

Mangalayatan University

Beswan, Aligarh-202145



Curriculum

B.Voc in Operation Theatre Technology

Institute of Vocational Studies

2025

Total Program Credits for B.Voc

S.N.	Semester	Credits
1	I	26
2	II	20
3	III	24
4	IV	21
5	V	23
6	VI	24
Total		138

InductionProgram

Conduction of induction program as per UGC/Regulatory Body's guideline

CourseStructure

I – Year				
Semester-I				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-101	Functional English	General Academic Component	2
2	BVOCOT-102	Human Anatomy & Physiology-1	General Academic Component	4
3	BVOCOT-103	Introduction to Bio-Chemistry	General Academic Component	4
4	BVOCOT-104	First Aid and Bandaging	Skill Development Component	4
5	BVOCOT-105	Introduction to Operation Theatre Technology	Skill Development Component	4
6	BVOCOT-106	OT Equipment & Techniques	Skill Development Component	4
7	BVOCOT-107	Basic patient Care & Theatre Organization	Skill Development Component	4
Total Credits				26

Semester-II				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-201	Professional Communication	General Academic Component	2
2	BVOCOT-202	Environmental Studies	General Academic Component	2
3	BVOCOT-203	Human Anatomy & Physiology -II	Skill Development Component	4
4	BVOCOT-204	OT Equipment Management	Skill Development Component	4
5	BVOCOT-205	Elementary Nursing	Skill Development Component	4
6	BVOCOT-206	Clinical Pathology	Skill Development Component	4
Total Credits				20
II-Year				
Semester-III				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-301	Infection Control	General Academic Component	4
2	BVOCOT-302	Pathology & Pharmacology	General Academic Component	4
3	BVOCOT-303	Applied Anatomy & Physiology	General Academic Component	4
4	BVOCOT-304	Principle of Anesthesia	Skill Development Component	4
5	BVOCOT-305	Basics of Equipment and OT Tray Set up	Skill Development Component	4
6	BVOCOT-306	Clinical Pharmacology	Skill Development Component	4
Total Credits				24

Semester-IV				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-401	Basics of Accounting	General Academic Component	2
2	BVOCOT-402	Medical Law & Ethics	General Academic Component	3
3	BVOCOT-403	Basic Aesthetical Techniques	General Academic Component	4
4	BVOCOT-404	Community Health Nursing and Communicable Disease	Skill Development Component	4
5	BVOCOT-405	Essential Critical Care and Nursing Skills	Skill Development Component	4
6	BVOCOT-406	OT Techniques in EYE and E.N.T	Skill Development Component	4
Total Credits				21

Exit Option-Advance Diploma in OTT

III – Year				
Semester-V				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-501	Economics & Markets	General Academic Component	2
2	BVOCOT-502	Physical Health and Fitness	General Academic Component	2
3	BVOCOT-503	Basics of Surgery	General Academic Component	4
4	BVOCOT-504	CSSD Procedures	General Academic Component	3
5	BVOCOT-505	Regional Aesthetic Techniques	Skill Development Component	4
6	BVOCOT-506	Basic Intensive Care	Skill Development Component	4
7	BVOCOT-507	INTERNSHIP-I	Skill Development Component	4
Total Credits				23

Semester-VI				
S. No.	Course Code	Course Title	Course Type	Credits
1	BVOCOT-501	Entrepreneurship	General Academic Component	2
2	BVOCOT-502	Clinical Microbiology	General Academic Component	4
3	BVOCOT-503	Hygiene, Sanitation Nutrition and Dietics	General Academic Component	4
4	BVOCOT-504	Anesthesia for Special Surgeries	General Academic Component	4
5	BVOCOT-505	INTERNSHIP-II	Skill Development Component	4
6	BVOCOT-607	PROJECT REPORT	Skill Development Component	6
Total Credits				24

BVOCOT 101 Functional English

Unit I

Communication:

Introduction, Definition, Nature and Scope of Communication, Importance and Purpose of Communication, Process of Communication; Encoder and Decoder, Message, Types of Communication; Verbal and Non-Verbal Communication Personal Appearance, Gestures, Postures, Facial Expression, Eye Contacts, Body Language (Kinesics), Time language, Silence Inter and Intra Personal Communication.

Unit II

Language Skills:

Four Language Skills; Receptive Skills, Productive Skills, Listening: Listening-concept and cycle, Barriers to Effective Listening, Physical Barriers, Psychological Barriers, Linguistic Barriers, Listening for general content, Listening for filling up information.

Unit III

Vocabulary:

Chosen list of general commonly used everyday words Synonyms, Antonyms, Homonyms, Homographs, Homophones.

Unit IV

Removing grammatical Errors I:

Difference between Mistakes and errors, Wrong use of preposition, wrong use of tenses, misplaced modifiers, confused adverbs, confused adjective, confused nouns and other words.

