# GURU KASHI UNIVERSITY


## Bachelor of Science in Operations Theatre & Anaesthesia Technology

## Session: 2024-25

## Department of Paramedical Sciences

**Graduate Attributes:**

The programme B.Sc. OT & AT imparts to the students an intensive knowledge to perform routine surgical procedures within acceptable quality control in Anaesthesia, surgical equipment, and sterilization under the supervision of a surgeon so that they can maximize their potential by utilizing their abilities and academic excellence to contribute to society in a meaningful way.

**Programme Learning Outcomes:** After completion of this course graduates will be able to:

- Perform routine anesthetic procedures within acceptable quality control in the operation theatre.
- Function in an ethical and professional manner without bias against any ethnicity, race, religion, caste, or gender with a high degree of credibility, integrity, and social concern.
- Handle, operate, and maintain surgical equipment utilizing appropriate quality control and safety procedures.
- Apply problem-solving techniques in the identification and correction of pre-operative &post-operative complications.
- Formulate technical skills, social behavior, and professional awareness for functioning effectively as an operation theatre technician.
- Maximize their potential by utilizing their abilities, academic excellence, and justifiable confidence.

**Programme Structure**

| Semester: I | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA101 | General Anatomy | Core | 4 | 0 | 0 | 4 |
| 2 | BOA102 | General Physiology | Core | 4 | 0 | 0 | 4 |
| 3 | BOA103 | Introduction to Operation Theatre | Core | 4 | 0 | 0 | 4 |
| 4 | BOA104 | General Anatomy Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 5 | BOA105 | General Physiology Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 6 | BOA106 | Introduction to Operation Theatre (Practical) Lab | Skill Based | 0 | 0 | 4 | 2 |
| 7 | BOA111 | Human Rights and Duties | Multidisciplinar | 3 | 0 | 0 | 3 |
| 8 | BOA109 | Communication and soft skills | Compulsory Foundation | 2 | 0 | 0 | 2 |
| **Disciplinary Elective I (Any one of the following)** | | | | | | | |
| 8 | BOA107 | Introduction to Quality & Patient Safety | Disciplinary Elective-I | 3 | 0 | 0 | 3 |
| 9 | BOA110 | Bio Medical Wastage Management | | | | | |
| **Total** | | | | **17** | **0** | **12** | **26** |

| Semester: II | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA201 | Introduction to Anesthesia | Core | 4 | 0 | 0 | 4 |
| 2 | BOA203 | Clinical Microbiology | Core | 4 | 0 | 0 | 4 |
| 3 | BOA204 | Introduction to Anesthesia Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 4 | BOA206 | Clinical Microbiology Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 5 | BOA211 | Approach to patients with trauma to head-neck region | Value Added Course | 2 | 0 | 0 | 2 |
| 6 | BOA299 | XXXX | MOOC | 0 | 0 | 0 | 3 |
| 7 | BOA214 | Environmental Studies | Compulsory Foundation | 2 | 0 | 0 | 2 |
| **Disciplinary Elective II (Any one of the following)** | | | | | | | |
| 7 | BOA212 | Health Education | Disciplinary Elective-II | 3 | 0 | 0 | 3 |
| 8 | BOA213 | Social Pharmacy | | | | | |
| **Total** | | | | **15** | **0** | **08** | **22** |

| Semester: III | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA301 | Basic Intensive Care | Core | 4 | 0 | 0 | 4 |
| 2 | BOA302 | Surgical Instruments & Procedures | Core | 4 | 0 | 0 | 4 |
| 3 | BOA303 | Basic Intensive Care Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 4 | BOA304 | Surgical Instrument & Procedures Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 5 | BOA305 | Electronics and Technology in Surgery and Anesthesia | Elective Foundation | 3 | 0 | 0 | 3 |
| 6 | BOA399 | XXXX | MOOC | - | - | - | 3 |
| **Disciplinary Elective III (Any one of the following)** | | | | | | | |
| 7 | BOA306 | Medical Ethics & Legal Aspects | Disciplinary Elective-III | 3 | 0 | 0 | 3 |
| 8 | BOA307 | Medical Diseases Influencing Choice of Anesthesia | | | | | |
| **Disciplinary Elective IV (Any one of the following)** | | | | | | | |
| 9 | BOA310 | Clinical Pharmacology | Disciplinary Elective-IV | 3 | 0 | 0 | 3 |
| 10 | BOA311 | Basic Concepts of Anaesthesia | | | | | |
| **Inter-Disciplinary Course** | | | | | | | |
| | Xxx | Xxxx | IDC | 2 | 0 | 0 | 2 |
| **Total** | | | | **19** | **0** | **8** | **26** |
| **Open Elective Courses (for other Department)** | | | | | | | |
| 11 | OEC021 | Medical Terminology & Medical Records | Open Elective | 2 | 0 | 0 | 2 |
| 12 | OEC018 | Human Rights & Profession Values | | | | | |

| Semester: IV | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA401 | Anaesthesia for specialty Surgeries | Core | 4 | 0 | 0 | 4 |
| 2 | BOA402 | CSSD Procedures | Core | 4 | 0 | 0 | 4 |
| 4 | BOA404 | Anesthesia For specialty Surgeries Lab (Practical) | Skill Based | 0 | 0 | 2 | 1 |
| 5 | BOA405 | CSSD Procedures Lab (Practical) | Skill Based | 0 | 0 | 2 | 1 |
| 6 | BOA410 | Innovation, creativity and Entrepreneurial Mindset | Entrepreneureship skills | 0 | 0 | 4 | 2 |
| 7 | BOA413 | Human psychology | Multidisciplinary | 3 | 0 | 0 | 3 |
| **Value Added Course (for other discipline student also)** | | | | | | | |
| 8 | BOA407 | Drug Abuse, Problem, Prevention | VAC | 2 | 0 | 0 | 2 |
| **Disciplinary Elective V (Any one of the following)** | | | | | | | |
| 9 | BOA408 | Medicine | Disciplinary Elective-V | 3 | 0 | 0 | 3 |
| 10 | BOA409 | Pre-Operative Anesthetic Care & Preparation | | | | | |
| **Disciplinary Elective VI (Any one of the following)** | | | | | | | |
| 11 | BOA411 | Professionalism & Values | Disciplinary Elective-VI | 3 | 0 | 0 | 3 |
| 12 | BOA412 | Basic Procedures and Techniques | | | | | |
| **Disciplinary Elective VII (Any one of the following)** | | | | | | | |
| 11 | BOA414 | Patient Care and Hospital Administration | Disciplinary Elective-VII | 3 | 0 | 0 | 3 |
| 12 | BOA415 | Mentoring and professional development | | | | | |
| **Total** | | | | **22** | **0** | **8** | **26** |

| Semester: V | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA501 | Regional Anaesthesia | Core | 4 | 0 | 0 | 4 |
| 2 | BOA502 | Anaesthesia Technology | Core | 4 | 0 | 0 | 4 |
| 3 | BOA510 | General Anaesthesia | Core | 4 | 0 | 0 | 4 |
| 4 | BOA504 | Regional Anaesthesia Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 5 | BOA505 | Anaesthesia Technology Lab (Practical) | Skill Based | 0 | 0 | 4 | 2 |
| 6 | BOA511 | Research Methodology | AEC | 2 | 0 | 0 | 2 |
| 7 | BOA599 | XXXX | MOOC | 0 | 0 | 0 | 3 |
| 8 | BOA512 | PATHOLOGY & PATHOPHYSIOLOGY | VAC | 2 | 0 | 0 | 2 |
| **Disciplinary Elective VII (Any one of the following)** | | | | | | | |
| 9 | BOA508 | Hematology & Blood Bank | Disciplinary Elective-VII | 3 | 0 | 0 | 3 |
| 10 | BOA509 | Health Care | | | | | |
| **Total** | | | | **19** | **0** | **8** | **26** |

| Semester: VI | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Code** | **Course Name** | **Type of course** | **L** | **T** | **P** | **No. Of Credits** |
| 1 | BOA601 | Industrial Training/Internship (6 months) | Skill Based | 0 | 0 | 0 | 20 |
| **Total** | | | | **0** | **0** | **0** | **20** |

**Evaluation Criteria for Theory Courses**

A. Continuous Assessment: [25 Marks]
CA1- Surprise Test (Two best out of three) (10 Marks) CA2- Assignment(s) (10 Marks)
CA3- Term paper/ Quiz/Presentation (05 Marks)

B. Attendance (05 Marks)
C. Mid-Semester Test: (30 Marks)
D. End-Semester Exam: (40 Marks)

**Semester: 1st**

**Course Title: General Anatomy**
**Course Code: BOA101**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes:** After completion of this course, the learnerwill be able to:

1. Learn about the various muscles, organs, bones, joints, tendons, ligaments, blood vessels and cells.
2. Identify cell organelles, blood component, function, skeletal system, circulatory system, lymphatic system and its structure.
3. Recognize the properties of nerve fiber, anatomy of neuralgia, synapse, CNS, CSF, brain, cranial nerves, demonstration of reflexes.
4. Enlist the malfunctioning of the organs and diagnose the disorders.

## Course Contents

**UNIT- I** **15 Hours**

Introduction to Human Anatomy and Physiology: General organization Synopsis of all systems Cell Organization and Function: Structure & function of all cell organelles-cell division (Mitosis and meiosis) Tissues (Definition, classification with structure and function)

**UNIT-II** **15 Hours**

Blood: Functions of blood, composition of blood, plasma& its functions. - Blood clotting (mechanism, clotting factors) Human Body Skeletal System: Structure and function of all individual bones and joints movement of joints, skeletal muscles

**UNIT-III** **15 Hours**

Respiratory System: Structure of respiratory pathway, function of respiratory tract, cough reflex, intra -pleural pressure, mechanism of breathing and respiration, muscles of respiration, vital capacity, tidal volume, inspiration, reserve volume and residual volume. Cardiovascular System Anatomy and Physiology of Heart Blood circulation Arteries and veins C o n d u c t i v e system of Heart - Cardiac cycle Introduction to ECG

**UNIT-IV** **15 Hours**

Lymphatic System - Introduction - Structure and function - Lymph

nodes - Spleen - Thymus gland, Tonsils Structure and Function ofSense Organs - Eye - Ear - Nose – Tongue

**Transactional modes:**

Video based teaching, Collaborative teaching, Case basedteaching, Question

**Suggested Readings:**


- *Ashalatha, P. R., & Deepa, G. (2012). Textbook of Anatomy& Physiology forNurses. JP Medical Ltd.*
- *Chaurasia, B. D. (2004). Human anatomy (p. 53). CBS Publisher Listinsky, J. J. (1987). The Anatomy Workbook. Radiology, 164(1), 78-78.Sciences.*
- *Waugh, A., & Grant, A. (2014). Ross & Wilson Anatomy and physiology in health and illness. Elsevier Health*
- *Netter, F. H. (2014). Atlas of human anatomy, ProfessionalEdition. Elsevier health sciences.*

**Course Name: General Physiology**
**Course Code: BOA102**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Course Learning Outcomes:** On successful completion of this course the students will be able to

1. Acquire the knowledge of the relative contribution of each organ system in maintenance of the Milieu Interior (Homeostasis)
2. Compare & contrast Functions of lipids, carbohydrates, proteins & cell organelles.
3. Classify Physiological functions of various systems, with special reference to Musculoskeletal, Neuro-motor, Cardio-respiratory, Endocrine, Uro-genital function, & alterations in function with aging
4. Conclude Properties of nerve fibers, function of neuroglia, synapse, CNS, CSF, brain, cranial nerves, demonstration of reflexes.

**Course Contents**

**UNIT-I** **15 Hours**

Introduction to physiology of the human body –Composition of body, Homeostasis, Introduction to chemistry of life. Organization of the human body at the cellular level – Function of lipids, carbohydrates, proteins & cell organelles. Organization of the human body at the tissue level – Function of Epithelial, Connective, Muscular & Nervous tissues.

**UNIT-II** **15 Hours**

Blood – Hemopoiesis, homeostasis, coagulation of blood, blood transfusion. Lymphatic System – Function of lymph vessels, lymphatic tissue & organs, lymphatic's, spleen, tonsil, and thymus. Resistance & Immunity – Innate immunity, acquired immunity, humoral & cell mediated immunity.

**UNIT-III** **15 Hours**

Nervous System – Properties of nerve fibers, function of neuroglia, synapse, CNS, CSF, brain, cranial nerves, demonstration of reflexes. Muscular System – Properties of skeletal muscle, cardiac muscle, smooth muscle, muscles of the body. Skeletal System – Functions of bones, axial skeleton, and appendicular skeleton. Musculoskeletal System – Movement in the joints of upper & lower limb.

**UNIT-IV** **15 Hours**

Respiratory System – Physiology of respiration, pulmonary function tests, gas exchange in lungs, transport of gases between lungs & tissues, regulation of respiration. Cardiovascular System - Heart & blood vessels: Systemic circulation, pulmonary circulation, ECG, cardiac output, blood pressure.

Digestive System – Process of digestion, function of oral cavity, pharynx, salivary glands, esophagus, stomach, small intestine, large intestine, liver, gallbladder, and pancreas. Urinary System – Function of kidneys, juxtaglomerular apparatus, Ureter, urinary bladder, urethra, physiology of urine formation, Glomerular filtration, tubular re-absorption, water balance, and micturition.

