GURU KASHI UNIVERSITY

B.Voc in Operations Theatre

Department of Paramedical Sciences

Session: 2024-25

Graduate Attributes:

The programme B.Sc. OT&AT imparts o the students an intensive knowledge to perform routine surgical procedures within acceptable quality control in Anesthesia, surgical equipment, and sterilization under the supervision of a surgeon so that they can maximize their potential by utilizing their abilities and academia excellence to contribute to society in a meaning full 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 ethically and professionally without bias against any ethnicity, race, religion, caste, or gender with high 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 to function effectively as an operation theatre technician.
- Maximize their potential by utilizing their abilities, academic excellence, and justifiable confidence.

Programme Structure

Program Structure Semester-1st							
S. No	**Course Code**	**Course Title**	**Type of course**	**L**	**T**	**P**	**Credits**
1	BVT101	General Anatomy- I	Core course	3	0	0	3
2	BVT102	General Physiology-I	Core course	3	0	0	3
3	BVT103	General Biochemistry	Core course	3	0	0	3
4	BVT104	General Anatomy – I Practical	Technical skills	0	0	4	2
5	BVT105	General Physiology -I Practical	Technical skills	0	0	4	2
6	BVT106	General Biochemistry – Practical	Technical skills	0	0	4	2
7	BVT107	Project-I	Technical Skills	0	0	4	2
8	BVT108	Human Rights and Duties	Multidisciplinary	2	0	0	2
9	BVT109	Communication and soft skills	Compulsory Foundation	2	0	0	2
Disciplinary Elective I (Any one of the following)							
10	BVT110	Introduction to Quality & Patient Safety	Disciplinary Elective-I	3	0	0	3
11	BVT111	Bio-Medical Wastage Management					
TOTAL				16		16	24

Semester: II							
Sr. No.	**Course Code**	**Course Name**	**Type of course**	**L**	**T**	**P**	**No. Of Credits**
1	BVT201	General Anatomy-II	Core	3	0	0	3
2	BVT202	General Physiology- II	Core	3	0	0	3
3	BVT203	Psychology	Core	3	0	0	3
4	BVT204	General Anatomy -II Practical	Skill Based	0	0	4	2
5	BVT205	General Physiology- II Practical	Skill Based	0	0	4	2
6	BVT206	Introduction to Health Care/First Aid- Practical	Skill Based	0	0	4	2
7	BVT207	Project II	Skill Based	0	0	4	2
8	BVT299	XXXX	MOOC	0	0	0	2
	BVT208	Environmental Studies	Compulsory Foundation	2	0	0	2
Disciplinary Elective II (Any one of the following)							
9	BVT209	Health Education	Disciplinary Elective-II	3	0	0	3
10	BVT210	Social Pharmacy					
Total				**14**	**0**	**16**	**24**

Semester: III							
Sr. No.	**Course Code**	**Course Name**	**Type of course**	**L**	**T**	**P**	**No. Of Credits**
1	BVT301	Applied Anatomy & Physiology Related to Anesthesia Technology	Core	3	0	0	3
2	BVT302	Basic Principles of Hospital Management	Core	3	0	0	3
3	BVT303	Pharmacology	Core	3	0	0	3
4	BVT304	Applied Anatomy & Physiology Related to Anesthesia Technology – Practical	Skill Based	0	0	4	2
5	BVT305	Pharmacology – Practical	Skill Based	0	0	4	2
6	BVT306	General Pathology Practical	Skill Based	0	0	4	2
7	BVT07	Project III	Skill Based	0	0	4	2
8	BVT308	Electronics and Technology in Surgery and Anesthesia	Elective Foundation	2	0	0	2
9	BVT399	XXXX	MOOC	0	0	0	2
Disciplinary Elective III (Any one of the following)							

10	BVT309	Medical Ethics & Legal Aspects	Disciplinary Elective-III	3	0	0	3
11	BVT310	Medical Diseases Influencing the Choice of Anesthesia					
Open Elective Courses (for other Department)							
12	BVT311	Medical Terminology & Medical Records	Open Elective	2	0	0	2
13	BVT312	Human Rights & Profession Values					
Total				**16**	**0**	**16**	**26**

Semester: IV							
Sr. No.	**Course Code**	**Course Name**	**Type of course**	**L**	**T**	**P**	**No. Of Credits**
1	BVT401	Introduction of Operation Theatre Technology	Core	3	0	0	3
2	BVT402	Applied Pharmacology Related to Anesthesia Technology	Core	3	0	0	3
3	BVT403	Health Care Management	Core course	3	0	0	3
4	BVT404	Introduction of Operation Theatre Technology – Practical	Skill Based	0	0	4	2
5	BVT405	Applied Pharmacology Related to Anesthesia Technology – Practical	Skill Based	0	0	4	2
6	BVT406	Health Care Management – Practical	Compulsory Foundation	3	0	0	3
7	BVT407	Innovation, creativity, and Entrepreneurial Mindset	Entrepreneurship skills	2	0	0	2
8	BVT408	Human psychology	Multidisciplinary	2	0	0	2
Disciplinary Elective IV (Any one of the following)							
9	BVT409	Professionalism & Values	Disciplinary Elective-IV	3	0	0	3
10	BVT410	Basic Procedures and Techniques					
	Total			**21**		**8**	**23**

Semester: V							
Sr. No.	**Course Code**	**Course Name**	**Type of course**	**L**	**T**	**P**	**No. Of Credits**
1	BVT501	Concepts of Diseases and Techniques in Anesthesia	Core course	4	0	0	4
2	BVT502	Hospital Products, Promotion, Sales & Public Relations	Core course	4	0	0	4
3	BVT503	Trauma & Cardiac Life Support	Core course	4	0	0	4
4	BVT504	Concepts of Diseases &Techniques in Anesthesia – Practical	Skill Based	0	0	4	2
5	BVT505	Hospital Products, Promotion, Sales & Public Relations- Practical	Skill Based	0	0	4	2
6	BVT506	Trauma & Cardiac Life Support– Practical	Skill Based	0	0	4	2
7	BVT507	Project-V	Skill Based	0	0	2	1
8	BVT599	XXXX	MOOC	0	0	0	2
9	BVT508	Research Methodology	AEC	2	0	0	2
Disciplinary Elective V (Any one of the following)							
10	BVT509	Hematology & Blood Bank	Disciplinary Elective-VII	3	0	0	3
11	BVT5110	Health Care					
			Total	**17**	**0**	**14**	**26**

Semester: VI							
Sr. No.	**Course Code**	**Course Name**	**Type of course**	**L**	**T**	**P**	**No. Of Credits**
1	BVT601	Anesthesia for Specialties – I	core	4	0	0	4
2	BVT602	Anesthesia for Specialties – II	core	4	0	0	4
3	BVT603	Research Methodology &Biostatistics	core	4	0	0	4
4	BVT604	Anesthesia for Specialties - Practical– I	Skill Based	0	0	4	2
5	BVT605	Anesthesia for Specialties - Practical– II	Skill Based	0	0	4	2
6	BVT606	Clinical Posting (Orientation)	Skill Based	0	0	4	2
7	BVT607	Project-VI	Skill Based	0	0	4	2
8	BVT608	Training/Internship (2 months)	Skill Based	0	0	0	6
Total				12	0	16	26

Evaluation Criteria for Theory Courses

A. Continuous Assessment: [25Marks]

CA1- Surprise Test (Two best out of three) (10 Marks) CA2- Assignment(s) (10 Marks)
CA3-Termpaper/Quiz/Presentation(05Marks)

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

Semester: 1st

Course Title: General Anatomy
Course Code: BVT-101

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

Course Contents

UNIT- I Fundamentals of Human Anatomy and physiology 07 Hours

Terminology and General Plan of the Body
Body Parts and Areas
Terms of Location and Position
Body Cavities and Their Membranes
Dorsal Cavity
Ventral Cavity
Planes and Sections

UNIT-II Cellular Structure, Tissue Types, and the Integumentary System 13 Hours

Cells: Structure, Function, and Location
Prokaryotic and Eukaryotic Cells
Cell Organelles
Cell Division
Tissue: Definition, Structure, and Types
Membranes and Glandular Tissue
The Integumentary System: Structure and Classification

UNIT-musculoskeletal Anatomy and Functional Anatomy of Extremities 10 Hours

Connective Tissue Classification

Bones
Joints
Muscles
Upper Extremity
Lower Extremity
Trunk and Pelvis

UNIT-IV Cardiovascular Anatomy and Physiology 15 Hours

Types and General Structure of Blood Vessels
Structure and Types of Arteries and Veins
Structure of Capillaries
Heart Anatomy
Conducting System and Blood Supply of the Heart

Systemic Arteries and

Suggested Readings:

- *Aashaadha, P.R., & Deepak, G. (2012). Textbook of Anatomy & Physiology for nurses. JP Medical Ltd.*
- *Caucasia, B. D. (2004). Human anatomy (p. 53). CBS Publisher Listens, 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 Human Anatomy, Professional Edition. Elsevier Health Sciences.*

