hyperthyroidism, Malignant Hyperthermia, Hypo & Hyperglycemia, HHS (hyperosmolar Hyperglycemic state)

**Hematological emergencies:** Blood transfusion reaction, Pathophysiology and management of Anaphylaxis

**Psychiatry emergencies:** Acute confusion, Hysteria, dealing with violent patient, Acute Psychosis.

**Practical:**

1. Usage of Infusion pumps
2. Usage of Analyzers
3. Usage of Defibrillators
4. Usage of Patient monitors
5. Usage of Blood Pressure Accessories
6. Ambulance stretcher
7. Preparation of Medicines trolley
8. Primary Survey

**Recommended books:**

- ↓ EMERGENCY Medicine manual. O. John. 2005
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005
- ↓ Oxford book of emergency medicine.
- ↓ Oxford handbook of acute medicines
- ↓ First aid for emergency board
- ↓ Critical Care Emergency Medicine.

**Course objectives:**

- ∴ To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise in diagnostic imaging.
- ∴ Student will be able to provide patient care in imaging diagnostic study.
- ∴ To deliver the efficient 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 edema, Cardiac Deviation, ARDS, Pneumonia, (Bronchopneumonia, Lobar pneumonia, Aspiration pneumonia).

**Practical:**

1. Identification of the Structures of different organs
2. Radiological Presentation & Pathological Findings on Radiographs
3. Films demonstrating Anatomy

**Recommended books:**

- ∴ Diagnostic Imaging by Peter Armstrong Martin Wastie Andrea G Rockall 6<sup>th</sup> Edition.
- ∴ Clinical Radiology Mader idiculously simple.

## **5<sup>th</sup>SEMERTERCOURSES:**

- 1. TraumaEmergency-I**
- 2. SurgicalEmergency-I**
- 3. Burns&Toxicology**
- 4. BasicandAdvance lifesupport**
- 5. CriticalCareLaboratoryDiagnostics**
- 6. AnesthesiaEquipment**

**Courseobjectives:**

- ↓ To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise in trauma situations.
- ↓ To confidently handle crisis situations safely and accurately perform all basic and advanced life support procedures.
- ↓ To deliver efficient care to acutely ill traumatically injured patient in trauma centers.

**Coursecontents:**

Introduction to trauma, trauma types, types of wound, bio mechanics of trauma, pre-hospital trauma care, triage, mass & multiple casualty, primary survey & resuscitation, adjunct to primary survey, secondary survey & physical exam, airway & ventilatory management, difficult airway management, trauma flow sheet, trauma scores, injury prevention, thoracic trauma, head trauma & TBI, facial and ocular trauma.

**Practical:**

1. Recognize trauma emergency, assess the situation, obtain a basic history and physical examination, manage emergency care, and, if needed, extricate the patient.
2. Blood Pressure Recording
3. Peripheral Venous Access
4. Central Venous Access
5. Cardiopulmonary Resuscitation
6. ECG
7. Infusion pumps
8. Defibrillator

**Recommended books:**

- ↓ ATLS by American college of surgeons 9<sup>th</sup> edition.
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 200
- ↓ ABC of major trauma
- ↓ Current therapy of trauma & surgical care by Juan A. Asensio, Donald D. Trunkey

**Course objectives:**

- ↓ To save patient from secondary injury and enable student to deliver efficient care to acutely ill patient in surgical emergency.
- ↓ To acquire common sense, attention to detail, prioritizing 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 cases.

