



# **CURRICULUM FOR BS SURGICAL**

**INSTITUTE OF PARAMEDICAL SCIENCES**

**KHYBER MEDICAL UNIVERSITY**

**PESHAWAR**

# **AIMS AND OBJECTIVES OF THE COURSE**

## **AIMS:**

The aim of 4 year Surgical Technology program is to equip the students with relevant professional knowledge, skills, techniques and ethical values to enable them to apply their acquired expertise at level between the doctors and the patient for efficient health service delivery.

## **GENERAL LEARNING OBJECTIVES:**

BS Surgical Technology education and training should enable the student to:

- Develop accuracy and meticulousness to attain high levels of ethics and technical proficiency.
- Assess the technical and non-technical skills in a standardized and reproducible environment.
- Strengthen the decision power and exercise appropriate judgment skills, to be applied especially during crises.
- Develop good leadership, problem solving and administrative skills.
- Develop and analyze innovative strategies for effective communication with the patients and the healthcare personal.
- Demonstrate interdisciplinary team building strategies for effective coordination between various Allied Health Disciplines.
- Demonstrate understanding of the basic concepts of professional behavior and legal implications of the work environment.
- Demonstrate the knowledge of his/ her role in health care delivery system.
- Establish and maintain continuing education as a function of growth and maintenance of professional competence.

## **SPECIFIC LEARNING OBJECTIVES**

Following competencies will be expected from a student completing 4 years degree course in Operation Theatre Technology. The student should be proficient in:

1. Cleaning, packing, sterilization, maintenance and storage of instruments and other equipment used in Operation Theatre and recovery room.
2. Ensuring the cleanliness of the Operation Theatre and the recovery room prior to operations.
3. Preparing and checking surgery equipment's and instruments prior to operations.
4. Receiving and caring the patient during different surgical maneuvers and in recovery room.
5. Assisting the doctor during the surgery and providing supplies for the surgical team.
6. Undertaking safety checks on surgical sundries.
7. Carrying out instructions of the medical staff in order to relieve pain and discomfort.
8. Monitoring the patient's condition.
9. Handing over the care of the patient to the ward staff.
10. Working as a member of the team.
11. Taking precautions to ensure the health and safety of himself and others.
12. Leading the team of technicians and assistants to perform the above mentioned jobs.
13. Report writing.
14. Maintenance of stocks and inventories of the instruments and equipment.
15. Collaboration and coordination with the instruments and equipment repair workforce.
16. Any other reasonable and related duty assigned by the Operation Theatre In-charge.

# **FRAMEWORKFORBSSURGICALTECHNOLOGY(4**

## **YEARPROGRAMME)**

<input type="checkbox"/> Total numbers of Credit hours	136 (HEC recommended: 124-136)
<input type="checkbox"/> Duration	4 years
<input type="checkbox"/> Semester duration	16-18 weeks
<input type="checkbox"/> Semesters	8
<input type="checkbox"/> Course Load per Semester	15-18 Credit hours
<input type="checkbox"/> Number of courses per semester	6-7

**SCHEME OF STUDIES FOR 4 YEAR BSS SURGICAL**

Semester/Year	Name of Subject	CODE	Credits/Hr	
<b>First</b>	MEDICAL BIOCHEMISTRY-I	PMS-601	3+1	
	HUMAN PHYSIOLOGY-I	PMS-602	3+1	
	HUMAN ANATOMY-I	PMS-603	3+1	
	ENGLISH-I	PMS-604	2+0	
	PAK STUDIES	PMS-605	2+0	
	COMPUTER SKILLS	PMS-606	1+1	
				<b>18</b>
<b>Second</b>	MEDICAL BIOCHEMISTRY-II	PMS-607	3+1	
	HUMAN PHYSIOLOGY-II	PMS-608	3+1	
	HUMAN ANATOMY-II	PMS-609	3+1	
	ENGLISH-II	PMS-610	2+0	
	ISLAMIC STUDIES	PMS-611	2+0	
				<b>16</b>
	<b>Third</b>	SURGICAL INSTRUMENTS /EQUIPMENTS  AND  BIOSAFETY	SUR-601	2+1

	GENERAL PATHOLOGY-I	PMS-612	2+1
	MEDICAL MICROBIOLOGY-I	PMS-613	2+1
	COMMUNICATION SKILLS	PMS-615	1+1

	PHARMACOLOGY_I	PMS-614	2+1
	HEAMATOLOGY_1	MLT-601	2+1
			<b>18</b>
<b>Fourth</b>	SURGICALSETUPAND POSITIONING	SUR-602	2+1
	PHARMACOLOGY-11	PMS-616	2+1
	MEDICAL MICROBIOLOGY-II	PMS-618	2+1
	DIAGNOSTICIMAGING	RAD-610	1+1
	PATHOLOGY-II	PMS-617	2+1
	BEHAVIRALSCIENCES	PMS-619	2+0
	STERILIZATION AND DISINFECTION	SUR-603	1+1
			<b>18</b>
<b>Fifth</b>	SURGICALEMERGENCY	SUR-604	2+1
	MINORSURGERY	SUR-605	2+1
	ENTSURGERY	SUR-606	2+1
	ANESTHESIAEQUIPMEN T	ANS-606	2+1
	CLINICAL OPERATIVE THORACICSURGERY	SUR-607	2+1
	GENERALSURGERY	SUR-608	2+1
			<b>18</b>

<b>Sixth</b>			
	BIostatISTICS	PMS-622	2+1
	PERIOPERATIVE CARE	SUR-609	2+1
	RESEARCH METHODOLOGY	PMS-621	2+1
	CLINICAL OPERATIVE GENERAL SURGERY	SUR-610	2+1
	CLINICAL OPERATIVE GYNECOLOGY OBSTETRICS	SUR-611	2+1
	DIAGNOSTIC AND ENDOSCOPIC SURGERY	SUR-612	2+1
			<b>18</b>
<b>Seventh</b>	FUNDAMENTAL OF INFECTION CONTROL	PMS-624	1+1
	CLINICAL OPERATIVE PEDIATRIC SURGERY	SUR-613	2+1
	CLINICAL OPERATIVE OPHTHALMIC SURGERY	SUR-614	2+1
	CLINICAL OPERATIVE NEUROSURGERY	SUR-615	2+1
	EPIDEMIOLGY	PMS-623	1+1
	CLINICAL OPERATIVE UROLOGY SURGERY	SUR-616	2+1
			<b>16</b>
<b>Eight</b>	RESEARCH PROJECT/SEMINAR	PMS-626	6
	CLINICAL OPERATIVE ORTHOPEDIC SURGERY	SUR-617	2+1

	BIOETHIC	PMS-625	2+0
	OPERATING ROOM	SUR-618	1+1
	MANAGEMENT SEMINAR	PMS-627	1+0
	<b>TOTAL-124-136</b>		<b>14</b>
	<b>TOTALCREDITHOURS</b>		<b>136</b>

**Totalcredithours=136**

**HECrecommendation=124-136**



## **1<sup>st</sup> SEMESTER COURSES**

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

**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 Detail:**

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

**Practicals:**

- Good laboratory Practices
- Preparation of Solutions
- Principles of BIOCHEMISTRY analyzers (spectrophotometer, flame photometer)
- Determination of Cholesterol, Tg, HDL, LDL, sugar, calcium and phosphorus in blood
- SOP of centrifuge, water bath and microscope

**Recommended Books**

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

**Course Objectives:**

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, 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

**Practicals:**

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

**Recommended Books:**

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

Grant 2010

**CourseObjectives**

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

**CourseDetail:**

Muscularskeletal system(Axialand Appendicle), Axial Skeleton, Different bones of human body, Axial and Appendicle 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, 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's, Abdominal wall: Skin, nerve and blood supply, Muscles of anterior abdominal wall, Abdominal cavity: General Arrangement of the Abdominal Viscera, Peritoneum, Omenta, mesenteries, Stomach, blood, nerve, lymphatic supply, Small intestine, blood, nervous and lymphatic supply, Large intestine: blood, nerve and lymphatic supply.