Unit V

Removing grammatical Errors II:

Subject-Verb Agreement, Indefinite and Unnecessary articles, Correct order of words, confusion of number, negatives and questions, un-English expressions, Incorrect/Omission/unnecessary prepositions.

Books Recommended:

1. You can win, Shiv Khera, Macmillan Publishers, India
2. Listening Skills: Year 1/2 and P2/3 Bk.3, Graeme Beals, Jean Edwards, Prim-Ed Publishing
3. A Practical Course for developing speaking skills in English, Gangal J. K., PHI
4. A Practical Course for developing writing skills in English, Gangal J. K., PHI
5. Little Red Book: Modern Writings Skills, Terry O'Brien, Rupa Publications

BVOCOT-102 Human Anatomy & Physiology-1

UNIT-1

Anatomy : Introduction to human body , definition of anatomy, planes, position and movement of human body, anatomy of head and neck, cranial cavity, mouth pharynx, nose, pectoral region, shoulder, scapular region, upper and lower limbs , bones and joints, pericardium and heart, lungs , diaphragm, trachea, esophagus, thoracic duct, brief introduction of skeletal system, organization of skeleton, definition, classification, constituents of bones and bone tissue, growth and development of bones, bones of cranium, electronic microscopic structure of cell, Structure of arteries, veins and capillaries

UNIT-2

Anatomy : Tissue- classification, functions and structure of primary tissues – epithelial tissue, connective tissue, muscular tissue, nervous tissue, function of arteries, veins and capillaries, cardiac cycle and heart sound, factors affecting heart rate and its regulation, physiological variations, factors controlling blood pressure, hemorrhage and shock, disease related to cardiovascular system, definition and classification of muscular tissue, characterization of skeletal, smooth, cardiac muscles, types of cartilage, skeletal, smooth and cardiac muscle.

UNIT-3

Physiology: introduction on physiology, cell-description of cell and its components, functions of cell, homeostasis, basics about different organs and systems, structure and functions of urinary system, organs of urinary system, glomerular filtration, physiology of urine formation, functions of kidney, glomerular filtration rate.

UNIT-4

Physiology: Introduction to blood and its components, functions of RBCs, WBCs and platelets, difference between serum and plasma components and organs of lymphatic system, introduction to reproductive

system, structure and functions of male and female reproductive organs, parts of male and female reproductive organs.

BVOCOT-103 Introduction to Bio-Chemistry

UNIT-1

Introduction to Laboratory apparatus: Pipettes- different types (Graduated, volumetric, Pasteur, Automatic etc.), Burettes, Beakers, Petri dishes, depression plates. Flasks - different types) Volumetric, round bottomed, Erlenmeyer conical etc. Funnels - different types (Conical, Buchner etc.), bottles - Reagent bottles - graduated and common, Wash bottles - different type Specimen bottles etc., measuring cylinders, Porcelain dish, tubes - Test tubes, centrifuge tubes, test tube draining rack etc.

UNIT-2

Maintenance of lab glass ware and apparatus: Glass and plastic ware in Laboratory use of glass: significance of boro silicate glass; care and cleaning of glass ware, different cleaning solutions of glass care and cleaning of plastic ware, different cleaning solutions etc.

UNIT-3

Instruments 1 (Theory and demonstration) : Diagrams to be drawn Water bath: Use, care and maintenance Oven & Incubators: Use, care and maintenance. Water Distillation plant and water deionizers. Use, care and maintenance Refrigerators, cold box, deep freezers - Use, care and maintenance

Reflux condenser:

Use, care and maintenance Centrifuges (Theory and demonstration) Diagrams to be drawn Definition, Principle , Svedberg unit, centrifugal force, centrifugal field rpm.

UNIT-4

Instruments 2: Laboratory balance diagrams to be drawn Manual balances: Single pan, double pan, trip balance Direct read out electrical balances. Use care and maintenance: Colorimeter and spectrophotometer Principle Use, care and maintenance: pH meter principle, parts, Types of electrodes, salt bridge solution. Use, care and maintenance: Ph meter and electrodes.

BVOCOT-104 First Aid and Bandaging

UNIT-1

First Aid 1: Definition of first aid, scope, principles and essentials, methods of approach and qualifications of a first aider. Wounds, Snake bite, bite by rabid animal, and stings of insects- first aid and treatment. Fractures- Varieties, general signs and symptoms, general rules for treatment, padding of splints, individual fractures and treatment.

UNIT-2

First Aid 2: Hemorrhage Varieties, arrest of external hemorrhage, arrest of hemorrhage from special regions, mouth, nose and ear. Artificial respiration, Asphyxia - Definition and causes. Poisons, classification, general rules for the treatment of poisoning, burn injury, Shock, Effects of heat and cold

BVOCOT-105 Introduction to Operation Theatre Technology

Learning Objectives:

Understand the structure and functions of the operation theatre and its various departments.