Introduction to Genetics - Features of chromosomes, DNA, protein synthesis, dominant inheritance, recessive inheritance, and sex linked inheritance.
Reproductive System– Female: Physiology of female reproductive system. Reproductive System –Male: Physiology of male reproductive system. Endocrine System - Mechanism of action of hormones, function of pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas. Special Senses - Physiology of olfaction, taste, hearing, balance & vision.
Skin – Function of skin, hair, sebaceous glands, sweat glands, nails, temperature regulation.

**Transactional modes**
Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Ashalatha, P. R., & Deepa, G. (2012). Textbook of Anatomy &Physiology for Nurses. JP Medical Ltd.*
- *Guyton, A. C., & Hall, J. E. (2006). Medical physiology. Gökhan N, Çavuşoğlu H (Çeviren), 3.*
- *Waugh, A., & Grant, A. (2014). Ross & Wilson Anatomy and physiology in health and illness. Elsevier Health Sciences.*
- *Sembulingam, K., &Sembulingam, P. (2012). Essentials of medical physiology. JP Medical Ltd*

**Course Title: Introduction to Operation Theatre**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Course Code: BOA103**

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Complete steps in operation of autoclave, its maintenance protocol
2. Handle documents to be maintained in CSSD
3. Implement various physical, chemical methods of sterilization
4. Complete steps in operation of Cleaning and sterilization of OT
5. Apply various methods to decrease infections in OT

## Course Contents

**UNIT I**

**15 Hours**

**A. Introduction to Operation Theatre**

Overview of the operating room environment

Roles and responsibilities of surgical team members

Understanding surgical terminology

**B. Operating Room Layout and Equipment**

Layout of a standard operating theatre

Types and uses of basic surgical instruments

Introduction to surgical trays and sets

**C. Aseptic Techniques and Sterilization**

Principles of asepsis

Methods of sterilization: autoclaving, gas sterilization, chemical sterilization

Handling sterile supplies and equipment

**D. Infection Control**

Understanding surgical site infections (SSIs)

Hand hygiene practices

Use of personal protective equipment (PPE)

**UNIT II** **15 Hours**

**A. Preoperative Preparation**

Preoperative assessment and patient preparation

Informed consent process

Preoperative medications and fasting guidelines

**B. Surgical Positioning**

Types of surgical positions: supine, prone, lithotomy, lateral, etc.

Positioning devices and aids

Risks and prevention of positioning injuries

**C. Surgical Draping and Scrubbing**

Types of surgical drapes

Draping techniques for different surgeries

Scrubbing, gowning, and gloving procedures

**D. Surgical Instruments and Handling**

Detailed study of various surgical instruments

Instrument handling and passing techniques

Sharps safety and management

**UNIT III** **15 Hours**

**A. Introduction to Anesthesia**

Types of anesthesia: general, regional, local

Pre-anesthetic assessment and patient preparation

**B. Anesthesia Equipment and Drugs**

Anesthesia machines and monitoring equipment

Commonly used anesthetic agents and their effects

**C. Patient Monitoring**

Vital signs monitoring: ECG, pulse oximetry, blood pressure, capnography

Intraoperative monitoring techniques and documentation

**D. Airway Management**

Techniques of airway management: intubation, laryngeal mask airway

Troubleshooting airway emergencies

**UNIT IV** **15 Hours**

**A. Intraoperative Care and Management**

Role of the scrub nurse and circulating nurse

Managing surgical counts: sponges, needles, instruments

**B. Hemostasis and Hemorrhage Control**

Techniques of hemostasis: sutures, clips, electrocautery

Managing intraoperative bleeding

**C. Surgical Wound Care**

Types of surgical wounds and classifications

Wound closure techniques: sutures, staples, adhesives

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Bojar, R. M. (2020). Manual of perioperative care in adult cardiac surgery. John Wiley & Sons.*
- *Easley, M. E., & Wiesel, S. W. (Eds.). (2011). Operative techniques in foot andankle surgery. Lippincott Williams & Wilkins.*
- *Easley, M. E., & Wiesel, S. W. (Eds.). (2011). Operative techniques in foot andankle surgery. Lippincott Williams & Wilkins.*
- *Ranjit, S. (2010). Manual of Pediatric Emergencies & Critical*

**Course Title: General Anatomy (Practical) Course Code: BOA104**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Acquire the demonstration of basic anatomical terminology, anatomical position, anatomical planes, and levels of organization in the body, organ systems, skeleton, and cavities of the body.
2. Evaluate Features of lymph vessels, lymphatic tissue & organs, lymphatic's, spleen, tonsil, thymus
3. Study Central nervous system, brain, cerebellum, spinal cord, cranialnerves, and autonomic nervous system.
4. Differentiate skeletal muscle, cardiac muscle, smooth muscle.
5. Discuss Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas

**Course Contents**

**List of experiments/Practical's**

1. Basic Anatomical Terminology, Anatomical Position, Anatomical Planes, Levels of Organization in the Body, Organ Systems, Skeleton, Cavities of the Body.
2. Lymphatic System - Features of lymph vessels, lymphatic tissue & organs, lymphatic's, spleen, tonsil, and thymus.
3. Nervous System - Central nervous system, brain, cerebellum, spinal cord, cranial nerves, autonomic nervous system.
4. Muscular System - Skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.
5. Skeletal System - Features of bones, axial skeleton, and appendicular skeleton.
6. Musculoskeletal System - Joints of upper & lower limb. Respiratory System - Nose & paranasal sinuses, pharynx, larynx, trachea, lungs. Cardiovascular System - Heart & blood vessels.
7. Digestive System - Oral cavity, pharynx, salivary glands, esophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.
8. Urinary System - Kidneys, juxtaglomerular

apparatus, Ureter, urinary bladder, urethra.

9. introduction to Genetics - Features of chromosomes, DNA Reproductive System In Females - External & internal genital organs, breast
10. Reproductive System In Males - Penis, scrotum, testes, prostate gland.
11. Endocrine System - Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Group study. ppts

**Suggested Readings:**


- *Agur, A. M., & Dalley, A. F. (2009).Grant's atlas of anatomy. Lippincott Williams & Wilkins.*
- *Chaurasia, B. D. (2004). Human anatomy (p. 53). CBSPublisher.*
- *Peate, I., & Nair, M. (2015).Anatomy and Physiology for Nurses at a Glance. John Wiley & Son.*

**Course Title: General Physiology (Practical) Course Code: BOA105**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Apply Basic Practical skills on blood testing, Microscope, haemocyto meter and RBC count
2. Study the functions of important physiological systems including thecardio-respiratory, renal, reproductive and metabolic systems.
3. Expansion knowledge of Clinical examination of respiratory system and digestive system.
4. Measure blood pressure and pulse rate

## Course Contents

**List of experiments**

1. Blood test
2. Microscope
3. Haemocytometer
4. Blood RBC count
5. Hb
6. WBC count Differential Count
7. Hematocrit demonstration
8. ESR
9. Blood group & Rh. Type
10. Bleeding time and clotting time.
11. Digestion Test salivary digestions Excretion
12. Examination of Urine Specific gravity Albumin Sugar, Microscopic examination for cells and cysts
13. Respiratory System Clinical examination of respiratory system Spirometry Breath-holding test.
14. Cardio Vascular System: Measurement of blood pressure and pulse rate Effect of exercise on blood pressure and pulse rate

**Transactional modes**

Video-based teaching, Collaborative teaching, Case based teaching, Question, ppt

**Suggested Readings:**


- *Peate, I., & Nair, M. (2015).Anatomy and Physiology for Nurses at a Glance.John Wiley & Sons.*
- *Pal, G. K. (2006).Textbook Of Practical Physiology-2Nd Edn. Orient Blackswan.*

**Course Name: Introduction to Operation Theatre (Practical)**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Course Code: BOA106**

**Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Complete steps in operation of autoclave, its maintenance protocol
2. Maintain Documents to be maintained in CSSD
3. Implement Various physical, chemical methods of sterilization
4. Measure Cleaning and sterilization of OT

**Course Contents List of experiments/Practical's**

1. Preparation of OT for various surgeries
2. Familiarization with special instruments used for various sub-specialties
3. Carbolization of OT
4. Preparation of trolleys for various types of sub-specialties of surgeries
5. Cleaning, disinfection and storage of various instruments
6. Complete steps in the operation of the autoclave, and its maintenance protocol Documents to be maintained in CSSD Various physical, a n d chemical methods of sterilization Cleaning and sterilization of OT
7. Methods to decrease infections in OT

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.

**Suggested Readings:**

- *Anesthesia Manual. A.A. Ahanatha Pillai Lee*
- *Synopsis (Hand book of Anesthesia)*

**Course Title: Introduction to Quality & Patient Safety Course Code: BOA107**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Implement the quality improvement approaches, NABH, NABL, JCI guidelines.
2. Rescue the patients by the basic life support skills which can save many lives in urgent cases Apply proper disposals of biomedical waste, reducing risk of infection to waste handling personnel
3. Control cross infection which can occur due to improper handling of infected waste polluting surroundings too.
4. Focus on the quality measures and proper handling of disposals providing quality facility to patients.

**Course Contents**

**UNIT-I** **15 Hours**

Quality Assurance and Management Introduction, Quality improvement approaches, standards and norms, quality improvement tools, introduction to NABH guidelines. Basic of Emergency Care and Life Support Skills Basic life support (BLS) following cardiac arrest, recognition of sudden cardiac arrest and

activation of emergency response system, early cardiopulmonary resuscitation (CPR) and rapid defibrillation with an automated external defibrillator (AED)

**UNIT-II** **10 Hours**

Basic Emergency Care First aid, choking, rescue breathing methods, ventilation including use of bag valve master (BVMs)

**UNIT-III** **10 Hours**

Biomedical Waste Management Definition, waste minimization, BMW- segregation, collection, transportation, treatment and disposal (Including color coding), Liquid BMW, Radioactive waste, metals/chemicals/drug waste, BMW management and methods of disinfection, use of Personal protective equipment (PPE)

**UNIT-IV** **10 Hours**

Infection Prevention and Control Sterilization, Disinfection, Effective hand hygiene, use of PPE, Prevention and control of common health care associated infections, Guidelines (NABH) and JCI for hospital infection control .Disaster preparedness and management Fundamentals of emergency management

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question,

**Suggested Readings:**


- *Schriefer, J., & Leonard, M. S. (2012). Patient safety and quality*
- *improvement: an overview of QI. Pediatrics in review,*
- *Yamin, T. (2013). Chemical & Biological Weapons: Positions, Prospects and Trends. Policy Perspectives,*
- *Datta, P., Mohi, G., &Chander, J. (2018). Biomedical waste management in*
- *India: Critical appraisal. Journal of laoratory physics*

**Course Title: Bio-Medical Wastage Management**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Course Code: BOA110**

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

**1. Comprehend the fundamental properties of ionizing radiation, including the differences between alpha, beta, gamma, and X-ray radiation.**

**2. Explain the units and measurements used in radiation physics, including concepts like exposure, absorbed dose, dose equivalent, and activity.**

**3. Explore various waste management methods, including segregation, storage, transportation, treatment, and disposal.**

**4. Gain proficiency in the use of various radiation detection instruments and techniques, such as Geiger-Muller counters, scintillation detectors, and dosimeters.**

**Course Contents**

**UNIT-I**

**10 Hours**

Introduction to Biomedical Waste Management Definition and classification of biomedical waste Historical overview and importance of biomedical waste management

Legal and regulatory framework Types and Sources of Biomedical Waste

Classification of biomedical waste based on infectious, hazardous, and general waste.

UNIT-II 10 Hours

Health Hazards and Risks Potential and hazards associated with improper biomedical waste management, Infection control and prevention measures Waste Segregation and Collection Segregation guidelines and color coding Collection methods and container

types

UNIT-III 15 Hours

Waste Disposal and Environmental Impact Landfilling, landfill requirements, and considerations Environmental consequences of improper waste disposal Waste-to-energy and recycling options Storage and Transportation Storage requirements and guidelines Transportation regulations and safety

UNIT-IV 10 Hours

Waste Management Planning and Implementation Developing waste management plans for healthcare facilities Staff training and awareness programs monitoring and auditing waste management practices,Biomedical Waste Management Rules 2016.

Bhattacharya, S., Biswas, S., Das, D., & Nair, P. (2019). Biomedical waste management in India: Critical appraisal. Journal of International Environmental Application & Science, 14(2), 91-97.

