



KHYBER MEDICAL UNIVERSITY PESHAWAR

AIMS AND OBJECTIVES OF THE COURSE:

AIMS:

The aim of the 4 years degree programme in Respiratory therapy & Intensive Care 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:

Respiratory therapy & Intensive Care Technology education and training should enable the student to:

- Express the knowledge, technical, non-technical skills in a standardized and reproducible environment.
- Develop the decision power and exercise appropriate judgment skills with matching application.
- Develop administrative skills in developing crisis management plan.
- Develop effective communication skills to perform in working environment effectively.
- Create 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 Respiratory therapy & Intensive care Technology. The student 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 or emergency /critical care, trauma and Palliative cares for patients in ICUs
- Acquire common sense, attention to detail, prioritizing skills and anticipation of potential problems in the care of the critically ill or injured patient
- Deliver efficient and competent care to critically ill infants and children.

- Gain experience in the analysis of data and management of acute medical and surgical crisis

Of the patients

- Understand the total patient care in intensive care, including the awareness of support services available and when to activate them.
- Gain experience in the ethical principles and practical management of end-of-life care
- Access appropriate consultations wherever required.
- Maintain asepsis in all such cases requiring an injection or having a contagious disease or operative procedures
- Establish rapport with the patient and related people to decrease their state of crisis
- Direct and coordinate the transport of the patient by selecting the best available method(s) in conjunction with medical command authority/protocol.
- Clearly and concisely deliver educational information to staff in both formal and informal teaching settings.
- Do researches Respiratory therapy & Intensive Care technology
- Be exposed to and gain understanding of administrative issues in critical care services.

FRAME WORK FOR BS RESPIRATORY THERAPY & INTENSIVE CARE TECHNOLOGY

4 years BS Program

➤ Total numbers of Credit hours	134 (HEC recommended: 124-136)
➤ Duration	4 years
➤ Semester duration	16-18 weeks
➤ Semesters	8
➤ Course Load per Semester	15-18 Credit hours
➤ Number of courses per semester	4-7

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		10 courses		19 course	
Subject	Cr. Hr	Subject	Cr. Hr	Subject	Cr. Hr	Subject	Cr. Hr
1. English I	2	1.Epidemiology	2+1	1. Human Physiology-I	3+1	1.Respiratory therapy-I	1+1
2. English II	2	2.Pharmacology-I	2+1	2. Human Physiology-II	3+1	2. Intensive care Monitoring-I	1+1
3. Pakistan Studies	2	3.Pharmacology-II	2+1	3. Biochemistry-I	3+1	3. Clinical medicine	2+1
4. Islamic Studies / Bioethics	2	4.Research Methodology	2+1	4. Biochemistry-II	3+1	4. Advances in respiratory therapy and intensive care	2+1
5. Computer Skills	2	5. Fundamental Of Infection control.	2+1	5. Human Anatomy-I	3+1		
6. Communication skills	2	6. Radiological Presentation of Pathologies	1+1	6. Human Anatomy-II.	3+1	5.Trauma Intensive care	2+1
		7. Hematology-I	2+1	7. Medical Microbiology-I	2+1	6.Anesthesia Equipment	2+1
		8.Biostatistics	0+6	8. Medical Microbiology-II	2+1	7.Surgical Intensive care	2+1
		9.Research Project		9. General Pathology-I	2+1	8.Burns & Toxicology	2+1
				10. General Pathology-II	2+1	9. Applied Physics	1+1
				11. Cardiopulmonary physiology	2+0	10.Cardiovascular Emergency	2+1
						11.Respiratory Therapy-II	2+1
						12. Obstetrical Intensive Care	2+1
						13.Neonatal and Pediatric Critical care	2+1
						14.Clinical Laboratory Investigations	2+1
						15.Intensive care management	2+1
						16.Palliative Care	2+1
						17. Recognition and management of Organ Failure.	2+1
						18. Drugs related to intensive care and respiratory therapy	2+1
						19.Intensive care monitoring-II	2+1
	12		29		38		54

Semester/Year	CODE	Name of Subject	Credits
First	PMS-601	BIOCHEMISTRY-I	4(3+1)
	PMS-602	HUMAN PHYSIOLOGY-I	4(3+1)
	PMS-603	HUMAN ANATOMY-I	4(3+1)
	PMS-604	ENGLISH-I	2(2+0)
	PMS-605	PAK STUDIES	2(2+0)
	PMS-606	COMPUTER SKILLS	2(1+1)
			18
Second	PMS-607	BIOCHEMISTRY-II	4(3+1)
	PMS-608	HUMAN PHYSIOLOGY-II	4(3+1)
	PMS-609	HUMAN ANATOMY-II	4(3+1)
	PMS-610	ENGLISH-II	2(2+0)
	PMS-611	ISLAMIC STUDIES	2(2+0)
			16
Third	PMS-614	PHARMACOLOGY-I	3(2+1)
	PMS-612	PATHOLOGY-I	3(2+1)
	PMS-613	MEDICAL MICROBIOLOGY-I	3(2+1)
	ICT- 601	INTENSIVE CARE MONITORING-I	2(1+1)
	MLT-601	HEAMATOLOGY-I	3(2+1)
	PMS-615	COMMUNICATION SKILL	2(1+1)
	RRT-601	RESPIRATORY THERAPY-I	2(1+1)
			18
Fourth	PMS-616	PHARMACOLOGY-II	3(2+1)

