CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT

School of Paramedics and Allied Health Sciences

Date: 30-09-2023

MINUTES OF BOARD OF STUDIES MEETING held on 30-09-2023

Venue: Department of Anesthesia

Time: 10:30 am

The Board of Studies (BoS) meeting of School of **Paramedics and Allied Health Sciences** was held on **30-09-2023** at **Department of Anesthesia** in **Offline** mode. The following are the members:

- **Dr.P.S.V Rama Rao (Consultant Anesthesiologist)**
- **Dr. Prasantha Mohanthy (Vice chancellor)**
- **Dr. MLN Acharyulu (Dean SoPHAS)**
- **Mr. Venkata Kalyan Kankanala (HoD)**
- **Dr. Chaitanya**
- **Mr. Syed Raashid Andrabi**
- **Mr Majid Anwar**

The Chairperson welcomed all members of the Board and briefly outlined the purpose of the meeting. Thereafter, the Head of the Department presented the achievements and improvements of the department in the areas of academics, research, consultancy and infrastructure. The Head of the Department also gave a presentation on the feedback received on curriculum outlining the suggestions made by the various stakeholders.

The following agenda items were taken up subsequently:

***Agenda 1*: The minutes of the last meeting of the BoS held on 25-10-2022 were confirmed.**

***Agenda 2*: Discussion and approval on any revision required in the Curriculum of 2023-24**

- ✓ Meeting was starting with the note Thanks by Dean **Dr. MLN Acharyulu** and **HoD Mr. Venkata Kalyan Kankanala** to all faculties who make themselves available in their busy schedule to make this pre- BOS successful.
- ✓ To remove baskets and to follow the semester wise pattern.
- ✓ All the clinical subjects should be defined with specific title.
- ✓ Mr. Majid and Mr. Raashid raised a point that course is titled Anesthesia and Operation Theatre Technology. Then content related to OT is very less. They requested incorporate syllabus related to OT.
- ✓ A detailed discussion was done in presence of Dr. Rama Rao sir and Vice-Chancellor sir suggested the following points,
    1. Title of the subject should be related to content present in it.

2. There should not be repetition of topics.
3. While excluding the topics from the previous syllabus proper justification should be given.
4. Only basics should be incorporated in the syllabus.
5. To take suggestions from alumni.

- ✓ Changes should be submitted to Dr. Rama rao sir. After getting conformation from him it should be incorporated into the new syllabus.
- ✓ Overall should not exceed beyond the credit lmits.

Based on the presentation on feedback on curriculum by the various stakeholders, the Board accepted and approved the above few suggestions for course revision to be implemented from the Academic Year 2023-24.

List of new courses approved by the Board is provided in Annexure A

Agenda 3: **Inclusion of courses on life skills and value addition**

It was suggested that the students take up the various courses offered by the University in the areas of life skills and value addition for their overall improvement and wellbeing. The same was agreed upon and approved by the Board of members (Annexure B)

Agenda 4: **Any other item with due permission of the chair**

The Dean/Head of the Department extended sincere thanks to all members of the Board.

The meeting ended with a vote of thanks to the Chair.

Dean

School of Paramedics and Allied Health Sciences

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT

ANDHRA PRADESH

SCHOOL OF PARAMEDICAL AND ALLIED HEALTH SCIENCES

Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

BSc. Anesthesia and Operation Theatre Technology

2023 – 2024

INTRODUCTION

A Bachelor of Science (BSc) in Anesthesia and Operation Theatre is a specialized undergraduate program designed to prepare individuals for roles in the management of operation theatres, as well as for assisting in the administration of anesthesia during surgical procedures. This course integrates theoretical knowledge with practical skills, emphasizing the safe and effective delivery of anesthesia and the efficient functioning of operation theatres.

Graduates with a BSc in Anesthesia and Operation Theatre Technology (AOTT) have a wide range of career opportunities within the healthcare sector. The scope of employment for these professionals is diverse and often involves working in collaboration with medical teams to ensure the smooth functioning of operation theatres and the safe administration of anesthesia.