Course Name: General Physiology Course Code: BVT102

L	T	P	Cr
3	0	0	3

Total Hours: 45

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, Ugo- 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: Cell Physiology and Body Organization *05 Hours*

Cell Physiology
Organization of the Body
Integumentary System

UNIT-II Muscular-Skeletal System and Neuromuscular Junction 10 Hours

Muscular-Skeletal System
Hormones Involved in Bone Growth
Neuromuscular Junction
Myasthenia Gravis
Rigor Mortis

UNIT-II Hematology and Lymphatic System 15Hours

Blood
Cellular Components and Their Functions
Blood Groups and Coagulation
Lymphatic System
Immunity and the Role of the Thymus

UNIT-IV Cardiovascular System General Arrangement of the Cardiovascular System15Hours

Heart Structure and Function
blood pressure
Mechanism of Circulation
Definition of Hypertension

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

Suggested Readings:

- *Aashaadha, P. R., &deep, G. (2012). Textbook of Anatomy & Physiology for Nurses. JP Medical Ltd.*
- *Guyton, A. C., & Hall, J.E. (2006). Medical physiology. Goshen 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: General Biochemistry

Code: BVT103

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. Understanding Molecular Structures
2. Metabolic Pathways
3. Enzyme Function and Kinetics:
4. Application of Biochemical Techniques:

Course Contents

UNIT-I Cell Biology and Hormonal Mechanisms 15Hours

Introduction to Cells
Cell Organelles and Their Functions
Transport Mechanisms
Introduction to Hormones
Mechanisms of Hormone Action

UNIT-II Biochemical Constituents and Metabolism 07Hours

Carbohydrates
Proteins
Lipids

UNIT-III Enzymes, Vitamins, Minerals, and Free Radicals in Health 08Hours

Enzymes
Vitamins
Minerals
Proteins

UNIT-IV Unit 4: Acid-Base Balance and pH Regulation 15Hours

Acids and Bases
Henderson-Hassel balch Equation
Buffers
PH Measurement

Transactional modes

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

Suggested Readings:

- *Bo jar, 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 and ankle surgery. Lippincott Williams &Wilkins.*
- *Ramjets. (2010). Manual of Pediatric Emergencies & Critical Care.Paras.*
- *Spuntarelli, V., Luciani, M., Bentivegna, E., Marini, V., Flavanone, F., Conforti, G., &Tartelette, P. (2020). COVID-19: is it just a lung disease? A case-based review. SN Comprehensive Clinical Medicine*

Course Title: General Anatomy(Practical)
Course Code: BVT104

TotalHours: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, cranial nerves, 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 limbs. 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. ppt

Suggested Readings:

- *Agar, A.M., & Daley, A.F. (2009). Grant's satlasofanatomy. Lippincott Williams & Wilkins.*
- *Charisa, B. D. (2004). Human anatomy (p. 53). CBS Publisher.*
- *Peat, I., & Nair, M. (2015). Anatomy and Physiology for Nurses ate Glance. John Wiley & Sons*

Course Title: General Physiology(Practical) Course Code: BVT105

Total Hours: 30

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

1. Apply Basic Practical skills in blood testing, Microscope, hemolytic meter, and RBC count
2. Study the functions of important physiological systems including the cardio-respiratory, renal, reproductive, and metabolic systems.
3. Expansion knowledge of Clinical examination of the 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. WB Count Differential Count
7. Hematocrit demonstration
8. ESR
9. Blood group & Rh. Type
10. Bleeding time and clotting time.
11. Digestion Test salivary digestion 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 model

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

Suggested Readings:

- *Peat, I., & Nair, M. (2015). Anatomy and Physiology for Nurses at a Glance. John Wiley & Sons.*
- *Pal, G. K. (2006). Textbook of Practical Physiology-2Nd Eden. Orient Black swan.*

Course Name: General Biochemistry-Practical(Practical)

Course Code: BVT106

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

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

Course Contents

List of experiments/Practical's

1. Basic Biochemical Techniques
2. Introduction to spectrophotometry, chromatography (TLC and paper chromatography), and electrophoresis. Familiarization with special instruments used for various sub-specialties
3. Carbohydrate Analysis
4. Qualitative and quantitative tests for carbohydrates, including Benedict's test, Brafords' test, and Fehling's test. Protein and Enzyme Studies
5. Protein quantification methods (Bradford assay), enzyme activity assays, and electrophoresis of proteins. maintenance protocol

6. Extraction and analysis of lipids using solvent extraction methods, and the determination of lipid types (saponification and iodine number).

Course Title: Project –I
Course Code: BVT107

UNIT-I Study of Sterilization Techniques in the Operation Theatre

15Hours

Description: Investigate various sterilization methods used in operation theatres, such as autoclaving, chemical sterilization, and gas sterilization. Evaluate their effectiveness, procedures, and safety measures.
Objective: Understand the principles and practices of sterilization to ensure sterile environment for surgical procedures.

UNIT-II Assessment of Infection Control Measures in the Operation Theatre

Description: Examine **infection** control protocols, include in Gandhi gene, use of personal protective equipment (PPE), and disinfection procedures. Conduct a survey of current practices and identify areas for improvement.
Objective: Improve infection control measures to enhance patient safety and minimize the risk of postoperative infections.

UNIT-III Evaluation of Surgical Instrument Handling and Maintenance

Description: Study the handling, maintenance, and cleaning procedures for surgical instruments. Develop a checklist or protocol for proper care and management of these tools.
Objective: Ensure the effective and safe use of surgical instruments by maintaining their quality and functionality**.**

1. **UNIT-Iv Analysis of Operation Theatre Layout and Workflow Efficiency**

Description: Review the layout and work flow within an operation theatre. Assess how the **physical** arrangement impacts efficiency and safety, and propose improvements.

Objective: Environment and patient care.

Transactional model

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

L	T	P	Cr
2	0	0	2

Suggested Readings:

- *Schrie fir, 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,*
- *Data, P., Mohi, G.,&Chander, J.(2018).Biomedical waste management in*
- *India: Critical appraisal. Journal of laboratory physicians,*

Course Title- Communication and Soft Skills
Course Code: BVT108

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 " by William Strunk Jr. and E.B. White
2. How to Win Friends and Influence People " 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 " by William Zinsser

Course Title: Introduction to Quality & Patient Safety Course Code: BVT109

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 CareFirst aid, choking, rescue breathing methods, ventilation including use ofbag 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: BVT110

Total Hours: 45

Learning Outcomes: After completion of this course, thelearner 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-

Semester 2nd

1. **Course Title: General Anatomy –II**
2. **Course** Code**: BVT201**

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

6. 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.
7. Evaluate Features of lymph vessels, lymphatic tissue&organs,lymphatic's,spleen,tonsil,thymus

8. StudyCentralnervoussystem,brain,cerebellum,spinalcor d, cranialnerves,andautonomicnervoussystem.
9. Differentiateskeletalmuscle,cardiacmuscle,smoothmuscle.
10. Discuss Hormones, pituitary gland, thyroidgland, parathyroid glands,adrenalglands,endocrinepancreas.

CourseContents

UNIT-I:Respiratory System Anatomy and Structure15Hours

Thoracic Cage Anatomy
Upper Respiratory Anatomy
Lower Respiratory Anatomy

UNIT-II Anatomy of the Digestive Systems

Digestive Organs
Mouth and Pharynx
Esophagus and Stomach
Small and Large Intestines

UNIT-III: Anatomy of Excretory and Reproductive System 15 Hours

Excretory Organs
Reproductive Organs
Excretory Organs Kidney Ureter and Bladder

UNIT-IV Anatomy of the Nervous System 15Hours

Central Nervous System: Brain
Central Nervous System: Spinal Cord
Associated Structures
Protective Structures and Blood Supply

Transactionalmodes

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

SuggestedReadings:

SuggestedReadings:

- *Agur,A.M.,&Dalley,A.F.(2009).Grant'satlasofanatomy. LippincottWilliams & Wilkins.*
- *Chaurasia,B. D. (2004). Human anatomy (p. 53). CBS Publisher.*
- *Peate, I., & Nair, M. (2015).Anatomy and Physiology for Nurses ataGlance.John Wiley & Sons*

Course Title: General Physiology –I

Course Code: BVT202

L	T	P	Cr
4	0	0	4

Total Hours: 60

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Learn pharmacology drugs acting on blood and blood forming agents.
2. Enlistthedrugsactingonurinarysystem.
3. StudypharmacologydrugsactingonGIsystem.
4. Acquirepharmacologyofdrugsactingonimmunesystem.