Identify the roles and responsibilities of different personnel working in the OT.

Apply basic principles of infection control and sterile techniques essential for maintaining a safe and hygienic environment.

Develop basic communication and interpersonal skills for effective interaction within the OT team.

Demonstrate a professional attitude and ethical conduct in the healthcare setting.

Course Content:

Module 1: Introduction to Operation Theatre Technology:

History and evolution of the operation theatre

Different types of operation theatres (general, specialized)

Roles and responsibilities of OT personnel (surgeons, anesthesiologists, nurses, OT technicians, supporting staff)

Professional organizations and their roles in OT practice

Ethical considerations and legal aspects in the OT

Module 2: Operation Theatre Environment and Workflow:

Principles of aseptic technique and sterile environment maintenance

Pre-operative, intra-operative, and post-operative phases of surgery

Common surgical procedures and their basic workflow

Equipment and supplies used in the OT (basic introduction)

Safe handling and disposal of biomedical waste

Module 3: Infection Control and Sterilization:

Chain of infection and its prevention strategies

Microorganisms, their transmission, and classification

Personal protective equipment (PPE) and its proper use

Sterilization and disinfection methods (basic understanding)

Aseptic techniques for various procedures (handwashing, gowning, gloving, etc.)

Module 4: Communication and Interpersonal Skills:

Effective communication with patients, families, and colleagues

Medical terminology and abbreviations relevant to the OT

Teamwork and collaboration in the OT setting

Conflict resolution and stress management techniques

Module 5: Professional Development and Ethics:

Importance of lifelong learning and continuous professional development

Professional conduct, dress code, and punctuality

Maintaining patient confidentiality and respecting patient rights

Ethical principles in healthcare and OT practice

Assessment:

Theory: Exams, quizzes, assignments, and presentations

Practical: Demonstrations of basic skills like hand washing and donning PPE

Learning Resources:

Textbook: "Introduction to Operation Theatre Technology" by [Author Name] (or equivalent)

Journal articles and online resources related to OT technology

Class lectures, videos, and presentations

Practical demonstrations and simulations

BVOCOT-106 OT Equipment & Techniques

1. Cleanliness and sterilization of OT, Carbonization and fumigation
2. Lighting in OT
3. Assisting Surgeons in OT
4. Trouble Shooting
5. Anesthesia Services -General Anesthesia Techniques, Local Anesthesia techniques
6. Blood transfusion
7. Monitoring in OT
8. Positioning of Patients
9. Medical Air -Gas Manifold
10. Hooking up the ventilator
11. The maintenance of humidifiers
12. Nebulization
13. Airway Devices
14. Laryngoscope and Endotracheal tubes
15. Face Mask and Manual Resuscitator
16. Instrument planning for various surgical procedures
17. Assist with intubation
18. OTT techniques
19. Air exchanges and HEPA filters

EQUIPMENTS:

Anesthesia workstation

1. Electrical diathermy
2. Monitoring a resuscitative devices
3. Vaporizers
4. Laparoscopic unit
5. Suction devices
6. Mechanical ventilators & compressors
7. Autoclave& types
8. Operating microscopes
9. Imaging devices

10. X ray units C arm
11. Medical gas cylinders & pressure regulators
12. .Operating tables and lights

BVOCOT-107Basic patient Care & Theatre Organization

UNIT I Basic Patient care

- 1 Introduction to patients' rights- Confidentiality – Reception – Identification: checking and identification of patient density.
- 2 Infection control practices- Sterile techniques, bladder sterilization, preparation for cannulation and bladder catheterization Cleanliness and disinfection of ward and appliances, bed making, wound dressings,
- 3 Shifting and transportation of patients, Monitoring of vitals, transfusion practice
- 4 First Aid Techniques
- 5 Ethical issues.

UNIT II Theatre Organization

1. Sterile practices &Fumigation practices, Maintaining sterility &cleanliness of OT.
2. Universal precautions & occupational safety-Introduction to central gas supply system: medical gas cylinder & safe handling, handling biohazard materials, fire safety mechanism, and managing specimens.
3. Setting up & care of equipment's - Basics of suture materials & surgical instruments – Method of CSSD functioning- cleaning & packing of surgical instruments, soil linen management, sterilization, Handling autoclaves, E.T.O sterilization.
4. Hospital waste management.
5. Patient and staff safety.

BVOCOT-201Professional Communication

UNIT 1

Recognizing and Understanding Communication Styles: Passive Communication, Aggressive Communication, Passive-Aggressive Communication, Assertive Communication, Verbal and Non Verbal Communication, Barriers and Gateways to Communication.