**Course contents:**

peripheral venous access, indications and complications of central venous line, venous cut down & intraosseous access in dehydrated patient, indication, procedure & complications of tracheostomy tube, advanced airway management, chest tube indication, procedure, care and complications, feeding tube applications, arterial and pulmonary artery catheter, urinary catheterization, suturing material, suturing technique, management of abrasions, bruises and laceration, hemorrhage control, hemorrhagic shock, application of splint in hand and back slabs, IGTN (ingrowing toenail), management of soft tissue infections & abscess drainage, wound dehiscence,

**Practical:**

1. Usage of Enteral feeding pumps
2. Usage of Blood gas and electrolyte analyzer
3. Resuscitation & airway teaching learning simulators
4. Airway devices - laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscopes etc.
5. Hemodialysis machine
6. Cardiopulmonary Resuscitation
7. ECG taking and monitoring
8. Blood Pressure Recordings

**Recommended books:**

- ↓ Bailey & Love's short practice of surgery 28<sup>th</sup> edition
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005.
- ↓ Critical care medicine At A Glance. Richard Leach.
- ↓ Oh's manual of intensive care by Andrew Bersten.
- ↓ Churchill, pocket book of intensive care by Simon M. Whately.
- ↓ Quick critical care reference by Susan B Stillwell.
- ↓



**Course objectives:**

- ↓ Student will be able to analyze the burn surface area depth & assess the situation, obtain a basic history and do 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:****Burns**

Introduction and epidemiology, Pathophysiology of Burn, Classification & Burn types, Immediate Care of Burn patients (pre and in Hospital), Assessment of burn wound, Fluid resuscitation in burn patients, Surgical and Pharmacological treatment of burns, Dressing of burn wound, Energy balance and nutrition of the burn patient, additional aspects of treating burn patient, Non-thermal burn injury (electrical, chemical, cold & ionizing radiation injuries),

**Toxicology**

basic definitions of toxicology, poison and poisoning, Route of Exposure, Toxidrome, General approach and Principle of decontamination, drug overdose and antidotes, Management of Anticonvulsant and antipsychotic drug poisoning, Aspirin toxicity, Benzodiazepine poisoning, Beta blockers and calcium channel blocker toxicity, Cyanides and Organophosphate toxicity, NSAIDs and Alcohol toxicity, recreational drugs toxicity, management of snake & scorpion bite

**Practical:**

1. Application of rule of nine for estimation of total burn surface area.
2. Fluid input & output Recording & measurement.
3. ECG taking and monitoring
4. Blood Pressure Recording
5. Peripheral Venous Access
6. Central Venous Access
7. Intraosseous Access
8. External cardiac resuscitation
9. Monitoring Arterial Pulse Oximetry
10. Urinary & Gastric Catheterization
11. Usage of internal & external feeding pumps.

**Recommended books:**

- ↓ Rosen emergency medicine: concepts & clinical practice John. A Marx. 2005
- ↓ Oxford handbook of acute medicines
- ↓ First aid for emergency board
- ↓ Critical Care Emergency Medicine.
- ↓ Bailey & Love's short practice of surgery 28<sup>th</sup> Edition.
- ↓ Clinical emergency medicine by Scott C. Sheirman.

**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 arrest and cardiac disease states

**Course contents:**

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

**Practical:**

1. Use of Automated External Defibrillator
2. Use of Conventional Defibrillator and Monitors
3. Measurement of central venous pressure
4. Insertion of arterial line
5. ECG taking and monitoring
6. Endotracheal Intubation & Laryngeal Mask Airway
7. Lung ventilation and/or administering oxygen
8. CPR on the simulators

**Recommended books:**

- ↓ EMERGENCY Medicine manual. O. John. 2005
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005
- ↓ Oxford book of emergency medicine.
- ↓ Critical care medicine At a Glance. Richard Leasch.
- ↓ Oh's manual of intensive care by Andrew Bersten.
- ↓ The ICU book of Paul Marino.
- ↓ Churchill's pocket book of intensive care by Simon M. Whitely.
- ↓ Quick critical care reference by Susan B Stillwell

**OBJECTIVES:**

At the end of semester students should:

- ↓ To develop the basic understanding of common disease in intensive care unit.
- ↓ To interpret various tests essential for the diagnosis of different diseases in intensive care unit

**Course contents**

**LIVERFUNCTION TESTS:** Interpretation and importance in Hemolytic anemia, Hepatitis and cholestasis. **RENAL FUNCTION TESTS:** Serum Blood urea nitrogen and creatinine, Basic pathophysiology of azotemia, Creatinine clearance and its importance, Urinalysis.