	PMS-617	PATHOLOGY- II	3(2+1)
	PMS-618	MEDICALMICROBIOLOGY-II	3(2+1)
	ICT-602	CLINICAL MEDICINE	3(2+1)
	ECT-618	RADIOLOGICAL PRESENTATION OF PATHOLOGIES	2(1+1)
	RRT-605	CARDIOPULMONARY PHYSIOLOGY	2(2+0)
			16
Fifth	RRT-602	ADVANCES IN RESPIRATORY THERAPY AND INTENSIVE CARE	3(2+1)
	ICT-603	TRAUMA INTENSIVE CARE	3(2+1)
	ANS-606	ANESTHESIA EQUIPMENTS	3(2+1)
	ECT-605	BURNS & TOXICOLOGY	3(2+1)
	ICT-604	CLINICAL LABORATORY INVESTIGATIONS	3(2+1)
	ICT-605	APPLIED PHYSICS	2(1+1)
			17
Sixth	ICT-606	SURGICAL INTENSIVE CARE	3(2+1)
	RRT-603	DRUGS RELATED TO INTENSIVE CARE AND RESPIRATORY THERAPY	3(2+1)
	ICT-607	INTENSIVE CARE MONITORING-II	3(2+1)
	ECT-609	NEONATAL & PEDIATRIC CRITICAL CARE	3(2+1)
	ECT-610	CARDIOVASCULAR EMERGENCY	3(2+1)

	RRT-604	RESPIRATORY THERAPY-II	2(1+1)
			17
Seventh	ICT-610	OBSTETRICAL INTENSIVE CARE	3(2+1)
	PMS-622	BIOSTATISTICS	3(2+1)
	PMS-624	FUNDAMENTALS OF INFECTION CONTROL	2(1+1)
	PMS-621	RESEARCH METHODOLOGY	3(2+1)
	PMS-623	EPIDEMIOLOGY	3(2+1)
	ICT-608	RECOGNITION AND MANAGEMENT OF ORGAN FAILURE	3(2+1)
			17
Eight	ICT-611	PALLIATIVE CARE	3(2+1)
	PMS-626	RESEARCH PROJECT	6 (0+6)
	PMS-627	SEMINAR	1 (1)
	PMS-625	BIOETHICS	2 (2+0)
	ICT-609	ICU MANAGEMENT	3(2+1)
		TOTAL – 124-136	15
		TOTAL CREDIT HOURS	134

Total credit hours= 134

HEC recommendation=124-136

LIST OF GENERAL COURSES
(15 Courses)

1. Epidemiology
2. Pharmacology-I
3. Medical Microbiology-I
4. Pathology-I
5. Medical Microbiology-II
6. Pharmacology-II
7. Pathology-II
8. Research Methodology
9. Fundamentals of Infections Control.
10. Radiological Presentation of Pathologies
11. Cardiopulmonary physiology
12. Hematology-I
13. Biostatistics
14. Research Project
15. Bioethics

**Discipline Specific Courses
(19 Courses)**

1. Intensive Care Monitoring-I
2. Respiratory therapy-I
3. Clinical medicine
4. Advances in respiratory therapy and intensive care
5. Trauma Intensive care
6. Anesthesia Equipment
7. Burns & Toxicology
8. Applied Physics
9. Surgical Intensive care
10. Drugs related to intensive care and respiratory therapy
11. Cardiovascular Emergency
12. Respiratory Therapy-II
13. Obstetrical Intensive Care
14. Neonatal and Pediatric Critical care
15. Clinical Laboratory Investigations
16. Intensive Care Monitoring-II
17. Recognition & Management of Organ Failure
18. Palliative Care
19. ICU Management

1st SEMESTER COURSES

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

Course Objectives:

- 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.

Courses content

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

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 28th edition 2009
- Biochemistry by Dr. U. Satyanarayana, UChakrapani Lehninger Principles of Biochemistry, 6E
- Marks' Essentials of Medical Biochemistry A Clinical Approach, Second Edition

Course Objectives:

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

Course contents:

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

Practical:

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

Recommended Books:

- Essentials of Medical Physiology K Sembulingam, PremaSembulingam 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:

- 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 musculo skeleton.
- 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:

- Study Axial, Appendicular skeleton and musculoskeletal system on human skeletal models.
- Study and understanding anatomy of Thorax, Abdomen and Pelvis through:
- Human Models
- Video demonstrations.

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
- BD Chaurasia for general anatomy

Reference Books

- Netter Atlas of human anatomy 5th Edition Saunders.
- Gray's Anatomy for students 2nd Edition Drake Vogal Mitchell.

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 431350 6.
- Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.

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, Allama Muhammad Iqbal and Quaid-i-Azam Muhammad Ali Jinnah, Factors leading to Muslim separatism, People and Land, Indus Civilization, Muslim advent, Location and Geo-Physical features. Government and Politics in Pakistan, Political and constitutional phases: 1947-58, 1958-71, 1971-77, 1977-88, 1988-99, 1999 onward Contemporary Pakistan: Economic institutions and issues, Society and social structure, Ethnicity, Foreign policy of Pakistan and challenges, Futuristic outlook of Pakistan

Books Recommended:

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

Course objectives:

- To understand the basics of computer
- Describe and understand the component of a computer system.
- Identify the activities involved in data processing.
- Understand and able to do net browsing and surfing.
- Able to use Microsoft office suite applications for their academic and other activities.
- 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.

PRACTICAL

- Typing a text and aligning the text with different format using MS –Word
- Inserting a table with proper alignment and using MS-Word
- Create mail merge document using MS-Word to prepare greetings for 10 friends
- Preparing a Slide show with transition, animation and sound effect using MS-Power point
- Creating a worksheet using MS-Excel with data and use of functions
- Using MS-Excel prepare a worksheet with text, date time and data
- Preparing a chart and pie diagrams using MS-Excel
- Internet for searching, uploading files, downloading files and creating e-mail ID
- C language writing programs using functions.