Programme Objectives

PO1: Foundational Knowledge: Provide students with a comprehensive understanding of human anatomy, physiology, pharmacology, and related medical sciences.

PO2: Anaesthesia Techniques: Equip students with the theoretical and practical knowledge required to administer different types of anaesthesia, including general anaesthesia, regional anaesthesia, and local anaesthesia.

PO3: Operation Theatre Management: Teach students the principles of operation theatre management, including aseptic techniques, sterilization procedures, and the organization of surgical procedures.

PO4: Medical Equipment Proficiency: Familiarize students with the operation, maintenance, and troubleshooting of anaesthesia machines, monitoring devices, and other medical equipment used in operation theatres.

PO5: Patient Assessment: Train students in pre-operative patient assessment, including evaluating medical history, conducting physical examinations, and assessing the patient's suitability for anesthesia.

PO6: Intra-operative Monitoring: Develop skills in monitoring patients during surgery, including vital signs, anaesthesia depth, and responding to changes in patient status.

PO7: Post-operative Care: Instruct students on post-operative care, including pain management, monitoring for complications, and ensuring patient comfort and safety.

PO8: Communication Skills: Enhance communication skills to effectively interact with patients, their families, and healthcare professionals in a clear and empathetic manner.

PO9: Emergency Response: Prepare students to handle emergency situations in the operation theatre, such as cardiac arrest or anaphylaxis, through simulation exercises and training.

PO10: Ethical and Legal Standards: In still an understanding of ethical principles and legal considerations in healthcare practice, including patient confidentiality, consent, and professional conduct.

PO11: Professionalism and Collaboration: Foster a commitment to professionalism, teamwork, and collaboration with other members of the healthcare team, including surgeons, nurses, and other allied health professionals.

PO12: Continuous Learning: Encourage a mindset of lifelong learning and staying updated on advancements in the field through continuing education and professional development.

Programmed: Bachelor of Anaesthesia and Operation Theatre Technology

Duration: Four year Programme (Including 1 year internship in the last year)

Eligibility: Intermediate Science with Physics, Chemistry & Biology/ Mathematics or equivalent degree, Diploma in AT/OT

Examination: Examination rules will be as per guideline of CUTM Examination hand book.

Degree

The degree of Bachelor of Anesthesia and Operation Theatre Technology course of the University shall be conferred on the candidates who have pursued the prescribed course of study for not less four academic years and have passed examinations as prescribed under the relevant scheme and completed 1 year of compulsory internship in the last year On successful completion of four years programme, with a minimum course credit of **160 credits**, the candidate will be awarded with **"Bachelor Of Anesthesia and Operation Theatre Technology (B.AOTT)** from Centurion University

Internship

A candidate has to undergo internship for a period of 1 year in a Govt. hospital/ private hospital/ Organization, which fulfill the norms decided by the University. Internship is a phase of training wherein a graduate is expected to conduct actual practice of Clinical Practice and acquires skills under supervision so that he /she may become capable of functioning independently.

Project Work

Each **Bachelor of Anesthesia and Operation Theatre Technology (B.AOTT)** students will carry out project work under the supervision of a faculty member (as a primary guide). The progress of project work will be monitored regularly by the Guide.

Programme Structure

The Bachelor's program in Anesthesia and Operation Theatre Technology spans a duration of four years, marked by a structured curriculum designed to impart both theoretical knowledge and practical, hands- on experience. The program unfolds in a systematic progression over its eight semesters, each serving a distinct educational purpose.

The initial two semesters are dedicated to laying the foundation with instruction in fundamental subjects, encompassing Anatomy, Physiology, Pharmacology, Biochemistry, and Microbiology.

From the third to the sixth semesters, the program transitions into a more intensive phase. Students attend three days of classroom sessions weekly, delving into advanced courses that cover a spectrum of topics within Anesthesia and Operation Theatre Technology. Simultaneously, they spend three days each week engaged in practical training within a hospital setting. This dynamic approach ensures a seamless integration of theoretical concepts with real-world applications, encompassing anesthesia principles, equipment usage, operation theatre techniques, patient monitoring, pharmacology, and considerations specific to various medical specialties.