The pelvic wall: Anterior, posterior wall, diaphragm, Pelvic cavity: Ureters, urinary bladder Male genital organs, Female genital organs Muscles of pelvic region, blood supply, nerve supply.

**practical's:**

- Study Axial and Appendicular skeleton on human skeletal model.
- Study muscular skeletal system on human muscular skeletal model.
- Study organs of special senses.
- Study and understand anatomy of Thorax, Abdomen and Pelvis through:
- Human Models
- Video demonstration.

### **Recommended Books:**

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

### **Reference books:**

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

### **Course Objectives:**

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

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

**Course Objectives:**

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.

**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:**

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

**Course Contents:**

Introduction to Computer and Window XP/7.

MS Office 2007 (Word, Excel, PowerPoint).

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

**Recommended Books:**

- Computerscience by Muhammad Ashraf, edition 1<sup>st</sup>2010



## **2<sup>nd</sup>SEMERTER COURSES**

- **BIOCHEMISTRY-II**
- **HUMANPHYSIOLOGY-II**
- **HUMAN ANATOMY-II**
- **ENGLISH-II**
- **ISLAMIC STUDIES**

**Course Objectives:**

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.

**Course Contents:**

Balance food, Major food groups, Nutritional status of Pakistanianation, Metabolic changes in starvation, Protein energy malnutrition, Regulation of food intake, Obesity; metabolism of carbohydrates (Citric Acid Cycle, Glycolysis, Pentose Phosphate Pathway), proteins (urea and corie cycle), nucleotides (uric acid formation) and lipids (beta oxidation); Respiratory chain and oxidative phosphorylation, components of respiratory chain, electron carriers, ATP synthesis coupled with electron flow, phosphorylation of ADP coupled to electron transfer; clinical diagnostic enzymology: clinical significance of ALT, AST, ALP, LDH, CK, CKMB, Pancreatic lipase and amylase, cholinesterase, G6PD, GGT.

**practical's:**

- Determination of liver, cardiac, pancreatic enzymes
- Determination of urea and uric acid

**Recommended Books:**

- Harper's Biochemistry Robert K. Murray, Daryl K. Granner 28<sup>th</sup> edition 2009
- Medical Biochemistry Mushtaq Ahmad vol. I and II 8<sup>th</sup> edition 201

**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, hematopoiesis, Blood grouping, Coagulation mechanism, Physiology of Cardiovascular system, The Physiology of Pulmonary System, 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.

**Practicals**

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

**Recommended Books**

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

**Course Objective**

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, lymphatic's, The lower limb, Fascia, Bones, Muscles, Femoral triangle, Blood supply, Nerve supply, Lymphatic supply.

Head and neck: Skull, Mandible, Cranial nerves, Cranial cavity, Meninges, Brain, Orbit, Neck, Endocrine System Classification of endocrine glands, Pituitary glands, Thyroid Glands, Adrenal gland and differences between the cortex and medulla.

**Practical's:**

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

**Recommended Books:**

○ Essential books (text books):

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

**Reference Books :**

- Netter Atlas of human anatomy 5<sup>th</sup> Edition Saunders.
- Drake Vogal Mitchell, 2<sup>nd</sup> Edition. Gray's Anatomy for students
- BD. Chaurasia Human Anatomy (All regions)

**Course Objective:**

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 Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0194354057 Pages 20-27 and 35-41.
- Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0194534022.

**Course Objectives:**

After completion of this course the student will be able to:

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

**Recommended Books:**

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

## **3<sup>rd</sup> SEMESTER COURSE**

- 1. SURGICAL INSTRUMENTS /EQUIPMENTS AND  
BIOSAFTY**
- 2. GENERAL PATHOLOGY-I**
- 3. MEDICALMICROBIOLOGY-1**
- 4. COMMUNICATIONSKILL**
- 5. PHARMACOLOGY-1**
- 6. HEAMATOLOGY-1**



## **SUR-601      SURGICAL EQUIPMENT AND BIOSAFETY Credit Hours: 3(2+1)**

### **Course Objectives:**

After completion of this course the student will be able to:

- Enable to identify surgical instruments.
- Enable to know about the aseptic technique and principle.
- Introduction concept of quality assurance in health care field.
- Enable student to take precautionary measurement.

### **Course Outlines:**

Common surgical Equipment and Furniture: Aseptic (sterile) Technique, Operating room Attire, sterile Attire, Operating room Table, operating room different parts, Operating table attachment, Operating room furniture,

Electro Surgical unit, Argon beam coagulation, Auto transfusion machine.

General Surgical Supplies: Surgical sponges, syringes, Tubes, drains, catheter and post-op splints, Suture and suture Needles, Laser and types of laser.

Environmental Hazards and Biosafety, Classification of Hazards, Physical Hazard and safeguard: Environmental Factor, Body Mechanics, Ionizing, Radiation, Patient safety, on Ionizing radiation, Electricity, Safeguard, Fire Explosions, Fire safety, Chemical Hazards And safe guards :Anesthesia gases, Sterilizing Agents, Safe handling of Cytotoxic Agents.

Biologic Hazards and Safe guard: Infective wastes, Biohazards, Reproductive hazards, Risk Management for Quality assurance.

### **Practicals:**

1. Exercise to identify instrument immediately.
2. Assessment of instrument efficiency.
3. Preparation of surgical instrument box before surgery.
4. Exercise to know about operating room attire.
5. Precautionary measures to avoid physical, chemical and biological hazards.
6. Handling emergency situations like fire and explosions.
7. Inspecting anesthesia gas cylinders and gas leakage.

## **Recommended Books:**

- Synopsis A hand guide of surgical instruments.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Maxine A. Goldman, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.
- Joanna Catcher Fuller, 6<sup>th</sup> edition, surgical technology principle and practice

**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:**

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

**Practicals:**

- Estimation of Prothrombin Time
- Estimation of Clotting Time
- Estimation of Bleeding Time
- Estimation of Activated Partial Thromboplastic Time

**Recommended Books:**

- Kumar, Abbas and Aster; 9<sup>th</sup> edition. Robbins Basic Pathology.
- Review of general pathology by Muhammad Firdous 9<sup>th</sup> edition
- Short textbook of pathology 3<sup>rd</sup> edition by Inam Danish

**Course Objectives:**

After completion of this course the students will be able to

- Understand the basic concepts in Hematology and acquire skills in practical work
- Understand the latest advancements in the field of hematology

**Course 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 extra-uterine), factors governing hematopoiesis, erythropoiesis, different stages and factors effecting on erythropoiesis, granulopoiesis, different stages and factors effecting on granulopoiesis, megakariopoiesis, different stages and factors effecting on megakariopoiesis, introduction to Hemoglobin structure, synthesis and function, complete blood count and its importance, morphology of red blood cells and white blood cells, introduction to anemia and classification of anemia, introduction to hemolysis (physiological and pathological), introduction to WBC disorders, introduction to leukemia, etiology, pathogenesis and its classification, leukocytosis, leukopenia, neutrophilia, condition related to neutrophilia, neutropenia, condition related to neutropenia, eosinophilia, condition related to eosinophilia, eosinopenia, condition related to eosinopenia, monocytosis, condition related to monocytosis, monocytopenia, condition related to monocytopenia, lymphocytosis, condition related to lymphocytosis, lymphopenia, condition related to lymphopenia, basophilia, condition related to basophilia, introduction to hemostasis, mechanism of hemostasis, function of platelets and coagulation factors, coagulation cascade, quantitative disorder of platelets, qualitative disorder of platelets.