Recommended Books:

- Computer science by Muhammad Ashraf, edition 1st 2010

2nd SEMETER COURSES

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

Course objective:

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

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

Course content:

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

Practical:

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

Recommended 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 , 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. Spirometer
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, PremaSembulingam 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:

- To understand the basic concepts of anatomy beginning from the cell organization to organ 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:

- 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:

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

Reference Book

Netter atlas of human anatomy

Course Objectives:

- To enhance students writing, reading and listening skills.
- To enhance language skills and develop critical thinking.

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

Course Objectives:

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

Course contents:

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

3rd SEMESTER COURSES:

- 1. Pharmacology-I**
- 2. Pathology-I**
- 3. Medical Microbiology-I**
- 4. Intensive care Monitoring-I**
- 5. Hematology-I**
- 6. Communication Skills**
- 7. Respiratory Therapy-I**

Course Objectives

By the end of semester students will be able to:

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

Course Contents:

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

Practical:

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

RECOMMENDED BOOKS:

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

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, NeoplasiaDysplasia&Neoplasia Difference between benign & malignant neoplasm, etiological factors for Neoplasia, different modes of metastasis

Practical

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

Recommended Books

- Robbins and Cotran Pathologic Basis of Disease, Professional Edition, 8th Edition
- Review of General pathology Firdouse 9th
- Inam Danish Short text book of pathology 3rd edition

OBJECTIVES:

- To describe the basic principles of critical care monitoring in ICU
- To identify the benefits and risks of ICU monitoring techniques
- To describe monitoring techniques used in ICU for Critically ill patients

COURSE CONTENT

Orientation of critical care: Physical design of intensive care setting, Understanding critical care patients, Hazards and safety precautions, Job description of critical care technologist.

Monitoring

Vital signs: Temperature monitoring; Principles of temperature monitoring, Hypothermia and hyperthermia, Pulse, Positioning of patient, Monitoring for pressure sores

Respiratory System: Airway monitoring, Securing ET tube, Cuff pressure, Monitoring Gas Exchange Oxygenation, ABG, Pulse Oximetry, Oxygen delivery and consumption, Ventilation, Oxygen consumption, Alveolar gas equations, Capnography.

Monitoring muscle strength work of breathing, PFT, Recognize the methods & significance of measuring lung volumes and flow in the ICU.

Cardiovascular System: ECG, Non- invasive blood pressure (NIBP), Invasive arterial blood pressure, heart rate.

Nervous system: Neurological history and examination, pupils, Muscle strength, Glasgow Coma Scale, ICP Monitoring

Abdomen / Renal: Intra-abdominal pressure monitoring, Monitoring renal function, Clinical – Urine output, Laboratory- creatinine, creatinine clearance

PRACTICALS

- Demonstration of ICU monitoring equipment.
- Taking B.P on various methods available in ICU.
- CVP monitoring: Zeroing, Calibration, Trouble shooting of pressure transducers
- Taking ABGs practice.

Recommended Books

- 1.Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller, Craig L Scalan (Mosby)
- 2.The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
- 3.Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
- 4.Respiratory Physiology – The Essentials I John B West (Williams & Wilkins)

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 tests result of the basic hematological procedures for accurate diagnosis and patient's monitoring

Course content:

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, 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, rbc count
4. Determination of absolute values
5. Differential leucocyte count; platelets count and reticulocytes count
6. To determine the ESR To determine bleeding time, prothrombin time; activated partial thromboplastin time

Recommended 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

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, structure and function of prokaryotic cell, difference between prokaryotic and eukaryotic cell, bacterial growth, 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:

- Introduction and demonstration of Laboratory Equipments used in Microbiology.
- Inoculation and isolation of pure bacterial culture and its antibiotic susceptibility testing.
- Demonstration of different types of physical and chemical methods of sterilization, and disinfection.
- Students should be thorough to work with compound microscope.
- Detection of motility: Hanging drop examinations with motile bacteria, non-motile bacteria.
- Simple staining methods of pure culture and mixed culture.
- Gram's staining of pure culture and mixed culture.
- AFB staining of Normal smear, AFB positive smear.
- KOH preparation for fungal hyphae.
- Germ tube test for yeast identification.
- 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.

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, Nonverbal 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), **Organizational communication**, Memos, Letters, Reports, Proposals, Circulars, etc, **Public Speaking and Presentation 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. Dadufalza
- Lecture Notes/Presentations

Course Objectives:

- To describe professional knowledge, skill, techniques & ethical values to enable the students to apply their acquired expertise.
- Plan the total patient care in medical, surgical, & neurological emergency, including the awareness of support services available and knowing when to activate them.

Course contents:

Oxygen therapy and basic respiratory care: Chemistry of oxygen, Oxygen therapy devices, Mixing air and oxygen, pulmonary oxygen toxicity, the clinical manifestation of pulmonary oxygen therapy, Absorption atelectasis.

Hyperbaric oxygen therapy: Introduction to hyperbaric therapy and description of equipment, Effect of hyperoxia, Uses of hyperbaric oxygen for specific disease, hyperbaric treatment complications.

Humidity and bland aerosols therapy: Humidity therapy, Bland aerosols therapy, criteria for selecting the appropriate therapy

Aerosols drug therapy: Characteristics of therapeutic aerosols, Hazards of aerosols therapy, Aerosols drug delivery system, Selecting and aerosols drug delivery system, Assessment based bronchodilator therapy protocols, Special considerations.

Foundation aspects of mechanical ventilation: Introduction to mechanical ventilation, physiology of mechanical ventilation, Breathing exercise and coughing techniques, Chest physiotherapy and postural drainage.

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:

- Oxford book of emergency medicine.
- Critical care medicine At A Glance. Richard Leasch.
- The ICU book of paul I marino.
- Churchill's pocket book of intensive care by simon M. whitely.
- Quick critical care reference by Susan B Stillwell.