UNIT 2

Listening Skills: Types of Listening (theory /definition), Tips for Effective Listening Academic Listening- (lecturing), Listening to Talks and Presentations, Basics of Telephone communication

Writing Skills: Standard Business letter, Report writing, Email drafting and Etiquettes, Preparing Agenda and writing minutes for meetings, Making notes on Business conversations, Effective use of SMS, Case writing and Documentation.

UNIT 3

Soft Skills: Empathy (Understanding of someone else point of view), Intrapersonal skills, Interpersonal skills, Negotiation skills, Cultural Aspects of Communication.

UNIT 4

Group Communication: The Basics of Group Dynamics, Group Interaction and Communication, How to Be Effective in Groups, Handling Miscommunication, Handling Disagreements and Conflicts, Constructive Criticism.

REFERENCE BOOKS

-Mckay, M., Davis, M. & Fanning, P.(2008). Messages: The Communication Skills Book, New Harbinger Publications

-Perkins, P.S., & Brown, L. (2008). The Art and Science of Communication: Tools for effective communication in the workplace, John Wiley and Sons

-Krizan et al (2010). Effective Business Communication, Cengage Learning.

-Scot, O. (2009). Contemporary Business Communication, Biztantra, New Delhi.

-Chaney & Martin (2009). Intercultural Business Communication, Pearson Education

BVOCOT-202Environmental Studies

UNIT 1

The Multidisciplinary Nature of Environmental Studies Definition, Scope and Importance, Need for public awareness Natural Resources Renewable and Non-Renewable Resources, Natural Resources and Associated Problems- a) Forest Resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people Role of individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles

UNIT 2

Ecosystems- Concept of ecosystem, Structure and function of ecosystem, Producers, Consumers and Decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

UNIT 3

Biodiversity and its conservation- Introduction- Definition: genetic, species and ecosystem diversity, Bio-geographical classification of India, Value of biodiversity: consumptive use, productive use, social, ethical, Aesthetic and option values, India as a mega-diversity nation, Hot-spots of biodiversity, Threats to bio-diversity: habitat loss, poaching of wildlife, man-wildlife conflicts, Endangered and endemic species of India, Conservation of bio-diversity: In-Situ and Ex-situ conservation of biodiversity

UNIT 4

Social Issues and the Environment- From Unsustainable to Sustainable development, Urban problems related to energy, Re-settlement and rehabilitation of people; its problems and concerns, Environmental ethics: Issues and possible solutions, Climate changes, global warming, acid rain, ozone layer depletion, Consumerism and waste products, Environment Protection Act, Issues involved in enforcement of environmental legislation, Public awareness

UNIT 5

Human Population and the Environment Population growth, variation among nation, Population explosion- Family Welfare Programme, Environment and Human Health, Human Rights, Value Education, Role of Information Technology in Environment and Human health

REFERENCE BOOKS

-Environmental Studies by Kumarasamy K., A. Alagappa Moses, M. Vasanthy from Bharathidsan University Publications 2004, Trichy

-Environmental Studies by Rajamannar EVR College Publications 2004

BVOCOT-203Human Anatomy & Physiology -II

UNIT-1

Glands of human body – mucous glands, thyroid gland, parathyroid gland, hypothalamus, pituitary, adrenal, pineal, the ovaries, the testes glands, general consideration of lymphatic system, gross anatomy of thoracic duct, histology of lymph node, spleen, tonsils and thymus, gross anatomy of respiratory system, parts of respiratory system, histology of trachea and lungs, parts of reproductive system- Male and female.

UNIT-2

Brief introduction and definition of integumentary system and Gastro- intestinal system, layers of skin, appendages of skin-hair, sebaceous gland, sweat gland, nails, receptors, function of skin, parts of GIT, oral cavity, salivary glands, structure and function of esophagus, stomach, small and large intestine,

liver, gall bladder and pancreas, Histology of tongue, esophagus, stomach, small and large intestine, liver, gall bladder and pancreas.

UNIT-3

Lymphatic system and immunity- Lymphoid tissue formation, composition and functions of lymph, phagocytosis, cytokine therapy, AIDS, autoimmune disease, medical uses of hemopoietic growth factors, organs of lymphatic system, functions of respiratory system, mechanism of respiration, lungs volume and capacities- definition, normal value, their measurement and clinical importance, pulmonary ventilation, diffusion of gasses, pulmonary circulation- oxygen and carbon dioxide transport in blood, disease related to respiratory system.