**Practical:**

- Collection of blood sample
- Preparation and staining of peripheral blood smear
- Total leucocyte count, RBC count
- Determination of absolute values
- Differential leucocyte count; platelets count and reticulocytes count
- Measurement of ESR
- Determine bleeding time, prothrombin time, activated partial thromboplastin time.

**Recommended Books:**

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

**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:**

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

**Recommended Books:**

- Inter-personal communication Paperback by Kory Floyd
- Reading into writing 1: English for Academic purpose: A handbook-Workbook for college freshman English ( MassMarket Paperback) by Concepcion D. Daduflaza
- Lecture notes/ Presentation

**Course objectives:**

After completion of this course the student will be able to:

- Introduce the basic concepts in bacteriology and mycology.
- Introduce the common bacterial and fungal infections.
- Introduce the 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 Equipment's 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.

**Course Objectives:**

After completion of this course the student will be able to:

- Discuss the roles and responsibilities of the various members of the healthcare team in maintaining patient safety during drugtherapy.
- Define common terms related to pharmacology and drug therapy.
- Discuss relevant historical, legal, andethical issues relatedto pharmacology and drug therapy.

**Course Contents:**

Introduction to Pharmacology, Pharmacokinetics, Pharmacodynamics, Adverse effects of drugs, Classification of drugs, Drugs affecting the Autonomic NervousSystem, 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)

**Practicals:**

- Prescription writing and its parts
- Calculation of drug dosage and percentage solutions
- Study of the action of drugs on the rabbit's eye
- Preparation of solution
- General principles of antibiotic use and surgical prophylaxis
  
- Introduction to experimental pharmacology and pharmacy sources of drugs.
- Demonstration of common dosage forms
- Routes of administration of drugs
- Effect of exercise on heart rate

**Recommended books:**



- ▯ Mycek, ,2nd edition 2000 published.Lippincott Raven Lippincott's pharmacology (text book)
- ▯ Bertram Katzung 8<sup>th</sup> Edition, Appleton.Katzung textbook of pharmacology (Reference Book)

## **4<sup>th</sup>SEMESTER COURSE**

- 1. SURGICAL SETUP AND POSITIONING**
- 2. BEHAVIORALSCIENCE**
- 3. MEDICALMICROBIOLOGY-II**
- 4. DIAGNOSTIC IMAGING**
- 5. PATHOLOGY-II**
- 6. PHARMACOLOGY-11**
- 7. STERILIZATION AND DISINFECTION**

## **SUR-602 SURGICAL SETUP AND POSITIONING Credit Hours: 3(2+1)**

### **Course Objectives:**

After completion of this course the students will be able to

- Understand various operation theatre designs
- Enable future technologists to regulate Operation theater(OT) according to standard protocols
- Able to suggest operation theaters design to meet requirements
- Practice aseptic techniques in patient draping
- Ensure suitable patient position according to the surgical exposure required
- Prevent nerve damage during surgeries

### **Course contents:**

Physical Layout of surgical Suite: Construction or Renovation planning and design team, Principles in construction and renovation planning, Types of physical Plant design, Location, Transition Zones: Preoperative Check in unit, Preoperative holding Area, Induction room, Post Anesthesia Care unit, Peripheral Support Areas, Operating room Size, Sub sterile room.

History and background, Anatomic and physiologic consideration, Equipment for Surgical Positions, Supine, Trendelenburg position, Reverse Trendelenburg position, Fowler position, Lithotomy position, Prone position, Modified prone position Modifications for Individual Patient Needs, Physical preparation and draping of the surgical site.

### **Practicals:**

- Study Operation Theater designs.
- Identify errors in present operation theater designs.
- Use of different parts of OT table.
- Use of OT table attachments and framework for patient positioning.
- Surgical site exposure and draping.

### **Recommended Books:**

- Nancy Marie Phillips, 12<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- 25<sup>th</sup> Edition volume 1. Bailey and Love's Short practice of surgery

**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 anatomy, Basic physics of X-ray and assessment of film quality, Interpretation CXR, Cardiac configuration, Identify cardiomegaly, Identify atelectasis and lung collapse, Lung field and airway, Optimum position of ETT, NGT, CENTRAL LINES, Percutaneous gastrostomy Tube, PCN Tube, DJ stent, Radio-opaque line importance, Abnormal X-ray, Identification of (Trauma, Hemothorax, Pneumothorax, Lung contusion) on X-Ray film, Bed side Ultrasound in ICU, Echocardiography/TEE, Pulmonary Edema, Cardiac Deviation, ARDS, Pneumonia (Bronchial pneumonia, Lobar pneumonia, Aspiration pneumonia). Protection of health care workers in diagnostic imaging department, Responsibilities of Technologist in diagnostic imaging department, Patient care protocols in diagnostic imaging department.

**Practical:**

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

**Recommended books:**

- Diagnostic Imaging by Peter Armstrong Martin Waste Andrea G Rockall 6<sup>th</sup> Edition.
- Clinical Radiology Made ridiculously simple.

**Course objectives:**

After completion of this course the student will be able to:

- Aim is to familiarize students by defining various frequently used terms in pathology. Diseases are discussed with focus on the role of etiology and pathogenesis.
- Upon successful completion of this course, students should be able.
- Explain the mechanisms underlying the major disease processes affecting the human body.
- Develop an understanding of the salient features of the more commonly encountered diseases in clinical environment.
- Identifying the etiology, and underlying general principles operating in disease within the major organ systems of the body.

**Course Contents:**

Ischemic heart disease, myocardial infarction, angina pectoris, valvular heart disease, congenital heart diseases, varicose veins, anemias, thalassemia, leukemias, thrombocytopenia, DIC, meningitis, brain tumor, stroke, brain trauma, asthma, pneumonias, tuberculosis, COPD, chronic bronchitis, pleural effusion, emphysema, nephritic syndrome, nephrotic syndrome, hypertension, hydronephrosis, renal stone, urinary tract obstruction, aphthous ulcer, peptic ulcer, malabsorption, hernias, intestinal polyps, gastritis, appendicitis, hemorrhoid, jaundice, liver cirrhosis, hepatitis, gallstone, rheumatoid arthritis, thyroid goiter, hypo and hyper thyroidism, diabetes insipidus, pheochromocytoma, pancreatitis, carcinoma of cervix, abnormal uterine bleeding, ectopic pregnancy, carcinoma of breast, vaginitis, benign prostate hypertrophy, carcinoma of prostate, STDs,

**Recommended Book:**

- kumar, Abbas and Aster, 9<sup>th</sup>. edition Robbins basic pathology

**Course objectives:**

After completion of this course the student will be able to:

- Provide quality patient care in routine as well as advanced procedures.
- Understand the mechanism of drug action at molecular as well as cellular level, both desirable and adverse.
- 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-arrhythmic drugs, anti-anginal drugs, Anti-Hyperlipidemic drugs, Blood drugs, Diuretics, Insulin and glucose lowering drugs, Chemotherapeutic drugs, Antibiotics, Drugs acting on Respiratory system, Anesthetics.