Transactional modes

Video based teaching, Collaborative teaching, Case based teaching, Question Answer

Suggested Readings

1. Prüss-Üstün, A., &Rapiti, E. (2008). Safe management of wastes from health-care activities. World Health Organization.
2.Srivastava, A., & Kaushal, R. K. (2020). Biomedical waste management during COVID-
3.pandemic: A review. Environmental Sustainability and Resource Management, 2(1), 53-61.
4.Rao, P. V., & Patnaik, S. K. (2016). Biomedical waste management: An exploratory study. International Journal of Environmental Science and Technology, 13(7), 1607-

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Course Title- Communication and Soft Skills**
**Course Code: BOA109**

**Total Hours 30**

**Course Learning Outcomes: On completion of this course, the successful students will be able to:**

1. **Developing presentation skills involves organizing content, using visual aids effectively, maintaining audience engagement, and delivering information confidently and persuasively.**
2. **Critical thinking involves analyzing information, evaluating arguments, and presenting logical and well-supported ideas.**
3. **Speak fluently and clearly is crucial for effective communication. This includes**
4. **using appropriate vocabulary, grammar, pronunciation, and intonation to convey messages accurately.**
5. **Involve paying attention, asking clarifying questions, and demonstrating understanding through appropriate responses.**

**UNIT-I**
**10 Hours**

Basics of Grammar- Part I Vocabulary, Synonyms, Antonyms, Prefix and Suffix,
Homonyms, Analogies and Portmanteau words. Basics of Grammar – Part II Active, Passive, Direct and Indirect speech, Prepositions, Conjunctions and Euphemisms.

**UNIT-II** **05 Hours**

Writing Skills, Letter writing, E mail, and Essay, Articles, and Memos, one word substitutes, note making and Comprehension.

**UNIT-III** **10 Hours**

**Communication: Introduction: Communication process, Elements of communication, Barriers of communication and how to overcome them, Nuances for communicating with patients and their attenders in hospitals.**

**UNIT-IV** **05 Hours**

Non Verbal Communication: Basics of non-verbal communication, Rapport building
skills using neuro- linguistic programming (NLP).

Transactional modes
Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**

1. The Elements of Style & amp;quot; by William Strunk Jr. and E.B. White
2. How to Win Friends and Influence People & amp;quot; by Dale Carnegie
3. Crucial Conversations: Tools for Talking When Stakes Are High" by Kerry
4. Patterson, Joseph Grenny, Ron McMillan, and Al Switzler
5. On Writing Well & amp;quot; by William Zinsser

**Semester 2nd**

**Course Title: Introduction to Anesthesia Course Code: BOA201**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Distinguish the history of anesthesia
2. Acquire an understanding of Positioning of Patient
3. Suggesting a simple an aesthetic plan commonly used anesthesia non- invasive
4. Monitoring in the Operation Theatre

**Course Contents**

**UNIT-I** **15 Hours**

History of Anesthesia First successful clinical demonstration: Pre -

historic (ether) era, Regional anesthetics era, Intravenous anesthetic era, Modem anesthetic era, Minimum standard of anesthesia, who should give anesthesia General Anesthesia Techniques: General Anesthesia., Regional Anesthesia Including Epidural, Spinal and Nerve Block Anesthesia. Combined General and Epidural Anesthesia, Monitored Anesthesia Care with Conscious Sedation.

**UNIT-II** **15 Hours**

Pre-Op Preparation: Checklist, Medications, safety, consent, advanced Directives Pre anesthetic assessment: History – Past history Disease Surgery personal history Smoking alcohol General physical assessment, systemic examination CVS, RS, CNS, General examination assessment and physical systemic examination.

**UNIT-III** **15 Hours**

Monitoring in the Operation Theatre Positioning of Patient Informed consent NBM guidelines nil per orally Premedication advantages, drugs used Special instructions if any Machine Checking the machine 02, N20, suction apparatus Laryngoscopes, Etudes, airways, Cannula's and Catheters for IV Accessibility, Cardiac Monitor Pulse oximeter, other monitoring systems, Vaporizers (Face Mask)

**UNIT-IV** **15 Hours**

**Pharmacology of Anesthetic Agents**

Inhalational Agents: Sevoflurane, Isoflurane, Desflurane, Nitrous Oxide.

Intravenous Agents: Propofol, Ketamine, Etomidate, Benzodiazepines, Opioids.

Local Anesthetics: Lidocaine, Bupivacaine, Ropivacaine.

Emergency drugs other Drugs used patient care Intraoperative Management Confirm the identification of the patient, Monitoring – minimum, Non- invasive & Invasive monitoring, Induction

Endotracheal intubation, Maintenance of anesthesia, Positioning of the patient,

O.T. environment, infection control in O.T., scrubbing, Surgical Attire including lead apron and goggles, zoning in O.T.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.

**Suggested Readings:**


- *Miller, R. D., &Pardo, M. (2011). Basics of anesthesia e-book.Elsevier Health Sciences.*
- *Orthopaedic Surgery.Thieme. Easley, M. E., & Wiesel, S. W.(Eds.).(2011).*
- *Operative techniques in foot and ankle surgery.Lippincott Williams & Wilkins. Ke, J. X. C. (2018).*
- *Basics of Anesthesia Bojar,R.M. (2020).*
- *Manual of perioperative care in adult cardiacsurgery.John Wiley & Sons. Kamal, R., & Weiss, A. P. C. (Eds.).(2016).*

**Course Title: Clinical Microbiology Course Code: BOA203**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Get detailed information about the host, parasite, their life cycle andvarious diseases caused by them
2. Learn the procedures of sample collection and transportation for microbiology tests.
3. Capable to prepare various culture medias, Care &handling of laboratory animals and get their extracts for culture preparations
4. Classify microbes with special reference to prokaryotes & eukaryotes, Bacterial anatomy

## Course Contents

**UNIT-I** **15 Hours**

Morphology Classification of microorganisms, size, shape and structure of bacteria. Use of microscope in the study of bacteria**.**

**UNIT-II** **15 Hours**

Growth and nutrition, growth and multiplications of bacteria, use of culture media in diagnostic bacteriology. Culture media Use of culture media in diagnostic bacteriology, antimicrobial sensitivity test. Sterilization and Disinfection .Principles and use of equipment of sterilization namely hot air oven, autoclave and serum inspissation, pasteurization, antiseptic and disinfectants.

**UNIT-III** **15 Hours**

Immunology, Immunity, vaccines, types of vaccine and immunization schedule, principles and interpretation of common serological tests namely Widal, VDRL, and RF & ELISA. Rapid tests for HIV and HBs Ag (excluding technical details)

Components of innate immunity (e.g., physical barriers, phagocytes, complement system)

Components of adaptive immunity (e.g., B cells, T cells, antibodies)

Definition and types of antigens

**UNIT-IV** **15 Hours**

Staphylococci, Streptococci, Pneumococcus, Meningococci, Mycobacterium, Clostridia, Bacillus, Shigella, Salmonella, E.coli, Proteus,Vibrio cholera, Pseudomonas & Spirochetes. Parasitology Morphology, life cycle,
laboratory diagnosis of following parasites: Histolytic, Plasmodium, tape worms, Intestinal nematodes Mycology Morphology, diseases caused and lab diagnosis of following fungi. Candida, Cryptococcus, Dermatophytes, opportunistic flung Virology General properties of viruses, diseases caused lab diagnosis and prevention of following viruses, Herpes, Hepatitis, HIV, Rabies and Poliomyelitis.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Practical Medical Microbiology by Mackie & McCartney Volume 1 and 2*
- *Text book of Microbiology by Ananthanarayanan*
- *Medical Microbiology by Paniker & SatishGupte*

**Course Name: Introduction to Anesthesia (Practical) Course Code: BOA204**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Be familiar with the history of Anesthesia
2. get an understanding of Positioning of Patient
3. Suggesting a simple anesthetic plan commonly used anesthesia non- invasive
4. Monitoring in the Operation Theatre
5. Implement methods to decrease infections in OT

**Course Contents List of Experiments/Practical's**

1. Setting of trolley for GA and Regional Anesthesia
2. Rapid sequence intubation,
3. Sellick's maneuver (Cricoid pressure)
4. Monitoring of patients in PACU, setting of alarms
5. Post-op management of pain, nausea, vomiting, and bladder distension

**Transactional modes**

Video-based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Anesthesia manual. A.A.Ahanatha Pillai Lee Synopsis (Hand book of Anesthesia) Text book of Anesthesia (Ajay Yadav) edition 6TH*
- *Goodman, L. S. (1996). Goodman and Gilman's the pharmacological basis of therapeutics (Vol. 1549). New York: McGraw-Hill.*
- *He, J. M., & Mu, Q. (2015). The medicinal uses of the genus Mahonia in traditional Chinese medicine: An ethnopharmacological, phytochemical and pharmacological review. Journal of ethnopharmacology, Zhao,*

**Course Name: Clinical Microbiology (Practical)**

**Course Code: BO206**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Collect sample for identification of bacteria, virus, fungi or parasite.
2. Cleaning techniques of glassware by various methods according to their uses in laboratory.
3. Operating microscope, cleaning and maintenance of microscope and objectives.
4. Sterilization techniques- dry and moist heat, working of hot air oven and autoclave

**Course Contents List of Experiments/Practical's**

1. Gram Staining:
Differentiates bacterial species into Gram-positive and Gram-negative groups based on cell wall composition.
2. Culture and Sensitivity Testing (C&S):
Isolates and identifies pathogens and determines
3. Blood Culture:
Detects bacteremia and septicemia.
Acid-Fast Staining (Ziehl-Neelsen Stain):
4. Enzyme-Linked Immunosorbent Assay (ELISA):
5. Automated Blood Culture Systems:
6. Rapid Antigen Tests:
7. Urine Culture:
8. laboratory diagnosis of following parasites:
Plasmodium, tape worms, Intestinal nematodes, fungal pathogen, Bacterial pathogen,
9. Bacterial Culture:
10. Bacterial Identification Tests:

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.

**Suggested readings:**

- *Practical Medical Microbiology, Mackie & McCartney Volume 1 and 2*
- *Text book of Microbiology by Ananthanarayanan*
- *Medical Microbiology by Paniker&SatishGupte*

**Subject Title: Approach to patients with trauma to head- neck region**

**Subject Code: BOA211**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Differentiate between the three different classes of neck trauma, and give an example of each type.
2. Describe the three different anatomical zones of the neck, and give the key structures resident in each one.
3. Review the proper procedure for examination and evaluation of neck trauma injuries, including all appropriate diagnostic testing.
4. Outline interprofessional team strategies for improving care coordination and communication to improve outcomes with trauma to the neck.

**UNIT-I** **10 Hours**

Mechanical injuries or wounds

(a) Definition of wound, injury, hurt, assault, battery.

(b) Classification of injuries, description of blunt force and sharp force injuries.

(c) Fire arms – principles, types, examination and interpretation of fire arm wounds. Comparison microscopy.

(d) Medico legal aspects of injuries: Difference between ante mortem and post-mortem injuries, determination of different types of injuries, defense wounds, hesitation cuts, fabricated injuries, simple and grievous hurt, suicidal, accidental and homicidal injuries, causes of death by mechanical injuries, legal classification of fatal injuries.

**UNIT-II** **10 Hours**

- Initial Assessment and Triage:

Primary Survey (ABCDE: Airway, Breathing, Circulation, Disability, Exposure)

Glasgow Coma Scale (GCS) assessment

Hemodynamic stability evaluation

- Airway Management:

Techniques for securing the airway in trauma patients

Use of cervical spine immobilization

Indications for intubation or surgical airway (e.g., cricothyrotomy)

**UNIT-III** **10 Hours**

- Cervical Spine Protection:

Methods for immobilizing the cervical spine
Guidelines for radiographic imaging of the cervical spine (e.g., NEXUS criteria, Canadian C-spine rule)
Signs and symptoms of cervical spine injury

- Neurological Examination:

Assessment of consciousness and neurological deficits
Use of neurological scoring systems (e.g., GCS)
Evaluation for signs of increased intracranial pressure

- Imaging and Diagnostics:

Indications for CT scan of the head and neck
Role of MRI in head and neck trauma
Use of X-rays for cervical spine injuries

**Unit -IV**

- Management of Traumatic Brain Injury (TBI):

Classification of TBI (mild, moderate, severe)
Acute management strategies (e.g., ICP monitoring, use of hyperosmolar therapy)
Long-term rehabilitation considerations

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.

**Suggested Readings:**


- Head and Neck Trauma: An Interdisciplinary Approach Hardcover – Import, 7 August 2006 by Arne Ernst (Author), Michael Herzog (Author), Rainer Seidl (Author).
- Acute Assessment of Brain Injuries in Ground-Level Falls
  iina Pöyry BM,Teemu M. Luoto MD,Anneli Kataja MD,Antti Brander PhD, MD,Olli Tenovuo PhD, MD,Grant L. Iverson PhD,Juha Öhman PhD, MD,Bruce Caplan PhD, ABPP,Jennifer Bogner PhD, ABPP
- Alexithymia and Avoidance Coping Following Traumatic Brain Injury
  Rodger Ll. Wood PhD,Caitríona Doughty MSc,Bruce Caplan PhD, ABPP,Jennifer Bogner PhD, ABPP

**Course Name: Environment Studies**

**Course Code: BOA214**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Realize natural Resources and associated problems, use and overexploitation.
2. Classify causes, effects and control measures of air pollution, water pollution, soil pollution, marine pollution, noise pollution
3. Categories the concept of ecosystem, structure, interrelationship of producers, consumers and decomposers.
4. Inspect sustainable development, urban problems related to energy, Water conservation, rain water harvesting

## Course Contents

**UNIT-I** **05 Hours**

Introduction Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness. Natural Resources Natural Resources and associated problems, use and over exploitation, case studies of forest resources and water resources.