UNIT-4

Gastrointestinal system- characteristics of G.I, functions of G.I, hormones, saliva, composition, function, control of secretion, gastric juice- composition, mechanism of secretion, functions, regulation of secretion, mucosal barrier, pancreatic juice- composition, function, regulation, liver and gall bladder- composition, function of bile, control of secretion, functions of gall bladder and gallstone, functions of reproductive system – male and female, functions of urinary system-ureters, urinary bladder, urethra

BVOCOT-204OT Equipment Management

UNIT-1

Usage and maintenance of following Equipment

- Pulse oximeter
- Nebulizer
- Glucometer
- ECG machine

UNIT-2

Usage and maintenance of following Equipment

- Cardiac monitor
- Defibrillator
- Total patient bed side monitor
- SWD
- Oxygen concentrator

Elementary NursingBVOCOT-205

UNIT-1

Bed making: Materials used for hospital beds and bedding, Bed making, Special types of beds, Positions in bed, Moving and lifting of patients, Additional appliances used for beds.

UNIT-2

Caring of sick: Daily toilet of the patient, bathing in the bed and the bathroom, care of hair and the mouth tray, bed sores and tropic ulcers and their prevention, giving of bedpans and urinals, spittoons, feeding of the bed-ridden cases.

UNIT-3

Aspiration and continuous drainage of stomach and duodenum, Artificial feeding, Administration of oxygen, Inhalations, Preparation of patient for examination, Dressings and instruments commonly used in the wards, Prepare nursing trays and trolleys.

Clinical PathologyBVOCOT-206

UNIT-1

Histopathology : Introduction to Histo-Pathology, receiving of Specimen in the laboratory, Grossing Techniques, mounting Techniques - various Mountants, maintenance of records and filing of the slides, use & care of Microscope, various fixatives, Mode of action, Preparation and Indication, Section Cutting, tissue processing for routine paraffin sections, decalcification of tissues, staining of tissues H& E Staining.

UNIT-2

Clinical Pathology : Introduction to Clinical Pathology, Collection, Transport, Preservation, and Processing of various clinical specimens, Urine Examination - Collection and Preservation of urine, Physical, chemical, Microscopic Examination of body fluids cerebrospinal fluid (CSF), Sputum Examination, feces.

UNIT-3

Hematology : Introduction to Hematology, Normal constituents of Blood, their structure and function, Collection of Blood samples, Various Anticoagulants used in Hematology, various instruments and glassware used in Hematology, Preparation and use of glassware, laboratory safety guidelines.

BVOCOT-301Infection Control

Objective and Learning Outcome: To familiarize with infection control procedure and care.

Infection Control

1 Care of skin

2 Hand hygiene

- 3 Protective apparel
- 4 Procedure for safe handling of sharps
- 5 Procedure for safe disposal of sharps
- 6 Management of blood and body fluids spills
- 7 Linen management (use & disposal)
- 8 PPE-Hand washing–Gloves- Masks, goggles & facemasks-Gowns
- 9 Patient care equipment
- 10 Environmental cleaning
- 11 Management of Sharps

BVOCOT-302 Pathology & Pharmacology

Objective and Learning Outcome: To understand the basics of pathology and control. To utilize critical thinking skills in discussing the concept of pharmacotherapy. To understand basic concepts of pharmacology.

UNIT I. Applied pathology

Theory: 50hrs Practical: 20 hrs

1. Esophagus, stomach, Duodenum. Their anatomical relevance to Endoscopy
2. Anal Canal, Colon, their Relevance to Colonoscopy - Endoscopy
3. GI Tract Pathogenesis
4. Common Diseases of Colón
5. Double balloon enteroscopy, capsule endoscopy in Small Intestine
6. Respiratory tract Disorders
7. Bleeding Lesions of Oesophagus

UNIT II. Applied Pharmacology

1. Pharmacodynamics and Pharmacokinetics of Drugs
2. Cardiovascular Drugs – Dopamine, Dobutamine, Adrenaline, Nor adrenaline, Vasopressin, Nitroglycerine, S.N.P, Esmolol, Labetalol, Metoprolol, Anti arrhythmic agents, Atropine, Glycopyrrolate. Haemostasis Drugs- Heparin / Tranexamic acid
3. General Anesthesia Drugs, Regional Anesthesia Drugs
4. Emergency drugs
5. Analgesics
6. Antihistamines and antiemetics
7. Inhalation gases

8. Pharmacotherapy of respiratory Disorders
9. Corticosteroids
10. Pharmacological protection of organs during CPB
11. Diuretics
12. Miscellaneous Drugs- Intravenous Fluids

BVOCOT-303Applied Anatomy & Physiology

UNIT-1

Respiratory system: a)Structure and function of the respiratory tract in relation to respiratory system: Nose - Role in humidification, Pharynx - Obstruction in airways, Larynx - Movement of Vocal cords, cord palsies, trachea & Bronchial tree - vessels, nerve supply, respiratory tract, reflexes, bronchospasm, alveoli - Layers, Surfactants b)Respiratory Physiology- control of breathing, respiratory muscles- diaphragm, intercostals, lung volumes - dead space, vital capacity, FRC etc, pleural cavity - intrapleural pressure, pneumothorax, work of breathing - airway resistance, compliance, respiratory movements under anesthesia, tracheal tug - signs, hiccup. c) Pulmonary Gas Exchange And Acid Base Status, pulmonary circulation, pulmonary

edema, pulmonary hypertension, pulmonary function test transfer of gases - oxygen & Carbon dioxide, acid base status, definitions, acidosis types, Alkalosis types, buffers in the body. d)Oxygen: properties, storage, supply, hypoxia, e) Respiratory failure, type, clinical features, causes.