CourseContents

UNIT-I Functional Anatomy and Physiology of the Respiratory System

15Hours

Components of the Respiratory System
Mechanism of Respiration
Pulmonary Function and Circulation
Gas Transport and Respiratory Adjustments

UNIT-II Functional Anatomy and Physiology of the Digestive and Endocrine Systems

15Hours

Digestive System Anatomy and Physiology
Conditions related to the digestive system
Endocrine System Overview

UNIT-III Excretory and Reproductive Systems

15Hours

Mechanism of Excretion Urine formation
Electrolytes: their balances and imbalances
Acid - base balance
Acidosis and Alkalosis
Reproductive System
Male reproductive system
Female reproductive system
Lactation: composition of milk

UNIT-IV Nervous and Sensory Systems **15Hours**

Nervous System Overview
Central Nervous System
Peripheral and Autonomic Nervous System
Sensory System

Transactionalmodes

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

SuggestedReadings:

- *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 Title: Psychology

L	T	P	Cr
4	0	0	4

Course Code: BVT203

TotalHours:60

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Get detailed information about the host, parasite, their life cycle andvariousdiseasescausedbythem
2. Learn the procedures of sample collection and transportation for microbiology tests.

3. Capableto prepare various culture medias, Care &handling of laboratory animals and get their extracts for culture preparations
4. Classifymicrobeswithspecialreferencetoprokaryotes &eukaryotes,Bacterialanatomy

CourseContents

UNIT-I Fundamentals of Psychology and Psychological Disorders 15Hours

Introduction to Psychology
Scope and Branches of Psychology
Concepts of Normality and Abnormality
Identifying and Understanding Psychological Disorders

UNIT-II Understanding and Managing Stress 15Hours

Concept of Stress
Psychological Models of Stress
Sources and Impact of Stress
Health Behavior and Stress Management.

UNIT-III Theories and Processes of Learning 15Hours

Introduction to Learning
Classical Conditioning
Operant Conditioning
Theories of Learning

UNIT-IV Foundations of Therapeutic Techniques 15Hours

Counselling
Psychotherapy
Relaxation Techniques

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

SuggestedReadings:

- *Practical Medical Microbiology by Mackie & McCartney Volume 1 and 2*
- *TextbookofMicrobiologybyAnanthanarayanan*
- *MedicalMicrobiologybyPaniker&SatishGupte*

Course Name: General Anatomy (Practical)

L	T	P	Cr
0	0	4	2

Course Code: BVT-204

TotalHours:30

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

1. BefamiliarwiththehistoryofAnesthesia
2. getanunderstandingofPositioningofPatient
3. Suggesting a simple anesthetic plan commonly used anesthesianon-invasive
4. MonitoringintheOperation Theatre
5. Implementmethodstodecreaseinfectionsin

CourseContents

List of Experiments/Practical's

1. Dissection of the Thoracic Cavity

Perform dissection to explore the thoracic cavity. Identify and study the heart, lungs, and major blood vessels.

2. Dissection of the Abdominal Cavity

Dissect the abdominal cavity to examine the stomach, intestines, liver, spleen, and kidneys. Identify their anatomical relationships and functions

3. Bone Identification and Markings

Study and identify key bones of the human skeleton. Examine surface markings, articulations, and bone structures through skeletal models or specimens.

4. Brain Dissection

Conduct a detailed dissection of the brain to understand its structure. Identify major parts such as the cerebrum, cerebellum, and brainstem, and their functional areas

5. Spinal Cord and Peripheral Nerves

Study the structure of the spinal cord and its relation to the vertebral column. Explore the major peripheral nerves and their pathways through models or dissection.

6. Heart Anatomy and Function

Examine the heart's chambers, valves, and vessels. Use models or specimens to study the blood flow through the heart and major arteries and veins.

7. Lung Structure and Function

Study the anatomy of the lungs, including the bronchial tree and alveoli. Observe how these structures facilitate gas exchange.

8. Digestive Tract Examination

Explore the anatomy of the digestive tract, from the esophagus to the rectum. Study the structure and function of accessory organs such as the liver and pancreas

9. Urinary System Dissection

Dissect and identify the kidneys, ureters, bladder, and urethra. Learn about their roles in urine formation and elimination

10. Endocrine Glands Study

Examine the major endocrine glands (thyroid, adrenal, pituitary) through models or specimens. Discuss their hormonal functions and impacts on the body

11. Male and Female Reproductive Systems

Study the anatomy of the male and female reproductive systems. Dissect and identify key structures and discuss their roles in reproduction.

Transactional modes

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

SuggestedReadings:

SuggestedReadings:

- *Agur,A.M.,&Dalley,A.F.(2009).Grant'satlasofanatomy. LippincottWilliams & Wilkins.*
- *Chaurasia,B. D. (2004). Human anatomy (p. 53). CBS Publisher.*
- *Peate, I., & Nair, M. (2015).Anatomy and Physiology for Nurses ataGlance.John Wiley & Sons*

CourseName:General Physiology-II(Practical)
CourseCode:BVT205

L	T	P	Cr
0	0	4	2

Total Hours: 30

LearningOutcomes:
Aftercompletionofthiscourse,the learner will be able to:

1. Knowtheuseofvarioustypesofemergencydrugs,theirdosagean deffects.
2. Understand the action of drugs on the neuromuscularsystem and cardiovascular system.
3. Application of bicarbonate, calcium, and potassium inpatient care.
4. Understand the mode of action of painkiller drugs and their e

Course

Contents List of Experiments/Practicals

1. **Measurement of Blood Pressure**
   Use a sphygmomanometer to measure and record blood pressure. Analyze the effects of different positions and activities on blood pressure
2. **Electrocardiogram(ECG)Recording**
   Perform ECG recordings to study the electrical activity of the heart. Identify different phases of the cardiac cycle and interpret normal and abnormal ECG patterns.
3. **HeartRateandCardiacOutput**
   Measure heart rate under various conditions (resting, post-exercise). Calculate cardiac output and discuss
4. Spirometry
   Perform spirometry tests to measure lung volumes and capacities (e.g., tidal volume, vital capacity, residual volume). Analyze respiratory function and patterns.
5. **PeakFlowMeasurement**
   Use a peak flow meter to assess peak expiratory flow rate (PEFR). Discuss its significance in respiratory health and disease
6. **GasExchangeAnalysis**
   Study the effects of various factors (e.g., exercise, altitude) on gas exchange.

Measure and analyze blood gases (O_2 and CO_2 levels) using available equipment.

7. **FluidandElectrolyteBalance**
   Study the regulation of fluid and electrolytes in the body. Measure the effects of different fluid intake levels on urine output and electrolyte balance

Transactionalmodes

Video based teaching, Collaborative teaching, Case basedteaching,Question

SuggestedReadings:

- *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.*

L	T	P	Cr
0	0	4	2

Course Name: Introduction to Health Care/First Aid-Practical
Course Code: BVT206 Total Hours: 30

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Collectsampleforidentificationofbacteria,virus,fungior parasite.
2. Cleaningtechniquesofglasswarebyvariousmethods accordingtotheirusesinlaboratory.
3. Operating microscope, cleaning and maintenance of microscope andobjectives.
4. Sterilizationtechniques-dryandmoistheat,workingofhotairovenandautoclave

CourseContents

List of Experiments/Practical's

1. **CPR (Cardiopulmonary Resuscitation)**
   Objective: Learn and practice CPR techniques for adults, children, and infants. Understand the correct chest compression depth and rate, rescue breaths, and the use of an automated external defibrillator (AED).
   Tools/Equipment: CPR manikins, AED trainers.
2. **Choking Relief**
   Objective: Practice techniques for relieving choking in adults, children, and infants. Demonstrate abdominal thrusts (Heimlich maneuver) and back blows.
3. **Bleeding Control and Wound Care**
   Objective: Apply techniques for controlling bleeding, including direct pressure, elevation, and tourniquet application. Practice wound cleaning, dressing, and bandaging.
   Tools/Equipment: Bandages, antiseptics, simulated wounds.
4. **Primary and Secondary Surveys**
   Objective: Conduct primary and secondary assessments of an injured or ill person.

Identify and prioritize life-threatening conditions and perform a thorough secondary survey.
Tools/Equipment: First aid kits, assessment checklists.

5. Shock Management

Burns and Scalds Treatment Objective: Practice the treatment of burns and scalds, including cooling the burn, covering with sterile dressings, and recognizing different degrees of burns.
Tools/Equipment: Burn simulation kits, sterile dressings.

6. Fractures and Sprains

Objective: Immobilize and manage fractures and sprains using splints and
bandages. Understand the signs of fractures and the proper application of splints.
Tools/Equipment: Splints, bandages, simulated limb injuries.

7. Poisoning and Allergic Reactions

Objective: Identify symptoms of poisoning and allergic reactions. Practice administering first aid for these situations, including the use of epinephrine auto- injectors.
Tools/Equipment: Epinephrine auto-injectors (training devices), poison control information.

8. Personal Protective Equipment (PPE)

Objective: Understand and practice the correct use of PPE in various health care settings to prevent infection and ensure safety.
Tools/Equipment: Gloves, masks, gowns, eye protection.

