Total Credits = 24

Semester 3rd		Contact Hrs.			Marks			Credits
Subject Code	**Name**	**L**	**T**	**P**	**Int.**	**Ext.**	**Total**	
BOTTS1-301	Applied Anatomy & Physiology related to Anesthesia Technology Theory	3	1	0	40	60	100	4
BOTTS1-302	Pharmacology related to Anesthesia Technology-Theory	3	1	0	40	60	100	4
BOTTS1-303	Instrumentation in Operation Theatre Technology	3	1	0	40	60	100	4
BOTTS1-304	Central Sterile Services Department (CSSD) Procedures	3	1	0	40	60	100	4
BOTTS1-305	Basic Principles of Hospital Management	3	1	0	40	60	100	4
BOTTS1-306	Applied Anatomy & Physiology related to Anesthesia Technology -Practical	0	0	2	60	40	100	1
BOTTS1-307	Pharmacology related to Anesthesia Technology - Practical.	0	0	2	60	40	100	1
BOTTS1-308	Instrumentation in Operation Theatre Technology - Practical	0	0	2	60	40	100	1
BOTTS1-309	Central Sterile Services Department (CSSD)Procedures-Practical	0	0	2	60	40	100	1
Total		**-**	**-**	**-**	**440**	**460**	**900**	**24**

Total Credits= 21

Semester 4th		Contact Hrs.			Marks			Credits
Subject Code	**Name**	**L**	**T**	**P**	**Int**	**Ext.**	**Total**	
BOTTS1-401	Principles and equipment's related to Anesthesia Technology – Theory	3	1	0	40	60	100	4
BOTTS1-402	Principles of sterilization Techniques Theory	3	1	0	40	60	100	4
BOTTS1-403	Health Care Management	3	1	0	40	60	100	4
BOTTS1-404	Operation Theatre Technology-Clinical	3	1	0	40	60	100	4
BOTTS1-405	Biostatistics & Computer Applications	1	1	0	40	60	100	2
BOTTS1-406	Principles and equipments related to Anesthesia Technology – Practical	0	0	2	60	40	100	1
BOTTS1-407	Principles of Sterilization Techniques – Practical	0	0	2	60	40	100	1
BOTTS1-408	Operation Theatre Technology-Clinical -Practical	0	0	2	60	40	100	1
	Total	**-**	**-**	**-**	**380**	**420**	**800**	**21**

Total Credits= 23

Semester 5th		Contact Hrs.			Marks			Credits
Subject Code	**Name**	**L**	**T**	**P**	**Int.**	**Ext.**	**Total**	
BOTTS1-501	Concepts of diseases and techniques in regional &general Anesthesia including complications – Theory	3	1	0	40	60	100	4
BOTTS1-502	Anesthesia Techniques including complications-theory	3	1	0	40	60	100	4
BOTTS1-503	Hospital Products, Promotion, Sales & Public relations (or) Physician's Office Management	3	1	0	40	60	100	4
BOTTS1-504	Introduction to Obstetrics & Gynecology	3	1	0	40	60	100	4
BOTTS1-505	Occupational Safety & Health care	1	1	0	40	60	100	2
BOTTS1-506	Community Health	1	1	0	40	60	100	2
BOTTS1-507	Clinicals in techniques in regional & general Anesthesia: comprehensive viva.	0	0	2	60	40	100	1
BOTTS1-508	Anesthesia Techniques including complications-Practical	0	0	2	60	40	100	1
BOTTS1-509	Introduction to Obstetrics & Gynecology-Practical	0	0	2	60	40	100	1
Total		**-**	**-**	**-**	**420**	**480**	**900**	**23**

Total Credits=21

Semester 6th		Contact Hrs.			Marks			Credits
Sub. Code	**Name**	**L**	**T**	**P**	**Int.**	**Ext.**	**Total**	
BOTTS1-601	Anesthesia for specialties(Including Critical Care Assistance and Ventilation)Paper – I Theory	3	1	0	40	60	100	4
BOTTS1-602	Anesthesia for specialties(Including Critical Care Assistance and Ventilation)Paper – II Theory	3	1	0	40	60	100	4
BOTTS1-603	Trauma & Cardiac Life Support	3	1	0	40	60	100	4
BOTTS1-604	Healthcare	1	1	0	40	60	100	2
BOTTS1-605	Dietary Management of Common Diseases	2	1	0	40	60	100	3
BOTTS1-606	Clinicals in Anesthesia for specialties (Including Critical Care Assistance and Ventilation) Comprehensive viva.	0	0	4	60	40	100	2
BOTTS1-607	Anesthesia for specialties(Including Critical Care Assistance and Ventilation) Paper – II -Practical	0	0	4	60	40	100	2
Total		**-**	**-**	**-**	**320**	**380**	**700**	**21**

1 Year Internship (Optional)

3 years + 1 years internship program (For Nepal, and SAARC) countries only

This internship can be of 6+ 6 months or 4+4+4 months in different hospitals. The college will authenticate the certificates from hospitals after successful training. The university can enter Internship as satisfactory/unsatisfactory for 4th year in the degree, as is done by some universities for courses where there is Project Work for whole of the year.