The culminating phase of the program occurs during the seventh and eighth semesters, wherein students embark on a year-long internship within hospital environments. This intensive internship provides a comprehensive exposure to the practical aspects of the field, involving active participation in operation theatres, critical care units, and diverse healthcare departments. The internship period serves as a pivotal juncture for students to apply their acquired knowledge in a professional context and gain a nuanced understanding of the intricacies of their field.

Throughout the internship, students undergo regular reviews and assessments, fostering a continuous feedback loop to gauge their progress and address any challenges encountered. This meticulous evaluation process is aimed at refining their skills and ensuring a high level of competence prior to entering the workforce.

In essence, the program structure is meticulously designed to meet the industry's demand for well- rounded professionals equipped with both theoretical acumen and practical proficiency in Anesthesia and Operation Theatre Technology. The synthesis of classroom instruction, practical exposure, and a comprehensive internship period positions graduates to navigate the complexities of their profession with confidence and efficacy.

Evaluation System

Theory + practice			
Internal Examination	Component	% of marks	Method of Assessment
	Internal Theory	40	Written examination
External Examination	External Theory	60	Written examination
Total		100	
Theory +Project			
Internal Examination	**Component**	**% of marks**	**Method of Assessment**
	Internal Theory	50	Written examination, record, viva, practical
External Examination	External Theory	50	Written examination, Viva, practical
Total		100	

SEMESTER - 1				
School Core Courses				
Sl.No.	**Subject Code**	**Subject**	**Subject Type (T - P- Pj)**	**Credits**
SC-1	CUTM 2603	General Anatomy	3 2 0	5
SC-2	CUTM 1758	General Physiology	3 2 0	5
SC-3	CUTM 2604	Basic Biochemistry	3 2 0	5
SC-4	CUTM 2605	Cell Biology	3 0 1	4
		Total Credits		**19**

SEMESTER 2

DC-2	CUTM1811	Introduction to Microbiology	3 0 1	4
DC-3	CUTM1812	Pathology	3 0 1	4
DC-4	CUTM1818	Basic Principles of Hospital Management	3 0 1	4
DC-5	CUTM1814	Basics in Medical Physics & Electronics	3 0 1	4
DC-6	CUTM1815	Basics of Nursing	3 2 0	5

SEMESTER 3

DC-7	CUTM1816	Introduction to Anesthesia and OT Technology	3 0 1	4
DC-8	CUTM2606	OT Instruments and Techniques	3 1 0	4
DC-9	CUTM2679	Pharmacology	3 0 1	4
DC-10	CUTM1819	Clinical Practices in Hospital – 1	0 4 2	6

SEMESTER 4

DC-11	CUTM1820	Pharmacology Related to Anesthesia Technology	3 0 1	4
DC-12	CUTM1821	Concepts of Diseases and Techniques in Regional & General Anesthesia Including Complications medical	3 0 1	4
DC-13	CUTM1822	Anesthesia Techniques Including Complication	3 0 1	4
DC-14	CUTM1823	Clinical Practices in Hospital – 2	0 4 2	6

SEMESTER 5

DC-15	CUTM1824	Anesthesia for Specialty Surgeries	3 0 1	4
DC-16	CUTM1825	Anesthesia for Patients with Medical disorders	3 0 1	4
DC-17	CUTM1873	Medical Law Ethics	3 0 0	3
DC-18	CUTM1826	Clinical practices in hospital – 3	0 4 2	6

SEMESTER 6

DC-19	CUTM1827	Anesthesia for specialties(Including Critical Care Assistance and Ventilation) **Paper – II**	3 0 1	4
DC-20	CUTM1828	Post Anesthesia care Unit	3 0 1	4
DC-21	CUTM1829	Health Care Management	3 0 1	4
DC-22	CUTM1830	Clinical Practices in Hospital – 4	0 4 2	6

SEMESTER 7 & 8

CUTM1831	Internship & Project	Comprehensive viva	20
CUTM1832	Internship & Project	Comprehensive viva	20

Subject Code	Name of the Subject	T - Pr- Pj	Credits
CUTM 2603	**General Anatomy**	**3 2 0**	**5**

Description: Anatomy is the branch of biology that focuses on the structure and organization of living organisms. It involves the study of the body's internal and external structures, their components, and how they relate to each other. Anatomy can be broadly categorized into two main types: macroscopic (or gross) anatomy and microscopic anatomy.