Transactionalmodes

Videobasedteaching,Collaborativeteaching,Casebasedteaching, Question.

Suggestedreadings:

a. *Practical Medical Microbiology, Mackie & McCartney Volume 1 and 2*
b. *TextbookofMicrobiologybyAnanthanarayanan*
c. *MedicalMicrobiologybyPaniker&SatishGupte*
d.

Course Name: Project-II

Course Code: BVT207

Course contents

Designing an Operating Theatre Protocol: Ensuring Patient Safety and Efficiency

Objective: To create a comprehensive protocol for an operating theatre that focuses on patient safety, infection control, and efficient workflow.

Components: Include pre-operative, intra-operative, and post-operative procedures, roles and responsibilities of the OT team, sterilization protocols, and emergency response plans.

Comparative Study of Sterilization Techniques in Surgical Instruments

Objective: To evaluate the effectiveness of different sterilization methods used for surgical instruments in terms of time efficiency, cost, and infection control.

Components: Research and analysis of methods like autoclaving, ethylene oxide, UV sterilization, and chemical disinfectants. Include a practical component where different techniques are tested and compared.

Patient Positioning in Surgery: Impact on Surgical Outcome and Patient Safety

Objective: To investigate the importance of proper patient positioning during various surgical procedures and its impact on surgical outcomes and patient safety.

Components: Include a study of different positioning techniques for various surgeries, potential risks associated with improper positioning, and strategies to mitigate these risks.

Implementation of Electronic Health Records (EHR) in Operating Theatres

Objective: To explore the benefits and challenges of implementing Electronic Health Records (EHR) in operating theatres for better patient management and documentation.

Components: Conduct a study on existing EHR systems, analyze their impact on workflow and data management, and propose a model for EHR implementation in a hypothetical hospital setting.

Role of Technology in Enhancing Communication and Coordination in the Operating Theatre

Objective: To assess the role of communication and coordination technologies (like intercom systems, digital displays, and telemedicine) in improving the efficiency and safety of surgical procedures.

Components: Examine current technologies used, their effectiveness, and propose improvements or new technologies that could be integrated.

Assessment of Post-Operative Care Protocols and Patient Outcomes

Objective: To analyze the impact of different post-operative care protocols on patient recovery and outcomes.

Components: Include a review of standard post-operative care practices, a survey or interviews with healthcare professionals, and a comparative analysis of outcomes based on varying protocols

Course Name: Environment Studies

Course Code: BVT208

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: BVT209

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.*

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: BVT210

Total Hours: 45

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

1. Deliberate about roles of pharmacists in the various national health programs
2. Describe various sources of health hazards and disease preventive measures
3. Discuss the healthcare issues associated with food and nutritional substances
4. 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, CBSPublishers & 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: Applied Anatomy & Physiology related to anesthesia Technology

Course Code:BVT301

L	T	P	Cr
3	0	0	3

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Evaluatethemanagementevolutionandhowitwillaffec t futuremanagement.
2. Practicetheprocessofmanagement'sfunctions: - planning, organizing,leading,directingandcontrolling.
3. Observeandevaluatesocialresponsibilityandethicalis sue involvedinbusiness situations and logically articulate own position on such issue
4. ObserveFunctionsofManagement:Planning– Organizing– Directing–ControllingPlanning.

CourseContents

UNIT-I Respiratory System in Anesthesia 15Hours

Anatomy of the Respiratory Tract
Respiratory Physiology
Lung Volumes and Capacities
Oxygen and Respiratory Considerations

UNIT-II Cardiovascular System in Anesthesia10Hours

Heart Anatomy
Electrocardiography (ECG)
Blood Pressure Measurement

UNIT-III : Fluid Management and Blood Transfusion 10 Hours

Body Fluids
Intravenous (IV) Fluids
IV Cannulation
Blood Transfusion

UNIT-IV Neurophysiology and Reproductive Physiology 10Hours

Central and Peripheral Nervous System
Cerebrospinal Fluid (CSF)
Reproductive System
Labour and Delivery

Transactionalmodes

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

SuggestedReadings:

e. *Sproull,L.S.(1984).“TheNatureof ManagerialAttention,” inL. S.Sproull (ed.), Advances in Information Processing in Organizations. Greenwich, CT: JAI Press.*

L	T	P	Cr

Course Title: Basic Principles ofHospital Management

3	0	0	3

CourseCode:BVT302

TotalHours:45

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Study the chemistry of carbohydrate, lipids, proteins and amino acid
2. Narratethesignificanceofbiochemistryinpatient'sstatus.
3. Clarify the importance of mineral and vitamins in human body.
4. RecognizetheNomenclature,Classification,Factorsaffecti ng enzymeactivity
5. Acceptthebriefdescriptionofchemistryofblood.

CourseContents

UNIT-I Principles of Management and Organizational Behavior Planning and Management of Hospital and Clinical Services

Introduction to Management and Organization
Management Functions
Management in Healthcare Units
Organizational Behavior

UNIT-II Planning and Management of Hospital and Clinical Services 10 Hours

Hospital Infrastructure and Physical Layout
Planning of Infrastructure Facilities
Types of Hospitals
Clinical Services Administration

UNIT-III Organizing Support Services and Hospital Management 15Hours

Support Clinical Services

Housekeeping and Maintenance

Forecasting and Procurement

Equipment Maintenance and Financial Trends

UNIT-IV Personnel **Management** 10Hours

Personnel and Quality Management

Ethical and Legal Aspects

Operations Research and Quantitative Methods

Transactionalmodes

Video based teaching,Collaborativeteaching,Casebased teaching, Question.

SuggestedReadings:

- *TextbookofMedicalBiochemistry M N andShindeRena, JaypeeBrothersMedicalPublishersPvt.Ltd*

CourseName:Pharmacology

CourseCode:BVT303 **Total Hours: 45**

L	T	P	Cr
3	0	0	3

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Develop effective communication and interpersonal skills inprofessional contexts.
2. Relate critical thinking and decision-making skills to ethical challenges.
3. Cultivatepersonalvaluesandethicalprinciplesthatalignwit h professional standards.
4. Reflect on their own professional development and personalgrowth.

Course Contents

UNIT-IFundamentals of Pharmacology **9Hours**

DrugFundamentals
Pharmacokinetics
DrugToxicity
PharmacokineticsOverview

UNIT-II Principles of Drug Action and Pharmacodynamics12 Hours

DrugAction

Mechanismof Action
AdverseDrugReactions(ADR)

DrugMetabolismandClassification

UNIT-III Pharmacology of Drugs Affecting the Nervous System 12 Hours

AutonomicNervousSystemDrugs

CentralNervousSystemDrugs

UNIT-IV Pharmacology of Local Anesthetics and Cardiovascular Drugs 12 Hours

LocalAnesthetics
CardiovascularDrugs

Transactionalmodes

Video based teaching,Collaborativeteaching,Casebased teaching, Question

SuggestedReadings:

- *Rokeach, M. (2008).Understanding human values.Simon and Schuster.Inglehart, R. F., Basanez, M., Basanez, M., & Moreno, A.(1998).*

Subject Title: Applied Anatomy&Physiology–

Practical

Code BVT304

L	T	P	Cr
3	0	0	3

Course Contents

List of Experiments/Practical's

1. Dissection of the Thoracic Cavity

Perform dissection to explore the thoracic cavity. Identify and study the heart, lungs, and major blood vessels.

2. Dissection of the Abdominal Cavity

Dissect the abdominal cavity to examine the stomach, intestines, liver, spleen, and kidneys. Identify their anatomical relationships and functions

3. Bone Identification and Markings

Study and identify key bones of the human skeleton. Examine surface markings, articulations, and bone structures through skeletal models or specimens.

4. Brain Dissection

Conduct a detailed dissection of the brain to understand its structure. Identify major parts such as the cerebrum, cerebellum, and brainstem, and their functional areas

5. Spinal Cord and Peripheral Nerves

Study the structure of the spinal cord and its relation to the vertebral column. Explore the major peripheral nerves and their pathways through models or dissection.

6. Heart Anatomy and Function

Examine the heart's chambers, valves, and vessels. Use models or specimens to study the blood flow through the heart and major arteries and veins.

7. Lung Structure and Function

Study the anatomy of the lungs, including the bronchial tree and alveoli. Observe how these structures facilitate gas exchange.

8. Digestive Tract Examination

Explore the anatomy of the digestive tract, from the esophagus to the rectum. Study the structure and function of accessory organs such as the liver and pancreas

9. Urinary System Dissection

Dissect and identify the kidneys, ureters, bladder, and urethra. Learn about their roles in urine formation and elimination

10. Endocrine Glands Study

Examine the major endocrine glands (thyroid, adrenal, pituitary) through models or specimens. Discuss their hormonal functions and impacts on the body

11. Male and Female Reproductive Systems

Study the anatomy of the male and female reproductive systems. Dissect and identify key structures and discuss their roles in reproduction.