Overall Marks / Credits

Semester	Marks	Credits
1st	700	21
2nd	800	23
3rd	900	24
4th	800	21
5th	900	23
6th	700	21
Total	4800	133

APPLIED ANATOMY & PHYSIOLOGY RELATED TO ANESTHESIA TECHNOLOGY (THEORY)

Subject Code: BOTTS1-301 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- A review of concepts reveals the impact of multiple physiological variables on a especially heart failure, modifies the goals and interventions of anesthetists to history of cardiac and vascular anatomy, as well as physiology,

Course Outcomes:

- Applied Anatomy and Physiology Related to Anesthesia Technology. This course covers the anatomical and physiological aspects related to anesthesia technology

Unit -1. **(20 hours)**

- **Respiratory System**: Structure and function of the respiratory tract in relation to respiratory system Nose ,Role in humidificatlon Pharynx ,Obstruction in airways Larynx - Movement or vocal cords, Cord palsies. Trachea & Bronchial tree -vessels, nerve supply, respiratory tract, reflexes, bronchosparm Alveoli - Layers, Surfactants
- **Respiratory Physiology**: Control or 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 anaesthesia. , Tracheal tug - signs, hiccup.

Unit-2. **(15 hours)**

- **Pulmonary Gas Exchange And Acid Base Status**: Pulmonary circulation, Pulmonary oedema, pulmonary hypertension, Pulmonary function tests. Transfer of gases - oxygen & Carbondioxide , Acid base status, definitions, acidosis types, Alkalosis types, buffers in the body.
- **Oxygen:** properties, storage, supply, hypoxia
- **Respiratory failure**:Type, clinical features, causes.

Unit-3. **(10 Hours)**

- **CARDIOVASCULAR SYSTEM**: Coronary blood flow& myocardial oxygen supply ECG Arrhythmias cardiovascular response to Anaesthetic & surgical procedures. Hypotension - causes, errects, management. Cardio pulmonary resuscitation. Myocardial infarction, hypertension.

Unit-4. **(15 Hours)**

- **FLUIDS AND ELECTROLYTES** • Body Fluids - Composition • Water, sodium and potassium balance,I.V. Fluids - composition & administration, I.V. Cannulation.
- **BLOOD TRANSFUSION** Blood grouping, storage, administration**.**

Reference Book

- Manipal manual for AHS by Dr. Sampath Madhyastha, (Second Edition) Published by CBS Publishers.
- Handbook of anatomy for nurses by Dr. P. Saraswathi
- Ross and Wilson, Anatomy and physiology in health & illness.
- Human Physiology for BDS by A.K.Jain, 4th Edition, Avichal publishing co B.D. Chaurasia : Volume I-Upper limb & Thorax, Volume II- Lower limb, Abdomen & Pelvis Volume III- Head, Neck, Face Volume IV- Brain-Neuroanatomy
- Vishram Singh: Textbook of Anatomy Upper limb & Thorax Textbook of Anatomy Abdomen & Lower limb Textbook of Head neck and Brain
- Peter L. Williams And Roger Warwick:- Gray's Anatomy - Descriptive and Applied, 36th Ed; Churchill Livingstone.
- T.S. Ranganathan : Text book of Human Anatomy
- Inderbirsingh, G P Pal : Human Embryology
- Textbook of Histology, A practical guide:- J.P Gunasegaran

PHARMACOLOGY RELATED TO ANESTHESIA TECHNOLOGY-THEORY

Subject Code: BOTTS1-302 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- The main purpose of the subject is to understand what drugs and how their effects can be applied to therapeutics. The information about the drugs like, pharmacodynamic as well pharmacokinetics along with the adverse effects, clinical uses, interactions, doses, contraindications of different classes of drugs.

Course Outcomes:

- Understand the pharmacological actions of different categories of drugs, mechanism of drug action at organ system/sub cellular/ macromolecular levels.
- Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.