Anatomy is a crucial foundation for various medical and healthcare disciplines. It provides the basis for understanding the relationships between different parts of the body and how they function together.

Course Outcome:

CO1: To understand the structure and position of different organs.

CO2: To apply the knowledge on how the body maintains homeostasis.

CO3: To compare inter-relationships, gross, functional and applied anatomy of various structures in the human body.

CO4: To be able to make decisions on radiographic identification of different joints, structures and position of bones from skeleton.

Module -1 INTRODUCTION TO ANATOMY AND SKELETON

Sub division of anatomy, terms and terminology, body cavities and membranes, directional terms, abdominal regions, types of body movements systems of the Body. Classification of bones & anatomy of long bone.

Module –2 RESPIRATORY & DIGESTIVE SYSTEM

Respiratory system: Anatomy of nose, pharynx, trachea, bronchi, lungs, broncho-pulmonary segments, ribcage & intercostals muscles

Digestive system: Anatomy of mouth, pharynx, oesophagus, stomach, small intestine, large intestine, rectum, anus. Anatomy of liver, gall bladder & pancreas

Module -3 CARDIOVASCULAR SYSTEM & LYMPHATIC SYSTEM

Anatomy of heart, systemic circulation, anatomy of artery, vein & capillary, major blood vessels of the body.

Anatomy of lymphatic system – lymphatic vessels, lymphatic nodes, spleen, thymus, tonsils, payer's patches

Module -4 EXCRETORY & INTEGUMENTARY SYSTEM

Anatomy of kidneys, ureters, urinary bladder, urethra

Anatomy of skin, nails & hair

Module -5 MUSCULAR SYSTEM

Structure of muscle fibre, head and neck muscles (frontalis, orbicularis occuli, orbicularis oris, buccinators, zygomaticus, chewing muscles, platysma, sternocleidomastoid), trunk muscles (pectoralis major, intercostals muscles, muscles of the abdominal girdle, trapezius, latisimus dorsi, erector spinae, quadrates lumborum, deltoid), muscles of upper & lower limb (major muscles)

Module -6 NERVOUS SYSTEM & SPECIAL SENSE ORGANS

Nervous system: classification and parts of nervous system, anatomy of brain, spinal cord, meninges, structure of neuron, spinal nerves, cranial nerves & nerve plexus

Special sense organs: Structure and function of Visual system, auditory system, gustatory system, olfactory system.

Module -7 SKELETAL SYSTEM & NECK ANATOMY

Structure of long bone, Development Of Bone, Classification Of Bones. Classification of joints with examples

Anatomy of neck & neck triangles, muscles of mastication, temparo-mandibular joint

Module -8 (Only for optometry)

OCULAR ANATOMY: orbit and its contents, ocular muscles- origin, insertion. Action and its nerve supply, movements.

Only for radiographers:

Surface anatomy of all systems

PRACTICE

1. Identification and description of all anatomical structures.
2. The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
3. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
4. Demonstration of skeleton- articulated and disarticulated.
5. During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
6. Surface anatomy: Surface land mark-bony, muscular and ligamentous. Surface anatomy of major nerves, arteries of the limbs. Points of palpation of nerves and arteries

Suggested Readings

1. Text book Anatomy & Physiology for nurses by Evelyn Pearce, Publisher Faber& Faber.
2. Text book Anatomy and Physiology for nurses by Sears, Publisher Edward Arnold.
3. Anatomy & Physiology- by Ross and Wilson, Publisher Elsevier.

Reference Books

1. Anatomy& Physiology: Understanding the human body by Clark, Publisher Jones & Bartlett.
2. Anatomy and Physiology for nurses by Pearson, Publisher Marieb & Hoehn.
3. Anatomy and Physiology by N Murgesh, Publisher satya.