TotalHours:4

L	T	P	Cr
0	0	4	2

Course Title: **Pharmacology – Practical**

Course Code:BVT305

Total Hours: 30

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Evaluate and integrates the use of analytical enquiry andcritical reflection.
2. Determine knowledge of the pathophysiological nature of disorders resultingincriticalillness.
3. Integrate advanced and integrated theoretical and clinical knowledgerequiredforthe,assessmentandmanagemento fthe complex critically ill patient.
4. Determine a systems approach to the assessment, monitoringand support of physiological function in the critically ill patient

1) Preparation and administration of common drug forms including oral, intravenous.
2) Intramuscular routes; understanding and practice of aseptic techniques**.**

3) Measurement of drug absorption, distribution, metabolism, and excretion.
4) Analysis of drug interactions and their effects on
5) Pharmacokinetics
6) Identification and reporting of adverse drug reactions.
7) simulation of treatment protocols for drug toxicity and overdose scenario

8) Conducting assays and quality control tests for drug samples.
9) Use of analytical techniques such as chromatography and spectroscopy to assess drug purity and concentration

. Course Title: General Pathology -PracticaL
Code BVT306

Course Contents

15 Hours

1) Preparation and staining of tissue slides.
2) Identification of normal and pathological tissue structures under the microscope..
3) Microscopic examination of slides from common diseases such as inflammation, infections, and tumors.
4) Recognition of histological features of each condition.

5) Performing and interpreting basic hematological tests including blood smears, cell counts, and differential counts.

6) Observation and participation in autopsy procedures; identification of gross pathological findings and correlation with microscopic features

Transactional**modes**

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

Suggested Readings:

- *Ranjit,S.(2010).ManualofPediatricEmergencies&CriticalCare.Paras.*
- *McLean,S.F.(2016).Case-basedlearninganditsapplication 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,*

Optimization of Sterilization Protocols in the Operation Theatre

Objective: Analyze and propose improvements to current sterilization procedures in an operation theatre to enhance safety and efficiency.

Tasks:

Evaluate existing sterilization techniques.
Conduct a risk assessment for potential contamination.
Develop a revised protocol with recommendations.
Present findings through a detailed report and a presentation.

1. **Implementation of a Checklist System for Surgical Safety**

Objective: Develop and test a surgical safety checklist to reduce errors and improve patient outcomes.

Tasks:

Research existing surgical safety checklists and their effectiveness.
Design a customized checklist for local use.
Implement the checklist in a simulated or real environment.
Evaluate its impact on safety and compliance through feedback and data analysis.

2. **Analysis of Patient Flow and Resource Management in the Operation Theatre**

Objective: Study and optimize patient flow and resource allocation in the operation theatre to improve efficiency.

Tasks:

Map out current patient flow and resource usage.
Identify bottlenecks and areas for improvement.
Propose and test solutions for better management.
Document and present the improvements and their effects.

3. **Development of an Infection Control Program in the Operation Theatre**

Objective: Create a comprehensive infection control program to minimize the risk of surgical site infections.

Tasks:

Review current infection control practices and their effectiveness.
Design an enhanced infection control program.
Implement the program and monitor compliance.
Report on the effectiveness and any observed changes in infection rates.

Evaluation of Surgical Instrument Maintenance Practices

Objective: Assess and improve the maintenance practices for surgical instruments to ensure their functionality and longevity.

Tasks:

Review current maintenance procedures and schedules.
Conduct inspections and performance tests on various instruments.
Develop recommendations for improvements in maintenance practices.

Course Title Project-III
Code BVT307

Course Name: Electronics and Technology in Surgery and Anesthesia
Course Code: BVT308

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: BVT309

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 Name: Human Rights & Profession Values **Course Code: BVT310**

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 2008HingoraniR.C.: Human Rights in India: Oxford and IBA New Delhi.*

Course Title: Medical Diseases Influencing Choice of Anesthesia
Course Code: BVT311

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:

1) George Mathews:- Handbook Medicine Lee Synosis: Anaethesia Handbook.
2) Stoelting, R. K., & Hillier, S. C. (2019). Anesthesia and Co- Existing Disease (7th ed.). Elsevier.
3) 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.
4) 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.
5) 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).

Semester 4th

Course Title: Introduction to Operation Theatre Technology
Course Code: BVT401

L	T	P	Cr
3	0	0	3

LearningOutcomes: Aftercompletionofthiscourse,the learner will be able to:

1. Recognizethegeneralprinciplesandpreventivemaintenance for normaldeliveryandcaesariandelivery.
2. Must follow up of pregnancy.
3. Departmentstaffingandorganizations;recordsrelating to childborninhospitalandcompletethedocumentation.
4. Comprehend the general principles and preventive maintenanceforMedicalterminationofpregnancy

Course Contents

UNIT-I Introduction to Operation Theatre Management

Definition of Operation Theatre (O.T.)
Management of Operation Theatre
Single and Multiple Theatre Units
Advantages and Disadvantages of Different Theatre Configurations
Ambulatory Surgery: Overview and Applications
Applications of Operation Theatre in Various Medical Procedures

UNIT-II Operation Theatre Techniques and Hygiene Practices 15Hours

Operation Theatre Environment: Setup and Maintenance
Infection Control Protocols in the Operation Theatre
Scrubbing Techniques and Procedures
Theatre Clothing: Disposable Gown, Gloves, Cap, Goggles
Use of Disposable Towels and Sheets in the Theatre

UNIT-III Sterilization and Disinfection Techniques in the Operation Theatre 15 Hours

Definition and Importance of Disinfectants and Sterilization
Cleaning Agents and Detergents: Types and Uses
Mechanical Washing and Ultrasonic Cleaning
Inspection, Lubrication, and Common Pitfalls in Sterilization

Sterilization Procedures for Specialized Equipment: Arthroscopy, Gastro Scope, Imaging Lamp, Suction Apparatus

UNIT-IV Chemical and Physical Sterilization Methods in the Operation Theatre 15 Hours

Chemical Treatments: Formalin, Glutaraldehyde, and Thermal Methods
Hot Air Oven and Dry Heat Sterilization
Autoclaving and Steam Sterilization
Water-Based Sterilization Techniques
UV Treatment for Sterilization

Transactionalmodes

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

SuggestedReadings:

- *LeeSynopsisLeesynopsis MRogan Medical surgical – Brunner &SiddharthOrtho-Lippincctt*
- *OBG/ GYN–D.C.Dutta*
- *Berry&Kohnis-BerryandKohnisOperatingRAMTechnique*

Course Name: Applied Pharmacology

Relatedto Anesthesia Technology

Course Code: BVT402

L	T	P	Cr
3	0	0	3

TotalHours:30

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. AcquaintanceaboutallICUandOperationtheatremachines.
2. Recognizetheusesofinstrumentswhichareusedin OT, ICU, and CCU.
3. CareandmaintenanceofalldevicesinOT.
4. Acquirecare,maintenanceandoperational capabilitiesof beds,lightsandotherapparatus.

CourseContents

UNIT-I: Pharmacological Agents in Anesthesia and Sedation

Antisialagogues: Atropine, Glycopyrrolate
Sedatives and Anxiolytics: Diazepam, Phenergan, Lorazepam
Narcotics: Morphine, Pethidine, Methoclopramide, Ondansetron
Induction Agents: Barbiturates (Thiopental), Benzodiazepines (Diazepam, Midazolam), Phencyclidine

(Ketamine), Propofol

UNIT-II : Pharmacological Agents in Anesthesia and Sedation

Muscle Relaxants
Narcotics
Inhalational Gases and Agents
Reversal Agents
Local Anesthetics

UNIT-III : Emergency and Cardiovascular Drugs in Anesthesia and Critical Care

Emergency Drugs
Ionotropes
Cardiovascular Drugs
Respiratory System
Renal System
Obstetrics

UNIT- Fluids and Analgesic

Fluids
Non-Steroidal Anti-Inflammatory Drugs (NSAIDs s

Transactionalmodes

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

SuggestedReadings:

- *Ranjit,S.(2010).ManualofPediatricEmergencies&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.*
- *JournalofMedicalEducationandCurricularDevelopment,3,JMECD-S20377.*

CourseName: : Health Care Management
Course Code: BVT403
Total Hours: 30

L	T	P	Cr
3	0	0	3

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Realizethegeneralprinciplesandpreventivemaintenance for normal delivery and cesarean delivery.
2. Must know about routine testing and devaluation of results of routinetesting for followup of pregnancy.
3. Department staffing and organizations; records relating to child born inhospitalandcompletethedocumentation.
4. Recognizethegeneralprinciplesandpreventivemaintenance

Course Content

UNIT I Health Care Systems and Policy

Concept of Health Care and Health Policy
Framework for Health Policy Development
Health Organization
Health Care System in Public Sector Organizations

Unit II: Fundamentals of Health Economics

Health Policy
National Health Programs
Evaluation of Health Programs
Medical Education and Health Manpower Development

Unit III: Health Policy and National Health Programs

Economics Fundamentals
Health Investment
Economic Development and Health
Economics of Health Services

Unit IV Health Policy and National Health Programs

Economic Evaluation Methods
Household and Health
Health Expenditure
Government and Insurance

SuggestedReadings:

- *LeeSynopsisLeesynopsisMRogan*
- *Medicalsurgical–Brunner&SiddharthOrtho-Lippincctt*
- *OBG/ GYN–D.C.Dutta*

CourseName:Introduction of Operation Theatre Technology – Practical
Course Code: BVT404

L	T	P	Cr	
0	0	4	2	

Total Hours: 60 LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Maintain the electronic clinical record and prescribing systemand drugstiming.
2. Provideelectronicautomaticcoding,recoveryprogress,activity analysis.
3. Manage financial analysis, identification of staff, and allrecord of patients.
4. Find out engineering aspects of operation theatre equipment, powersupplies,CVT,servo-stabilizers,and upsetc.