Unit -1. **(10 hours)**

- **ANTISIALAGOGUES** Atropine, Glycophyrrolate
- **SEDATIVES/ ANXIOLYTICS** Diazepam, Midazolam, Phenergan, Lorazepam, Chloropromazine, Trichlopho
- **NARCOTICS** Morphine, Pethidine, Fentanyl, Pentazozine

Unit-2. **(10 hours)**

- **ANTIEMETICS** Metaoclopramide, Ondanseteron, Dexamethasone
- **ANTACIDS** Na citrate, Gelusil, Mucaine gel.
- **H2 BLOCKERS** Cimetidine, Ranitidine, Famotidine

Unit-3. **(15 Hours)**

- **INDUCTION AGENT** Thiopentone , Diazepam, Midazolam, Ketamine, Propofol, Etomidate.
- **MUSCLE RELAXANTS** Depolarising - Suxamethonium, Non depolar:sing - Pancuronium, Vecuronium, Atracurium, rocuranium
- **INHALATIONAL GASES** - 0_2, N_20, Air Agents - Ether-, Halothane, Isofllurane, Saevoflurane, Desflurane REVERSAL AGENTS Neostigmine, Glysopyrrolate, Atropine, Nalorphine, Naloxone, Flumazenil (Diazepam).

Unit-4. **(25 Hours)**

- **LOCAL ANAESTHETICS** Xylocaine, Preparation, Local – Bupivacaine - Topical, Prilocaine-jelly, Emla - Ointment, Etidocaine. Ropivacaine
- **EMERGENCY DRUGS**: Adrenaline : Mode or administration, dilution, dosage, Effects, Isoprenaline Atropine, bicarbonate, calcium, ephedrine, xylocard, Ionotropes : dopamine, dobutamine, amidaron, Aminophylline, hydrocortisone, antihistamlnics, potassium. Cardlovascular drugs Antihypertensives Antiarhythmics , Beta - Blockers Ca - Channel blockers. Vasodilators - nitroglycerin & sodium nitroprusside, Respiratory system - Bronchodilators, respiratory stimulants o Bronchiolytic agents Renal system -

Diuretics, furosemide, mannitol Obstetrics - oxoytocin, methergin, Miscellaneous - Antibiotics, paracetamol, diclofenac- IV fluids, various preparations Nacl, Ringer lacatate, haemaceal, hetastarch heparin, protamine, insulin , analgesics, nsaid, ibuprufen, ketorolac

Reference Book

- Lippincott‟s Illustrated Reviews: Pharmacology, 5th edition, by Richard A. Harvey and Pamela C. Champe, Lippincott Williams & Wilkins Publisher
- Essentials of Medical Pharmacology: K.D. Tripathi, 6th edition, Jaypee Publishers.

INSTRUMENTATION IN OPERATION THEATRE TECHNOLOGY

Subject Code: BOTTS1-303 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- To classify items to be sterilized or disinfected for OT To discuss different Methods of sterilization related to OT To discuss Methods of disinfection in OT

Course Outcomes:

- Demonstrate ability to prepare and maintain Operation Theater Able to identify and move to maintain a sterile field Manage and maintain theatre equipments

Unit -1. **(10 hours)**

- The Surgical Patient , Instruments used for Preparing the Surgical Patient, Incision Making Instruments ,Haemostatic instruments , Retractors ,Dissecting Forceps.

Unit-2. **(15 hours)**

- Scissors ,Tissue- Holding Forceps , Wound closures sutures , Surgical needles and needle Holder , Modern Techniques of wound closure

Unit-3. **(15 Hours)**

- Drains and their Purposes ,Thyroid Surgical Instruments , Bowel Surgical Instruments, Biliary Tract surgical Instruments, Anorectal surgical Instruments

Unit-4. **(20 Hours)**

- Urological surgical Instruments , Orthopaedic Instruments , Ruber Instruments, Instruments used for E.N.T. surgeries , Ophthalmological Instruments , Gynecological and obstetrical instruments

Reference Book

- Textbook of Operation Theatre Technique Written by Dixon.
- Hand book on Operation Theatre & Asepsis Published by Cochin Ophthalmic Club COC-CME Series 2
- Micro Biology , Fifth Edition TATA Mc GRAW- HILL EDITION 1993
- OT Technician Training Module of Department
- Hand book on Operation Theatre & Asepsis Published by Cochin Ophthalmic Club COC-CME Series 2 , 2013
- Proper Maintenance of Instruments 8th Revised Edition,2005 Instrument Preparation working group – Germany

CENTRAL STERILE SERVICES DEPARTMENT (CSSD) PROCEDURES

Subject Code: BOTTS1-304 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- The Central Sterile Supply Department (CSSD) is a service unit of the hospital responsible for providing guaranteed sterile equipments / instruments to all the departments of hospital for immediate use in patients care – A step towards the prevention of hospital acquired infections (HAI)