**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:**

After completion of this course the students will be able to

- Differentiate between disinfection and sterilization
- Demonstrate sterilization techniques.
- Inspection of sterilization level of instruments and operation theater (OT) environment

**Course Contents:**

- Sterilization & Disinfection, Methods of Sterilization (physical and chemical), Preparation & Packing, Designing Sterilization Process, Autoclave for instrument line and perishable items, Chemical Sterilization & Disinfection, Testing the Process of Sterilization and Central Sterile Supply Department (CSSD), Disinfecting Solution

**Practicals:**

- Selection of sterilization techniques for specific surgical items
- Operation of autoclave
- Arrangement and packing of instruments
- Methods of assessing sterilized items
- Scrubbing techniques

**Recommended Books:**

- Nancy Phillips, 12<sup>th</sup> Edition. Berry Kohn's Operating Room Technique.
- Colleen J. Rutherford. Differencing surgical equipment and supplies

**Course objectives:**

After completion of this course the student will be able to:

- Introduce the basic concepts in virology and parasitology.
- Introduce the common viral and parasitic infections.
- Introduce the diagnosis of common viral and parasitic infections.

**Course contents:**

Introduction to virology, Viralmorphology, structure, replication and classification, general properties of virus, pathogenesis and control of virus, commonviral 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:**

- SherrisMedicalMicrobiology: AnIntroductiontoInfectiousDiseases. Ryan, K.J., Ray, C. G., 4<sup>th</sup>ed. McGraw-Hill, 2003.
- ClinicalMicrobiologyMadeRidiculouslySimple. Gladwin, M., & Trattler, B., 3<sup>rd</sup> ed. MedMaster, 2004.
- MedicalMicrobiologyandInfectionataGlance. Gillespie, S., H., Bamford, K., B., 4<sup>th</sup>ed. Wiley-Blackwell, 2012.



**Course Objectives**

After completion of this course the student will be able to:

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

**Course Contents:**

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

**Recommended Books:**

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

## **5<sup>th</sup>SEMESTER COURSE**

- 1. SURGICALEMERGENCY**
- 2. CLINICALOPERATIVETHORACICSURGERY**
- 3. ENTSURGERY**
- 4. ANESTHESIAEQUIPMENT**
- 5. MINORSURGERY**
- 6. GENERALSURGRY**

## **SUR-604 SURGICAL EMERGENCY Credit Hours:3(2+1)**

### **Course Objectives:**

At the end of this course the student will be able to:

- Understand the priorities of trauma management
- Able to rapidly and accurately assess patients' needs
- Able to resuscitate and stabilize trauma patients
- Provide care to the critical ill patient.

### **Course Outlines:**

Assessment and Management: Primary and secondary survey, Upper and lower airway obstruction, Airway and Ventilator Management, Shock and Hemorrhagic Control, Abdominal Trauma, acute abdominal pain Head Injury, Acute Confusional states and altered consciousness, Acute seizures/convulsion, Spine and Spinal Cord Trauma, Musculoskeletal trauma, Pediatric Trauma, Burns, Life support- Basic and Advanced, Prevention of Accidents, Acute chest pain, Tachypnea and dyspnea, Pulmonary edema /ARDS, Pneumothorax, Hypoxemia, Hypotension, Hypertensive Emergencies. Acute disturbances in thermoregulation.

### **Practicals:**

- Primary and Secondary Survey.
- Airway clearance.:
- Cricothyroidotomy
- Passing oral, nasal tubes and ETT.
- Tracheostomy
- Chest tube intubation.
- Log roll method
- Shock management:
- IV line Maintenance
- Venous cut down
- Catheterisation
- Suturing techniques

- Assesment of musculosketalsystem.

**RecommendedBook:**

- 25th Edition.Bailey and love's Short practice of surgery
- Prof. DrArshadCheema,KEMU Trauma Course Manual
- ATLS, 10 edition, by American college of surgeon
- TeriL JNUGE, Ben D.Price, surgical technology for the surgical technologist.
-

**After completion of this course the student will be able to:**

- Therelevant anatomy and physiology of ear, nose and upper aerodigestive tract.
- To assess different surgical procedure.
- Identify the names and uses of otorhinolaryngology instruments, supplies and drugs.
- Discuss the immediate postoperative care and possible complication of the otorhinolaryngologic procedure.

**Course Outlines:**

Anatomy of the Ear, Nose, Sinuses, Throat, its Special Preoperative Considerations, Special Instruments, Supplies, Intraoperative Preparation,

Ear Procedures, Myringotomy, Myringoplasty/Tympanoplasty, Mastoidectomy, Stapedectomy Stapedotomy, Cochlear Implants .Rhinitis/Sinusitis, Nasal Polyps, Hypertrophied Turbinate's,, Deviated Nasal Septum, Septal Perforation ,Epistaxis,

Nasal Procedures, Submucous Resection (SMR), Polypectomy, Intranasal Antrostomy, Internal Maxillary Artery, Ligation, Sinus Procedures, Caldwell-Luc, Ethmoidectomy, Sphenoidectomy, Drainage of the Frontal Sinus, Sinus Endoscopy, Polypoid Corditis or Vocal Cord Polyps, Vocal Cord Nodules, Vocal Cord Granulomas, Laryngeal Neoplasms, Foreign Bodies removal

Aerodigestive Tract Procedures .Adenoidectomy, Tonsillectomy, Incision and Drainage of a Peritonsillar Abscess Uvulopalatopharyngoplasty, Thyroidectomy, Radical Neck Dissection with Mandibulectomy

**Practicals:**

- Preparations for surgery
- Hand washing, scrubbing and gowning
- Use of surgical checklists including WHO
- Administration of local anesthesia
- Incision of skin and subcutaneous tissue
- Closure of skin and subcutaneous tissue
- Types of surgical knots
- Hemostasis:

- Surgical techniques
- Use of drains:
- Biopsy techniques
- Principles of anastomosis
  
- Consent, surgical safety checklist application
- Patient positioning and draping.
- Surgical, skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Goldman, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.
- Abdulhameed dogara comprehensive approach to the principle of general surgery 4<sup>th</sup> edition.
- 25<sup>th</sup> Edition. Bailey and love's Short practice of surgery
- Comos wahallan, practical guide, assisting at surgical operation.
- Joanna catcher fuller, 6<sup>th</sup> edition, surgical technology principle and practice
- Teri L JNUGE, Ben D. Price, surgical technology for the surgical technologist.

**Course objective:**

After completion of this course the student will be able to:

- Expected to understand the working principles various tools used for anesthesia provision, to ensure safe practice.
- Demonstrate abilities in managing technical fault arise intra-operatively and correct the calibration of different anesthetic instruments/equipment.