UNIT-2

Cardiovascular system: Anatomy- Chambers of the heart, major vasculature, Coronary supply, innervation, conduction system, cardiac output - determinants, heart rate, preload, after load, coronary blood flow & myocardial oxygen supply, ECG- Arrhythmias cardiovascular response to anaesthetic & surgical procedures, hypotension - causes, effects, management cardio pulmonary resuscitation, myocardial infarction, hypertension.

UNIT-3

Fluid and electrolytes: body fluids- composition, water, sodium and potassium balance, IV fluids- composition and administration, IV cannulation, blood transfusion- blood grouping, storage, administration

Principle of Anesthesia BVOCOT-304

UNIT-1

Medical gas supply: Compressed gas cylinders, Colour coding, Cylinder valves; pin index gas piping system, recommendations for piping system, alarms & safety devices, anaesthesia machine, hanger and yoke system, cylinder pressure gauge, Pressure regulator, flow meter assembly, vapourizers - types, hazards, maintenance, filling and draining, etc.

UNIT-2

Breathing system: general considerations: humidity & heat, common components - connectors, adaptors, reservoir bags, capnography, Pulse oximetry, methods of humidification, classification of breathing system, mapleson system - a b c d e f , , jacksonreese system, bain circuit, non rebreathing valves - ambu valves, the circle system, components, Soda lime, indicators, face mask and airway laryngoscopes- types, sizes, endotracheal tubes - types, sizes, cuff system, fixing, removing and inflating cuff, checking tube position complications.

UNIT-3

Anesthesia, ventilator and working principles: monitoring, ECG , SpO₂, temperature, IBP, CVP, PA Pressure, LA Pressure.

Basics of Equipment and OT Tray Set up BVOCOT-305

UNIT-1

Equipment preparation for anesthesia – Anesthesia Machines, Circuits, Monitors, transducers, Airway devices and Pre-anesthesia Checks ('Cockpit Drill'), Conduct of General Anesthesia including observation and assessment of patient, Preparation and arrangement for Neuraxial and regional anesthesia, Conduct of Neuraxial Blocks – Spinal Epidural and CSE, Conduct of Regional Anesthesia and plexus Blocks .

BVOCOT-306 Clinical Pharmacology

UNIT-1

Antisialogogues- Atropine, Glycopyrrrolate, sedatives & anxiolytics- diazepam, midazolam, phenergan, lorazepam, chlorpromazine, trichlorophenol, narcotics-morphine, pethidine, fentanyl, pentazocine, antiemetics, metoclopramide, ondansetron, dexamethasone, antacids, Na citrate, gelusil, mucaine gel

UNIT-2

H₂ blockers- Cimetidine, ranitidine, famotidine , induction agent-thiopentone, tiopental, midazolam, ketamine, propofol, etomidate, muscle relaxants- depolarising - suxamethonium, non depolarising - pancuronium, vecuronium, atracurium, rocuronium, inhalation gases: O₂, N₂O, Air, agents - Ether-, halothane, isoflurane, sevoflurane, desflurane, reversal agents- neostigmine, glycopyrrrolate, atropine, nalorphine, naloxone, flumazenil (diazepam), local anaesthetics xylocaine, preparation, local – bupivacaine - topical, prilocaine-jelly, emla - ointment, etidocaine. Ropivacaine.

UNIT-3

Emergency drugs: adrenaline- Mode of administration, dilution, dosage, effects, isoprenaline, atropine, bicarbonate, calcium, ephedrine, xylocard, inotropes: dopamine, dobutamine, amiodarone, aminophylline, hydrocortisone, antihistamines, potassium, cardiovascular drugs antihypertensives, antiarrhythmics, beta-blockers, Ca - Channel blockers, vasodilators- nitroglycerin & sodium nitroprusside, respiratory system-bronchodilators, respiratory stimulants, Broncholytic agents, renal system-

diuretics,furosemide,mannitol, obstetrics -oxoytocin,methergin, miscellaneous antibiotics, paracetamol, diclofenac- IV fluids,various preparations Nacl, Ringer lacatate, haemaceal,hetastarchheparin,protamine, insulin , analgesics, nsaid, ibuprufen, ketorolac.