Course Outcomes:

- Examining Central Sterile Services Department's role in patient safety. CSSD process reusable instrument or medical device from all areas such as the operating theatre, .Learning together can improve the ability to create desired results

Unit -1. **(10 hours)**

- **Cleaning and dusting:** methods of cleaning, composition of dust. General care and testing of instruments: forceps, haemostatic, needle holders, knife, blade, scissor, use/ abuse, care during surgery. Disinfectants of instruments and sterilization- definition, methods, cleaning agents, detergents, mechanical washing, ultrasonic cleaner, lubrication, inspection and pitfalls Thermal, hot air oven, dry heat, autoclaving, steam sterilization water etc, UV treatment.

Unit-2. **(15 hours)**

- **Various methods of chemical treatment**: formalin, glutraldehyde. Instrument's etching, care of micro surgical and titanium instruments .Sterilization of equipments: arthroscope, gastroscope, imago lamp, apparatus, suction apparatus, anaesthetic equipments including endotracheal tubes. Materials used for wrapping and packing assembling pack contents.

Unit-3. **(15 Hours)**

- Types of packs prepared. Inclusion of trays and galliparts in packs. Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping. OT Sterilization including laminar air flow **.**Fumigation of OT: Principle & procedure

Unit-4. **(10 Hours)**

- Waste disposal collection of used items from user area, reception protective clothing and disinfections sage gaurds. Trouble shooting: colored spots and corrosion, staining, dust deposit, recent amendment in EPA with reference to waste disposal.

Reference Book

- Guide to Care and Maintenance of Surgical Instrumentation @1995 Scanlan International, Inc
- Teaching and Training for Sterile Services Personnel ISSM : Introduction to Sterilization and Disinfection by Gardner and Peel
- Hand book on Operation Theatre & Asepsis Published by Cochin Ophthalmic Club COC-CME Series 2,
- Recommended Guidelines for CSSD Ist Edition Published July 2008, Hospital Sterile Services Association India

BASIC PRINCIPLES OF HOSPITAL MANAGEMENT

Subject Code: BOTTS1-305 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- The project "Hospital management system" is aimed to develop to maintain the day –to-day state of admission/discharge of patients, list of doctors, reports generation, and etc

Course Outcomes:

- Hospital Management course trains the students for managerial and administrative roles at a hospital or a healthcare institute

Unit -1. **(20 hours)**

- **PRINCIPLES OF MANAGEMENT** : Development of Management: Definitions of Management – Contributions of F.W. Taylor, Henry Fayol and others Functions of Management: Planning – Organizing – Directing – Controlling Planning: Types of planning – Short–term and long plans – Corporate or Strategic Planning – Planning premises – Polices – Characteristics and sources – principles of policy making – Strategies as different from policies – Procedures and methods – Limitations of planning
- **Organizing:** Importance of organization – Hierarchy – Scalar chain – Organization relationship – Line relationship – Staff relationship - Line staff relationship – Functional relationship - Committee organization – Management committees – Departmentation
- **Motivation:** Motivation theories – McGregor's theory X and theory Y – Maslow's and Herzberg's theory – Porter and Lawler model of complex view of motivation – Other theories – Diagnostic signs of motivational problems – Motivational techniques
- **Directing:** Principles relating to Direction process – Principles and theories of leadership – Leadership Styles – Delegation of authority

Unit-2. **(10 hours)**

- **Controlling:** Span of control – Factors limiting effective span of control – Supper management, General managers, Middles managers and supervisors – Planning and controlling relationships – Management control process – Corrective measures – Strategic control points – Budgetary control – Types of budgets.
- **Co-ordination:** Co-ordination and co-operation – Principles of co-ordination – Techniques of co-ordination charts and records – Standard procedure instructions

Unit-3. **(15 Hours)**

- **PERSONNEL MANAGEMENT** : Objective of Personnel Management – Role of Personnel Manager in an organization – Staffing and work distribution techniques – Job analysis and description – Recruitment and selection processes – Orientation and training – Coaching and counseling – disciplining – Complaints and grievances – Termination of employees – Performance appraisal – Health and safety of employees - Consumer Protection Act as applicable to health care services.