**CARDIAC BIOMARKERS:** Markers of cardiac cell damage including cardiac troponins and creatine kinase.

**PANCREATIC FUNCTION TESTS:** Importance of serum amylase and lipase.

**STOOL EXAMINATION:** Importance of macroscopic stool examination, Significance of WBCs and RBCs in microscopic examination of stools, Examination of stools for ova and parasites.

**COMPLETE BLOOD COUNT AND PERIPHERAL SMEAR:** Importance of alteration in different blood indices, Significance of changes in RBC shape and size, Significance of blast cells in peripheral smear.

**ABGs:** indication, interpretation, and significance in metabolic and respiratory disorders.

**PRACTICAL:**

- ABGs performing.
- Venous sampling collection
- Taking blood from Central lines
- Taking bronchial sample

**ROCOMMENDED BOOKS**

- ↓ District Laboratory Practice in Tropical Countries by Monica Cheesbrough
- ↓ Clinical Laboratory Medicine *Lippincott Williams & Wilkins (LWW)*
- ↓ ICU Book Paulmerino
- ↓ EKG book, Dale and Dublin.

**Course objectives:**

- ∴ To explore his/her cognition about different instrument, working principles & its importance for safe anesthesia practice in the healthcare system.
- ∴ To manage technical faults 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 circuits, Face masks, Anesthesia ventilators working principles, Monitoring devices, Manual Resuscitation bag, Defibrillator, LMA, ETT, S, Airways oral & nasal, Suction machine, Stethoscope, Spinal needles, Epidural needles & Catheters, Magill Forcep, Blood gas Analyzer

**Practical:**

- ∴ Ventilator settings according to 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 airway management devices.

**Recommended books:**

1. Clinical Anesthesiology by Morgan & Mikhail Fifth Edition.
2. Essential of Anesthesia Equipments by Bahal-al-Sakaih & Simon Stacey 3<sup>rd</sup> edition.

## **6<sup>th</sup>SEMERTERCOURSES:**

- 1. TraumaEmergency-II**
- 2. SurgicalEmergency-II**
- 3. Neonatal&PediatricEmergency**
- 4. CardiovascularEmergency**
- 5. NeurologicalEmergency**
- 6. FundamentalOfEmergencyCare**

**Course objectives:**

- ↓ To equip the student with professional knowledge, skill, techniques & ethical values enable them to apply their acquired expertise in trauma situations.
- ↓ To confidently handle crisis situations safely and accurately perform all basic and advanced life support procedures.
- ↓ To deliver efficient care to acutely ill traumatically injured patient in trauma centers.

**Course contents:**

Neck trauma, Abdominal trauma, pelvic trauma, spine & spinal cord trauma, musculoskeletal trauma, trauma in pregnancy, pediatric trauma, geriatric trauma, thermal & cold injuries, near drowning, log roll of fat trauma patient, transport of fat trauma patient, psychosocial trauma. Bomb blast injuries,

**Practical:**

1. Usage Patient monitors
2. Usage of Blood Pressure Accessories
3. Portable Suction
4. Portable Vital Signs Monitor
5. Patient transfer trolleys
6. Ambulance stretcher
7. Preparation of Medicines trolley
8. Preparation Dressing trolley
9. Trauma flowsheet
10. Log rolling

**Recommended books:**

- ↓ ATLS by American college of surgeons 9<sup>th</sup> edition.
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 200
- ↓ ABC of major trauma
- ↓ Current therapy of trauma & surgical care by Juan A. Asensio, Donald D. Trunkey

**Courseobjectives:**

- ↓ Tosavepatientfromsecondaryinjury.
- ↓ Toacquirecommon sense,attentiontodetailpriorizingskills andanticipationofpotentialproblem in surgicalemergency.
- ↓ Togiveanypatientrequiringaninjectionorhavingacontagious diseaseoroperativeprocedure thestudentwillmaintainasepsisinallsuchcases tothestandardsmaintained, bytheaffiliated hospitals.