Subject Code	Name of the Subject	T - Pr- Pj	Credits
CUTM1758	**General Physiology**	3 2 0	**5**

Description: Physiology is the branch of biology that focuses on the study of how living organisms function and maintain life. It explores the mechanisms that allow various organ systems, tissues, and cells to carry out their specific roles within the body.

Physiology seeks to understand the processes that occur at different levels of organization, from the molecular and cellular levels to the interactions of entire organ systems.

Course outcome:

CO1: To understand the mechanisms of human body function.

CO2: To be able to interpret the functionality of different physiological systems.

CO3: To be able to differentiate between different artery and venous supply of human body. CO4: To be able to judge the abnormal physiology of human body.

Module -1

Scope of physiology. Definition of various terms used in physiology.

Structure of cell, function of its components with special reference to mitochondria and microsomes. Elementary tissues: Elementary tissues of the body, i.e. epithelial tissue, muscular tissue, connective tissue and nervous tissue.

Module -2

Cardiovascular System: Composition of blood, functions of blood elements.

Blood group and coagulation of blood

Brief information regarding disorders of blood

Heart: myocardium–innervations– transmission of cardiac impulse- Events during cardiac cycle–cardiac output. Structure and functions of various parts of the heart

Module-3

Circulation: General principles, Peripheral circulation: peripheral resistances–arterial blood pressure–measurements–factors, Regulation variations–capillary circulation–venous circulation.

Special circulation: coronary cerebral–miscellaneous, Arterial and venous system with special reference to the names and positions of main arteries and veins. Brief information about cardiovascular disorders.

Module -4

Respiratory system: Various parts of respiratory system and their functions, physiology of respiration. Mechanics of respiration–pulmonary function tests–transport of respiratory gases-neural and chemical regulation of respiration–hypoxia, –asphyxia.

Module-5

Urinary System: Various parts of urinary system and their functions, structure and functions of kidney, structure of nephron– mechanism of urine formation, composition of the urine and abnormal constituents, urinary bladder & micturition. Patho-physiology of renal diseases and edema.

Practice: - Examination of pulse, B.P, Respiratory rate, Heartbeat, impulses etc.
Identification of different artery and Venous supply from chart or PPT.

Module-6

Digestive System: names of various parts of digestive system and their functions. structure and functions of liver, physiology of digestion- functions and regulations of Salivary digestion, Gastric pancreatic digestion, Intestinal digestion and absorption.

Lymphatic system: Name and functions of lymph glands, Reticulo endothelial system: Spleen, lymphatic tissue, Thymus

Module-7

Nervous System: Neuron–Conduction of impulse– synapse–receptor. Sensory organization–pathways and perception, Reflexes–cerebral cortex– functions. Thalamus–Basal ganglia Cerebellum, hypothalamus. Autonomic nervous system– motor control of movements.

Reproductive system. Structure and function of Male reproductive system–control & regulation, Female reproductive system– uterus–ovaries–menstrual cycle–regulation–pregnancy & delivery–breast–family planning

PRACTICE

1. Identification of different organs and systems from charts
2. Identification of different blood cell, their normal and abnormal morphology from slides.
3. Examination of pulse, B.P., Respiratory rate.
4. Reflexes
5. Spirometry to measure various lung capacities & volumes, Respiratory rate, Tidal volume, IRV, IC,
6. ERV, EC, residual volume on Spirometry.
7. Estimate of Hemoglobin, R.B.C., W.B.C., TLC, DLC, ESR count.
8. Blood indices, Blood grouping, Bleeding & Clotting time

Text books

1. Text book Anatomy & Physiology for nurses by Evelyn Pearce, Publisher Faber& Faber.
2. Text book Anatomy and Physiology for nurses by Sears, Publisher Edward Arnold.
3. Anatomy & Physiology- by Ross and Wilson, Publisher Elsevier.

Reference Books

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Subject Code	Name of the Subject	T - Pr- Pj	Credits
CUTM2604	**Basic Biochemistry**	3 2 0	**5**

Description: Basic biochemistry is a field of study that explores the chemical processes and substances that occur within living organisms. It serves as the foundation for understanding the molecular mechanisms underlying various physiological functions and processes.