Unit-4. **(15 Hours)**

- **FINANCIAL MANAGEMENT:** Definition of financial Management – Profit maximization – Return maximization – wealth maximization – Short term Financing – Intermediate Financing – Long term Financing – leasing as a source of Finance – cash and Security Management – Inventory Management – Dividend policies – Valuations of Shares – Financial Management in a hospital – Third party payments on behalf of patients. Insurance – health schemes and policies

Reference Book

- National Health Programs Of India National Policies and Legislations Related to Health: 1 J. Kishore (Author)
- A Dictionary of Public Health Paperback by J Kishor
- Central 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 of India, New Delhi, 17–41. Ministry of Health and Family Welfare (1984). National Health Policy, Annual Report (1983–4), Government of India, New Delhi

APPLIED ANATOMY & PHYSIOLOGY RELATED TO ANESTHESIA TECHNOLOGY -PRACTICAL

Subject Code: **BOTTS1 -306** **L T P C** **Duration: 2Hrs./Week**
0 0 2 1

Objective: A review of concepts reveals the impact of multiple physiological variables on a especially heart failure, modifies the goals and interventions of anesthetists to history of cardiac and vascular anatomy, as well as physiology,

Experiment

- Demonstration of respiratory system
- Demonstration of Cannulation
- To study pulmonary function test
- To study different types of respiratory muscles
- Normal radiographs of chest, X-ray paranasal sinuses
- Histology of lung and trachea
- Determination of Pulse rate – Details on Pulse
- Determination of Blood Groups.
- Measurement of human blood pressure.
- Examination of Respiratory system to count respiratoryrate and measure inspiration and Expiration
- Demonstration of heart and vessels in the body
- Histology of large artery & vein, medium sized artery & vein
- Histology of lymph node, spleen, tonsil & thymus
- Radiology: Normal chest radiograph showing heart shadows

PHARMACOLOGY RELATED TO ANESTHESIA TECHNOLOGY -PRACTICAL

Subject Code: **BOTTS1 -307** **L T P C** **Duration: 2Hrs./Week**

0 0 2 1

Objective: The main purpose of the subject is to understand what drugs and how their effects can be applied to therapeutics. The information about the drugs like, pharmacodynamic as well pharmacokinetics along with the adverse effects, clinical uses, interactions, doses, contraindications of different classes of drugs.

Experiment

I Preparation of drugs/ intermediates

- 1,3-pyrazole
- 1,3-oxazole
- Benzimidazole
- Benztriazole
- 2,3- diphenyl quinoxaline
- Benzocaine
- Phenytoin
- Phenothiazine
- Barbiturate

II Assay of drugs

- Chlorpromazine
- Phenobarbitone
- Atropine
- Ibuprofen
- Aspirin
- Furosemide

III Determination of Partition coefficient for any two drugs

1V Specimens, drugs, OSPE charts

INSTRUMENTATION IN OPERATION THEATRE TECHNOLOGY-PRACTICAL

Subject Code: **BOTTS1 -308** **L T P C** **Duration: 2Hrs./Week**
0 0 2 1

Objective: To classify items to be sterilized or disinfected for OT To discuss different Methods of sterilization related to OT To discuss Methods of disinfection in OT

Experiments

- Demonstration of incision making instruments, haemostatic instruments.
- To study modern techniques of wound closure
- Demonstration of: thyroid surgical instruments, urological surgical instruments, orthopaedic, ophthalmic and gynaecological
- Plastic Surgery Instruments
- instruments General Surgical Principles and Instruments- The surgical patient operation room technique
- Instrument used for preparing Surgical Cheatles forceps, Rampleys sponge holding forceps, Mayo's towel clip, Esmarch bandage, Simple tourniquet, Pneumatic tourniquet, Incision making method and instruments, Bard parker knife handle Major abdominal incision artery forceps and their types Instruments used in homeostasis- Kocher's forcep, Electrocautery Retractor, Single hook retractor, Czerny's retractor's, Nerve hook retractor, Morris retractors, and Deaver's retractors

CENTRAL STERILE SERVICES DEPARTMENT (CSSD) PROCEDURE-PRACTICAL

Subject Code: **BOTTS1 -309** **L T P C** **Duration: 2Hrs/Week**
0 0 2 1

Objective: The Central Sterile Supply Department (CSSD) is a service unit of the hospital responsible for providing guaranteed sterile equipments / instruments to all the departments of hospital for immediate use in patients care – A step towards the prevention of hospital acquired infections (HAI)

Experiment

- To study different methods of cleaning and dusting of different instruments used during surgery.
- To study recent amendment in EPA with reference to waste disposal
- To study principle and procedure of sterilization of laminar air flow
- To study fumigation of OT
- Types of packs prepared. Inclusion of trays and galliparts in packs.
- Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.
- OT Sterilization including laminar air flow **.**
- Fumigation of OT: Principle & procedure

4TH SEMESTER

PRINCIPLES AND EQUIPMENT'S RELATED TO ANESTHESIA TECHNOLOGY-THEORY

Subject Code: BOTTS1-401 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- Learning goals and objectives for allied and healthcare professionals, the principles of basic science and evidence-based practice. Use relevant, equipment's and ability of skilled manpower to operate the same.