**UNIT-II** **10 Hours**

Ecosystems Concept of Ecosystem, Structure, interrelationship, producers, consumers and decomposers, ecological pyramids- biodiversity and importance. Hotspots of biodiversity Environmental Pollution Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards, Solid waste management: Causes, effects and control measure of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies, Disaster management: Floods, earthquake, cyclone and landslides.

**UNIT-III** **10 Hours**

Environment Protection Act, Air (Prevention and Control of Pollution) Act. Water (Prevention and control of pollution) Act. Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation Public awareness. Human

Population and the Environment, Population growth, variation among nations. Population explosion–Family Welfare Program. Environment and human health, Human Rights, Value Education, HIV/AIDS. Women and child Welfare. Role of Information Technology in Environment and human health. Case studies.

**UNIT-IV** **05 Hours**

Understanding the Hospital Environment Understanding the environment in the following clinical laboratories: Microbiology, Biochemistry, Histopathology, Hematology Clinical laboratory hazards to the environment from the following and means to prevent Infectious material, Toxic Chemicals, Radioactive Material, Other miscellaneous wastes

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question, ppt.

**Suggested Reading:**


- *Chawla S., 2012. A Textbook of Environmental Studies, TataMcGrawHill,NewDelhi.*
- *Jadhav,H&Bhosale,V.M.,1995.Environmental ProtectionandLaws.Himalaya Pub.House, New Delhi.Gadi R.,Rattan, S., 2006.*
- *Environmental Studies, KATSON Books, New Delhi.McKinney, M.L. & School, R.M., 1996.*
- *Environmental Science Systems &Solutions, Web enhanced edition.WangerK.D.,1998.*
- *Environmental Management.W.B.SaundersCo. Philadelphia, USA*

**Course Title: Health Education**
**Course Code: BOA212**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Demonstrate the importance of health education and health

communication in promoting individual and community health.

2. Identify key theories and models related to health behavior change.

3. Explore different communication strategies and techniques used in health

education.

4. Develop skills in designing and implementing health education

programs.

Course Contents

**UNIT-I**
**10 Hours**

Introduction to Health Education and Health Communication, Importance and goals of

health education, Role of health communication in behaviour change, Historical

perspectives on health education and communication

**UNIT-II**
**10 Hours**

Theories and Models of Health BehaviourChange Social cognitive theory, Transtheoretical

model, Health belief model, Ecological model, Effective Communication Strategies,

Principles of effective communication

**UNIT-III** **10 Hours**

Designing Health Education Programs, Assessing needs and setting objectives,
Developing educational materials, Planning and implementing health education
programs, Evaluating program effectiveness, Verbal and non-verbal communication,
Health literacy and plain language, Cultural competence in communication

**UNIT-IV**

**15 Hours**

Media and Technology in Health Communication, Role of media in health communication,
Social media and online platforms, Health campaigns and mass media interventions,
Ethical considerations in media use, Ethical and Cultural Considerations in Health
Education, Ethical guidelines and principles, Informed consent and confidentiality,
Health communication with vulnerable populations, Evaluation of Health Education and
Communication Interventions.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question Answer

Suggested Readings

1. Bandura, A. (2004).Health promotion by social cognitive means. Health Education & Behavior, 31(2), 143-164.

2. Brashers, D. E., Haas, S. M., &Neidig, J. L. (2014). Health communication and the social networks of older adults: Implications for health and aging. In R. N. Bostrom & B. H. Westley (Eds.), Communication and aging (pp. 193-222). Routledge.

3. Freimuth, V. S., Quinn, S. C., Thomas, S. B., Cole, G., Zook, E., & Duncan, T. (2001). African Americans' views on research and the Tuskegee Syphilis Study. Social Science & Medicine, 52(5), 797-808.

4. Kreps, G. L., & Sparks, L. (2008). Meeting the health literacy needs of immigrant populations. Patient Education and Counseling, 71(3), 328- 332

**Course Title: Social Pharmacy**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Course Code: BOA213**

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

**2.** Deliberate about roles of pharmacists in the various national health programs
**3.** Describe various sources of health hazards and disease preventive measures
**4.** Discuss the healthcare issues associated with food and nutritional substances
**5.** Describe the general roles and responsibilities of pharmacists in public health

**Course Contents**

**UNIT –I** **10 Hours**

Introduction to Social Pharmacy Definition and Scope. Social Pharmacy as a discipline and its scope in improving the public health. Role of Pharmacists in Public Health. Concept of Health - WHO Definition, various dimensions, determinants, and health indicators. National Health Policy – Indian perspective. Public and Private Health System in India, National Health Mission, Introduction to Millennium Development Goals, Sustainable Development Goals, FIP Development Goals.

**UNIT –II** **10 Hours**

Preventive healthcare – Role of Pharmacists in the following, Demography and Family Planning. Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes and bottle feeding Overview of Vaccines, types of immunity and immunization

**UNIT –III** **15 Hours**

Nutrition and Health Basics of nutrition – Macronutrients and Micronutrients, Importance of water and fibers000 in diet Balanced diet, Malnutrition, nutrition deficiency diseases, ill effects of junk foods, calorific and nutritive values of various foods, fortification of food , Introduction to food safety, adulteration of foods, effects of artificial ripening, use of pesticides, genetically modified foods , Dietary supplements, nutraceuticals, food supplements – indications, benefits, Drug-Food Interactions

**UNIT –IV** **10 Hours**

Introduction to health systems and all ongoing National, Health programs in India, their objectives, functioning, outcome, and the role of pharmacists.

**Transactional modes**

Video-based teaching, Collaborative teaching, Case based teaching, Question, ppt

**Suggested Reading:**


- *Textbook of Pharmacognosy by C. K. Kokate, S. B. Gokhale, A.P. Purohit, Nirali Prakashan*
- *Textbook of Pharmacognosy by C.S. Shah and J. S. Qadry, CBS Publishers & Distributors Pvt. Ltd.*
- *Text Book of Pharmacognosy by T. E. Wallis. CB Publishers & Distributors Pvt. Ltd.*
- *Study of crude drugs by M. A. Iyengar, Manipal Press Ltd,*
- *Manipal Powder crude drugs by M. A. Iyengar, Manipal Press Ltd,*

**Semester 3rd**

**Course Title: Basic Intensive Care**

**Course Code: BOA301**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Evaluate and integrates the use of analytical enquiry and critical reflection.
2. Determine knowledge of the pathophysiological nature of disorders resulting in critical illness.
3. Integrate advanced and integrated theoretical and clinical knowledge required for the, assessment and management of the complex critically ill patient.
4. Determine a systems approach to the assessment, monitoring and support of physiological function in the critically ill patient
5. Integrates care which is patient centered and embraces cultural diversity, individuality and experience

## Course Contents

**UNIT-I** **15 Hours**

Care and maintenance of ventilators, suction machine, monitoring devices. Sterilization and disinfection of ventilators. Care, maintenance and operational capabilities of beds, lights and other apparatus. Air conditioning and control of pollution in ICU. Attachment and intra-operative utility of ventilators and monitoring devices.

**UNIT-II** **15 Hours**

Care of unconscious adult and pediatric patients. Physiotherapy techniques, feeding, Ryle's tube insertion and hyperalimentation.

Suctioning and posturing of semiconscious and unconscious patients. Oxygen therapy, maintenance of clear Airway. Ventilation of patient in crisis: Mouth to mouth. Mouth to ET Tube Resuscitator/ bag valve mask assembly Different types of Airways.

Short term ventilation/ Transport ventilators.

**UNIT-III** **15 Hours**

ICU Laboratory; Detection of blood gases of the patient, Principles of ABG machines. Management of asepsis. Management of tetanus patient. Psychological aspects of the patient, relative and staff. Hemofiltration and hemodialysis. Monitoring techniques and equipment;

**UNIT-IV** **15 Hours**

Ventilators: Principles of working of different ventilators: Volume cycled/Time cycled/Pressure cycled ventilators. High frequency ventilators and other types. Methods of measuring the expired gases from the patient; Types of spirometers, Principles of working of spirometers. Clinical application of above apparatus. Apparatus and techniques of measuring of blood pressure and temperature; Principle and working of direct/indirect blood pressure monitoring apparatus; structure, principle and working of the o B.P. instrument. Laryngeal sprays; Types, material, principle and mechanism.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.

**Suggested Readings:**


- *Ranjit, S. (2010). Manual of Pediatric Emergencies & Critical Care.Paras.*
- *McLean, S. F. (2016). Case-based learning and its application in medical and health-care fields: a review of worldwide literature.*
- *Journal of Medical Education and Curricular Development, 3, JMECD-S20377.*
- *Spuntarelli, V., Luciani, M., Bentivegna, E., Marini, V., Falangone, F., Conforti, G.,& Martelletti, P. (2020).*
- *COVID-19: is it just a lung disease? Acase-based review. SN Comprehensive Clinical Medicine*

**Course Name: Surgical Instruments & Procedures Course Code: BOA302**

| L | T | P | C |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Recognize the general principles and preventive maintenance for normal delivery and caesarian delivery.
2. Must know about routine testing and devaluation of results of routine testing for follow up of pregnancy.
3. Department staffing and organizations; records relating to child born inhospital and complete the documentation.
4. Comprehend the general principles and preventive maintenance for Medical termination of pregnancy

## Course Contents

**UNIT-I** **15 Hours**

Neck Surgery Thyroidectomy Para thyroidectomy Thyroglossal Cystectomy Breast Procedures Beast Biopsy Mastectomy

**UNIT-II** **15 Hours**

Abdominal Extra-intestinal Surgery Abdominal laparotomy Abdominal Hernlography Cholecystectomy Drainage of Pancreatic Cyst (Pseudocyst) Pancreatic duodectomy (Whipples procedure) Pancreatectomy Drainage of Abscess (es) in the region of liver • Hepatic Resection Splenectomy.

**UNIT-III** **15 Hours**

Gastriubtestinal Surgery Esopghagoscopy Gastroscopy Colonoscopy Sigmoidoscopy Vagotomy and Pyloroplasty Gastrostomy Gastrectomy Small Bowel Resection Cutaneous ileostomy Appendectomy Colostomy Closure of colostomy.

**UNIT-IV** **15 Hours**

Major procedures tray Basic /Minor procedures tray Limited procedures tray Thyroid tray Long instruments tray Biliary tract procedures tray Choledochoscopy tray Basic rigid sigmoidoscopy tray Gastrointestinal procedures tray Rectal procedures tray Gynaecologic and Obstetric Trays Dilatation of the Cervix and Curettage of the Uterus (D&C) Tray Cervical Cone Tray Laparoscopy Abdominal Hysterectomy Caesarean Section tray Vaginal Hysterectomy tray

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**

- *Lee Synopsis Lee synopsis MRogan Medical surgical – Brunner& Siddharth Ortho-Lippincctt*
- *OBG/GYN – D.C. Dutta*
- *Berry & Kohnis-Berry and Kohnis Operating RAM Technique*

**Course Name: Basic Intensive care (Practical)**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Course Code: BOA303**

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Acquaintance about all ICU and Operation theatre machines.
2. Recognize the uses of instruments which are used in OT, ICU, and CCU.
3. Care and maintenance of all devices in OT.
4. Acquire care, maintenance and operational capabilities of beds, lights and other apparatus.

**Course Contents List of Experiments/Practical's**

1. Ventilators: Principles of working of different ventilators: Volume cycled/Time cycled/Pressure cycled ventilators. High frequency ventilators and other types.
2. Methods of measuring the expired gases from the patient; Types of spirometers,
3. Principles of working of spirometers. Clinical application of above apparatus.
4. Apparatus and techniques of measuring of blood pressure and temperature; Principle and working of direct/indirect blood pressure monitoring apparatus; structure, B.P. instrument.
5. Laryngeal sprays; Types, material, principle and mechanism. Monitoring techniques and equipment; Cardiac monitors, Respiratory monitors,

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Ranjit, S. (2010). Manual of Pediatric Emergencies & Critical Care. Paras.*
- *Spuntarelli, V., Luciani, M., Bentivegna, E., Marini, V., Falangone, F., Conforti, G., & Martelletti, P. (2020).*
- *McLean, S. F. (2016). Case-based learning and its application in medical and health-care fields: a review of worldwide literature.*
- *Journal of Medical Education and Curricular Development, 3, JMECD-S20377.*

**Course Name: Surgical Instrument & Procedures (Practical)**
**Course Code: BOA304**
**Total Hours: 30**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Realize the general principles and preventive maintenance for normal delivery and cesarean delivery.
2. Must know about routine testing and devaluation of results of routine testing for follow up of pregnancy.
3. Department staffing and organizations; records relating to child born in hospital and complete the documentation.
4. Recognize the general principles and preventive maintenance for Medical termination of pregnancy

**Course Content List of Experiments/Practical's**

1. Otoscopy: Examination of the ear using an otoscope to visualize the external ear canal and tympanic membrane.
2. Nasal Endoscopy: Using a flexible or rigid endoscope to visualize the nasal cavity and sinus passages for diagnostic or surgical purposes.
3. Laryngoscopy: Examination of the larynx (voice box) using a laryngoscope to assess vocal cord function and visualize abnormalities.
4. Tympanometry: Measurement of middle ear pressure and compliance using a tympanometer to assess middle ear function and detect conditions like otitis media or eustachian tube dysfunction.
5. Audiometry: Evaluation of hearing using pure-tone and speech audiometry tests to assess hearing thresholds and identify hearing loss.
6. Nasal Packing: Inserting gauze or specialized nasal packs into the nasal cavity to control bleeding or support the nasal septum after surgery.
7. Nasal Polypectomy: Surgical removal of nasal polyps using instruments like forceps or microdebriders to alleviate nasal obstruction.
8. Tonsillectomy and Adenoidectomy: Surgical removal of the tonsils and adenoids to treat chronic infections, sleep apnea, or recurrent tonsillitis.
9. Myringotomy: Creating a small incision in the tympanic membrane to drain fluid or release pressure from the middle ear, often followed by the insertion of

tympanostomy tubes.