4th SEMETER COURSES:

- 1. Pharmacology-II**
- 2. General Pathology-II**
- 3. Medical Microbiology-II**
- 4. Clinical medicine**
- 5. Behavioral Sciences**
- 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, antianginal drugs, Anti Hyperlipidemic drugs, Blood drugs(Anticoagulants), Diuretics, Chemotherapeutics drugs([Anti-protozoal, Anti-Malarial], Anti-Fungal, Anthelmintic), Antibiotics(Penicillin's, cephalosporin's, macrolides, aminoglycosides, fluoroquinolones), Drugs acting on Respiratory system(Asthma).

Practical:

- Routes of drug administration
- Dose-Response Curves
- Affect of adrenaline on pulse rate
- Affect of beta blockers on heart rate after exercise
- Source of drug and identification of some raw materials that are source of drug
- Weight conversions and measurements
- Preparation Sulfur ointment
- Preparation of pilocarpine drops
- Prescription writing

Recommended Books:

- Lippincott's pharmacology (text book) 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:

- Helicobacter pylori test
- Diagnosis methods of UTI
- Determination of renal function tests
- Determination of liver function tests
- 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

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:

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:

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

COURSE OBJECTIVES:

- To equip the student with professional knowledge, skill, techniques & ethical values to enable them to apply their acquired expertise in various intensive care units.
- 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 intensive care units.

CONTENTS:

History taking, Physical Examination (Respiratory System, CNS, Cardiovascular System), Asthma & Status Asthmaticus, pulmonary embolism, pneumonia, COPD, Pneumonia, Cystic Fibrosis, Bronchiectasis, Atelectasis, ARDS,, Peptic Ulcer, GERD, Tetanus, Malignant Hyperthermia, Diabetes & DKA, Sepsis, Seizures & Epilepsy, Stroke (Ischemic & Hemorrhagic) Meningitis, Encephalitis, Pressure Ulcers, GBS, Myasthenia Gravis, DIC & Thrombocytopenia, upper respiratory tract infections.

PRACTICALS:

- Blood Pressure Recording
- Peripheral Venous Access
- Central Venous Access
- Cardiopulmonary Resuscitation
- ECG taking and monitoring
- Portable Suction
- Portable Vital Signs Monitor
- Patient transfer trolleys

RECOMMENDED BOOKS:

- The ICU book By Paul_L , Marino
- Washington manual of critical care
 - Medical diagnosis & management by Muhammad Inam Danish.

COURSE OBJECTIVES:

- To describe the physiology of cardiovascular and respiratory system
- To illustrate the physiological parameters related to cardiovascular system
- To compute the effects of certain factors affecting the normal physiology
- To explain the advance concepts and calculations related to physiological functions
- To assess the normal physiological functions for understanding of different pathologies

CONTENTS:

Functional anatomy of the Thoracic Wall, Mediastinum and its components, Functional anatomy of the upper & lower respiratory tract, lung capacities and volumes, structure and functions of the alveoli, breathing mechanics, cardiopulmonary circulation, nervous control of the lungs, gaseous exchange mechanisms, Functional anatomy of the heart, cardiac cycle, control of the cardiovascular system, heart sounds, blood pressure & its regulation.

PRACTICALS:

- Physical examination of the respiratory system
- Physical examination of the cardiovascular system
- Blood pressure recording
- Heart sounds
- Lung sounds
- Pulse taking
- Demonstration on chest cavity
- Demonstration on heart anatomy

RECOMMENDED BOOKS:

- Egan's of respiratory care
- Human physiology by Gyton & Hall
- Physiology by Jypee

COURSE OBJECTIVES:

- to equip the students with professional knowledge, skills & ethical values to enable them to apply their acquired expertise in radiological investigations
- to identify the need of appropriate radiological investigations for various patients
- to deliver the efficient and competent care to the acute and chronically ill through radiological investigations
- Identification of various pathologies

CONTENTS:

Introduction to various diagnostic modalities, basics of X- rays, five radiographic densities, radiographic anatomy of the chest X- ray, CXR appearance of Pneumomediastinum, pneumonia, Atelectasis, pneumothorax, hemothorax, cardiac configuration on CXR. Optimal position of ETT, NGT, other devices on x- ray, Findings on X- ray skull, PNS & KUB, appearance of fractures & dislocation on X- ray, visualization of artery, vein and nerve, pleural effusion under ultrasound, FAST scan in Trauma, obstetrical ultrasound, CT brain, basics of MRI.

PRACTICALS:

- Demonstration on X- ray viewer
- Demonstration on X- ray film
- Demonstration on CXR
- Demonstration on X- ray skull and PNS
- Demonstration KUB
- Demonstration X- Rays upper and lower Limb
- Visualization of vein , artery and nerve under ultrasound

Recommended Books:

- Clinical radiology made ridiculously simple
- Diagnostic imaging by Peter Armstrong Martin Wastei Andrea G Rockall- 6th edition

5th SEMESTER COURSES:

- 1. Advances in respiratory therapy and intensive care**
- 2. Trauma Intensive Care**
- 3. Anesthesia Equipment**
- 4. Burns & Toxicology**
- 5. Applied Physics**
- 6. Clinical Laboratory Investigations**

Course objectives:

The purpose of this course is to

- Recognize routine daily care techniques.
- Assess patients and perform physical examination of patients in critical care units.
- Construct the knowledge of Basic patient care techniques.
- Recognize ICU equipment, therapies and technical management of common and important problem in critical care setting.

Course contents :

History taking, Patient general physical Examination: CNS, Respiratory system, Cardiovascular system, Abdominal regions, Renal system, Neurological examination, Body perfusion, Technique of ECG taking, Artificial airways

Technologists SOP's: Patient charting, Technique and interpretation of ABG's, Chest Tube Intubation, Technique and Interpretation of ECG, Practical training of the routes of drug administration (I/V, arterial & CVP line maintenance), Echocardiography, Angiography, Angioplasty.