Course Outcomes:

- Skills based outcomes and monitorable indicators for Operation Theatre Technologist. ... With an understanding of the healthcare issues associated with diverse socio- ..The student will utilize sound scientific and/or scholarly principles during ... theatres for monitoring anesthesia & surgical procedures

Unit -1. **(20 hours)**

- **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. **(15 hours)**

- **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 ,Jackson Rees system, Bain circuit Non rebreathing valves - ambu valves The circle system and Components (Soda lime, indicators)

Unit-3. **(10 Hours)**

- **Face Masks & Airway Laryngoscopes:** Types, sizes, Endotracheal tubes - Types, sizes. Cuff system ,Fixing, removing and inflating cuff, checking tube position complications.

.Unit-4. **(15 Hours)**

- **Anaesthesia Ventilator and Working Principles**
- **Monitoring:** ECG, Temperature, NIBP/IPR, CVP.

Reference Book

- Anaesthesia Manual-A. A. Ahanatha Pillai
- Lee synopsis (Handbook of Anaesthesia)
- George Mathews:- Handbook Medicine
- Fundamental Principles and practice of Anaesthesia, Ed. Petter Hurtton, Cooper Butterworth, Published by Martin Dunitz, 2002.
- Principles and Practice of Anaesthesiology Edited David E. Longnecker Published by Mosby St. Louis.

- National Health Programs Of India National Policies and Legislations Related to Health: 1 J. Kishore (Author)
- Goyal R. C. (1993). Handbook of Hospital Personal Management, Prentice Hall of India, New Delhi, 17–41. Ministry of Health and Family Welfare (1984). National Health Policy, Annual Report (1983–4), Government of India, New Delhi

PRINCIPLES OF STERILIZATION TECHNIQUES THEORY

Subject Code: BOTTS1-402 **L T P C** **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- Describe sterilization methods used, application, limitations, and risks of each. Discuss the parameters associated with each method of sterilization

Course Outcomes:

- The course includes a step-by-step review of proper clinical technique to be proficient in the instrument handling process during the sterilization process

Unit -1. **(15 hours)**

- **Environment:** Structure of the Operation Theatre, Anaesthesia Room, Sterilizer Room, Recovery Room, Store Room, Changing Room, Scrub Room.
- **Control of Infection :** Theatre Dress, Cap and Mask, Scrubbing Technique, Donning a Gown, Gloving, Theatre Cleaning

Unit-2. **(15 hours)**

- **Sterilization and Disinfection of OT & Equipments:** Definition, Methods , cleaning agents detergents, Mechanical washing, ultrasonic cleaner, lubrication inspection and pitfalls,
- **Various methods of chemical treatment**- formalin, glutaraldehyde etc. Hot Air oven, Autoclaving, UV treatment

Unit-3. **(20 Hours)**

- **Duty of the OT Staff -** Assessment, Implementation, Evaluation, Preparing Mayo Trolley, assisting the surgeon. Anaesthesia Service, history, pre-operative, intra operative & post operative care. General anesthesia techniques. Local anesthesia techniques. Blood transfusion. Monitoring in the operation theatre. Positioning of patient. Preparation of Operation Site, *Incisions:* Incisions to Expose abdominal viscera
- **Suture Materials:** Absorbable, No absorbable, Adhesive Skin Closure, Staples, Suture & Needles

Unit-4. **(10 Hours)**

- Disposable Materials, Radiation Sources, Hazards, General Instruments
- Instrument planning for various surgical procedure and auxiliary instrumentation.

Reference Book

- Guide to Care and Maintenance of Surgical Instrumentation @1995 Scanlan International , Inc
- Teaching and Training for Sterile Services Personnel ISSM : Introduction to Sterilization and Disinfection by Gardner and Peel
- Hand book on Operation Theatre & Asepsis Published by Cochin Ophthalmic Club COC-CME Series 2 ,
- Recommended Guidelines for CSSD Ist Edition Published July 2008, Hospital Sterile Services Association

HEALTH CARE MANAGEMENT

Subject Code: BOTTS1-403 | **L T P C** | **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- With an objective of imbibing a professional approach amongst students towards hospital management, the subject encompasses management principles, functions and processes, discussing their significance and role in effective and efficient management of health care organizations.

Course Outcomes:

- This subject focuses on acquainting the student with the principles and practices essential for managing a hospital organization.