10. Sinus Surgery: Various procedures to address chronic sinusitis or sinus-related problems, such as functional endoscopic sinus surgery (FESS) or balloon sinuplasty.
11. Thyroidectomy: Surgical removal of the thyroid gland in cases of thyroid cancer, goiter, or hyperthyroidism.
12. Tracheostomy: Creation of an opening in the trachea through the neck to establish an airway for patients with severe respiratory distress or those requiring long-term ventilation.

**Suggested Readings:**


- *Lee Synopsis Lee synopsis MRogan*
- *Medical surgical – Brunner & Siddharth Ortho-Lippincctt*
- *OBG/GYN – D.C. Dutta*
- *Berry & Kohnis-Berry and Kohnis Operating RAM Technique.*

**Course Name: Electronics and Technology in Surgery and Anesthesia**
**Course Code: BOA305**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Maintain the electronic clinical record and prescribing system and drugs timing.
2. Provide electronic automatic coding, recovery progress, activity analysis.
3. Manage financial analysis, identification of staff, and all record of patients.
4. Find out engineering aspects of operation theatre equipment, power supplies, CVT, servo-stabilizers, and ups etc.

## Course Contents

**UNIT-I** **15 Hours**

Electronics and electro mechanical techniques-Electrical safety precautions in operation theatre. OT tables, OT lights, suction machines, electrodes, pressure transducers, electrical safety, application, handling operation.

**UNIT-II** **15 Hours**

Basic electronics basic principle, care and maintenance and uses of surgical diathermy machine, defibrillator, Boyle's apparatus, anesthesia machine, monitors, pace-makers and stimulators etc. Engineering aspects of operation theatre equipment, power supplies, CVT, servo-stabilizers, and ups etc.

**UNIT-III** **15 Hours**

Book keeping and Stock maintenance. Moral aspects and duties of OT technologist. Indenting, Book keeping and storage procedures of different articles. Co-ordination with all working personal in operation Theatre. Psychological aspects of patient, staff and relatives of the patient. Management of operation theatre in routine and emergency

**UNIT-IV** **15 Hours**

Computer data processing, software information and Data management. Logging on and off, Security concepts, Sending and receiving Emails. Hospital information system.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *El-Hindy, N., Johnston, R. L., Jays cock, P., Eke, T., Braga, A. J., Tole, D. M., & Sparrow, J. M. (2009). The Cataract National Dataset Electronic Multi-centre Audit of 55 567 operations: anaesthetic techniques and complications. Eye*
- *Sanborn, K. V., Castro, J., Kuroda, M., &Thys, D. M. (1996). Detection of intraoperative incidents by electronic scanning of computerized anaesthesia records: comparison with voluntary reporting. The Journal of the American Society of Anesthesiologists Baddour, L. M., Epstein,*

**Course Title: Medical Ethics & Legal Aspects**
**Course Code: BOA306**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Interact with the patients and health care professionals in working area.
2. Handle Legal Responsibilities, Patient safety and quality
3. Manage Biomedical waste generated from hospital or
4. Maintain Medical records and reports preparation.

## Course Contents

**UNIT-I** **13 Hours**

Role, Definition and Interaction with the patients and health care professionals, Ethical, Moral, and Legal Responsibilities, Patient

safety and quality, restrain policies and role of health professionals.

**UNIT-I** **10 Hours**

Biomedical waste Management, medical records and reports. Medical terminology- The course employs a body systems-oriented, word- analysis approach to learning medical terminology.

**UNIT-III** **12Hours**

The goal of the class is to prepare students for the terminology they might encounter in their subsequent coursework, in their clinical rotations and ultimately in their roles as health care professionals.

**UNIT-IV** **10 Hours**

Ethical Issues in Research and Clinical Trials, Ethical principles in research involving human subjects, Informed consent in research, Ethical challenges in clinical trials, Legal Aspects in Healthcare
Overview of healthcare laws and regulations, Liability and malpractice issues in healthcare, Medical documentation and record-keeping.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- Beauchamp, T. L., Childress, J. F., & Principles, B. H. (2019). Principles of Biomedical Ethics (8th ed.). Oxford University Press.
- Devettere, R. J. (2012). Practical Decision Making in Health Care Ethics: Cases, Concepts, and the Virtue of Prudence (3rd ed.). Georgetown University Press.
- Lo, B., & Field, M. J. (Eds.). (2009). Conflict of Interest in Medical Research, Education, and Practice. National Academies Press.
- Pellegrino, E. D., & Thomasma, D. C. (2017). The Philosophy of Medicine Reborn: A Pellegrino Reader. University of Notre Dame Press.
- Crowley, M., & Lodge, A. (2018). Medicine, Ethics, and the Law: The Core Curriculum (2nd ed.). Churchill Livingstone.

**Course Title: Medical Diseases Influencing Choice of Anesthesia**
**Course Code: BOA307**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Learn the application of anesthetic medications in Various Heart diseases.
2. Understand Respiratory diseases such as Chronic Obstructive Pulmonary Disease and Acute
3. Understand Respiratory Failure in renal diseases, diseases of Liver and endocrine disorders and In metabolic Diseases
4. Apply the knowledge related to drugs, calculations of anesthetic medications in different cardiovascular, respiratory and renal diseases.

## Course Contents

**UNIT- I** **10 Hours**

Ischemic Heart Disease: Risk factors: Medications, Acute MI, and Anesthesia for IHD cases. Post op management Valvular Heart Disease: Mitral stenosis: Anesthetic problems, Aortic regurgitation Hypertension: Drugs Anaesthesia for Hypertension. Hypertensive Crises. Complications

**UNIT- II** **11Hours**

Respiratory Diseases: COPD, Bronchiectasis, Asthma, Pneumonia, Acute Respiratory Failure, Tuberculosis Diseases of CNS- Cerebral Edema & Its Management, Ocular Trauma, Meningitis, Encephalitis.

**UNIT-III** **12 Hours**

Diseases of Liver and Biliary Tract-Liver Functions, Liver Function Tests, Hepatitis, Jaundice, Types, Cirrhosis; Hepatorenal Syndrome Renal Disease: Functions of Kidney, Kidney Function, tests, Renal Failure, Anesthesia for renal failure patients (Acute and Chronic), Urinary Tract Infection

**UNIT-IV** **12 Hours**

Endocrine Disease: Diabetes Mellitus, Thyroid Dysfunction – Thyrotoxicosis, Hypothyroidism, Adrenal Gland Dysfunction, Diabetes Insipidus. Obesity, Anemia, Iron Deficiency Anemia

Head Injury: Classification, Mechanism of Head Injury, SDH, EDH, SAH

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *George Mathews:- Handbook Medicine Lee Synosis: Anaethesia Handbook.*
- *Stoelting, R. K., & Hillier, S. C. (2019). Anesthesia and Co- Existing Disease (7th ed.). Elsevier.*
- *Dripps, R. D., & Eckenhoff, J. E. (2016). Introduction: The Patient with Systemic Disease. In Dripps/ Eckenhoff/ Vandam's Introduction to Anesthesia: The Principles of Safe Practice (6th ed., pp. 1-17). Lippincott Williams & Wilkins.*
- *Longnecker, D. E., Brown, D. L., Newman, M. F., & Zapol, W. M. (2017). Chapter 5: Coexisting Disease. In Anesthesiology (3rd ed., pp. 93-109). McGraw-Hill Education.*
- *Pino, R. M., Aliaga, L., & Cassorla, L. (2016). Coexisting Disease: The Pediatric Patient. In Anesthesia and Perioperative Care for Organ Transplantation (1st ed., pp. 57-69). Springer*

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Course Title: Clinical Pharmacology**

**Course Code: BOA310**

**Total Hours: 40**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Learn pharmacology drugs acting on blood and blood forming agents.
2. Enlist the drugs acting on urinary system.
3. Study pharmacology drugs acting on GI system.
4. Acquire pharmacology of drugs acting on immune system.

**Course Contents**

**UNIT-I** **10 Hours**

Anticoagulants: Atropine, Glycopyrrolate Sedatives I Anxiolytics: Diazepam, Midazolam, Phenergan, Lorazepam, Chlorpromazine, and Triclofos. Narcotics: Morphine, Pethidine, Fentanyl, Pentazozine, tramadol. Anti-emetic's Metoclopramide, Ondanseteron, Dexamethasone

**UNIT-II** **10 Hours**

Induction Agent: Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Intimidate. Muscle Relaxants: Depolarizing - Suxamethonium, Non depolarizing - Vecuronium, Atracurium, rocuranium Inhalational Gases: Gases-02, N20, Air, Agents-Ether, Halothane, Isofllurane, And Saevoflurane, Desflurane Reversal Agents: Neostigmine, Glycopyrrolate, Atropine, Naloxone, Flumazenil (Diazepam).

**UNIT-III** **10 Hours**

Local Anesthetics Xylocaine Bupivacaine Topical, Prilocaine-jelly, Emla Ointment Etidocain Ropivacaine Emergency Drugs Mode or administration dilution dosage and effects Adrenaline Atropine Ephedrine, Mephentramine Bicarbonate,calcium,potassium.

**UNIT-IV** **10 Hours**

Inotropes: dopamine, dobutamine, amidarone Aminophylline, hydrocortisone, antihistaminic,

Antihypertensive –Beta-blockers, Ca-channel blockers. Antiarrhythmic- xylocard
Vasodilators- nitroglycerin & sodium nitroprusside Respiratory system Bronchodilators, Renal system- Diuretics, frusemide, mannitoI.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Goodman, L. S. (1996). Goodman and Gilman's the pharmacological basis of therapeutics (Vol. 1549). New York: McGraw-Hill.*
- *B. S., Gui, H. S., Zhu, Y. D., &Xu, T. H. (2011). Research progress in chemical compoents, pharmacological effectiveness and toxicity of Psammosilenetunicoides*
- *He, J. M., & Mu, Q. (2015). The medicinal uses of the genus Mahonia in traditional Chinese medicine: An ethnopharmacological, phytochemical and pharmacological review. Journal of ethnos pharmacology, Zhao,.*

**Course Name: Basic Concepts of Anesthesia Course Code: BOA311**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 60**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Clarify concepts and techniques in Anesthesia.
2. To Study about the techniques in Anesthesia for surgical patient
3. Understand about uses of medical apparatus in anesthesia.
4. Elaborate preparation of general apparatus before anesthesia

**UNIT I** **15 Hours**

Intravenous Cannula: Setting up an IV Line, Color coding of different IV cannula, Flow through IV cannula, places where IV cannula can be inserted, Technique of inserting IV cannula in adults and children. Intra-arterial Line: Uses and techniques, position, places where IA cannula can be put. Central Venous Cannulation: Uses and technique, Measurement of CVP, precautions during insertion, indications and contraindications. Brief idea about Cardiac catheterization and Pulmonary Catheterization.

**UNIT II** **15 Hours**

Ryle's Tube: Technique of insertion, Sizes available, Precautions and complications, Suction catheters: Uses and color coding, Sizes available. Foley's catheter: Insertion Technique, Precautions, Care and complications. Supra- pubic catherization: Indications and placement.

**UNIT III** **15 Hours**

Endotracheal Tubes, Combitubes, Double Lumen Tubes: Uses and advantages. Nasal and oral tubes: indications and advantages. Oral Airways: Classification, Sizes and color coding indications. Supraglottic devices: LMA, I-gel and Proseal. Uses and indications.

**UNIT IV** **15 Hours**

Transport of patient: Intra-hospital transport, Inter-hospital transport. Transportation of critically ill patients, Indications, preparation and Precautions of transportation. Patient handover to nursing staff.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Questions, ppts

**Course Title: Medical Terminology & Medical Records**
**Course Code: OEC021**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Recognize interaction between society and educational institutions.
2. Making the learners acquire conceptual clarity and develop respect for norms and values of freedom, equality, fraternity and justice.
3. Outline to medical terminology Word formation
4. Importance of medical record, Flow chart of function, statutory requirements of maintenance.

**UNIT I** **10 Hours**

Introduction to medical terminology Word formation commonly used prefixes, suffixes and root words in medical terminology D Common Latin term used in prescription writing Study of standard abbreviations commonly used medical terms to define different parts of the body

**UNIT II** **05 Hours**

Medical terminology used by: Cardiologist, Neurologist, Nephrologist, Gastrointestinologist, ENT surgeon, Dentist, Orthopedic surgeon, Gynecologist, Oncologist, Dermatologist and Endocrinologist.