Management:

Fluid and electrolyte therapy, Initial management of cardiac patient, Life Support System (BLS and ACLS) management of patient after massive transfusion, protocols for oral health.

Practical:

- Knowing Infusion pumps, syringes
- Preparation of cardiac medications
- Method of drawing Arterial Blood Gasses
- Log book and project completion for internal assessment
- Should know the workings of all ICU equipment
- Should know care and maintenance of all ICU equipment
- Should be able to assess fluid responsiveness in a patient

Recommended Books

- The ICU Book—Paul L Marino (Lippincott, Williams & Wilkins)
- Practical Methods for Respiratory Care—Raymond Sibberson (Mosby)
- Ventilation/Blood Flow & Gas Exchange—John B West (Blackwell Scientific Publications)
- Mechanical Ventilation—Susan P Pilbeam & JM Cairo (Elsevier)
- Critical Care Secrets: Parsons, Wiener—Kronish, Jaypee Brothers
- Washington Manual of Critical Care

Course objectives:**The purpose of this course is to**

- Equip the student with professional knowledge, skill, techniques & ethical values
- Apply their acquired expertise in trauma situations.
- Manage crisis situations safely and accurately perform all basic and advanced life support procedures.

Course contents:

Basic concept about trauma, Pre Hospital Care, Trauma types, Initial assessment & management , Primary survey, secondary survey, Trauma score & Trauma flow sheet, Trauma management pre & in hospital phase, Injury prevention, Triage, Air way management with cervical injury, maxillofacial trauma, spine and spinal cord injury, Chest trauma, Head trauma, Neck trauma, Musculoskeletal trauma, abdominal trauma , Circulation & hemorrhage control, trauma in pregnancy.

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
- Cardiopulmonary Resuscitation
- ECG taking and monitoring
- Usage of Infusion pumps
- Usage of Defibrillator

Recommended books:

- EMERGENCY Medicine manual. O .John. 2005
- Rosens 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.

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 circuits Face masks, Anesthesia ventilators working principles, vaporizer, Monitoring devices, Manual Resuscitation bag, Defibrillator, LMA, ETT, Air ways oral & nasal, Suction machine, infusion pump, reservoir bag, Stethoscope, Spinal needles, Epidural needles & Cithers, Magill Forceps, Blood gas Analyzer

Practical:

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

Recommended books:

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

Course objectives:

- Recognize a medical emergency, assess the situation, obtain a basic history and physical examination, manage burn care, and, if needed, extricate the patient.
- Manage 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 burns patients, Surgical and Pharmacological treatment of burns, Dressing of burns wound, Energy balance and nutrition of the burn patients, additional aspect 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, Toxidromes, General approach and Principles of decontamination, drug overdose and antidotes, Management of Anticonvulsant and antipsychotic drugs poisoning, Aspirin toxicity, Benzodiazepine poisoning, Beta blockers and calcium channel blockers 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:

- Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
- Oxford handbook of acute medicines
- First aid for emergency board
- Critical Care Emergency Medicine
- Bailey & loves short practice of surgery 28th Edition.
- Clinical emergency medicine by scott C. sheirman..

OBJECTIVES

- Acquire knowledge about introductory physics, transducers, Reynolds no, laminar or turbulent flow.
- Demonstrate knowledge various gas laws in anesthesia & their application in invasive & non-invasive ventilation.
- Utilize various oxygen delivery & therapy devices during critical situation & their troubleshooting.

COURSE CONTENT**Basic physics:**

Gas behavior under changing conditions, Gases laws Boyles / Charles / Gay Lussies, Daltons laws & application, Venturi Law, Body fluid dynamics, Concepts of pressure of fluids and gasses in body, volumes of body fluids, Temperature, Humidity Measurements, gas dynamic in human body, fluid dynamic in human body. SI-unites of pressure, temperature, current, volumes, mass, moles interpretation in medical background.

Oxygen: Sources of Oxygen for therapy, Storage of Oxygen, Oxygen delivery system, Hazards of Oxygen.

Storage of medical gases: Cylinders, Liquid gas storage, oxygen concentrator, Piped distribution system.

Basic principles and use of Capnography, Plethysmography, spectrophotometry, Transducers in medical equipment.

Practical:

- 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 spirometry, pulmonary function test, Capnometer usage
- Converting unit's formulas practice

Recommended books:

- EMERGENCY Medicine manual. O .John.2005
- Rosens 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 l marino.

COURSE OBJECTIVES:

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

CONTENTS:

Introduction To Clinical Laboratory Investigations, Blood Group & Cross Match, Beta HCG, TORCH Profile, Liver Function Tests, Renal Function Tests, Urinalysis, Cardiac Biomarkers, Lipid Profile, Serum Electrolytes, Pancreatic Function Tests, Stool Examination Complete Blood Count And Peripheral Smear, ABG's. Thyroid function test, blood glucose determination

PRACTICALS:

- 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 Paul Merino
- EKG book, Dale and dubbin.