**Course contents:**

Anesthesia machine its different parts, working principles, medical gas supply devices, vaporizers, pulse oximeter, face masks and laryngoscope, breathing circuits, anesthesia ventilator and working principles, monitoring devices, manual resuscitation bags, defibrillator and its working principles, methods of autoclaving, glucometer, nerve stimulator, laryngeal mask airway, endotracheal tubes (ETT), airways (oral and nasal), suction machine, infusion pump, reservoir bags, resuscitator bags, thermometer, sphygmometer, stethoscope, oxygen purity meter,

Operation theater table, flexible endoscope, intravenous cannulas, spinal needle, epidural catheter, Magill gag, Magill incubating forceps, latest technology.

**practical's:**

- Arrangement of anesthesia Machine
- Anesthesia Machine safety system
- Sterilization of anesthesia equipment
- Arrangement of anesthesia breathing circuits
- Use of stethoscope and blood pressure apparatus

**Recommended Books**

- Anesthesia equipment principles and applications. Ehrenwerth, Jan, Eisenkraft, James, Berry, James, 2<sup>nd</sup> edition.
- Manual of anesthesia. K. Arun, 4<sup>th</sup> edition. Paul Jaypee Brothers Medical Publisher (P) Ltd.

- Essential of Anesthesia equipment. Sakaih,.Bahal al,. &Stacey,.Simon,.3<sup>rd</sup> edi.
- Clinicalanesthesiology.Morgan& Mikhail's,. 5<sup>TH</sup>edit.
- Textbook ofAnesthesia. Aitkenhead,.Alan,.R,. 5<sup>TH</sup>edition.



**Course Objectives:**

After completion of this course the student will be able to:

- Provide basic concepts of surgical first assistance with standard protocols.
- To assess different surgical procedure.
- Identify different minor surgical procedure and treat it independently.
- Describe the different minor procedure performed in the casualty and emergency room.
- Provide knowledge regarding the instruments which is used during minor surgery.

**Course Outlines:**

Historical background, surgical first Assistant knowledge and skill level, what does surgical first assistants do? Disciplines Associated with First Assisting in surgery.

**ENT and Oral minor surgery:** tooth extraction, tonsillectomy, septoplasty, turbinectomy, rhinoplasty, pharyngeal and laryngeal biopsy, small resection of benign and malignant masses (mandibular tori, brachial cleft, cyst and small tongue cancer), and thyroidectomy.

**Orthopedic minor surgery:** tendon surgery, bunionectomy, discectomy.

**General minor procedure:** breast lumpectomy, inguinal or umbilical hernia repair, laparoscopic cholecystectomy, hemorrhoidectomy.

**Thoracic minor surgery:** bronchoscopy.

**Gynecology minor surgery:** dilation and curettage, diagnostic hysteroscopy, endometrial ablation by thermal balloon, tubal ligation, transvaginal tape insertion.

**Urology minor surgery:** cystoscopy, ureteroscopy, renoscopy for stricture or stone, hydrocele and varicocele ligation, vasectomy, circumcision.

Cyst, sinus, fistula and wound, excision of skin lesion, muscle biopsy, incision and drainage of an abscess, percutaneous insertion of catheter, foley, sclerotherapy, debridement.

**Practical's:**

- Preparations for surgery
- Hand washing, scrubbing and gowning
- Use of surgical checklists including WHO

- Administration of local anesthesia
- Incision of skin and subcutaneous tissue
- Closure of skin and subcutaneous tissue
- Types of surgical knots
- Hemostasis:
- Surgical techniques
- Use of drains:
- Biopsy techniques
- Principles of anastomosis
  
- Consent, surgical safety checklist application
- Patient positioning and draping.
- Surgical, skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Goldman, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.
- Abdulhameed dogara comprehensive approach to the principle of general surgery 4<sup>th</sup> edition.
- 25<sup>th</sup> Edition. Bailey and love's Short practice of surgery

**Hours: 3(2+1)****Course Objectives:**

After completion of this course the student will be able to:

- Gain basic knowledge of thoracic surgery.
- Participate in surgical procedures as surgical first assistant
- Prepare OT from instruments to theater for specific surgeries according to requirement.

**Course Outlines:**

Key and Term related to Thoracic surgery, Anatomy and physiology of Thorax, Special Feature of Thoracic surgery, Special Thoracic instruments.

**Endoscopic Thoracic surgical Procedures:** Bronchoscopy, Special instrument which are used in Bronchoscopy, Airway stent, Mediastinoscopy, Thorascopy.

**Open Thoracic surgical procedures:** Thoracotomy, different incisional approaches, Poster lateral Thoracotomy, Anterolateral Thoracotomy, Median sternotomy, Partial sternotomy, parasternotomy.

**Lung assists Devices:** Extracorporeal Membrane oxygenator, Intravascular Oxygenator. Rib Resection, Mediastinotomy, Correction of pectus Deformity, Lung Resection, Lobectomy, Thoracoplasty, Thymectomy.

Chest Trauma

Intra Thoracic Esophageal Procedures

Overview of Cardiac injuries

Airway Obstruction

Myocardial infarction

Cardiopulmonary bypass

Heart transplantation

Complications of Thoracic Surgery

Post-operative complications in Cardiac surgery

**practical's:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.

- Patient positioning and draping. Surgical skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.
- Anesthesia recovery.

**Recommended Book:**

- Comuswhalan .Assisting at surgical operations, practical guide.
- NancyMarie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Goldman, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.

**SUR-608                      GENERAL SURGERY**

**Credit Hours:3(2+1) Course Objectives:**

After completion of this course the student will be able to:

- Provide an overview regarding operating room attire.
- Provide knowledge regarding general surgical procedure.
- How the patient prepare before surgery.
- Provide knowledge regarding sterilization and disinfection.

**Course outline.**

Aseptic and scrubbing technique, Patient Assessment, Layout of Standard History taking, Examination, Investigations, Introduction to Surgery Importance of imaging in surgical conditions, Interventional Radiology, Diagnostic Process.

**Arterial Disorders** Arterial Stenosis or Occlusion, Arterial Dilatation, Aortic Aneurysm, and its surgical management.

**Venous Disorders** Venous Incompetence, Varicose Veins, Venous Thrombosis and surgical management.

**Musculoskeletal Disorders** Fractures of the Bones, Dislocation of Joints, Describing a dislocation or fracture, Complications of dislocation or fracture and its surgically management.

**The Cranium** Head & Brain Injury, Hydrocephalus, Intracranial Tumors.

**The Breast** Investigations, Benign breast disease, malignant tumors of the breast.

**Diseases of the GIT** Congenital abnormalities of the Esophagus, Splenomegaly & Splenectomy, Stones & Stricture in Bile duct, Cholelithiasis, Cholecystectomy, Vermiform Appendix, Appendicitis, Appendectomy Anorectal Disorders.

**Diseases of the Genito Urinary System** Imaging investigations of the Genital tract, Congenital abnormalities of Kidneys & renal tract, Hydronephrosis, Renal & Ureteric & Bladder Calculi, Urethral Stricture, Varicocele & Hydrocele.

Biopsy, Hernia, Hernioraphy, Herniotomy,

**Practicals:**

- Practice Scrubbing techniques.
- Proper Gowning and gloving.
- To gain knowledge about different surgical procedure.
- Draping and surgical field preparation.
- How to apply surgical attire.
- To assess the different surgical procedure.

- Setting surgical instruments on trolley.