Course Contents
Experiments

UNIT-I : Basics of Operation Theatre Setup

Practicalexercisesinsettingupandmanaginganoperationtheatre,including
understandingthelayout,equipmentplacement,andpreparationoftheenvironment. **15Hours**

UNIT-II Sterilization and Infection Control
Hands-on practice in the sterilization of instruments and equipment using various methods such as autoclaving and chemical treatments.

UNIT-III Operation Theatre Equipment Handling
Practical training on the operation, maintenance, and troubleshooting of essential theatre equipment like suction devices, electrocautery, and lighting systems.and emergency

UNIT-IV Theatre Protocols and Procedures
Practical application of theatre protocols including infection control practices, proper scrubbing techniques, and the use of personal protective equipment (PPE**).**

Transactionalmodes

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

SuggestedReadings:

- *El-Hindy,N.,Johnston,R.L.,Jayscock,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 andcomplications. 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 AnaesthesiologistsBaddour, L. M., Epstein,*

CourseTitle:Applied Pharmacology Related to Anesthesia Technology – Practical
CourseCode:BVT405

L	T	P	Cr
0	0	4	2

TotalHours:45

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Interact with the patients and health care professionals in working area.
2. HandleLegalResponsibilities,Patientsafetyandquality
3. Manage Biomedicalwaste generatedfromhospitalor
4. MaintainMedicalrecords and reportspreparation.

CourseContents

UNIT-I: Anesthetic Drug Preparation and Administration

Practical exercises in preparing and administering various anesthetic agents including local anesthetic, intravenous induction agents, and muscle relaxants

UNIT-II: Monitoring and Documentation

Hands-on training in monitoring patient responses to anesthesia, including vital signs, drug effects, and documentation of anesthetic administration.

UNIT-III: Emergency Drug Management

Practical drills in the preparation and use of emergency drugs such as adrenaline, naloxone, and reversal agents during critical situations.

Unit IV: Handling and Safety Protocols for Anesthetic Drugs

Practical sessions on the safe handling, storage, and disposal of anesthetic drugs, including compliance with safety protocols and regulations.

Transactionalmodes

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

SuggestedReadings:

- Beauchamp,T.L.,Childress,J.F.,&Principles,B.H.(2019).Principles ofBiomedicalEthics(8thed.).OxfordUniversityPress.
- 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,andPractice.NationalAcademiesPress.
- 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,andtheLaw:TheCore Curriculum (2nd ed.). Churchill Livingstone.

Course Title: HealthCareManagement-Practical

L	T	P	Cr
0	0	4	2

CourseCode: BVP406

TotalHours:45

LearningOutcomes:Aftercompletionofthiscourse,the learnerwillbeableto:

1. Learn the application of anesthetic medications in Various Heartdiseases.
2. Understand Respiratory diseases such as Chronic Obstructive PulmonaryDiseaseandAcute
3. UnderstandRespiratoryFailureinrenaldiseases,diseasesof LiverandendocrinedisordersandInmetabolicDiseases
4. Apply the knowledge related to drugs, calculations of anesthetic medications in different cardiovascular, respiratory and renal diseases.

CourseContents

UNIT- I : Basics of Operation Theatre Setup 10Hours

- Practical exercises in setting up and managing an operation theatre, including

understanding the layout, equipment placement, and preparation of the environment.

UNIT- II Sterilization and Infection Control 11Hours

Practical training on the operation, maintenance, and troubleshooting of essential theatre equipment like suction devices, electrocautery, and lighting systems.

UNIT-III Operation Theatre Equipment Handling

Practical training on the operation, maintenance, and troubleshooting of essential theatre equipment like suction devices, electrocautery, and lighting systems.

Unit 4: Theatre Protocols and Procedures
Practical **application** of theatre protocols including infection control practices, proper scrubbing techniques, and the use of personal protective equipment (PPE).

Transactionalmodes

Video basedteaching,Collaborativeteaching,Casebasedteaching, Question

SuggestedReadings:

- *GeorgeMathews:- Handbook MedicineLee Synosis: AnaethesiaHandbook.*
- *Stoelting, R. K., & Hillier, S. C. (2019). Anesthesia and Co- ExistingDisease(7thed.).Elsevier.*
- *Dripps,R.D.,&Eckenhoff,J.E.(2016).Introduction:ThePatient 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).Chapter5:CoexistingDisease.InAnesthesiology(3rd ed.,pp.93-109).McGraw-HillEducation.*

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

Course Title –IV
Course Code CodeBVT407

Course Contents

1. **Optimization of Sterilization Procedures in the Operation Theatre**

- Objective: Evaluate and enhance the effectiveness of current sterilization practices and protocols.
- Tasks: Conduct a detailed review of existing sterilization methods, compare with best practices, and propose improvements. Include assessments of sterilization efficacy using biological indicators.

2. **Assessment of Infection Control Practices in the Operation**

Theatre

- Objective: Analyze the current infection control measures and their impact on patient safety.
- Tasks: Perform an audit of infection control practices, identify areas for improvement, and develop a comprehensive plan to enhance infection control. Include staff training and protocol updates.

3. **Evaluation of Anesthesia Practices and Patient Outcomes**

Objective: Investigate the relationship between different anesthesia techniques and patient outcomes in the operation theatre

- Tasks: Collect and analyze data on various anesthesia methods, monitor patient recovery and complications, and assess the effectiveness of different anesthesia protocols.

4. **Development and Implementation of a Comprehensive Operation Theatre Safety Checklist**

- Objective: Create and implement a standardized safety checklist to ensure all critical aspects of operation theatre management are covered.
- Tasks: Design a detailed safety checklist based on current standards and best practices, test its effectiveness in different scenarios, and implement it across operation theatres.

Evaluate its impact on overall safety and efficiency

Course Name: Professionalism and Values

Course Code: BVT408

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: BVT409

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.V. 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 Publishin*

L	T	P	Cr
4	0	0	4

Semester5th

Course Name: Concepts of Diseases & Techniques in Anesthesia

Course Code: BVP501 Total Hours: 60

LearningOutcomes:Aftercompletionofthiscourse,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.

CourseContents

UNIT I History and Principles of Anesthesia 15Hours

Historical Milestones in Anesthesia: First Successful Clinical Demonstration and Modern Era
Balanced Anesthesia and Minimum Standards: Key Principles and Practices
Preoperative Preparation: Comprehensive Pre-Anesthetic Assessment and History Taking

UNIT II re-Anesthetic Assessments and Preparations 15Hours

Patient Preparation: Informed Consent, NPO (Nil PerOs) Requirements
Premedication: Advantages, Commonly Used Drugs, and Special Instructions
Equipment and Drug Check: Machine Inspection, Emergency and Anesthetic Drugs
Routine Investigations: Urine Analysis, ECG, Chest X-Ray

UNIT IIIIntra-Operative Management and Postoperative Care

15 Hours

UNIT IV Anesthetic Complications and Considerations in Special Conditions 15 Hours

Minor and Major Complications: Nausea, Vomiting, Sore Throat, Laryngeal Granuloma, Neurological Complications, Awareness, Vascular Issues, Mortality, Causes of Death,

Cerebral Damage, Prevention
Anesthetic Considerations in Special ConditionsTransactional modes

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

SuggestedReadings:

- *Synopsisofmedical instruments&procedurebyJPBrothers.*

- *ShorttextbookofanesthesiabyJPBrothers.*
- *Textbook-AnesthesiavbyPramodKumar*
- *Equipment-Drugs-Waveforms-byJPBrother*

L	T	P	Cr
4	0	0	4

Course Name: Pital Products, Promotion, Sales & Public Relations

CourseCode:BVT502

TotalHours:60

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Thepurposeofsterilizationanddisinfectionproceduresistopreventtra nsmission 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 transmissiblebacteria,viruses,orothermicrobes.
4. Information about the purpose of sterilization and disinfection proceduresistopreventtransmissionofmicrobestopatients.