**UNIT III** **05 Hours**

Medical record: Definition and Types of medical record, Importance of medical record, Flow chart of function, Statutory requirements of maintenance, coding, indexing and filing, Computerization of record, Report and returns by the record department, Statistical information and ICD.

**UNIT IV** **10 Hours**

Utility & functions of Medical Records in Health care delivery System. Organizations & management of the Medical Records Department. Role of Hospital managers & MRD personnel in Medical record keeping. Reports &

returns in the Medical Record System.

**Suggested Readings:**

- *F.J. Baker & R.E. Silverto An introduction to Med. Lab. Technology Pb. London Butterworthand Co.Ltd. Paramedics-Six in One Jaypee Brothers*
- *B. M. Sakharkar Principles of Hospital Administration & Planning Jaypee Brothers4 C.*
- *M.Francis Hospital Administration Jaypee Brother*

**Course Name: Human Rights & Profession Values Course Code: OEC018**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Realize interaction between society and educational institutions.
2. Sensitize the citizens so that the norms and values of human rights and duties of education Programme are realized.
3. Encourage research activities.
4. Encourage research studies concerning the relationship between Human Rights and Duties Education.

**Course Contents**

**UNIT – I** **05 Hours**

Background – Introduction, Meaning, Nature and Scope, Development of Human Rights, Theories of Rights, Types of Rights Human rights at various level- Human Rights at Global Level UNO, Instruments: U.N. Commission for Human Rights, European Convention on Human Rights.

**UNIT – II** **10 Hours**

Human rights in India – Development of Human Rights in India, Human Rights and the Constitution of India, Protection of Human Rights Act 1993- National Human Rights Commission, State Human Rights Commission, Composition Powers and Functions, National Commission for Minorities, SC/ST and Woman

**UNIT – III** **10**

**Hours**

Human Rights Violations -Human Rights Violations against Women, Children, Violations against Minorities SC/ST and Trans-genders, Preventive Measures. Professional values-Integrity, Objectivity, Professional competence and due care, Confidentiality

**UNIT – IV** **05**

**Hours**

Personal values- ethical or moral values, Attitude and behaviour professional behaviour, treating people equally Code of conduct professional accountability and responsibility, misconduct, Cultural issues in the healthcare environment

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Jagannath Mohanty Teaching of Humans Rights New Trendsand Innovations Deep & Deep Publications Pvt. Ltd. New Delhi 2009*
- *Ram Ahuja: Violence Against Women Rawat Publications Jawahar Nager Jaipur. 1998.*
- *Sivagami Parmasivam Human Rights Salem 2008Hingorani R.C.: Human Rights in India: Oxford and IBA New Delhi.*

**Semester 4th**

**Course Name: Anesthesia for Specialty Surgeries Course Code: BOA401**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. A primary purpose of the course is to know about uses of anesthetic instruments, anesthetic
2. Procedure and anesthetic drugs in different medical conditions.
3. know about uses of anesthetic instruments, anesthetic procedure
4. Elaborate anesthetic drugs in different medical conditions.

## Course Contents

**UNIT I** **15 Hours**

Anesthesia for Obese Patients Neurosurgical anesthesia. Anesthesia in Laparoscopic surgery.

**UNIT II** **15 Hours**

Anesthesia for Obstetric procedure, Anesthesia in pediatric patient's surgery. Anesthesia in Orthopedic surgery

**UNIT III** **15 Hours**

Anesthesia in geriatric surgery, Anesthesia for Ophthalmic surgery, Anesthesia in day care surgery.

**UNIT IV** **15 Hours**

Anesthesia for ENT surgery, Anesthesia for management of burn patients. Anesthesia in Pain management.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**

- *Synopsis of medical instruments & procedure by JP Brothers. Short text book of anesthesia by JP Brothers.*
- *Textbook-Anesthesiav by Pramod Kumar*
- *Equipment-Drugs-Waveforms- by JP Brother*

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Course Name: CSSD Procedures**

**Course Code: BOA402**

**Total Hours: 60**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. The purpose of sterilization and disinfection procedures is to prevent transmission of microbes to
2. Patients. These standard precautions should be used in interaction with all patients because it is
3. Know whether any particular patient may be the reservoir of transmissible bacteria, viruses, or other microbes.
4. Information about the purpose of sterilization and disinfection procedures is to prevent transmission of microbes to patients.

## Course Contents

**UNIT I** **15 Hours**

Waste disposal Introduction to bio medical waste, Types of bio medical waste, Bio Medical Waste Management, Collection of bio medical waste, Hazards of Biomedical waste.

**UNIT II** **15 Hours**

Disinfectants, Types of disinfectants Use of disinfectants for cleaning equipment's, sharps, blunt and etc. Contaminated high risk baby care - delicate instruments or hot care instruments.

**UNIT III** **15 Hours**

Cleaning process - use of detergents. Mechanical cleaning apparatus, cleaning instruments, cleaning of catheters and tubing's, cleaning glass ware, cleaning syringes and needles.

**UNIT IV** **15 Hours**

Ionizing and non-Ionizing sterilization and Disinfection. Moist heat sterilization. Dry heat sterilization EO gas sterilization, gowning, gloving and scrubbing techniques.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- Kumar S. Textbook of microbiology. JP Medical Ltd; 2012 Sep 30.
- Draugalis JR, Coons SJ, Plaza CM. Best practices for survey research reports: a synopsis for authors and reviewers. American journal of pharmaceutical education. 2008 Sep

**Cours Name: Anesthesia for Specialty Surgeries (Practical)**
**Course Code: BOA404**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 2 | 1 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. A primary purpose of the course is to know about uses of anesthetic instruments, anesthetic
2. A primary purpose of the course is to know about uses of anesthetic
3. Analysis of anesthetic instruments, anesthetic procedure
4. Elaborate anesthetic drugs in different medical conditions.

**List of Experiments/Practical's**

**1** Neurosurgical anesthesia, Anesthesia in Laparoscopic surgery, Anesthesia for Obstetric procedure,
**2** Anesthesia in pediatric patient's surgery.
**3** Anesthesia in Orthopedic surgery Anesthesia for Ophthalmic surgery
**4** Anesthesia in day care surgery Anesthesia for ENT surgery Anesthesia in Pain management

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**

- *Synopsis of medical instruments & procedure by JP Brothers Short text book of anesthesia by JP Brothers.*
- *Textbook-Anesthesia by Pramod Kumar Equipment-Drugs-Waveforms- by JP Brother*

**Course Name: CSSD Procedures (Practical) Course Code: BOA405**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 2 | 1 |

**Total Hours: 30**

**Learning Outcomes: After completion of this course, the learner will be able to:**

**1.** The purpose of sterilization and disinfection procedures is to prevent transmission of microbes to patients. These

**2.** Whether any particular patient may be the reservoir of transmissible bacteria, viruses, or other microbes.

**3.** Attain knowledge about the purpose of sterilization and disinfection procedures is to prevent transmission of microbes to patients.

**4.** Knowledge about the standard precautions should be used in interaction with all patients

**List of Practical's /Experiments**

1. Procedure of Autoclave.
2. Procedure of Hot air oven
3. Procedure of EO.
4. Procedure of instruments packing.
5. Procedure of Fumigation of Operation Theater.
6. Techniques of Disinfectants.
7. Procedure of scrubbing
8. Procedure of washing.
9. Sterilization of the anesthetic instruments.
10. Procedure of sterilization in chamber.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- Kumar S. Textbook of microbiology. JP Medical Ltd; 2012 Sep 30.
- Draugalis JR, Coons SJ, Plaza CM. Best practices for survey research reports: a synopsis for authors and reviewers. American journal of pharmaceutical education. 2008 Sep 1;72(1)

**Course Name: Drug Abuse: Problem, Management and Prevention**
**Course Code: BOA407**
**Total Hours: 30**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Understand the concept of drug abuse and their impact on public health.
2. Make them aware of the impact of drugs addiction on families and peers.
3. Make students understand the management and prevention of drug abuse.
4. Apply personal protective equipment's for self-protection.

## Course Contents

### UNIT-I — 10 Hours

Problem of Drug Abuse: Concept and Overview; Types of Drug Often Abused Concept and Overview what are drugs and what constitutes Drug Abuse? Prevalence of menace of Drug Abuse How drug Abuse is different from Drug Dependence and Drug Addiction? Physical and psychological dependence-concepts of drug tolerance Introduction to drugs of abuse: Short Term, Long term effects & withdrawal symptoms Stimulants: Amphetamines, Cocaine, Nicotine Depressants: Alcohol, Barbiturates- Nembutal, Secondly, Phenobarbital Benzodiazepines Diazepam, Alprazolam, Flunitrazepam Narcotics: Opium, morphine, heroin.

Hallucinogens: Cannabis & derivatives (marijuana, hashish, hash oil), Steroids and inhalants.

### UNIT-II — 05 Hours

Nature of the Problem: Vulnerable Age Groups, Signs and symptoms of Drug Abuse Physical indicators. Academic indicators. Behavior and Psychological indicators.

### UNIT-II — 10 Hours

Causes and Consequences of Drug Abuse Causes Physiological Psychological Sociological Consequences of Drug Abuse For individuals for families or society & Nation

**UNIT-IV** **05 Hours**

Management & Prevention of Drug Abuse Management of Drug Abuse Prevention of Drug Abuse Role of Family, School, Media, Legislation & De addiction Centers

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Kapoor. T., Drug Epidemic among Indian Youth, Mittal Pub, New Delhi, 1985.*
- *Ishwar and Shalini, Drugs: Addiction and Prevention, Rawat Publication, Jaipur, 1997.*
- *Ahuja, Ram, Social Problems in India, Rawat Publications, Jaipur, 2003.*
- *National Household Survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004. World Drug Report , United Nations Office of Drug and Crime, 2011*
- *World Drug Report, United nations Office of Drug and Crime, 2010.*

**Course Name: Medicine**

**Course Code: BOA408**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Obtain an accurate and complete medical history of the patient.
2. Perform complete and organ-system specific examinations, including amental status examination.
3. Recommend and interpret the results of commonly used diagnostic procedures and tests.
4. Recognize Common urinary symptoms- dysuria, pyuria, anuria, oliguria, polyuria

**UNIT-I** **10 Hours**

Common symptoms of diseases –Pain: pathophysiology, clinical types, assessment and management Fever: clinical assessment and management Cough chest pain, dyspnoea, and haemoptysis Oedema, anasarca, ascites Pallor, jaundice Bleeding Anorexia, nausea and vomiting Constipation and diarrhea

**UNIT-II** **10 Hours**

Hematemesis, malena and hematochezia Common urinary symptoms- dysuria, pyuria, anuria, oliguria, polyuria, nocturia, enuresis Body pains and joint pains Headache, seizures, fainting, syncope, dizziness, vertigo Disturbances of consciousness and coma ,Weight loss and weight gain

**UNIT-III** **10 Hours**

Immune Response and Infections Approach to infectious diseases – diagnostic and therapeutic principles Immune defence mechanisms Laboratory diagnosis of infections Principles of immunization and vaccine use Immunodeficiency disorders - acquired Immunodeficiency disorders – congenital

**UNIT-IV** **15 Hours**

Cardiovascular system- Clinical examination of the cardiovascular system, major manifestations of cardiovascular disease

Respiratory system - Clinical examination of the respiratory system, major manifestations of respiratory disease

Renal and genito-urinary system- Major manifestations of renal and urinary tract disease Liver and biliary tract disease - Viral hepatitis, alcoholism. Endocrinology and metabolism, Diabetes mellitus, Hyper-and hypothyroidism. Disorders of the Immune System, Connective Tissue and Joints Disorder of haemopoesis - Anemia - iron deficiencies anemia. Types

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question


- Greenhalgh, T. (2019). How to Read a Paper: The Basics of Evidence-Based Medicine (6th ed.). John Wiley & Sons.
- Kumar, P., & Clark, M. (2017). Kumar and Clark's Clinical Medicine (9th ed.). Elsevier.
- Kasper, D. L., Fauci, A. S., Hauser, S. L., Longo, D. L., Jameson, J. L., & Loscalzo, J. (Eds.). (2020). Harrison's Principles of Internal Medicine (20th ed.). McGraw-Hill Education.
- Deakin, C. D., & King, P. (Eds.). (2019). Advanced Life Support: APractical Approach (6th ed.). Wiley-Blackwell.
- McPhee, S. J., Papadakis, M. A., & Rabow, M. W. (Eds.). (2019). Current Medical Diagnosis & Treatment 2020. McGraw-Hill Education

**Course Name: Pre - Operative Anesthetic Care & Preparation**

**Course Code: BOA409**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Learn the knowledge of advance techniques regarding anesthesia.
2. Understand about the advance heart surgery techniques and machinery
3. Use of all types of clinically techniques of ventilation.
4. Apply Cardiac Arrhythmias (atrial fibrillation, ventricular tachycardia, extra systoles)