**Recommended Books:**

- NancyMarie Phillips, 11<sup>th</sup>edition. Berry Kohn's OperatingRoom Technique.
- 25<sup>th</sup>Edition volume 1. Bailey and love's Short practiceof surgery

## **6<sup>th</sup> SEMESTER COURSES**

- 1. BIostatistic**
- 2. RESEARCH METHODOLOGY**
- 3. DIAGNOSTIC AND ENDOSCOPIC SURGERY**
- 4. PERI OPERATIVE CARE**
- 5. CLINICAL OPERATIVE GYNE AND OBS**
- 6. CLINICAL OPERATIVE GENERAL SURGERY**

**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 Outlines:**

Introduction to Biostatistics, Collection of Primary and Secondary data, Editing of data, Presentation of data, Measures of Central Tendency, Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation by direct and short-cut method, Variance, and their Coefficient, Correlation, Regression and method of least square, Probability, Sampling and Basic Design, Hypothesis Testing, Chi-square test, Student's t-test, Analysis of variance, Laboratory Experiments pertaining to the course.

**Practical's:**

- Computer lab practice
- Research work.

**Recommended Book:**

- Stanton, A.G., 2001. Primer of Biostatistics. McGraw Hill.
- Jekel, J., Elmore, J.G., Katz, D.L., 2001. Epidemiology, biostatistics and preventive medicine. W. B. Saunders.
- Quinn, G., 2002. Experimental Design and Data Analysis for Biologists. Cambridge University Press.
- Fernholz L.T, Morgenhaler, S., Stahel, W., 2000. Statistics in Genetics and in Environmental Sciences, Birkhauser Verlag.
- Kuzma J.W. and Bohnenblust, S.E. 2001, Basis Statistics for the Health Sciences, McGraw-Hill International Education



**Course Objectives:**

After completion of this course the student will be able to:

- Concept regarding pre, intra and post-Operative care.
- Enable to manage surgicalpatients peri-operatively.
- Provide concept of fluid and Electrolyte requirements

**Course Contents:**

Professional Ethical valuesof Peri-operative staff

Care of the Peri-operative environment

Pre-operative Nutritional assessment

Fluids and Electrolytes

Fluid and Nutritional consequence of intestinal resection,

Artificial nutritional support, Total parenteral nutrition.

**Pre-Operative care:**

History taking, Physical examination, Investigations, Treatment plan, Informed Consent,

Pre-operative management of high surgical risks

**Intra Operative care: Aseptic measures**

Gowning, Gloving, suturing, Basic surgical skills and Anastomosis.

**Post-Operative Care:**

Patient Recovery,

Assurance of Air Way, Breathing and circulation,

Post-operative Patient positioning

Monitoring of complications,

Monitoring of Vitals and oxygenation,

Shifting of the patient to ward

.

**Practicals:**

- Introduction, history taking
- Physical examination.
- Investigations
- Fluid management/blood availability
- Patient counseling
- Transfer to OR.
- Shifting to OT table
- Surgical safety checklist application.
- Handling Tubes

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- NancyMarie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Goldman, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.

**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 Details:**

Introduction: Research and professions, Understanding the research process, History and Principles of research ethics, Originality of Research ,Conflicts of interest, Copyright and Patent Law, Aims of research, The research topic ,Title and research problem.

Literature review: Search, Retrieve and manage information, research design ,Qualitative Methodologies and interpretation of results ,Conclusions and its Validity ,Report writing and the research proposal ,Abstract and manuscript preparation ,Communicating your own credentials ,Communicating own work-CV, Development of a grant proposal using the grant, format of national and international agencies, interviewing techniques ,Plagiarism and its professional consequences.

**Practical's:**

- Research project

**Recommended Books:**

- Ann Bowling, A. and Ebrahim S. 2005. Handbook of Health Research Methods. Open University Press, Two Penn Plaza, New York, NY.
- Baumgartner, T. and Hensley, L. 2006. Conducting and Reading Research in Health and Human Performance 4<sup>th</sup> ed McGraw Hill, New York.
- Kumar, R., 2010. Research Methodology: A Step-by-Step Guide for Beginners. 3<sup>rd</sup> edition.. SAGE Publications, London

**Course Objectives:**

By the end of this course student will be able:

- Gain basic knowledge of general surgery
- Participate in surgical procedure as surgical firstassistant.
- Prepare OT (Operation theatre) from instruments to theater for specific surgeries according to requirement.

**Course Outlines:**

Special Considerations for General Surgery, Breast procedures,Abdominal surgery, Biliary tract procedures, Liver Procedures, Splenic procedures

Pancreatic procedures. Esophagealprocedures, Gastro intestinalsurgery, Gastric Procedures, Intestinal Procedures ,Complications of Abdominal Surgery, Anorectal procedures ,Excision of Pilonidal Cysts and sinuses, Hernia procedures, Amputations of Extremity.

**Practicals:**

- Investigations required for particular case.
- Consent, surgical safetychecklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.
- Patient positioning and draping.
- Surgical first assistance for all general surgical procedures
- Surgical skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.
- Anesthesia recovery.

**Recommended Book:**

- Comuswhalam, Assisting at surgical operations, practical guide.
- NancyMarie Phillips, 11<sup>th</sup>edition. Berry Kohn's OperatingRoom Technique.

□ Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies.

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## **SUR-612                    DIAGNOSTIC AND ENDOSCOPIC SURGERY                    Credit**

### **Hours:2(1+1)**

#### **Course Objectives:**

After completion of this course the student will be able to:

- Provide knowledge and skills regarding diagnostic procedures.
- Handle latest technology machines being used in surgical set up.
- Enable surgical technologists to perform minor diagnostic procedures independently.

#### **Course Outlines:**

Introduction to minimal invasive surgery, Patient care consideration for diagnostic procedure, Pathologic examination: Biopsy and its different types.

**Diagnostic procedure of Abdominal:** Abdominal laparoscopy, choledocoscopy, ERCP, cholangiogram, Cholangiography, Esophagoscopy, gastroscopy, colonoscopy, sigmoidoscopy, laparoscopic fundoplication, Diagnostic proctoscopy.

**Diagnostic procedure of Thoracic:** Bronchoscopy, Mediastinoscopy, Thorascoscopy, Bronchography.

**Diagnostic procedure of Bones:** Arthroscopy, Arthrography,

**Diagnostic procedure of Genital Urinary:** Diagnostic cystoscopy, URS, Nephroscopy, Urethroscopy, different Endoscopic machine name.

Mammography, Ventriculography, Angiography, Arteriography, Myelography, Urography, cystography, Cytourethrography,

#### **practical's:**

- Cleaning and disinfection of scopes and cannulas.
- Standard Aseptic solution preparation.
- Sterilization of scopes.
- Perform minor surgical diagnostic procedures

- Tissue Biopsy: True cut, needle biopsy

**Recommended Book:**

- NancyMarie Phillips, 11<sup>th</sup>edition. Berry Kohn's OperatingRoom Technique.
- Colleen J Rutherford, RN, Educator. Differentiating Surgical Equipment and supplies
- MaxineA.GoldMan, Room, 3<sup>rd</sup>Edition. Pocket guide tothe Operating Room.

## **SUR-611CLINICALOPERATIVEGYNECOLOGYOBSTETRICSCreditHours:3(2+1)**

### **Course Objectives:**

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

- Gain basic knowledge of gynecology and obstetrics.
- Participate in surgical procedures as surgical first assistant.
- Prepare OT from instrument to theater for specific surgeries according to requirement.