BVOCOT 104Basic of Accounting

Unit I

Introduction to Accounting: Meaning and Definition, Types and Classification, Principles of accounting, Systems of accounting, Generally Accepted Accounting Principles (GAAP. Recording of transactions: Voucher system; Accounting Process.

Unit II

Journals, Subsidiary Books, Ledger, Cash Book, Bank Reconciliation Statement, Trial Balance. Depreciation: Meaning, need & importance of depreciation, methods of charging depreciation.

Unit III

Final Accounts: Meaning, Procedure for preparation of Final Accounts, Difference between Trading Accounts, Profit & Loss Accounts and Balance Sheet, Adjustments (Only four): Closing Stock, Pre-paid Income and Expenses, Outstanding Income and Expenses, Depreciation.

Unit IV

Cost Accounting, Cost Sheet/Tender/Marginal Costing & Break even Analysis, Budgetary Control.

References:

- ☐ Sharma, R.K. and Shashi K. Gupta, Management Accounting, Kalyani Publisher, Ludhiana.
- ☐ Gupta, R.L., Booking keeping & Accounting, Sultan Chand, New Delhi
- ☐ Grewal T.S., Introduction to Accounting, S. Chand

BVOCOT-402Medical Law & Ethics

UNIT 1

Basic of Health and its provider, Origin & Evaluation
Medical ethics - Definition - Goal – Scope Introduction to Code of conduct

UNIT 2

Basic principles of medical ethics –Confidentiality
Fraudulence, Malpractice and negligence - Rational and irrational drug therapy

UNIT 3

Autonomy and informed consent - Right of patients, Rights & Duties of Health Care Provider
Care of the terminally ill- Euthanasia

UNIT 4

Organ transplantation, Medico legal aspects of medical records –Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality
Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects, Professional Indemnity insurance policy ,Development of standardized protocol to avoid near miss or sentinel events , Obtaining an informed consent.

UNIT 5

Role of Health Policy& Health Care Delivery Functions and Interaction between court
Legislation and Regulations- General Laws on Health Law (Medical Allied Agencies)
Specific Laws on Health Law (NDT, PWD/etc)
Basic Aesthetical TechniquesBVOCOT-403

UNIT-1

History of anaesthesia: first successful clinical demonstration, pre - historic (ether) era, inhalational anaesthetic era, regional anaesthetic era, intravenous anaesthetic era, modern anaesthetic era, minimum standard of anaesthesia , pre-operation: pre anaesthetic assessment history – , past history - disease / Surgery / and personal history - Smoking / alcohol, general physical assessment, systemic examination – CVS, RS, CNS, investigation, routine - haematological - their significance, urine, E.C.G, chest X – ray, special -endocrine, hormonal assays: echocardiography, angiography, liver function test, renal function test, others, case acceptance: ASA grading - I, II, III, IV, V.

UNIT-2

Pre- anaesthetic orders: patient - Informed consent, Npo, Premedication - advantages, drugs used, Special instructions - if any, machine- checking the machine, O2, N2O, suction apparatus, laryngoscopes, et tubes, airways, things for IV accessibility, other monitoring systems, drugs - emergency drugs, anaesthetic drugs.

UNIT-3

Intraoperative management: confirm the identification of the patient, monitoring- non invasive & Invasive monitoring, induction - drugs used , endotracheal intubation, maintenance of anaesthesia, positioning of the patient, blood / fluid & electrolyte balance, reversal from anaesthesia - drugs used, transferring the patient, Recovery room – set up and things needed, post operative complications and management.

Community Health Nursing and Communicable DiseaseBVOCOT-404

UNIT-1

Community health nursing :Health Determinants, Indicators of Health, Levels of Health Care, Primary Health Care, National Health Policy, National Population Policy, National Health Programmes- NAMP, RCH, RNTCP, NACP, Pulse Polio, Immunization schedule.

UNIT-2

Preventable diseases: Classification and mode of spread, Common disease and their prevention - diarrheas and dysenteries, malaria, rabies, round worm, small pox, tuberculosis, typhoid, typhus, venereal diseases, life history and prevention against housefly and mosquito, Infection, Isolation, Disinfection methods.

UNIT-3

Communicable diseases: Nursing care -general management, Specific diseases : Diphtheria, measles, whooping cough, chicken pox, mumps, influenza, typhoid and paratyphoid, typhus, dysentery, food poisoning, cholera, plague, tetanus, malaria, dengue, HIV/AIDS

Essential Critical Care and Nursing SkillsBVOCOT-405

UNIT-1

Critical care & ICU training : BLS, ACLS, ATLS – CPR, emergency recognition and response, Combat Med Care – Role in war, anaphylaxis, dressing, OT procedure and patient flow in OT Eqpt, Stretcher, Patient Triage & Casualty Evacuation, OT design and medico legal aspects in OT.