6th SEMETER COURSES:

- 1. Drugs related to intensive care and respiratory therapy**
- 2. Surgical Intensive care**
- 3. Cardiovascular Emergency**
- 4. Neonatal & Pediatric critical care**
- 5. Intensive care Monitoring-II**

- 6. Respiratory Therapy-II**

OBJECTIVE:

at the end of this course the student will be able to

- Understand the cardiovascular therapy especially in critically ill patients
- Understand the pulmonary therapies and their usage in respiratory care
- Know the overview of endocrine, gastroenterology, liver and nutrition therapies

COURSE CONTENT

ACUTE RESUSCITATION: ACLS Drugs

ANESTHESIA, ANALGESIA, SEDATION AND NEUROMUSCULAR BLOCKADE: Ketamine, nalbupine, morphine, fentanyl, atracurium, rocuronium, midazolam, propofol, **CARDIOVASCULAR**

THERAPIES: Fibrinolytic Therapy for ST-Segment Elevation ACS and Contraindications, Treatment of Hypervolemia, Pulmonary Edema, Cardiogenic Shock and Decompensated Heart Failure Associated with Systolic Dysfunction, Calcium Channel Antagonist, Beta Blockers, **PULMONARY THERAPIES:** Asthma Therapeutic Options, Antibronchospastic Agents Metered Dose Inhalers, Nebulized Drugs and Continuous Nebulization, Theophylline/Aminophylline Dosing and drug interaction, Mucolytic Agents, **RENAL:** Diuretics, **GASTROENTEROLOGY, LIVER AND NUTRITION THERAPIES:** Gastrointestinal Hemorrhage Available Therapies, Hepatic Encephalopathy Therapies, Antiemetic, **NEUROLOGIC AND PSYCHIATRIC THERAPEUTICS:** Seizures Urgent Management, Seizures Maintenance Therapy.

Practical:

- Prepare ACLS drugs and label it
- Prepare sedative and analgesic drugs and calculate dosing
- Prepare trolley for endotracheal intubation
- Prepare medication for intubation

Recommended Books:

- Handbook of Critical Care Drug Therapy, 3rd Edition
- The Harriet Lane Handbook, 20th Edition

Course objectives:

- Deliver efficient and competent care to patient in surgical emergency.
- To construct knowledge to maintain asepsis in all such cases to the standards maintained, by the affiliated hospitals.

Course contents:

Management of acute airway bleed, management of gastrointestinal intestinal upper & lower bleed. Management of hemorrhagic & non hemorrhagic shock, hemorrhagic control management of pneumothorax Hemothorax & hydrothorax, application of chest tube insertion. Drainage of abnormal pleural fluid in Respiratory emergency & Compromise, plural aspiration, Indication of tracheostomy Tube its Complication & care, Indications & application of central venous Line & its pressure measurement, Indication of Peripheral Venous Access, Intra Osseous Access, Venous Cut Down in Dehydrated Patients & its Complications, Suturing skills, Important intensive care procedures: Cricothyroidotomy, Tube thoracostomy or thoracocentesis, Percutaneous tracheostomy, Pericardiocentesis, Ascetic tap, Pleural tap, Lumber puncture, Biopsies: CT guided biopsy, Ultrasonic guided biopsy, excisional Biopsy

Bronchoscopy: Flexible bronchoscopy, rigid bronchoscopy, Fluoroscopy, Echocardiography, Pulmonary angiography, pulmonary angiogram, post-surgical care of patient.

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
- Intraosseous Access

Recommended books:

- EMERGENCY Medicine manual. O. John. 2005
- Rosens 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 I. 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) Brady arrhythmia & indications for cardiac pacing.

PRACTICAL:

- External cardiac resuscitation
- Manual defibrillation & cardioversion
- Use of Transcutaneous Pacing Device
- Endotracheal Intubation & Laryngeal Mask Airwa
- Urinary & Gastric Catheterization
- Resuscitation & airway teaching learning simulators
- Airway devices- laryngoscopes, tube changers, percutaneous tracheostomy, bronchoscope sets.

RECOMMENDED BOOKS:

- EMERGENCY Medicine manual.O .John.2005
- Rosens 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 I marino.
- Churchill's pocket book of intensive care by simon M. whitely.
- Quick critical care refrence by Susan B Stillwell

OBJECTIVES

- To describe the principles of basic and advanced monitoring patients in intensive care unit.
- To explain the various equipment and its maintenance used for the management and monitoring of the patient in intensive care unit

COURSE CONTENT:

Monitoring muscle strength, work of breathing, Maximum inspiratory and expiratory pressures, Bedside PFT, Ventilator bundles, ICU bundles, ICU Mortality rate, ICU scoring system, Early Warning system, SOFA scoring system, the APACHE-II,

CNS: Monitoring brain stem function, GCS, Pain scoring, Sedation and analgesia scoring, Coma.

Nutritional monitoring

Care & maintenance of ICU equipment & Troubleshooting (Includes quality checks and calibrations of all the equipment) Pumps: Infusion, syringe, Monitors: Stand-alone & multi-parameter, Cardiac Output monitors, ECG machine, ABG machine, Defibrillator, Ultrasound machine, Bronchoscope, Intubation trolley components and daily monitoring, wall outlet monitoring,

PRACTICALS

- Log book and project completion for internal assessment
- How to check ICU equipment.
- Cleaning, sterilization and maintenance of all ICU equipment
- Adjustment of ventilator parameters.
- Monitor fluid responsiveness in ICU patient

REFERENCE BOOKS

- Egan's Fundamentals of Respiratory Care – Robert L. Wilkins, James K. Stoller,
- The ICU Book – Paul L. Marino (Lippincott, Williams & Wilkins)
- Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
- Respiratory Physiology – The Essentials | John B. West (Williams & Wilkins)
- Ventilation / Blood Flow & Gas Exchange – John B. West (Blackwell Scientific Publications)
- Techniques in Bedside hemodynamic Monitoring – Elaine Kiess Daily & John Speer Schroeder (Mosby)

Course Objectives:

- To develop the knowledge and skills regarding neonatal and pediatric intensive care.
- To provide basic knowledge about the management of neonatal and pediatric abnormalities in intensive care unit

Course contents:**Neonates, Infants and Children**

Normal delivery procedure- Prenatal care –Intra-natal care, Postnatalcare-Newborn care, Abnormal deliveries- Prolapsed cord-Breech delivery, Multiple birth Premature delivery, Assessment of the infant and children- developmental considerations for the age groups of infants, toddlers, pre-school, school age and adolescent- Neonatal Resuscitation.