CourseContents

UNIT I Foundations of Marketing and Services Management 15Hours

Introduction to Marketing
Service vs. Products
Management of Service Management process
Services Marketing
Selecting appropriate tools for marketing

UNIT II Service Marketing Strategies and Implementation 15 Hour

Product Planning and Market Research
Pricing and Distribution
Promotion and Communication
Physical Environment, Process, and People

UNIT III Market Analysis and Branding in Healthcare 15Hours

Analyzing Markets and Buyer Behavior
Branding of a Hospital Facility
Brand image
long term and short-term activities.

UNIT IV : Marketing Strategies and Performance Evaluation in Healthcare 15 Hours

Other Marketing Routes for Health Care Units
Marketing Strategies for Hospitals

EvaluatingandControllingMarketPerformanceTransactionalmodes

Videobasedteaching,Collaborativeteaching,Casebasedteaching,

Question

SuggestedReadings:

- KumarS.Textbookofmicrobiology.JPMedicalLtd;2012Sep30.
- DraugalisJR, Coons SJ, Plaza CM. Best practices for survey research reports: a synopsis for authors and reviewers. American journal of pharmaceutical education. 2008 Sep

CourseName:Trauma & Cardiac Life Support Course
Code: BVP503:

L	T	P	Cr
4	0	0	4

TotalHours:60

LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Toknow aboutgeneral anesthesia,indication,complicationsand management of patients throughout General Anesthesia.
2. Toknowledgeaboutgeneralanesthesia,indicationandcomplications during use.
3. ToknowaboutmanagementofpatientsthroughoutGeneralanesthesia.
4. Elaborateanesthetic drugsandIndications& Contraindications

CourseContents

UNIT I Trauma Management and Life Support: Advanced Concepts 15 Hours

Basic Life Support (BLS)
Triage
Airway & Ventilator Management
Shock Management
Central & Peripheral Venous Access
Thoracic Trauma

Abdominal Trauma
UNIT II Advanced Trauma Care: Spine, Head, and Systemic Injuries c

15 Hours

Spine and Spinal Cord Trauma
Head Trauma
Musculoskeletal Trauma
Electrical Injuries

Thermal Burns and Cold Injuries.

UNIT III Trauma Management Across Populations and Techniques

15 Hours

Pediatric Trauma
Trauma in Pregnant Women
Workshop: Basic Life Support (BLS)
Workshop: Cervical Spine Immobilization
Imaging Studies in Trauma

UNIT IV Advanced Cardiac Life Support Techniques and Algorithms **15 Hours**

Unit 4: Advanced Cardiac Life Support Techniques and Algorithms

and Ventilation

DrugsUsedinACLSandAEDUsageTransactionalmodes Basic Life Support (BLS) and Adult ECC Algorithms
Ventricular Fibrillation and Pulseless Ventricular Tachycardia Algorithm
Pulseless Electrical Activity (PEA) and Asystole Algorithm
Bradycardia and Tachycardia Treatment Algorithms
Hypotension, Shock, and Acute Myocardial Infarction Management
Pediatric Advanced Life Support and Airway Management

Defibrillation, Emergency Cardiac Pacing, and Techniques for Oxygenation

Videobasedteaching,Collaborativeteaching,Casebasedteaching,

Question

SuggestedReadings:

- G.Smith&A.R.Aitkenhead'sTextbookofAnaesthesiaELSEVIER
- AjayYadavShortTextbookof AnaesthesiaJaypeeBrothers.
- AnshulJainEssentialsofAnaesthesia&CriticalCareJaypeeBrothe

Course Name: ConceptsofDiseases&TechniquesinAnesthesia-**(Practical)**

L	T	P	Cr
0	0	2	4

CourseCodeBVT504

Total Hours: 30

LearningOutcomes:Aftercompletionofthiscourse,thelearner will be able to:

1. Aprimarypurposeofthe**course**istoknowaboutusesofanesthetic instruments, anesthetic
2. Aprimarypurposeofthecourseistoknowaboutusesofanesthetic
3. Analysisofanestheticinstruments,anestheticprocedure
4. Elaborateanestheticdrugsindifferentmedicalconditions.

UNIT IBasic Anesthesia Techniques

Basic anesthesia techniques including induction, maintenance, and emergence. Application Transactional modes
Video based teaching, Collaborativeteaching, Case based teaching,Question

UNIT II Disease-Specific Anesthesia Considerations

Handling anesthesia for patients with cardiovascular, respiratory, and endocrine diseases.

UNIT III Advanced Anesthesia Equipment and Procedures

Operation and troubleshooting of advanced anesthesia equipment and procedures, including emergency protocols

UNITIV Monitoring and Managing Anesthesia Complications

Monitoring, identifying, and managing common anesthesia complications and adverse effects.

SuggestedReadings:

- *Synopsisofmedicalinstruments&procedurebyJPBrothersShorttext book of anesthesia by JP Brothers.*
- *Textbook-Anesthesia byPramod Kumar Equipment-Drugs-Waveforms- by JP Brother*

L	T	P	Cr
0	0	4	2

Course Name Hospital Products Promotion Sales and Public Relations Practical

(Practical) Course Code: BVT505

TotalHours:30
LearningOutcomes:Aftercompletionofthiscourse,the learner will be able to:

1. Thepurposeofsterilizationanddisinfectionproceduresistopreventtransmissionofmicrobestopatients.These
2. Whetheranyparticularpatientmaybethereservoiroftransmissible bacteria, viruses, or other microbes.
3. Attainknowledgeaboutthepurposeofsterilizationanddisinfection proceduresistopreventtransmissionofmicrobestopatients.
4. Knowledge about the standard precautions should be used in interaction with all patients

1) Monitoring, identifying, and managing common anesthesia complications and adverse effects.

2) Creating and implementing a sales strategy for hospital products, including target market identification and sales pitch refinement

3) Developing and executing a public relations campaign, including writing press releases and managing media interactions

4) Analyzing the effectiveness of promotional activities and sales strategies through metrics and feedback, and adjusting tactics as needed.

1) .

Transactional modes

Video based teaching, Collaborativeteaching,Casebasedteaching, Question

Suggested Readings:

- KumarS. Text book of microbiology .J PMedicalLtd;2012Sep30.
- DraugalisJR, 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)

L	T	P	Cr
0	0	4	2

Course Name: Trauma & Cardiac Life Support -Practical

Course Code: BVT506

TotalHours:3

0 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 control pollution, water pollution, soil pollution, marine pollution, and noise pollution
3. Categories the concept of ecosystem, structure, and interrelationship of producers, consumers, and decomposers.
4. Inspect sustainable development, problems related to energy, Water conservation, rainwater harvesting

Course Contents

1) Demonstration and hands-on practice of Basic Life Support (BLS) procedures, including primary and secondary surveys for trauma assessment

2) Techniques for managing thoracic and abdominal trauma, including tension pneumothorax decompression and venous access

3) Application of the universal algorithm for adult emergency cardiovascular care (ECC), including ventricular fibrillation/pulseless ventricular tachycardia and bradycardia
treatment.

4) Advanced techniques for hypotension management, acute myocardial infarction, pediatric advanced life support, and the use of defibrillation and emergency cardiac pacing

Advanced techniques for hypotension management, acute myocardial infarction, pediatric advanced life support, and the use of defibrillation and emergency cardiac pacing

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Transactional model

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.HimalayaPub.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. Saunders Co. Philadelphia, USA*

Course Name: Project-V
Course Code: BVT507

Course Contents

1. **Development of an Anesthesia Protocol**
   Objective: Design a comprehensive protocol for anesthesia administration in a specific type of surgery (e.g., orthopedic, abdominal).
   Components: Research on anesthesia techniques, drug selection, monitoring, and post- anesthesia care. Develop guidelines and create a training manual for staff.

2: Infection Control Measures in Operation Theatres
Objective: Evaluate and propose improvements for infection control practices in an operation theatre.
Components: Assess current infection control practices, analyze common sources of infection, and suggest protocols for cleaning, disinfection, and sterilization. Include a training module for staff.

3 Enhancing Efficiency in Surgical Instrument Sterilization
Objective: Develop strategies to improve the efficiency

and effectiveness of surgical instrument sterilization processes.
Components: Review current sterilization methods, identify bottlenecks, and propose new methods or technologies. Create a workflow chart and guidelines for implementing the new processes.

4: Implementation of a New Technology in Operation Theatres

Objective: Assess the impact of integrating a new technology (e.g., robotic surgery, advanced imaging) in the operation theatre.
Components: Research the technology, evaluate its benefits and challenges, and develop an implementation plan including staff training and equipment maintenance.

5: Patient and Staff Safety in the Operation Theatre

Objective: Investigate and enhance safety protocols for both patients and staff in the operation theatre.
Components: Identify common safety issues, develop new safety protocols, and create a training program. Conduct a safety audit and propose improvements based on findings.