Unit -1. **(20 hours)**

- **Hospital management:** Growing significance of management in organizations, characteristics of a modern hospital, hospital as an organization, resource management.
- **Management functions:** Management process and functions, nature of management process and managerial functions - planning, organizing, staffing, directing, coordinating and controlling. Application of managerial functions to health care organizations.

Unit-2. **(20 hours)**

- **Legal and Medical Issues in Hospitals:** Law and establishment of hospitals-private / public hospitals, legal requirements under medical council Acts. West Bengal Clinical establishment Act and rules (as amended till date). Essentials of contract Act. Contractual obligations in hospital services - requisites of a valid contract - hospital as ' bailer' - sale and purchase of" goods- duties towards patients - code of ethics - violation legal consequences.

Unit-3. **(10 Hours)**

- **Demand and Supply:** Market forms- Demand and Supply of Medical and Healthcare Services, Price determination under various configurations
- **Healthcare system:** Indian Healthcare system - Health Policies - Expenditure and Allocations Under Five-Year Plans-Role of Private Sector and PPP

Unit-4. **(10 Hours)**

- **Marketing:** Meaning and importance of marketing, role of marketing in modern organizations, evolution of marketing department, concepts of marketing, marketing environment, major concepts in demand measurement and marketing research.
- **Marketing organization and control:** Organizing marketing department, marketing implementation, control of marketing performance, annual plan control, profitability control, efficiency control, strategic control.

Reference Book

- Anoop Kaushal K, Medical negligence and legal remedies, 3rd edition, universal law Pllblishcr.5. New Delhi, 2004.

- Anthony P.William Strategic Human Resource Management, Dryden publishers, 1993 Robbins, P.Stephen, David A.Decemzo, Personnel/Human Resource Management, Prentice hall, New Delhi, 1996
- Kenneth Black, Jr., Harold D.Skipper,Jr., Life & Health Insurance, 13th edition, Pearson Education, New Delhi, 2003
- Marketing Management by Philip Kotler, Pearson publishers, 2003
- Marketing Management by Rajan Saxena, TMH, 2005.
- Marketing-the best practices by K.Douglar, Hoffman&Czinkota, Thomson, 2004

OPERATION THEATRE TECHNOLOGY-CLINICAL

Subject Code: BOTTS1-404 | **L T P C** | **Duration: 60(Hrs.)**
3 1 0 4

Course Objectives:

- To Understand the basic ideas on how to check for Vital Signs of the Patient
- This course the Student will learn how to handle the patients and their positioning hey will also learn on the Basics of Nasal-Gastric Tube
- The Students will learn on Administration of IV, IV and Medication, Also they will know about Cleanliness in the Asepsis

Course Outcomes:

- After successful accomplishment of the course, the students would be able to Measure Vital Signs, do basic physical Examination of the patients, NG tube basics, Administration of Medicines
- The students will learn about Asepsis, and the Cleanliness related to asepsis and on mobility of the patients

Unit -1. **(15 hours)**

- Physical facility
- Layout of operation theatres
- Transition
- Peripheral support areas
- Operating room.
- Special procedure rooms
- Potential sources of injury to the care giver & patient
- Principles of asepsis & sterile technologies

Unit-2. **(15 hours)**

- Asepsis, surgical scrub, gowning & gloving
- Decontamination & disinfections
- Sterilization assembly & packing
- Thermal sterilization
- Chemical sterilization
- Radiation sterilization
- Surgical instrumentation
- Fabrication

Unit-3. **(20 Hours)**

- Powered surgical instruments
- Handling instruments
- Specialized surgical equipment
- Electro cautery
- Laser
- Microsurgery
- Ultra sonography
- Positioning, preparing and draping the patient

- General surgery
- Breast procedures

Unit-4. **(10 Hours)**

- Abdominal surgery
- Liver procedure
- Splenic procedures
- Pancreatic procedures
- Oesophageal procedures

Reference Book

- Textbook of Medical Laboratory Technology, Volume 1, 3rd Edition by Praful Ghodkar
- Textbook of Medical Laboratory Technology, Volume 2, 3rd Edition by Praful Ghodkar
- Medical Laboratory Technology (Volume 1): Procedure Manual for Routine Diagnostic, Kanai Mukherjee
- Medical Laboratory Technology (Volume 2): Procedure Manual for Routine Diagnostic, Kanai Mukherjee
- Medical Laboratory Technology (Volume 3): Procedure Manual for Routine Diagnostic, Kanai Mukherjee
- Anaesthesia Manual- A. A. Ahanatha Pillai
- OT Technician Training Module of Department
- Hand book on Operation Theatre & Asepsis Published by Cochin Ophthalmic Club COC-CME Series 2 , 2013
- Proper Maintenance of Instruments 8th Revised Edition,2005 Instrument Preparation working group – Germany
- Guide to Care and Maintenance of Surgical Instrumentation @1995 Scanlan International , Inc