**Coursecontents:**

Managementofairwaybleeding,airwayobstruction,pneumothorax&tensionpneumothorax,hemothorax, hydrothorax,chylothorax,pleuraleffusion,cardiactamponade&pericardiocentesis,managementof upper& lowerGIbleed,acutepancreatitis,cholelithiasis,acutecholecystitis, appendicitis,hernias,bowelobstruction, uretericobstruction,testiculartorsion, priapism,management,care&complications ofhemorrhoids, paracentesis (ascitictap), abdominalaorticaneurysm,hepaticcoma,epistaxismanagement,air/gas embolism.

**Practical:**

1. UsageofEnteral feedingpumps
2. UsageofBlood gas andelectrolyteanalyzer
3. Resuscitation&airwayteachinglearning simulators
4. Airwaydevices-laryngoscopes,tubechangers,percutaneoustracheostomy,bronchoscopesets.
5. Hemodialysismachine
6. CardiopulmonaryResuscitation
7. takingandmonitoring
8. BloodPressureRecording

**Recommendedbooks:**

- ↓ EMERGENCYMedicinemanual.O.John.2005
- ↓ Rosensemergencymedicine;concepts &clinicalpracticeJohn.A Marx.2005
- ↓ OxfordbookofemerGENCYmedicine.
- ↓ CriticalcaremedicineAtAGlance.RichardLeasch.
- ↓ Oh;smanualofintensivecarebyAndrewbersten.
- ↓ The ICUbookofpaulmarino.
- ↓ Churchill,s pocketbookofintensivecarebysimonM.whitely.
- ↓ QuickcriticalcarereferencebySusanB Stillwell.

**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 an 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 burns 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 20<sup>th</sup> edition.
- ↓ Text Book of Pediatrics by Prof Dr Azam Khan.
- ↓ EMERGENCY Medicine manual. O. John. 2005
- ↓ Rosen's 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 Marino.



**Course Objectives:**

- ↓ Student will be able to recognize the cardiovascular emergency with the awareness of support services available and knowing when to activate them.
- ↓ To deliver efficient and competent care to acute and chronically ill patient.

**Course contents:**

Basic ECG, Acute chest pain, angina pectoris, acute coronary syndrome (stable angina, unstable angina, acute myocardial infarction) cardiogenic shock, syncope, congestive heart failure & its complications, pulseless electrical activity, cardiogenic pulmonary edema, acute pericarditis, acute myocarditis, pericardial effusion, systemic and pulmonary hypertension, aortic dissection, aortic aneurysm, heart blocks, cardiac tamponade, management of arrhythmias (atrial flutter & fibrillation, ventricular flutter & fibrillation, supraventricular tachycardia & fibrillation) bradyarrhythmia & indications for cardiac pacing.

**Practical:**

1. External cardiac resuscitation
2. Manual defibrillation & cardioversion
3. Use of Transcutaneous Pacing Devices
4. Endotracheal Intubation & Laryngeal Mask Airway
5. Urinary & Gastric Catheterization
6. Resuscitation & airway teaching learning simulators
7. Airway devices - laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscopes etc.

**Recommended books:**

- ↓ EMERGENCY Medicine manual. O. John. 2005
- ↓ Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005
- ↓ Oxford book of emergency medicine.
- ↓ Critical care medicine At A Glance. Richard Leach.
- ↓ Oh's manual of intensive care by Andrew Bersten.
- ↓ The ICU book of Paul Marino.
- ↓ Churchill's pocket book of intensive care by Simon M. Whately.
- ↓ Quick critical care reference by Susan B Stillwell.

**COURSE OBJECTIVES:**

- Student will be able to recognize the neurologic emergency timely to prevent from secondary insult.
- To confidently handle crisis situations safely and accurately perform all basic and advanced life support procedures.

**COURSE CONTENTS:**

Neurological examination in the E.D (myotomes, dermatomes, spinal nerve distribution, reflexes, AVPU scale)  
 Headache, its types & facial pain, trigeminal neuralgia, ischemic stroke & 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, encephalitis, brain abscess), lumbar puncture & its complications, neuromuscular respiratory failure, myasthenic crises, tetanus, brain death assessment, cerebral venous thrombosis, trigeminal neuralgia, botulism, GBS, sciatic pain, cerebral edema, spinal cord compression, neuroleptic malignant syndrome, spinal shock, spinal cord syndromes, GCS assessment.