Course Outcome:

CO1: To be able to list out the biochemical pathways leading to metabolism in human body. CO2: Understanding the significance of biomolecules in metabolic activities.
CO3: To implement the knowledge of transformation of energy by the cells. CO4: Detection of abnormal range of these molecules from patient sample.

Module-1

Enzymes – Introduction; definition; structure of enzyme; classification; coenzymes; isoenzymes; importance of enzyme inhibition

Module-2

Chemistry of carbohydrates - Introduction, definition, classification; biomedical importance & properties; Brief outline of metabolism and significance of Glycogenesis; glycogenolysis; Gluconeogenesis; Glycolysis; citric acid cycle; HMP shunt

Module-3

Amino acids - Definition, classification; essential & non-essential amino acids;
Chemistry of Proteins – Introduction; definition, classification; biomedical importance

Module-4

Ammonia formation & transport; Urea cycle; metabolic disorders in urea cycle;
Importance substances derived from Phenylalanine; Tyrosine & Tryptophan; glycine

Module-5

Chemistry of Lipids & their related metabolism – Introduction; definition, classification; biomedical importance; brief description about essential fatty acids
Fatty liver; Ketosis; Cholesterol & it's clinical significance; Lipoproteins and their importance

Module-6

Blood glucose levels, HbA1C, glucose tolerance test, glycosuria,
Hyperglycemia & Hypoglycaemia & their causes

Module-7

Diagnostic value and importance of Cardiac markers, LFT, RFT, Pancreatic markers, serum electrolytes, lipid profile, serum markers

Biochemistry practical

Quantitative exercises:

- Detection of abnormal constituents in urine; sugar; proteins; ketones; blood and bile salts Bens Jones protein.
- Phlebotomy equipment
- Identification of Blood Collection Tubes & Centrifugal Separation of Blood Plasma and Serum Techniques:
- Colorimeter, blood chemistry analyzer.
- Estimation of blood cholesterol
- Estimation of alkaline Phosphate
- Salivary amylase test (effect of PH and Temperature)
- Estimation of Serum creatinine
- Estimation of Serum uric Acid
- Estimation of total proteins

Text boks

1. Text book of Medical Laboratory Technology, P.B. Godkar 2nd Edn. 2003 Bhalani Publication.
2. Text book of Biochemistry, M. A. Siddique 8th Edn.1993 Vijay Bhagat Scientific Book Co., Patna.
3. Medical Biochemistry by AC Dey.
4. Handbook of Christen Medical Association, India Medical Laboratory Technology- Robert H. Carman.

Subject Code	Name of the Subject	T - Pr- Pj	Credits
CUTM2605	**Cell Biology**	3 0 1	**4**

Description: Cell biology, also known as cytology, is the branch of biology that studies the structure, function, and behavior of cells—the basic units of life.
Understanding cell biology is fundamental to many scientific disciplines, including molecular biology, genetics, immunology, and medicine.

Course Outcome:
CO1: To describe the fundamental principles of cellular biology. CO2: To understand the cells growth, division and death.
CO3: To utilize the skill in mechanism of cell signaling and how it regulates cellular functions. CO4: To be able to relate the knowledge with how cellular dysregulation can lead to disease condition.

Course Syllabus

Module- 1 (11 Hrs)
Overview of Cells; Cell theory; Prokaryotic and Eukaryotic cells; Virus; Viroids; Mycoplasma; Prions.

Module- 2 (10 Hrs)
Plasma Membrane: Various models of plasma membrane structure; Transport across membranes: Active and Passive transport, Facilitated Transport; Cell junctions: Tight junctions, Gap junctions, Desmosomes, Hemi desmosomes.

Module- 3 (6 Hrs)
Endomembrane System: Structure and Functions of Endoplasmic Reticulum; Golgi apparatus; Lysosomes.

Module- 4 (8 Hrs)
Mitochondria: Structure and function; Semi-autonomous nature; Endosymbiotic hypothesis; Chemiosmotic hypothesis; Mitochondrial electron transport chain; Peroxisomes: structure and function.