Common Diseases among Infants & Children

Respiratory distress infant and children-Differentiate between respiratory distress and respiratory failure- Airway obstruction, -steps in the management of foreign body airway obstruction-LRI & URI, Bronchiolitis

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 decreased 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. Blood gas and electrolyte analyzer
2. Resuscitation & airway teaching learning simulators
3. Portable Suction machine
4. Portable Vital Signs Monitor
5. Transport Incubators
6. Advance Pediatric life support.

Recommended books:

- Nelson Text Book of Pediatrics 20th 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 I. Marino.

Course Objectives:

- To develop professional knowledge and ethical values for respiratory pathologies in intensive care unit
- To equip the students regarding management of various respiratory problems in intensive care unit

Course contents:

Principles of mechanical ventilation, initiation of mechanical ventilation, special airways for mechanical ventilation, non-invasive positive pressure ventilation, practical applications of CPAP & BiPAP, clinical significance of PEEP & auto PEEP, operating modes of mechanical ventilation, parameters of mechanical ventilator, setting & trouble shooting of a mechanical ventilator, setting up ventilator alarms and triggers, monitoring during mechanical ventilation, ventilator waveforms analysis, management of mechanical ventilation, pharmacotherapy for mechanical ventilation, ventilator bundles, ventilator setting according to the ABG's, critical care issues in mechanical ventilation, weaning from mechanical ventilation, ventilator dependency, neonatal mechanical ventilation.

Ventilator setting for ARDS, COPD and severe asthma exacerbation

Practical:

- Practical demonstration on the use of various airway devices
- Practical demonstration on the operation of CPAP & BiPAP machine
- Practice on ventilator setting in ICU.
- Endotracheal Intubation
- Conventional Defibrillator and Monitors
- Demonstration on the use of laryngoscope
- Video demonstration percutaneous tracheostomy
- Video demonstration on bronchoscopy
- Blood sampling for ABG's

Recommended books:

- Clinical application of mechanical ventilation by David W Chang 4th edition
- Egan's fundamentals of respiratory care 11th edition
- The ICU book of Paul I Marino.
- Churchill's pocket book of intensive care by Simon M. whitely.

7th SEMESTER COURSES:

- 1. Obstetrical Intensive Care**
- 2. Fundamentals of Infection Control**
- 3. Epidemiology**
- 4. Recognition & Management of Organ Failure**
- 5. Biostatistics**
- 6. Research Methodology**

Course Objectives:

- To provide knowledge regarding various abnormalities during obstetrical emergencies and its management.
- To demonstrate practical issues emerge during obstetrical emergencies.
- 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.

Course contents:

Mother with Breathing difficulty, mother in coma convulsion, Ectopic pregnancy, Abortion, Mother with large ante partum hemorrhage, Mother with large post-partum hemorrhage, stages of labor, severe puerperal sepsis, Mother with pre-Eclampsia & Eclampsia, Mother with complication of labor, Fetal distress, Obstructed labor, Shouldered dystocia, prolapsed cord, uterine inversion, rupture uterus, mal position & presentation, per mortem caesarian section, Partogram, ventouse delivery, caesarian section, Episiotomy Hysterectomy, thromboembolic disorders.

Practical:

- External cardiac resuscitation
- Automated External Defibrillator
- Use of Conventional Defibrillator and Monitors
- Endotracheal Intubation & Laryngeal Mask Airway
- Lung ventilation and/or administering oxygen
- Use of End Tidal CO₂ Measuring Devices
- Monitoring Arterial Pulse Oximetry
- Urinary & Gastric Catheterization
- Episiotomy scissor
- Cardiopulmonary Resuscitation
- ECG taking and monitoring

RECOMENDED BOOKS:-

- A Practical Guide To Obstetrics and Gynecology 2nd Edition
- Rosens emergency medicine; concepts & clinical practice John.A Marx.2005
- Oh's manual of intensive care by Andrew bersten.
- The ICU book of paul l marino.
- Churchill,s pocket book of intensive care by simon M. whitely
- Netter's Obstetrics and Gynecology, 3rd Edition (Roger P. Smith)

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:

- Hand washing and hand rubbing technique.
- Preparation of different disinfection and antiseptic solutions.
- Biomedical waste managements in hospitals.
- Cleaning and disinfection of working premises.
- How to handle spills and aseptic handling.
- 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.

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

Course Contents:

Introduction to Epidemiology and basic terms used in Epidemiology, Epidemiological Triangle, Measures of Disease Occurrence; Incidence and Prevalence, Dynamics of disease transmission, Measurement of disease frequency, risk, rate, ratio and proportion, Calculation of Mortality and Morbidity, Study Design/Study type i.e. Cross-sectional, analytical cross-sectional, case control, cohort, case report, case series, RCT, quasi experiment, survey and surveillance, Confounding and Biases, Odds ratio and relative risk, Screening and diagnosis, Validity, Reliability, Components of validity: sensitivity and specificity, PPV, and NPV of tests.