**Course Content**

**UNIT – I** **10 Hours**

An aesthesia Techniques Phases of GA Balanced anesthesia, TIVA Regional anesthesia Techniques IVRA, CNB, Plexus Block, Topical Sedation / MAC Complication of GA / RA

**UNIT – II** **15 Hours**

Pre anesthetic assessment History – past history - disease / Surgery / and personal history - Smoking/ alcohol / drugs / medication General physical assessment, systemic examination – CVS, RS, CNS Investigations – Hematological, Urine, ECG, Chest X- ray, Endocrine, Hormonal assays, Echocardiography, angiography, Liver function test, renal function test ASA grading - I, II, III, IV, V

UNIT – III

10 Hours

Patient check List: Protocol Part preparation Consent, PAC, Investigations NPO Status, OT Dress, Lipstick/ Nail polish Premedication Basal parameters I.V. Line an aesthesia Machine / Gas Supply Suction Machine Monitors anesthesia Airway Devices – Laryngoscope, Airways, ETT, Stylette, tape jelly I.V.Cannula, I.V. fluids

**UNIT – IV** **10 Hours**

Drugs – Anesthesia related and Emergency Special

preparation – As per specific patient needdifficult intubation tray: Contents
PACU, Discharge Criteria Modified Aldreth Score Five Vital Signs Bladder Distension Pain management.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggestion Reading**


- *Alam, A., Rampes, S., Patel, S., Hana, Z., & Ma, D. (2021). Anesthetics or anesthetic techniques and cancer surgical outcomes: a possible link. Korean Journal of Anesthesiology*
- *Malamed, S. F. (2014). Handbook of local anesthesia-e-book. Elsevier Health Sciences.*
- *Miller, R. D., Eriksson, L. I., Fleisher, L. A., Wiener-Kronish, J. P., Cohen, N. H., &Young, W. L. (2014). Miller's anesthesia e-book. Elsevier Health Sciences.*

**Course Name: Professionalism and Values Course Code: BOA411**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Develop effective communication and interpersonal skills in professional contexts.
2. Relate critical thinking and decision-making skills to ethical challenges.
3. Cultivate personal values and ethical principles that align with professional standards.
4. Reflect on their own professional development and personal growth.

## Course Contents

**UNIT-I** **9 Hours**

Introduction to Professionalism and Ethics, Definition of professionalism, Key attributes of a professional, Ethical principles and values, Professional Codes of Conduct and Standards

Overview of professional codes and standards in different fields (e.g., medicine, law, engineering), Analysis of code violations and their consequences, Comparison of different ethical frameworks

**UNIT-II** **12 Hours**

Ethical Decision Making, Models of ethical decision making, Identifying ethical dilemmas, Strategies for resolving ethical conflicts, Communication and Interpersonal Skills

Effective verbal and non-verbal communication, Active listening and empathy Professional etiquette and workplace relationships

**UNIT-III** **12 Hours**

Workplace Integrity and Accountability, Building trust and credibility Personal and professional integrity, Taking responsibility for actions and decisions, Ethical Leadership and Teamwork

Leadership styles and ethical leadership, Collaboration and teamwork ethics, Managing ethical challenges within teams, Cultural issues in the healthcare environment

**UNIT-IV** **12 Hours**

Ethical Issues in Technology and Social Media, Privacy and data protection, Digital professionalism and online identity

Ethical considerations in technology use, Professional Development and Lifelong Learning

Setting professional goals, Continuing education and professional growth, Reflective practice and self-assessment.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Rokeach, M. (2008). Understanding human values.Simon and Schuster.Inglehart, R. F., Basanez, M., Basanez, M., & Moreno, A. (1998).*
- *Human values and beliefs: A cross-cultural sourcebook. University of Michigan Press. Kerruish, A. (1995).*
- *Basic human values: The ethos for methodology. Journal of community & applied social psychology, 5(2), 121-143.*

**Subject Title: Basic Procedures and Techniques**

**Subject Code: BOA412**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Know the use of various types of emergency drugs, their dosage and effects.
2. Understand the action of drugs on the neuromuscular system, cardiovascular system.
3. Application of Bicarbonate, calcium, potassium in patient care.
4. Understand the mode of action of pain killer drugs and their effects.

**UNIT-I** **10 Hours**

I.VI. Cannulation Sizes, Color Coding, Technique of I.V. cannulation Preparation of I.V. drip Types of fluids Precaution during IV cannulation Central Venous Catheterization and CVP • Role, Types, sizes, Locations Positions, Technique, Precautions Complications Arterial Cannulation Significance, Locations.

**UNIT-II** **15 Hours**

Types, sizes Techniques Complications Intubation Technique of endotracheal intubation Insertion of SGADs (LMA, I -Gel etc) Cuff inflation and pressure difficult intubation kit Sellick maneuver, BURP Technique 5. Bandaging and Splinting Types of bandages and various techniques Scalp bandage, Figure of, Bandages of Eye Ear Splinting Techniques, Use of Splints / Crape Bandage Pressure Points, Emergency Tourniquet Drainage of Abscess

**UNIT-III** **10 Hours**

Cleaning Incision, Drainage Bandaging. Foley Catheter Types, sizes, Insertion Technique Sterile precautions. Nasogastric Tube Size, uses Techniques of Insertion. Face Masks &

Airways, ETT, Laryngoscopes, CPR Types of masks: Open and closed Technique of holding Anesthesia mask Airways- Types, Sizes, insertion technique Laryngoscopes- Types, Parts

**UNIT-IV** **10 Hours**

Endotracheal tubes - Types, sizes, Specialized ETT, Double lumen tubes (DLT), bronchial blockers Supraglottic Airway Device (SGADs): Types, sizes Checking tube position, complications Difficult Intubation Trolley / Tray Types of Oxygen masks Basic CPR Protocol Drop Factor Drops per min, infusion rate calculation.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question

**Suggested Readings:**


- *Smith, J. D. (2020). Basic Techniques in Photography. Photography Publishing.*
- *L. M. (2018). Essential Procedures in Surgical Nursing. Medical Publishing.*
- *Williams, R. S. (2021). Fundamentals of Painting: Techniques and Tools. Art Publishing*


**Course Title: Patient Care and Hospital Administration**
**Course Code: BOA414**

| L | T | P | Cr. |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours 45**

**Learning Outcomes:** After completion of this course, the learner will be able to:

1. Foster effective communication and collaboration among healthcare professionals from various disciplines.
2. Develop skills in resource allocation, capacity planning, and inventory management within a hospital.
3. Evaluate electronic health records (EHR) and data management for improved patient care and efficient hospital operations.
4. Implement strategies and methodologies for continuous quality improvement in patient care.

**Course Content**

**UNIT-I** **10 Hours**

Hospital structure and organization, Radiography as a profession – professionalism, Aims and objectives of first aid; wounds and bleeding, dressing and bandages; pressure and splints, supports etc. Shock; insensibility; asphyxia; convulsions; resuscitation, use of suction apparatus, drug reactions; prophylactic measures; administration of oxygen; electric shock; burns; scalds; haemorrhage; pressure points; compression band. Fractures; splints, bandaging; dressing, foreign bodies

**UNIT-II** **10 Hours**

Moving and lifting patients - hazards of lifting and manoeuvring patients, rules for correct lifting, transfer from chair or trolley to couch and vice-versa, safety of both “Lifter” and “the Lifted” must be emphasised. Highlight on handling of geriatric, paediatric and trauma patients, Communicable diseases (special reference to AIDS), cross infection and prevention, patient hygiene, personal hygiene, departmental hygiene, handling of infectious patients in the department, application of asepsis, inflammation and infection processes.

**UNIT-III** **10 Hours**

Patient vital signs - temperature, pulse, respiration and blood pressure - normal values and methods of taking and recording them. Medico-legal

considerations - radiographers clinical and ethical responsibilities, misconduct and malpractice; handling female patients, practice in pregnancy.

**UNIT-IV** **15 Hours**

Radiological contrast media - classification, need for radiological contrast media, methods of administration, dosage, reactions to contrast media, role of the imaging department and the radiographer in management of patient with contrast reaction. Principles of asepsis: Sterilisation - methods of sterilisation; use of central sterile supply department; care of identification of instruments, surgical dressings in common use, including filamented swabs, elementary operating theatre procedure; setting of trays and trolleys in the radiotherapy department (for study by radiotherapy students only)

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question Answer

**Suggested Readings**


- *Curry, T. S., Dowdey, J. E., & Murray, R. C. (1990). Christensen's physics of diagnostic radiology. Lippincott Williams & Wilkins.*
- *Podgoršak, E. B. (2006). Radiation physics for medical physicists (Vol. 1). Berlin: Springer.*
- *Weishaupt, D., Köchli, V. D., &Marincek, B. (2008).How does MRI work?: an introduction to the physics and function of magnetic resonance imaging. Springer Science & Business Media.*

**Course Title: Mentoring and Professional development**
**Course Code: BOA415**

| L | T | P | Cr. |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours 45**

**Learning Outcomes:** After completion of this course, the learner will be able to:

1. Provide appropriate first Aid for minor injuries including small cuts, grazes,

bruises etc.

2. Assess situations and circumstances in order to provide First Aid safely,

promptly and effectively in a range of emergencies.

3. Manage organizations, records related to patients and departmental

statistics.

4 Administer First Aid to an adult who is choking.

## Course Contents

**UNIT-I** **15 Hours**

First aid: Aims and objectives of first aid; wounds and bleeding, dressing and bandages; pressure and splints, supports etc. Shock; insensibility; asphyxia; convulsions; resuscitation, use of suction apparatus; drug reactions; prophylactic measures; administration of oxygen; electric shock; burns; scalds; haemorrhage; pressure points; compression band. Fractures; splints, bandaging; dressing, foreign bodies; poisons.

**UNIT-II** **10 Hours**

Infection: Bacteria, their nature and appearance; spread of infections; auto- infection or cross-infection; the inflammatory process; local tissue reaction, general body reaction; ulceration; Asepsis and antisepsis. Universal precautions, hospital acquired infections- HIV, Hepatitis B, C, and MRSA etc.

**UNIT-III** **10 Hours**

Principles of Asepsis: Sterilization - methods of sterilization; use of central sterile supply department; care of identification of instruments, surgical dressings in common use, including filament swabs, elementary operating

theatre procedure; setting of trays and trolleys in the radio imaging department (for study by radio imaging students only)

**UNIT-IV** **10 Hours**

Departmental procedures: Department staffing and organizations; records relating to patients and departmental statistics; professional attitudes of the technologist to patients and other members of the staff, medico-legal aspects accidents in the department;

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question Answer

**Suggested Readings**


- *Curry, T. S., Dowdey, J. E., & Murray, R. C. (1990). Christensen's physics of diagnostic radiology. Lippincott Williams & Wilkins.*
- *Podgoršak, E. B. (2006). Radiation physics for medical physicists (Vol. 1). Berlin: Springer.*
- *Weishaupt, D., Köchli, V. D., &Marincek, B. (2008).How does MRI work?: an introduction to the physics and function of magnetic resonance imaging. Springer Science & Business Media.*

**Course Name: Regional anesthesia**
**Course Code: BOA501**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**
**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. To know about the concept of Regional Anesthesia. Various methods of regional anesthesia and its comparison with General Anesthesia.
2. Information about concept of Regional Anesthesia.
3. Various methods of regional anesthesia and its comparison with General Anesthesia.
4. Elaborate Systemic effects, Spinal Anesthesia

**UNIT I** **15 Hours**

Regional Anesthesia- Introduction and classification- Local Block, Peripheral Nerve Block & Central Neuraxial Block-Drugs used in Regional Anesthesia. Needles used in Regional Anesthesia.

**UNIT II** **15 Hours**

Considerations, Systemic effect & toxicity. Individual Agents used, Methods of Local Anesthesia, Causes of Failure of Local Anesthesia.

**UNIT III** **15 Hours**

Peripheral Nerve Block- Technique Blocks in Upper Limb, Lower Limb, Head & Neck, Thorax & Abdomen area. Contraindications of Peripheral Nerve Block.

**UNIT IV** **15 Hours**

Central Neuraxial Blocks: Applied Anatomy, Advantages of CNB over General Anesthesia, Systemic effects, Spinal Anesthesia/Block, Intrathecal Block, Saddle Block. Epidural Anesthesia (Epidural Block) Combined Spinal Epidural Block Caudal Block Level of Block Required for common Surgeries.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question,ppts.

**Suggestion Reading**

- *Ajay Yadav Short Textbook of Anesthesia Jaypee publications*

- *Pillai Manual of Anesthesia for Operation Theatre Technicians Jaypee Brothers*
- *Maxine Goldman Pocket Guide to Operating Room F A Davis Company*

**Course Name: Anesthesia Technology**
**Course Code: BOA502**

| L | T | P | Cr |
|---|---|---|---|
| 4 | 0 | 0 | 4 |

**Total Hours: 60**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. A primary purpose of the course is to know about uses of basic anesthetic instruments and anesthetic procedure.
2. Understand uses of basic anesthetic instruments and basic anesthetic procedure.
3. Elaborate Pharmacology related to Anesthesia General Principles
4. Analysis to Important groups of drugs

**UNIT I** **15 Hours**

Anesthesia Equipment Boyle's Machine & its functioning. Boyle's vaporizers Magill's breathing circuit, Bain's breathing circuit, pediatrics anesthesia circuit Gas cylinders & flow meters Carbon dioxide absorption canisters.