### **Course Contents:**

Anatomy and physiology of the female reproductive System, Gynecology General Consideration, Vulvar Procedure, Vaginal Procedure, Abdominal Procedures, abdominal hysterectomy, pelvic exenteration, procedures involving fallopian tubes, Perioperative Obstetrics, threatened abortion, aborted pregnancy, cesarean birth, prenatal testing, special considerations.

### **practical's:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.
- Patient positioning and draping.
- Surgical skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling. Anesthesia recovery.

### **Recommended Book:**

- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Gold Man, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.



## **7<sup>th</sup>SEMESTER COURSE**

- 1. CLINICAL OPERATIVE UROLOGY SURGERY**
- 2. CLINICAL OPERATIVE OPHTHALMIC SURGERY**
- 3. CLINICAL OPERATIVE NEUROLOGICAL SURGERY**
- 4. EPIDEMIOLOGY**
- 5. CLINICAL OPERATIVE PEDIATRIC SURGERY**
- 6. FUNDAMENTAL OF INFECTION CONTROL**

**Course objectives:**

After completion of this course the student will be able to:

- Introduce the basic concepts in infection control.
- Introduce the infection control principles and practices.
- Introduce the importance of immunization and hand hygiene in infection control.
- Introduce 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:**

- Demonstration of hand washing and hand rubbing technique.
- Preparation of different disinfection and antiseptic solutions.
- Demonstration of biomedical waste management in hospitals.
- Demonstration of cleaning and disinfection of working premises.
- Demonstration of how to handle spills and aseptic handling.
- Demonstration of standard precautions and PPE.

**Recommended Books:**

- Fundamentals of Infection Prevention and Control: Theory and Practice. Weston, D. Wiley-Blackwell, 2013.
- Sherri's Medical Microbiology: An Introduction to Infectious Diseases. Ryan, K.J., Ray, C. G., 4<sup>th</sup>ed. McGraw-Hill, 2003.
- District Laboratory Practice in Tropical Countries, Part 1 & Part 2. [Cheesbrough, M.](#), 2<sup>nd</sup>ed. Cambridge University Press, 2006.
- Medical Microbiology and Infection at a Glance. Gillespie, S., H., Bamford, K., B., 4<sup>th</sup>ed. Wiley-Blackwell, 2012.

**Course Objectives:**

After completion of this course the student will be able to:

- Develop the understanding of epidemiology.
- Describe the different mathematical tools of epidemiology.
- Define and examine descriptive and analytical epidemiology.

**Course Outlines:**

Introduction to epidemiology: Types of epidemiology, clinical, occupational, experimental, interrelation of factors, Epidemiological methods, incidence, prevalence, rate, susceptibility etc. Types of studies, cross sectional, cohort, case control, Epidemiologic consideration in disease process, Sampling methodology: procedure, sample size, cluster sampling, sampling error, bias, risk, data collection of infectious disease cases, antibiotic resistance profile of infectious agents. Screening tests, accuracy of screening tests, predictive value, reliability, Epidemiological polarization, Disease pattern in community & Social diversity, Cyclicality of diseases: Chicken Pox, measles, Rota virus infections, mumps, Flu, common cold and prevailing pandemics and epidemics. Surveillance, prevention, control and eradication of disease.

Status of health services in Pakistan: comparison with other countries. Predisposing factors of epidemics in developed countries and a comparison with the existing factors in Pakistan

**practical's:**

- Questioner based survey to determine the current infections and prevailing infections

**Recommended Books:**

- Ziegler, A., and Koenig, I. R., 2006. A Statistical Approach to Genetic Epidemiology: Concepts and Applications. John-Wiley and Son Limited. Khardori, N., 2006. **Bioterrorism Preparedness: Medicine–Public Health Policy**. John Wiley and Sons limited.
- Fos, P. J., 2010. Epidemiology Foundations: The Science of Public Health: 1<sup>st</sup> Edition. Wiley, John & Sons, Incorporate
- Friis, R. H., 2010. Epidemiology for Public Health Practice: 4<sup>th</sup> Edition. Publisher: Jones & Bartlett Learning.

- Baily, S., 2012. Introduction to Epidemiologic Research Methods in Public Health Practice. Jones & Bartlett Learning.
- Rothman, K.J., 2012. Epidemiology: An Introduction: 2<sup>nd</sup> Edition. Oxford University Press.

## **SUR-615 CLINICAL OPERATIVE NEUROSURGERY Credit Hours: 3(2+1)**

### **Course Objectives:**

By the end of this course student will be able:

- Gain basic knowledge of neuro surgery
- Participate in surgical procedure as surgical first assistant.
- Prepare OT from instruments to the theater for specific surgeries according to requirement.

### **Course Outlines:**

Different terminology related to Neurology surgery, Anatomy and Physiology of Brain,

Special consideration in Neurosurgery, Method of hemostasis during Neurology surgery, Different position for Neurology surgery.

**Surgical procedures of the cranium:** Craniectomy, Brain pacemaker, Craniotomy, Cranioplasty, Intracranial tumor, Excision of an Acoustic Neuroma.

**Surgery of Cranial Blood Vessel:** Cerebral Revascularization, Arteriovenous malformation, Occlusion of an Aneurysm, Stereotaxis, Aspiration, Functional Neurosurgery. Intracranial Neoplasm, Control of Epilepsy, Cortical Resection, Corpus Collosotomy, Hemispherectomy.

**Extracranial procedure:** Transsphenoidal procedure, External occlusion of an carotid artery, Surgical Procedures of Head injuries and its management.

Craniotomy for intracerebral hematomata. Hydrocephalus Surgical Management Complications of head injuries.

Key and term related to spinal cord surgery, pathology of the vertebra and spinal cord, spinal cord tumors.

**Surgical procedure of spinal cord:** Discectomy, percutaneous Discectomy, Thoracic spine surgery, Lumbar spine surgery, Special interment names which are used in spinal surgery.

### **Practicals:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.
- Patient positioning and draping.
- Surgical skills, anastomosis and hemostasis skills.

- Suturing and drain tubes handling.

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- NancyMarie Phillips, 11<sup>th</sup>edition. Berry Kohn's OperatingRoom Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- MaxineA. Gold Man, Room, 3<sup>rd</sup>Edition. Pocket guidetothe Operating Room.

**Hours:3(2+1)****Course Objectives:**

After completion of this course the student will be able to:

- Identify the pertinent anatomy of the eye and surrounding basic structures.
- Describe the different procedure performed on the eye.
- Discuss the advantaged and disadvantaged of intraocular lens implantation.
- Prepare OT from instrument to theater for specific surgeries according to requirement.

**Course Outlines:**

Key terms and definition related to ophthalmic surgery, anatomy and physiology of the eye, ophthalmic surgical patient care, special feature of ophthalmic surgery, ocular surgical procedure.

Extraocular procedure, removal of neoplasm of the eyelid, correction of ptosis,

blepharoplasty, lacrimal apparatus, eye orbit, surgical removal of eye, cornea, keratoplasty, phototherapeutic keratectomy, refractive keratoplasty.

Intraocular procedure, iris, excision of iris, glaucoma, cataract, intra capsular extraction, linear extraction, phacoemulsification, implantation of intraocular lens, retina, repair of detached retina, laser therapy, photocoagulation, vitrectomy, eye injuries, ophthalmic laser.