UNIT-2

Emergency Recognition and Response must be conversant with: (a) Causation, sign and symptoms of hemorrhage and shock. (b) Cardiac and Respiratory Emergencies (c) Major Trauma Management (d) Broad principles of intravenous therapy and transfusions. (e) Transfusion fluids in common use, methods of transfusion, reconstitution of plasma for intravenous use.

UNIT-3

Basic and Advanced Life Support: (a) BLS, ACLS and ATLS (b) Neonatal and Pediatric Advanced Life Support (c) Life Support Equipment – Defibrillators/AED, Ambu Bag, Respiratory Circuits, Transport and ICU Ventilators, advanced monitoring systems.

UNIT-4

Operating Theatre work must be conversant with: - (a) Assembly and dismantling of various common surgical appliances, cleaning and sterilization. (b) Must be conversant with the operative techniques, anesthesia, intensive care and resuscitation and be able to assist in all common and advanced operations carried out in military hospital surgical units including eye, ENT, and all sub-specialties in surgery and anesthesiology. Exposure and extended work in specialties of interest namely, Cardiothoracic surgery, Neurosurgery, Urosurgery, Oncosurgery, Ophthalmology, Otorhinolaryngology,

Reproductive and infertility surgery, Gastrointestinal Surgery, Transplantation surgery, laparoscopic surgery and pediatric surgery. (c) Application of Plaster of Paris casts, Plaster of Paris Jackets and Spices.

OT Techniques in EYE and E.N.TBVOCOT-406

UNIT-1

Instruments used for examination of eye, Desmasel's Eye Lid: retractor, ophthalmic loop, ophthalmoscope and anatomy of eye. various eye diseases, scleritis, diseases of lens, cataract glaucoma, diseases of cornea, ulcerative keratitis.

UNIT-2

Ear: Anatomy of the ear, diseases of middle ear, Nose: Anatomy of nose, nasal septum & its diseases
Throat: Anatomy of throat, diseases of larynx.

UNIT-3

History taking and symptomatology of various diseases, fever, Polyuria, Heart, Burns, Vomiting, Diarrhoea, Jaundice, Epistaxis. Typhoid, AIDS.

UNIT-4

Medical Emergencies: Cardiac arrest, bronchial asthma, respiratory failure, renal colic, hypo-glycaemia, Preventive aspects of Medicine: Concept of health, preventive medicine, social medicine, public health, epidemiology of infectious diseases, methods of prevention and control of infestations diseases.

BVOCOT-501 Economics & Markets

BVOCOT-502 Physical Health and Fitness

Basics of Surgery BVOCOT-503

UNIT-1

History of surgeon: role of the surgeon, importance of team work and anticipating the needs of surgeons, stresses that may arise during operative procedure, surgical terminology, types of incision and indications for the use of particular incision.

UNIT-2

Hemorrhage: signs and symptoms of internal and external; classification and management, identification of types of tourniquets, reasons for use and duration of application, dangers of use.

UNIT-3

Wounds: types of wounds, process of healing, treatment and complications; inflammation; wound infections-causes and treatment; incision and drainage of abscesses; importance of personal cleanliness and aseptic techniques.

UNIT-4

Pre-operative and post-operative care of the surgical patient, Emergency procedures, Knowledge of surgical asepsis, skin preparation for invasive procedures

BVOCOT-504 CSSD Procedures

BVOCOT-505 Regional Aesthetic Techniques

BVOCOT-506 Basic Intensive Care

BVOCOT-507 INTERNSHIP-I

BVOCOT-501 Entrepreneurship

BVOCOT-502Clinical Microbiology

UNIT-1

Dry Heat

Moist Heat

Sterilization - II Chemical methods Gaseous methods Filtration • Wound Infection & Urinary Tract Infections • Blood stream Infections • Respiratory tract Infection • S.Typhi, Salmonella Paratyphi 'A', Salmonella Typhimurium • Catheter, IV associated Infections • Hospital acquired infections & prevention of hospital acquired infections • Hepatitis C.

UNIT-2

Characteristics: characteristics of bacteria, virus and fungus, Sources of infection, mode of spread, Destruction of bacteria, Control of infection, Inflammation, healing and repair, Infection, wounds, ulcers, blisters, boils, fractures, burns, scalds, gangrene and hemorrhage.

UNIT-3

Characteristics: Characteristics of normal urine, variations in diseases, collection of samples and routine tests, Characteristics of normal feces, variation in diseases, collection of samples and routine tests, Sputum and vomit - Characteristics in different diseases, collection of samples.

BVOCOT-503 Hygiene , Sanitation Nutrition, Dietics

BVOCOT-504 Anesthesia for Special Surgeries

BVOCOT-505 INTERNSHIP-II

BVOCOT-607 PROJECT REPORT