**PRACTICAL:**

- Measurement of Glasgow coma scale.
- Assessment of brain death.
- Usage of glucometer
- Usage of pulse oximeter
- Cardiopulmonary Resuscitation
- Endotracheal Intubation & Laryngeal Mask Airway
- Lung ventilation and/or administering oxygen
- Use of End Tidal CO<sub>2</sub> Measuring Devices
- Monitoring Arterial Pulse Oximetry
- Urinary & Gastric Catheterization
- Usage of Enteral feeding pumps
- Usage of Blood gas and electrolyte analyzer
- Resuscitation & airway teaching learning simulators

**RECOMMENDED BOOKS:**

- EMERGENCY Medicine manual. O. John. 2005
- Rosen's 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 paull marino.
- Churchill, s pocket book of intensive care by simon M. whitely.
- Quick critical care reference by Susan B Stillwell.

**Course Objectives:**

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

- ↓ Recognize critical care priorities, design, role of medical technologist and other professionals understand critical care patients.
- ↓ Recognize basic Emergency care equipment and instruments and therapies on technical Management of common important problem in Emergency care settings.

**Course contents:**

1. Orientation of Emergency care: Physical design of emergency care setting, Daily roles in critical care, Personal and professional relationship, Understanding critical care patients, Hazards and safety precautions
2. Patient assessment procedures: Comprehensive history of patients, Physical examination (cardiopulmonary)
3. Solution, body fluid, and electrolyte, Principles of fluid therapy, acid base balance, Body fluids and electrolytes, Disorders of potassium balances, Disorders of divalent ions
4. Blood transfusion
5. Feeding tube placement: Essential diagnostic test and procedure, Determining the most appropriate tube type, site and placement techniques
6. Monitoring of patient: invasive pressure monitoring, noninvasive cardiovascular monitoring, hemodynamic monitoring: temperature monitoring blood volume measurement in emergency room, Early warning system, Scoring system.

**PRACTICAL**

- ↓ Know the basic and fundamental concepts about emergency care
- ↓ Examine interpret patient complaints, signs and symptoms to determine patient Consideration and anticipate changes in condition
- ↓ Calculate calorie, and fluid requirements for the patient
- ↓ Gather information for Emergency care transport
- ↓ Manage and perform assessments required for Emergency care transport

**Recommended BOOKS:**

Egan's fundamentals  
of respiratory care Civetta, Taylor, & Kirby'  
s: Critical Care.



## **7<sup>th</sup>SEMERTERCOURSES:**

- 1. ObstetricalCriticalCare-I**
- 2. DisasterManagement**
- 3. ResearchMethodology**
- 4. Biostatistics**
- 5. Epidemiology**
- 6. FundamentalsofInfectionControl**

**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:**

Introduction to obstetrics and gynecology, physiological changes in pregnancy, pre-pregnancy and antenatal care, stages of labor, Mother with complication of labor, Fetal distress, Obstructed labor, Shouldered dystocia, prolapsed cord, uterine inversion, rupture uterus, malposition & presentation, lithotomy position, per mortem caesarian section, Portogram, ventouse delivery, caesarian section, Episiotomy, Pregnancy induced hypertension, pre-Eclampsia, Eclampsia, HELLP syndrome, Emergency relating to Pregnancy, Mother with severe abdominal pain, Ectopic pregnancy, Miscarriage & Abortion, Mother with severe abdominal pain in later pregnancy, Mother with large antepartum hemorrhage, Mother with large postpartum hemorrhage.