BIOSTATISTICS & COMPUTER APPLICATIONS

Subject Code: BOTTS1-405 | **L T P C** | **Duration: 30(Hrs.)**
1 1 0 2

Course Objectives:

- This subject intends to familiarize the student with basic statistical tools and techniques and the use of inferential statistics in analyzing quantitative data in the Hospital System

Course Outcomes:

- In this course we'll learn how to effectively collect data, describe data, and use data to make inferences and conclusions about real world

Unit -1 **(10 hours)**

- Definition & Calculations of mean (by both direct and shortcut method and step deviation method) mode and Median (individual observation, discrete observation and continuous observation .

Unit-2 **(10 hours)**

- **Tabulation of Data Graphical Presentation of Frequency Distribution :**Line frequency, Histogram(for equal and unequal class interval, inclusive data and for Midvale)
- Frequency polygon
- Frequency curve
- Cumulative frequency curve

Unit-3 **(5 Hours)**

- **Probability:** Definition of probability, Binomial distribution, Normal distribution, Poisson's distribution, properties - problems

Unit-4 **(5 Hours)**

- **Parametric test:** t-test(Sample, Pooled or Unpaired and Paired) , ANOVA, (One way and Two way), Least Significance difference
- **Non Parametric tests:** Wilcoxon Rank Sum Test, Mann-Whitney U test, Kruskal-Wallis test, Friedman Test

Reference Book

- Mausner & bahn : Epidemiology-An Introductory text, 2nd Ed., W. B. Saunders Co.
- Richard f. Morton & j. Richard hebd : A study guide to Epidemiology and Biostatistics, 2 nd Ed., University Park Press, Baltimore.
- Sylvia W Smoller, J Smoller, Biostatistics & Epidemiology A Primer for health and Biomedical professionals, 4th edition, Springs, 2015

PRINCIPLES AND EQUIPMENTS RELATED TO ANESTHESIA TECHNOLOGY – PRACTICAL

Subject Code: **BOTTS1 -406** **L T P C** **Duration: 2Hrs/Week**
0 0 2 1

Objective: Learning goals and objectives for allied and healthcare professionals, the principles of basic science and evidence-based practice. Use relevant, equipment's and ability of skilled manpower to operate the same.

Experiments

- The respirator bag valve mask.
- Anesthesia machine.
- Oxygen mask.
- Laryngoscope.
- Tracheostomy tube.
- Tuohy needle.
- Flexible Endoscope.
- Syringe
- Mucus Sucker

PRINCIPLES OF STERILIZATION TECHNIQUES- PRACTICAL

Subject Code: **BOTTS1 -407** **L T P C** **Duration: 2Hrs/Week**
0 0 2 1

Objective: Describe sterilization methods used, application, limitations, and risks of each. Discuss the parameters associated with each method of sterilization

Experiment

- Sterilization and Maintenance: Care, Washing, & Lubrication of Orthopedic Power instrument Setting up table for various surgeries
- portable X-ray Machine Cautery Machine-Types Setting & Uses Positing for orthopedic patient and other surgeries
- Identification & Demonstration of working of the equipment, Fumigation, Cleaning and disinfection of articles, Packing articles for sterilization, Sterilization of equipments
- Sterilization and maintenance of Endoscopic Instruments
- chemical treatment of Sterilization
- Instrument planning for various surgical procedure and auxiliary instrumentation

OPERATIONAL THEATER TECHNOLOGY- CLINICAL -PRACTICAL

Subject Code: **BOTTS1 -408** **L T P C** **Duration: 2Hrs/Week**

0 0 2 1

Objective:

- To Understand the basic ideas on how to check for Vital Signs of the Patient
- This course the Student will learn how to handle the patients and their positioning hey will also learn on the Basics of Nasal-Gastric Tube
- The Students will learn on Administration of IV, IV and Medication, Also they will know about Cleanliness in the Asepsis

Experiment

- Orthopedic Power instruments Advanced OT tables & their attachment Types,
- Setting & Use of Image intensifier Portable X-ray Machine
- Cautery Machine Suction machine,
- Pulse oxymeter
- Cardiac monitor
- Sterilization assembly & packing
- Thermal sterilization
- Chemical sterilization
- Radiation sterilization
- Surgical instrumentation
- Fabrication
- Principles of asepsis & sterile technologies