**practical's:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.
- Patient positioning and draping.
- Surgical, skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.

- Anesthesia recovery.

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- NancyMarie Phillips, 11<sup>th</sup>edition. Berry Kohn's OperatingRoom Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- MaxineA. Gold Man, Room, 3<sup>rd</sup>Edition. Pocket guidetothe Operating Room.
- 25<sup>th</sup>Edition. Bailey and love's Short practiceof surgery



## **SUR-616CLINICALOPERATIVEUROLOGYSURGERY CREDITHr:3(2+1)**

### **COURSE OBJECTIVE:**

After completion of this course the student will be able to:

- Identify the complication and problem related to Genital Urinary system.
- Know different renal surgical procedure.
- Describe the different diagnostic procedure performed for kidney, ureter and bladder.
- Describe the procedure performed for prostate cancer.

### **COURSE CONTENT:**

Anatomy and physiology of kidney, Ureter, Bladder and Urethra, Different terminology related to Urology surgery, Urinary symptom (Hematuria, Anuria, Renal pain, Ureteric pain), Investigation of the Urinary tract, (Urine, imagine, IVU, RUPG, Antegrade pyelography, Urethrography, Venography, Ultrasonography, Cystography), Congenital abnormalities of kidney, Renal pelvis and Ureter, Aberrant Renal vessel, Renal and Ureteric calculus, Hydronephrosis, PCN, PCNL, Pyelolithotomy, Extended pyelolithotomy, Nephrolithotomy, Uretrolithotomy, URS, Ureteric meatotomy, Lithotripsy, ESWL, Push Bang, Neoplasm of kidney, Nephrectomy, Partial Nephrectomy, Radical Nephrectomy, Urethral catheterization, Neurogenic Bladder, Incontinence of Urine, Urodynamic test, Prostatectomy, Bladder stone, Litholopaxy, ERBG, TURP, Supra pubic cystostomy, Hypospadias's, Epispadiasis, Meatotomy.

#### □ **practical's:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment's efficiency before procedure.
- Patient positioning and draping.
- Surgical skills, anastomosis and hemostasis skills.
- Suturing and drain tubes handling.

### **Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies
- Maxine A. Gold Man, Room, 3<sup>rd</sup> Edition. Pocket guide to the Operating Room.

□ 25th Edition. Bailey and love's Short practice of surgery

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**Course Objective:**

After completion of this course the student will be able to:

- Know the pediatric patient care in term of developmental stages.
- Knowledge about pediatric anesthesia.
- Know common several surgical procedures that are performed on pediatric patients.

**Course Content:**

Key terms and definition related to pediatric surgery, Congenital Anomalies, Acquired Disease, Peri Operative Assessments of the Pediatric patient, Fluid and Electrolyte Balance Consideration, Pediatric Anesthesia, Intra operative Pediatric Patient care consideration.

**General Surgery procedures:** Endoscopic procedure, Biliary Atresia, Esophagus Atresia, Imperforate Anus, Intussusception, Pyloromyotomy, Herniorrhaphy, Omphalocele, Gastroschisis, Appendectomy, Splenectomy, Bezoors.

**Genito Urinary Surgery:** Cystoscopy, Nephrectomy, Nephrostomy, Pyeloureteroplasty, Wilms tumor, Neurogenic Bladder, Extrophy of the Bladder, Ureteral Re-implantation, Urethral repair, Orchidopexy, Circumcision, Fracture, Tendon repair, Congenital dislocation, Scoliosis.

**ENT surgery:** Myringotomy, Adenoidectomy, Tonsillectomy, Tympanoplasty, Cleft lip, Cleft palate, Tracheostomy, Hemangioma, Otoplasty, Craniosynostosis, Encephalocele, Hydrocephalus, Myelomeningocele, Spina Bifida, Pectus excavation, Co-arcuation of Aorta, PDA, VSD, ASD, Atrioventricular canal defect, Tetralogy of Fallot, Truncus arteriosus, Post pediatric care.

**Practical's:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Different pediatric procedure assists.
- Making of different pediatric procedure position.
- Checking instrument and equipments efficiency before procedure.
- Patient positioning and draping. Surgical skills, anastomosis and hemostasis skills.

- Suturing and drain tubes handling.
- Anesthesia recovery.

**Recommended Book:**

- Comuswhalan. Assisting at surgical operations, practical guide.
- Nancy Marie Phillips, 11<sup>th</sup> edition. Berry Kohn's Operating Room Technique.
- Colleen J Rutherford, RN, CNOR Educator. Differentiating Surgical Equipment and supplies

## **8<sup>th</sup>SEMESTER COURSE**

- 1. CLINICAL OPERATIVE ORTHOPEDICSURGERY**
- 2. BIOETHIC**
- 3. OPERATING ROOM MANAGEMENT**
- 4. RESEARCH**

## **SUR-617 CLINICAL OPERATIVE ORTHOPEDIC SURGERY**

**Credit Hours**

**:3(2+1)**

### **Course Objectives:**

After completion of this course the student will be able to:

- Gain basic knowledge of orthopedic surgery.
- Participate in surgical procedures as surgical first assistant.

### **Course Outlines:**

Historical background, The Art and Science of orthopedic Surgery

Anatomy and physiology musculoskeletal system, Special features of Orthopedic Surgery,  
Extremity procedures

Fractures, Joint procedures, Repair of tendons and Ligament, Cast Application, Complications after  
Orthopedic Surgery

### **Practicals:**

- Investigations required for particular case.
- Consent, surgical safety checklist application
- Patient positioning.
- Checking instrument and equipment efficiency before procedure.
- Patient positioning and draping.
- Surgical skills,
- anastomosis and hemostasis skills.
- Suturing and drain tubes handling.
- Anesthesia recovery.
- Cast Application.
- Implants.
- Use of image intensifiers.

### **Recommended Book:**

- NancyMarie Phillips, 11<sup>th</sup>edition.Berry Kohn's OperatingRoom Technique.
- Colleen J Rutherford,RN,CNOR Educator.Differetiating Surgical Equipment and supplies
- MaxineA.GoldMan, Room,3<sup>rd</sup>Edition. Pocket guide tothe Operating Room.

**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



**SUR-618 OPERATINGROOMMANAGEMENT CREDITHOUR:2+0**

**Course objective:**

After completion of this course, the student will be known to:

- Manage operating room for different surgical procedure.
- Manage human resource of operating room and duty rota of different staff.
- Understand infection control practices.
- Management of operating room equipment for different surgical procedure.
- Able to evacuate operating room in an emergency and disaster situation.

**Course content:**

Operating table management, Space management, Human resource Management ,motivation and building a unified team, staffing, delegation of duties, making of duty rota for different staff categories, Equipment Management, newproduct and equipment evaluation, conflict management, budget and financial management, Infection control and prevention practices in Operating room, fumigation technique, operating room surface culture for microbial presence, Emergency evacuation of the operating room and disaster management, CSSD Management, CSSD layout , different zones of CSSD.

**Recommended books:**

- NancyMarie Phillips, 11<sup>th</sup>edition.Berry Kohn’s OperatingRoom Technique.
- Colleen J Rutherford,RN,CNOREducator.Differetiating Surgical Equipment and supplies
- Joannaacatcher fuller, 6<sup>th</sup>edition, surgical technology principleand practice
- TeriL JNUGE, Ben D.Price, surgical technology for the surgical technologist.