**Practical:**

1. External cardiac resuscitation
2. Use of Automated External Defibrillator
3. Use of Conventional Defibrillator and Monitors
4. Use of Transcutaneous Pacing Device
5. Endotracheal Intubation & Laryngeal Mask Airway
6. Lung ventilation and/or administering oxygen
7. Use of End Tidal CO<sub>2</sub> Measuring Devices
8. Monitoring Arterial Pulse Oximetry
9. Urinary & Gastric Catheterization

**Recommended books:**

- ↓ EMERGENCY Medicine manual. O. John. 2005
- ↓ Rosen's emergency medicine: concepts & clinical practice John. A Marx. 2005
- ↓ Oxford book of emergency medicine.
- ↓ Critical care medicine At a Glance. Richard Leasch.
- ↓ Oh's manual of intensive care by Andrew Bersten.
- ↓ The ICU book of Paul Marino.
- ↓ Churchill, pocket book of intensive care by Simon M. Whitely.
- ↓ Quick critical care reference by Susan B Stillwell.

**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 of triage, 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. Log rolling.

**Recommended books:**

- ‡ HYNDMAN, Donald and Hyndman, David (2010) Natural Hazards and Disasters. Brooks Cole, 3<sup>rd</sup> Revised Edition, Stamford, Connecticut, USA.
- ‡ KREBS, Robert E. (2003) The Basics of Earth Science. Greenwood, Westport, Connecticut, USA.
- ‡ STRAHLER, Alan H. and Strahler, Arthur (2004) Physical Geography: Science and Systems of the Human Environment. John Wiley & Sons, 3<sup>rd</sup> Edition, Hoboken, New Jersey, USA.

**Course Objectives:**

After successful completion of this course, students will be able to,

- Recognize the basic concepts of research and the research process.
- Develop understanding on various kinds of research, objectives of doing research, research designs and sampling.
- Conduct research work and formulating research synopsis and report.

**Course Contents:**

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

**Practical Work:**

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

**Recommended Books:**

- ↓ Research Methodology by Ranjit Kumar 3<sup>rd</sup> Edition
- ↓ Foundation of Clinical Research by Portney LG Walkais MP in 1993, Publisher by Appleton and lauge 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.



**Course objectives:**

After successful completion of this course, students will be able to,

- State the principal concepts about biostatistics; collect data relating to variable/variables.
- Examine and calculate descriptive statistics from collected data.
- Interpret data via binomial distribution and the concept of sampling.
- Apply hypothesis testing via some of the statistical distributions.

**Course Contents:**

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

**Practical Work:**

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

**Recommended Books:**

- ‡ Aquid to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
- ‡ Reading understanding multivariate statistics by G. Y. A. D. P. R., publisher American Psychological Association
- ‡ Ilyas Ansari's community medicine (Text Book) by Ilyas and Ansari 2003 published by Medical division Urdu Bazaar Karachi

**Course objectives:**

After studying this course the students will be able to:

- ↓ Explain epidemiological terminologies
- ↓ Apply the knowledge to calculate disease risk, prevalence and incidence
- ↓ Select and choose an appropriate study design in research
- ↓ Explain confounding and Biases in studies
- ↓ Appraise SWOT analysis

**Course Contents:**

Introduction to Epidemiology and basic terms used in Epidemiology, Measures of Disease Occurrence; Incidence and Prevalence, Incidence, Rates and its types, Dynamics of disease transmission, Measurement of disease frequency, risk, rate and proportion, Calculation of: Prevalence, Incidence, Duration, Mortality and Morbidity, Study Design Options, Research study Designs, Case Control Study, Cohort Study, Experimental Study, RCT, Meta-analysis and systematic review, The Cross-Sectional Study, Case-Reports, Sources of Error; Confounding and Biases, Odds ratio and relative risk, SWOT analysis, Reliability of tests by using Sensitivity and specificity

**Recommended Books:**

- ↓ Calculation of Sensitivity and specificity
- ↓ Calculation of Incidence and prevalence
- ↓ Finding risk of disease, rate and frequency
- ↓ SWOT analysis
- ↓ An Introduction to Epidemiology for Health Professionals
- ↓ Epidemiology by Leon Gordis 5<sup>th</sup> Edition

**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, principles of infection control, source and transmission of infection, infection in the hospital environment, immunization prophylaxes, exposure prophylaxes, sterilization, disinfection and antiseptics, 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, bio medical 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 bio medical waste management 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, Part 1 & 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.