6: Postoperative Care and Patient Outcomes

Objective: Analyze the impact of postoperative care practices on patient recovery and outcomes
Components: Review current postoperative care protocols, assess patient outcomes, and propose recommendations for improving recovery times and reducing complications. Include a plan for monitoring and evaluating the changes.

Course Name: Research Methodology
Course Code: BOA508

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

2. Choose the appropriate research design and develop an 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, and 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),

L	T	P	Cr
3	0	0	3

Course Name: Hematology & Blood Bank
Course Code: BOA509

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: BOA510

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 of India, New*

Semester VI

: Course Anesthesia for Specialties- I

Course Code BVT601

TotalHours:4

5

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

1. Teach the measures of the health services and high-quality healthcare

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

Course Contents

UNIT-I Anesthesia for Specialties- I **05 Hours**

NYHA Classification, Arrhythmias, Angina, Dyspnoea
Premedication and Monitoring Systems (Invasive and Non-Invasive)
Preparation and Induction for Cardiac Anesthesia
Post-Operative Care and ICU Management for Cardiac Patients;

UNIT-II: Neuro Anesthesia and Perioperative Care **10 Hours**

Glasgow Coma Scale and Signs of Raised Intracranial Pressure (ICP)
Premedication and Preoperative Checklist
Induction, Positioning in Neurosurgery, and ICP Monitoring
Management of Air Embolism and Transfer to ICU/Ward

UNIT-III **Anesthesia Management in Trauma and Shock** **15 Hours**

Resuscitation Techniques
Preoperative Investigation and Assessment
Circulatory Management
Anesthesia Techniques: Rapid Sequence Induction and Other Considerations

UNIT-IV Aesthetics in Music **15 Hours**

Cardiopulmonary Resuscitation (CPR)
Basic Life Support (BLS)
Advanced Cardiovascular Life Support (ACLS)

Transactional model

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 Swasthy a Abhiyan In search In Search of the Perfect Health System 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*

Course Title Anesthesia

for Specialties- II

Course Code: BVT602

Course Contents

UNIT-I Obstetric Anesthesia and Management 05 Hours

Differences between a pregnant and a normal lady
Risks for Anesthesia
Precautions to be taken
Check list
Regional vs. General Anesthesia
Induction/Maintenance

UNIT-II Obstetric Anesthesia and Neonatal Resuscitation 05 Hours

Resuscitation of the newborn
APGAR score

Reversal and extubation
Emergencies: Manual removal of placenta, A.P.H., P.P.H., Ruptured uterus, Ectopic pregnancy
Labor and Epidural analgesia

UNIT-III: Pediatric Anesthesia: Procedures and Considerations

05 Hours

Theatre setting and checklist
Premedication and induction
Intubation and securing the ETT
Monitoring, reversal, and extubation challenges
Transferring to ICU management and pain management

UNIT-III: Pediatric Anesthesia: Procedures and Considerations

05 Hours

Theatre setting and checklist
Premedication and induction
Intubation and securing the ETT
Monitoring, reversal, and extubation challenges
Transferring to ICU management and pain management

UNIT-III: Day Care Anesthesia and Anesthesia in Non-Operating Room Settings 05 Hours

Day Care Anesthesia: Special features, setup, advantages, disadvantages, complications, and future prospects
Anesthesia Outside the O.R.: Situations and settings, including Cath lab, radiology and imaging, natural calamities, and E.C.T.
Features and challenges of anesthesia in non-operating room environments
Complications and considerations in these settings

Course Title Research

Methodology &

Biostatistics

Course Code: BVT603

Course Contents

UNIT-I Foundations of Research and Literature Review 15

Hours

Definition and purposes of research, and the need for research
Concepts of research: Objectives, motivation, and types of research approaches
Research process, flow, and the scientific method
Defining and selecting a research problem, problem statement, objectives, hypothesis, and criteria for good research

UNITII-Introduction to Biostatistics and Data AnalysiT15 Hours

Introduction to Biostatistics and Sampling
Statistical Significance and Correlation
Sample Size Determination
Statistics Presentation: Classification, Frequency Distribution, and Diagrammatic Representation
Measures of Central Tendency and Dispersion
Non-Parametric

UNITIII-: Research Design and Data Collection Methods15 Hours

Principles, need, and features of a good research design; different research designs and strategies
Basic and applied research; quantitative research
Sampling: Sampling frame, design, and techniques

Methods of data collection: Classification, validity, and reliability of measuring instruments

UNITIV-Qualitative Research Methods and Data Analysis15 Hours

Overview of qualitative research methods
Data analysis: Condensing and analyzing data using descriptive and inferential statistics
Construction of a research proposal
Mechanics of report writing

: Course Anesthesia for Specialties- I Practical

Course Code BVT604

Course Contents

Unit 1: Basics of Anesthesia Administration

Introduction to Anesthesia Techniques: Practice basic administration techniques, including setup and monitoring for various anesthesia Types

Unit II: Anesthesia in Cardiac Procedures

Cardiac Anesthesia Procedures: Perform anesthesia management for cardiac cases, focusing on monitoring and patient care during induction and maintenance

Unit III: Neuro Anesthesia Management

Neuro Anesthesia Protocols: Conduct practical exercises in neuro anesthesia, including patient positioning, monitoring intracranial pressure, and emergency response.

Unit IV: Pediatric and Obstetric Anesthesia

Specialized Anesthesia for Pediatric and Obstetric Cases: Implement anesthesia techniques specific to pediatric and obstetric patients, including resuscitation and managing complications

Course Anesthesia for Specialties- II Practical

Course Code BVTCO-622

Course Contents

Unit 1: Anesthesia in Trauma and Emergency Situations

Trauma and Emergency Anesthesia: Practice managing anesthesia for trauma cases, including rapid sequence induction and emergency resuscitation techniques.

Unit II: Anesthesia for Day Care and Outpatient Procedures

Day Care and Outpatient Anesthesia: Execute anesthesia procedures for daycare and outpatient surgeries, focusing on quick recovery and discharge planning.

Unit III: Anesthesia for Special Conditions

Special Conditions Anesthesia: Apply anesthesia techniques for patients with unique conditions such as obesity, endocrine disorders, or complex medical histories

Unit IV: Advanced Anesthesia Techniques and Monitoring

Advanced Techniques and Monitoring: Implement advanced anesthesia methods and monitoring systems, including intraoperative adjustments and management of complex cases.

Course Clinical Posting (Orientation)

Course Code BVT605

Course Contents

Unit1: Introduction to Clinical Environments

Clinical Environment Overview: Familiarize with hospital layout, departments, and staff roles.

Unit II: Patient Interaction and Communication

Patient Interaction Skills: Practice effective communication, patient assessment, and empathetic care.

Unit III: Clinical Procedures and Documentation

Procedure Familiarization: Observe and assist in common clinical procedures and understand documentation practices

Unit IV: Safety Protocols and Emergency Procedures

Safety and Emergency Protocols: Learn and apply safety standards, emergency response protocols, and infection control measures.

Course Project -VI

Course Code BVT624

Course Contents

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. Maintainasterilefieldandtheatreequipmentandfollowin fectioncontrolpolicies.
3. Manage hazardous waste and follow biomedical waste disposal protocols.
4. Demonstrate skills and knowledge of getting assistance from an esthetician handling emergencies.

Developing a Comprehensive Infection Control Protocol for Operation Theatres

Objective: Create a detailed infection control plan tailored for the operation theatre, including protocols for sterilization,

disinfection, and handling of infectious materials.
Tasks:
Research and review current infection control practices.
Design protocols for different types of surgeries and scenarios.
Implement and evaluate the protocol in a simulated or real environment.

Analysis of Postoperative Care and Its Impact on Patient Recovery

Objective: Investigate how various postoperative care practices affect patient recovery times and outcomes.
Tasks:
Conduct a literature review on postoperative care techniques.
Collect and analyze data on patient recovery metrics.
Develop recommendations for optimizing postoperative care practices.

Assessment of Anesthesia Management Techniques in Various Surgical Procedures

Objective: Evaluate the effectiveness and safety of different anesthesia techniques used in a range of surgical procedures.
Tasks:

Review literature on anesthesia methods and their applications
Observe and document anesthesia practices in different surgeries.
Analyze outcomes and propose improvements or best practices.

Designing and Implementing a Training Program for Operation Theatre Staff

Objective: Create a training program aimed at improving the skills and knowledge of operation theatre staff.

Identify key areas for staff development.
Develop training materials and sessions.
Conduct training and evaluate its effectiveness through feedback and performance metrics.

Evaluation of Patient Safety Measures in the Operation Theatre

Objective: Assess the current safety measures in place in the operation theatre and propose enhancements to improve patient safety.

Tasks:

Review existing safety protocols and measures.
Conduct surveys or interviews with staff and patients.
Analyze data and recommend improvements based on findings

Course Title: Training/Internship report

Course Code: BOA606

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.