**UNIT II** **15 Hours**

Suction apparatus foot operated, electrically operated AMBU bag& laryngoscope endotracheal tubes Catheters, face masks, ventimask Anaesthesia Ventilators & Monitoring.

**UNIT III** **15 Hours**

Pharmacology related to Anesthesia General Principles- Pharmacological classification of Drugs, Route of drug administration, precautions in administration, and principles of drug toxicity, prevention & treatment of poisoning adverse drug reaction. Sedatives & hypnotics, barbiturates, morphine & others.

**UNIT IV** **15 Hours**

Important groups of drugs- Antimicrobial agents & anti-allergy drugs, Diuretics & NSAIDS. Pre-anesthetic medication Local Anesthesia - technique & agents Spinal Anesthesia- technique agents General Anesthesia - technique & agents

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Questions, ppts.

**Suggestion Reading**

- *Ajay Yadav Short Textbook of Anaesthesia Jaypee Anshul Jain Essentials of Anaesthesia& Critical Care Jaype*
- *Pillai Manual of Anesthesia for Operation Theatre Technicians Jaypee Brothers*
- *Maxine Goldman Pocket Guide to Operating Room F A Davis Compan*

**Course Name: Regional Anesthesia (Practical) Course Code: BOA504**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Total Hours:30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. To learn about the concept of Regional Anesthesia and understand various methods and
2. Apply Techniques of regional Anesthesia.
3. Knowledge about concept of Regional Anesthesia.
4. Knowledge about various methods of regional anesthesia and its comparison with General Anesthesia.

**List of Practical's /Experiments**

1. Learn about various needles used in regional anesthesia.
2. Positions given during administration of local anesthesia.
3. To check the effect of Local Anesthesia after block and to learn about various drugs used in regional anesthesia.
4. To understand the technique of Spinal Anesthesia and Epidural Anesthesia.
5. To see the various complications of Regional Anesthesia and their management.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Questions, ppts

**Suggestion Reading**

- *Ajay Yadav Short Textbook of Anesthesia Jaypee*
- *Pillai Manual of Anesthesia for Operation Theatre Technicians Jaypee Brothers*
- *Maxine Goldman Pocket Guide to Operating Room F A Davis Company*

**Course Name: Anesthesia Technology (Practical)**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 4 | 2 |

**Course Code: BOA505** **Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. About basic and advanced of Anesthesia Technology and about various methods and techniques of Anesthesia in detail.
2. Recognize the Basic and advanced of Anesthesia Technology.
3. Analysis various methods and techniques of Anesthesia in detail.
4. Elaborated different types technologies for anesthesia

**List of Practical's /Experiments**

1. To learn about the duties of an anesthesia Technician.
2. To learn how to assist the Anesthetist.
3. To learn about checking an anesthesia machine.
4. To learn how to monitor the patient during anesthesia.
5. To Learn about CPR, BLS and ACLS see the various complications of Regional Anesthesia and their management.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Questions,

**Suggestion Reading**

- *Ajay Yadav Short Textbook of Anaesthesia Jaypee*
- *Pillai Manual of Anesthesia for Operation Theatre Technicians Jaypee Brothers*
- *Maxine Goldman Pocket Guide to Operating Room F A Davis Company*
- *Anshul Jain Essentials of Anaesthesia & Critical Care*

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Course Name: Research Methodology & Biostatistics**
**Course Code: BOA511**
**Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

**1.** Prioritize the needs of research in the clinical field of Radiology.

2. Choose the appropriate research design and develop appropriate research hypothesis for a research project.

3. Describe the appropriate statistical methods required for a particular research design

4. Develop an appropriate framework for research studies.

5. Develop the ability to apply the methods while working on a research project work

Course Contents

**UNIT-I**
**10Hours**

Need For Research in the Field of Cardiology. Introduction to research methods, conducting a literature review, Research design, Sampling methods, Data collection and data collection tools, Data analysis: Quantitative and Qualitatively, Public health research, Issues in Research of research problems and writing research questions, Hypothesis, Null and Research Hypothesis, Type I and Type II errors in hypothesis testing

**UNIT-II**
**10 Hours**

Introduction of Epidemiology:- Descriptive epidemiology, Experimental and non-experimental research designs, Screening, Sampling methods, Biological variability, normal distribution.

Bias and Confounding, Association and causation, Odds ratio and relative risk, sensitivity and specificity Data collection methods- Observation method, Interview method, Questionnaires and schedules Construction,

**UNIT-III**
**05 Hours**

Introduction to Statistics, Classification of data, Source of data, Method of scaling - nominal, ordinal, ratio and interval scale, measuring reliability and validity of scales, Measures of Central tendency,

**UNIT-IV**
**05 Hours**

Measures of Dispersion, Skewness and kurtosis, Sampling, Sample size determination, Introduction and method of collecting and presenting statistical data. Calculation and interpretation of various measures like mean, median, standard deviations, Skewness and Kurtosis, Probability

distribution, Correlation and regression Significance tests and confidence intervals

Transactional modes

Video based teaching, Collaborative teaching, Case based teaching, Question,pptx

Suggested Readings

Spiegel, M. R., Schiller, J. J., & Srinivasan,

R. A. (2013). Schaum's outline of probability and statistics.

McGraw-Hill Education Kothari, Chakravanti Rajagopalachari. Research methodology: Methods and techniques. New Age International, 2004.

Mahajan, B. K., &Lal, S. (1999). Methods in biostatistics for medical students and research workers.Indian Journal of Community Medicine, 24(3),

**Course Name: PATHOLOGY & PATHOPHYSIOLOGY**
**Course Code: BOA512**

| L | T | P | Cr |
|---|---|---|---|
| 2 | 0 | 0 | 2 |

**Total Hours: 30**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. The course is designed of assist students to acquire the knowledge of the

fundamentals of pathology and pathophysiology in disease states.

2. At the end of the course, the student will be able to describe the basic pathology and pathophysiology of the important disease states of respiratory system, cardiovascular system, CNS, hematology, renal and GI system in ICU settings.

Course Contents

Unit I

Respiratory system

1: Respiratory failure

2: Acute respiratory distress syndrome

3: Pneumonia, TB

4: Opportunistic infections

5: Bronchial asthma and COPD

6: Bronchiectasis and Lung abscess

7: Atelectasis, collapse

8: Pleural disease: Pneumothorax, pleural effusion

9: Occupational lung diseases - Smoke inhalation ,

Unit II

Cardiovascular:

1: Shock: hypovolemic, cardiogenic, obstructive, septic

2: Hypertension in ICU

3: Congestive cardiac failure, acute Left ventricular failure,

4: Pulmonary edema

5: Pulmonary Hypertension

6: Pulmonary embolism

7: Ischemic heart disease

Unit IV

CNS:

1: Cerebrovascular disease (stroke)

2: Coma

3: Delirium in ICU

4: Neuromuscular disease

5: Myasthenia gravis

6: Brain death, Persistent vegetative state

7: Trauma

Transactional modes

Video based teaching, Collaborative teaching, Case based teaching, Question, ppt.

Suggested Readings:

1. Smeltzer – Brunner & Suddharth Textbook of Medical Surgical

Nursing, 2010, LWW

2. Black – Medical Surgical Nursing, 2009, Elsevier

3. Nettina – Lippincott manual of Nursing Practice, 2009. LWW

4. Lewis – medical Surgical Nursing, 2008, Elsevier

5. Davidson's Principles &Practice of Medicine, 2010, Elsevier

6. Bailey & Love Short Practice of Surgery, 2008, Hodder Arnold

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Course Name: Hematology & Blood Bank**
**Course Code: BOA508**
**Total Hours: 45**

**Learning Outcomes: After successful completion of this course, the learner will be able to:**

1. Components, characteristics and function of human blood and to identify the principle of routine
2. Hematological tests including sources of error and clinical significance of results.
3. Study the components, characteristics and function of human blood.
4. Identify the principle of routine hematological tests including sources of error and clinical significance of results.

**UNIT I** **05 Hours**

Blood cells, Hemoglobin, Coagulation Factors, Immunoglobulin, Red Cell Antigen, Natural Antibodies, Rh System, Rh Antigens & Rh Antibodies, Antigen antibody reaction, Agglutination, Hem agglutination. Blood grouping techniques, Methods for ABO grouping, Slide & Tube Method, Difficulties in ABO grouping, Antiserum used in ABO test procedures, Anti –A, Anti B, Anti- AB, and Inheritance of the Blood groups.

**UNIT II** **15 Hours**

Methods of blood collection, Anticoagulant- Definition, types of anticoagulant- (EDTA, Citrate, Oxalate, Heparin, sodium fluoride), mechanism of coagulation, Hemolysis of blood. Separation of serum & plasma, Criteria for blood specimen rejection, Changes in blood, Maintenance of specimen identification, Transportation of the blood, Storage of blood in blood bank, Universal precautions.

**UNIT III** **10 Hours**

Bone Marrow, Cell composition of normal adult Bone marrow, Aspiration, Indication, Preparation & Staining, Basic Hematological Techniques. Characteristics of a good technician, Preparation of specimen collection material, Lab request form, Collection methods of bone marrow specimen, Indication and complications.

**UNIT IV** **15 Hours**

Blood Transfusion: Indications of blood transfusion, reactions of

blood transfusion and precaution of blood transfusion. Blood Donation: Introduction, Blood donor requirements, Criteria for selection & rejection, Medical history & personal details, Self-exclusion, Health checks before donating blood, Blood collection packs, Anticoagulants, Instructions given to the donor after blood donation, Adverse donor reaction. Testing Donor Blood

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question.


- *Hoffbrand, A. V., Moss, P. A. H., & Pettit, J. E. (2019). Essential Haematology (7th ed.). Wiley-Blackwell.*
- *Rodak, B. F., & Carr, J. H. (2016). Clinical Hematology Atlas (5th ed.). Elsevier.*
- *Harmening, D. M. (2019). Modern Blood Banking & Transfusion Practices (7th ed.). F.A. Davis Company.*
- *Rodak, B. F., Fritsma, G. A., & Keohane, E. M. (2018). Hematology: Clinical Principles and Applications (5th ed.). Elsevier.*
- *Turgeon, M. L. (2019). Clinical Hematology and Fundamentals of Hemostasis (6th ed.). F.A. Davis Company.*

**Course Title: Health Care**

**Course Code: BOA509**

| L | T | P | Cr |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**Total Hours: 45**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Teach the measures of the health services and high-quality health care
2. Recognize whether the health care delivery system is providing high- quality health care and whether quality is changing over time.
3. Provide to National Health Programme- Background objectives, action plan, targets, operations, in various National Heath Programme.
4. Introduce the AYUSH System of medicines.

**Course Contents**

**UNIT-I** **05 Hours**

Introduction to healthcare delivery system - Healthcare delivery system in India at primary, secondary and tertiary car; Community participation in healthcare delivery system; Health system in developed countries; Private / Govt. Sector;

**UNIT-II** **10 Hours**

National Health Mission; National Health Policy; Issues in Health Care Delivery System in India Medicine - Introduction to Ayurveda; Yoga and Naturopathy; Unani; Siddha; Homeopathy; Need for integration of various system of medicine

**UNIT-III** **15 Hours**

National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme. Introduction to AYUSH system of Health Scenario of India- past, present and future Demography & Vital Statistics- Demography – its concept; Census & its impact on health policy Epidemiology - Principles of Epidemiology Natural History of disease.

**UNIT-IV** **15 Hours**

Methods of Epidemiological studies Epidemiology of communicable & non- communicable diseases, disease, and transmission, host defense immunizing agents, cold chain, immunization, disease, monitoring and surveillance.

**Transactional modes**

Video based teaching, Collaborative teaching, Case based teaching, Question,

**Suggested Readings**


- *National Health Programs Of India National Policies and Legislations Related to Health: J. Kishore (Author)*
- *A Dictionary of Public Health Paperback by J Kishor*
- *Health System in India: Crisis & Alternatives , National Coordination Committee, Jan Swasthya AbhiyanIn search In Search of the Perfect Health SystemCentral Bureau of Health Intelligence (1998). Health Information of India, Ministry of Health and Family Welfare, New Delhi.Goyal R. C. (1993).*
- *Handbook of Hospital Personal Management, Prentice Hall ofIndia, New*

**Course Title: Training/Internship report**

| L | T | P | Cr |
|---|---|---|---|
| 0 | 0 | 0 | 20 |

**Course Code: BOA601**

**Learning Outcomes: After completion of this course, the learner will be able to:**

1. Prepare and maintain Operation Theatre as well as patients before surgery.
2. Maintain a sterile field and theatre equipment and follow infection control policies.
3. Manage hazardous waste and follow biomedical waste disposal protocols.
4. Demonstrate skills and knowledge to assist anesthetist in handling emergencies.

**Training Report**

Students have to carry out a Training Report (on any topic related to operation theatre technology) under the supervision of a Surgeon and Doctor. The training report has to be prepared on the basis of the research work carried out. The assessment is done on the basis of the work done and the presentation and viva.