**8<sup>th</sup>SEMERTERCOURSES:**

- 1. ObstetricalCriticalCare -II**
- 2. Ambulanceoperation andmanagement**
- 3. BIOETHICS**
- 4. ResearchProject.**

**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:**

Medical emergency during pregnancy, Mother with Breathing difficulty, Severe bronchial asthma, pneumonia in pregnancy, heart disease in pregnancy. 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. Mother with dangerous fever during pregnancy and labor, Loss of fetal movement after 22 weeks of gestation, severe puerperal sepsis, Rh incompatibility, Embolic fluid embolism, infection in pregnancy, Dysmenorrhea, Amenorrhea,

**Practical:**

1. Cardiopulmonary Resuscitation
2. ECG taking and monitoring
3. Blood Pressure Recording
4. Peripheral Venous Access
5. Central Venous Access
6. Intraosseous Access
7. External cardiac resuscitation
8. Use of Automated External Defibrillator
9. Use of Conventional Defibrillator and Monitors

**Recommended books:-**

1. EMERGENCY Medicine manual. O. John. 2005
2. Rosen's emergency medicine; concepts & clinical practice John. A Marx. 2005
3. Oxford book of emergency medicine.
4. Critical care medicine At a Glance. Richard Leach.
5. Oh's manual of intensive care by Andrew Bersten.
6. The ICU book of Paul Marino.
7. Churchill's pocket book of intensive care by Simon M. Whitely.
8. Quick critical care reference by Susan B Stillwell.

## 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

**Introduction:** Understanding the Management of Ambulance Services.

**Legal and Ethical Principles of Emergency Care**

**Ambulance Equipment requirement** - Airway and ventilation equipment - Immobilization devices - Bandages - Communications - Obstetrical Kit, Injury prevention equipment - Miscellaneous, Vascular Access, Cardiac - Infection control & Personal protective equipment, other advanced equipment - Medications, **Managing an incident** – action at an emergency, traffic incident, Fire, Electrical Incident, water incident, major incident, **Principles of transport**, Hazard control - Types of Hazardous material, dealing with different types of hazardous material - EMT safety **Extrication**; Definition, Purpose and scope, Devices, Stages of extrication Preparation - Arrival and scene size-up, **Principles of Lifting, Moving, and Positioning of Patients** 98, **Selection and transportation of patient to the proper provider institute (destination)** decision making - documentation of the decision, Managing patient handover to the provider institute, Guidelines on communicating with individuals - Guidelines on maintaining confidentiality and respecting need for privacy – Handling of stressful or risk situations, **Act within the limits of one's competence and authority** Knowing one's job roles and responsibilities - recording and reporting,

## 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 Medicines trolley
- ∩ Preparation Dressing trolley
- ∩ Usage of infusion pumps

## Recommended books:

1. EMERGENCY Medicine manual. O. John. 2005
2. Rosen emergency medicine; concepts & clinical practice John. A Marx. 2005
3. Oxford book of emergency medicine.
4. Critical care medicine At a Glance. Richard Leasch.
5. Oh; s manual of intensive care by Andrew Bersten.
6. The ICU book of Paul Marino.
7. Churchill, pocket book of intensive care by Simon M. Whitely.
8. Quick critical care reference by Susan B Stillwell.

**Course Objectives:**

After successful completion of this course, students will be able to,

Identify ethical issues in medicine, health care and life sciences.

Describe rational justification for ethical decisions.

Practice the ethical principles of the Universal Declaration on Bioethics and Human Rights.

Recognize and distinguish an ethical issue from other issues..

**Course Contents:**

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

**Recommended Books:**

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





**CourseObjectives:**

- The student will learn some basic research methodology, gain knowledge of the specific area of radiology being researched and have the opportunity for more extensive one-on-one interaction with a member of the radiological staff. It will hopefully result in some form of presentation or publication for the student. This is most suitable for students planning to enter radiology as a career.

**Coursecontents:**

During last year each student should select a topic of research report with consultation of his/hersupervisor 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