Practical Work:

- Calculation of Sensitivity and specificity
- Calculation of Incidence and prevalence
- Finding risk of disease, rate and frequency

Recommended Books:

- 1.An_Introduction_to_Epidemiology_for_Health_Professionals
- Epidemiology by Leon Gordis 5th Edition

Course objectives:

After studying this course the students will be able to:

- Describe basic terms used in Biostatistics
- Use various statistical test depending upon data
- Select sample and sampling technique
- Categorize various variables
- Illustrate various types of hypothesis
- Estimate various variables and their significance
- Assemble and analysis of data
-

Course Contents:

Introduction to Biostatistics and its types; Descriptive and inferential statistics, Measure of central tendency, Measure of dispersion, Statistical data, Presentation of Data, Sample and population, The concept of sampling, types and methods of sampling, sample distribution, Variable and its types, Hypothesis formulation and testing on the basis of statistics and statistical tests, types of errors, Two sided and one sided tests, determination of sample size, Confidence interval for mean, Statistical tests their use and interpretation (t-tests, Chi-square ANOVA, Regression and correlation),Preparing and analysis of data in various software i.e. Excel and SPSS.

Practical Work:

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

Recommended Books:

- A guide to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
- Reading understanding multivanant statistics giimm LG Yard AD PR, publisher American Psychological association.
- Elementary Statistics by Bluman latest Edition.

Course Objectives:

After studying this course the students will be able to:

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

Course Contents:

Introduction to research, Types of research; Qualitative and Quantitative Research, Identification of Problem and Problem statement writing or Research question writing, Literature Search and review, Basics of Scientific writing, Synopsis/Proposal writing, Designing of data collection tools i.e. questionnaire, interview, and survey, Ethical principles of Research and their examples to apply those principles, Writing of research report (Abstract, Introduction, Methodology, Results, Discussion, Conclusion), In text citation and reference writing, reference writing software i.e. Medley, Plagiarism, Authorship, Introduction to Scientific Journal, how to target journal, Types of Publications i.e. Original article, Narrative and systematic review, meta-analysis, Editorial, letter to the editor

Practical Work:

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

Recommended Books:

- Research Methodology by Ranjit Kumar 3rd 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:

- To understand the total patient care in management organ failure in intensive care, 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 management organ failure In intensive care.

Course contents:

Management of renal failure, Management of liver failure, Acute Respiratory Failure, Acute Ischemic & Chronic Heart Failure, Coma, Encephalitis, BLS, ACLS, APLS.

Practical:

- External cardiac resuscitation
- Automated External Defibrillator
- Conventional Defibrillator and Monitors
- Measurement of central venous pressure
- Insertion of arterial line
- End Tidal CO₂ Measuring Devices
- Monitoring Arterial Pulse Oximetry
- ECG taking and monitoring
- CPR on the simulators.

RECOMENDED 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 I. Marino.
- Churchill's pocket book of intensive care by Simon M. Whitely.
- Quick critical care reference by Susan B. Stillwell

8th SEMETER COURSES:

- 1. Palliative Care**
- 2. ICU Management**
- 3. Bioethics**
- 4. Research Project.**

Learning Objectives:

On completion of the course, the student should be able to:

- Describe different symptoms that are common in the palliative phase of a cancer disease as well as how symptom control is achieved
- Have knowledge in palliative care/nursing
- Account too as well as concretize the meaning of different central concepts in palliative care
- Identify and reflect on common ethical issues at care in the end of life

Contents

Understand the concept of “palliative & terminal illness, Difference between active curative treatment and palliative or supportive care, Domain of Palliative care, the range of therapeutic options available, Management of raised intracranial pressure, seizures, delirium, pressure sores, Fungating wounds, sore mouth, Emergency treatment in end-of-life care,

Pain management (opioid pharmacologic options, non-opioid pain options including adjuvant medications NAISDs, steroids, antidepressants)

Non-pain symptom management (dyspnea, nausea and vomiting, constipation, diarrhea, cough, oral secretions, bladder dysfunction and anorexia)

Assessment and treatment of psychiatric symptoms associated with advanced disease: depression, anxiety, insomnia, and delirium

Nutrition and hydration in terminally ill, including artificial feeding and intravenous fluids

Normal grief reaction and bereavement process

Hand-offs, hand-overs, and continuity of care

Practicals:

1. Chest Physiotherapy
2. Nebulization
3. Suctioning
4. Oral care
5. Patient position
6. Bladder wash
7. CVP washing Technique
8. Clear Drainages
9. OPA & NPA insertion Technique

Books

1. Bruera E, Higginson I, Morita T, F. VGC. Textbook of palliative medicine. Boca Raton ; London ; New York: CRC Press; 2015. (Available through HSHSL University of Maryland as e-book).
2. Thomson RM, Patel CR, Lally KM. Essential Practices in Hospice and Palliative medicine, 5th ed. UNIPAC 1: Medical Care of People with Serious Illness. AAHPM, Chicago, IL, 2017.

Course Objectives:

- To know & demonstrate leadership skills as team leaders & managers
- To know what is the role of Human Resource Management in an organization
- To effectively do performance appraisal for incentives & rewards
- To define, describe & interpret job descriptions of employees in an organization
- To manage training of team members.

Course contents:

Introduction to Intensive Care Management: Who is a manager, Role of managers, Leadership, Motivation
 Total Quality Management: What is TQM, Quality control & quality assurance, Tools for TQM, Mortality and Morbidity calculation in ICU, ICU bundles. Transportation of critical ill patient inter and intra hospital, Transportation of critical ill patient for surgical procedure and for diagnostic evaluation with all emergency medicine.

Intrahospital transport of critically ill

patients: Transport scenarios, Adverse effect, Specific complication during intrahospital transport, Contributing factors, Minimum standards, Special circumstances
Interhospital transport of ICU patients: Ground transport using a standard ambulance or mobile ICU, Air medical transport of critically ill patients, Specific benefits and drawback of medical air transport.

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:-

- 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 I. Marino.
- Churchill's pocket book of intensive care by Simon M. Whitely.
- Quick critical care reference by Susan B. Stillwell

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

Course Objectives:

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

Course Contents:

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

Recommended Books:

Medical ethic by Dr. Mehmood Alam in 2006 by Health Department NWFP •