Module- 5 (10 Hrs)
Cytoskeleton: Structure and Functions: Microtubules, Microfilaments and Intermediate filaments; Nucleus: Structure of Nucleus: Nuclear envelope; nuclear pore complex; Nucleolus; Chromatin: Euchromatin and Heterochromatin and packaging (nucleosome).

Module 6
Cell Division and Cell cycle: Mitosis; Meiosis; Regulation of cell cycle.

Module- 7 (10 Hrs)
Cell Signalling: Overview of cell signalling, signalling molecules and receptors, GPCR, Second messengers, Role of second messenger (cAMP) in cell signalling, Activation of gene transcription by GPCR.

Text Books:
1. *Karp, G. (2010). Cell and Molecular Biology: Concepts and Experiments. VI John Wiley and Sons. Inc.*
2. *De Robertis, E.D.P. and De Robertis, E.M.F. (2006). Cell and Molecular Biology. VIII Edition. Lippincott Williams and Wilkins*

Reference Books:

1. *Cooper, G.M. and Hausman, R.E. (2009). The Cell: A Molecular Approach. V ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA.*

2. *Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. (2009). The World of the Cell. VII Edition. Pearson Benjamin Cummings Publishing, San*

3. *Bruce Albert, Bray Dennis, Levis Julian, Raff Martin, Roberts Keith and Watson James (2008). Molecular Biology of the Cell, V Edition, Garland publishing Inc., New York and London*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
1	CUTM1811	Introduction to Microbiology	3 0 1	4

Description: Microbiology is the scientific study of microorganisms, which are microscopic organisms such as bacteria, viruses, fungi, and protozoa. These microorganisms play crucial roles in various aspects of life, from environmental processes to human health and disease.

Microbiology plays a crucial role in various fields, including medicine, agriculture, environmental science, and biotechnology. It has led to groundbreaking discoveries, such as the development of antibiotics, vaccines, and advancements in genetic engineering. Understanding microbiology is essential for addressing infectious diseases, ensuring food safety, and harnessing the beneficial roles of microorganisms in diverse applications.

Course Outcome:

CO1: To understand the significance of microbial cell organelles. CO2: To apply the concept of pathogenicity in disease diagnosis.

CO3: To perform staining techniques to distinguish between microorganisms.

CO4: To be able to justify the use of different culture media for the growth of various pathogenic microbiota.

Module I: Introduction

History of microbiology, Classification, shape and arrangements of micro organisms, special characteristics, spores, capsules, enzymes, motility and reproduction.

Module II: Immunology

Infection: Sources of infection, portals of entry and spread of infection. Non specific immunity, Immunity – natural and acquired Immunity, Immunization schedule, applications of antigen antibody reactions, Hypersensitivity

Module III: Growth & nutrition:

Growth & nutrition, Culture Media & Methods, Sterilization & Disinfection, Fundamental aspects of antibacterial agents and antimicrobial susceptibility testing. PRACTICAL EXERCISES**:** Demonstration of Sterilization Methods, Spotters, Gram staining.

Module IV: Bacteriology:

Intriduction to Bacteriology, cultivation, diseases caused, laboratory diagnosis including specimen collection of the following bacteria Staphyloccci, Streptococci, Pneumococci, Gonococci, Menigococci, C diphtheriae, Mycobacteria, Clostridia, Bacillus, Klebsiella,

Module V: Virology

Introduction to virology, viral hepatitis, poliomyelitis, Rabies, HIV, FLU(Influenza), Dengue, Chikungunya.

Module VI: Mycology & Parasitology

Introduction to mycology, pathogenic yeasts & fungi, Introduction to parasitology, Amoebiasis, Malaria, Helminthic infections.

Module VII: Applied Microbiology

Outline of common bacterial diseases, treatment & prevention-Respiratory tract infections (upper & lower), Meningitis (septic & aseptic), Enteric infections (food poisoning & gastro enteritis), Anaerobic infections, Skin & soft tissue infections, Urinary tract infections, Sexually transmitted diseases, Tuberculosis & Leprosy, Hospital acquired infections, Biomedical waste management.

PRACTICAL EXERCISES:. Demonstration of Sterilization Methods, Spotters, staining.

REFERENCE BOOKS

1. *Textbook of Microbiology by Ananthanarayan & Panicker's, 8th edition-Universities Press (India) PVT LTD.*
2. *Textbook of Microbiology by C. P. Baveja, 4th edition, Arya Publications.*
3. *Textbook of Medical Parasitology, CK Jayaram Paniker, 5th edition, Jaypee Publications.*
4. *Medical Parasitology by C. P. Baveja & V. Baveja, 2nd edition, Arya5. Publications.*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
2	CUTM1812	Pathology	3 0 1	4

Description: Pathology is the branch of medical science that deals with the study of the nature and causes of diseases. It involves the examination of tissues, organs, bodily fluids, and cells to understand the mechanisms and characteristics of diseases. Pathologists use a variety of techniques and tools to diagnose and characterize diseases, contributing vital information for patient management and treatment.

Course Outcome:

CO1: The goal of the Pathology Course is to provide students with essential medical knowledgeand a broad understanding of human disease.

CO2: The Course emphasizes & quote; the language of disease & quote; as a necessaryfoundation for self-education and lifelong learning.

CO3: It describes our current understanding of the pathogenesis and epidemiology of thecommon or important diseases discussed in lecture.

Module I: General Pathology:
Introduction to Pathology, Concept of Diseases, Classification of Lesions, Bacterial, viral and parasitic.

Module II: Cellular Pathology:
Acute and Chronic Inflammation, Causes Of Cell Injury, Mechanisms Of Cell Injury, Necrosis, Apoptosis, Tissue Renewal Regeneration and Repair, Degeneration, Adaptations Of Cellular Growth And Differentiation, Healing By Repair, Scar formation And Fibrosis, Cutaneous Wound Healing, Healing By First Intention, Healing By Second Intention.

Module III: General Pathological Disorders:
Neoplasia, gangrene, Haemorrhage, shock, embolism and thrombosis. Tuberculosis, Leprosy and Typhoid and Deficiency diseases, Diseases of Infancy and Childhood, Tumors – Terminologies, Nomenclature. Differences between benign and malignant tumors, Tumors – Etiology, Pathogenesis and Spread of Tumors.

Module IV: Haematological & Cardiovascular Disorders:
Arteriosclerosis, Atherosclerosis, Hypertensive Vascular Disease, Ischemic Heart Disease,Hypertensive Heart Disease, Valvular Heart Disease, Infective Endocarditic, Rheumatic Fever And Rheumatic Heart Disease, Cardiomyopathies, Leucopenia, Anemia's, Polycythemia, Bleeding Disorders, Reactive roliferations Of White Cells.

Module V: The Lung, The Gastrointestinal Tract, Liver And Biliary Tract:
Acute Respiratory Distress Syndrome, Obstructive Pulmonary Diseases, Pulmonary Infections, Gastritis, Peptic Ulcer Disease, Inflammatory Bowel Diseases, Liver Function Tests, Hepatic Failure, Cirrhosis, Portal Hypertension, Jaundice, Cholelithiasis

Module VI: The Urogenital System & the Endocrine System,

Renal Function Tests, Nephrotic Syndrome, Nephritic Syndrome, Urolithiasis, Pap Smear, Thyroid Gland – Hyperthyroidism, Hypothyroidism, Thyroiditis, Graves Disease, Diffuse And Multinodular Goitres, Parathyroid Glands – Hyperparathyroidism, Hyperparathyroidism, Type I and II Diabetes.

Module VII: Bones AND Joints and Nervous System:
Fractures, Osteomyelitis, Arthritis, Osteoarthritis, Rheumatoid Arthritis, Infectious Arthritis, Diseases of Peripheral Nerve, Diseases of Skeletal Muscle, Infections of CNS – CSF Findings.

REFERENCE BOOKS

1. *Pocket companion to Pathologic Basis of Disease by Robbins and Cotran, 7th edition, Saunders.*
2. *Pathology Quick Review and MCQs by Harsh Mohan, 2nd edition, Jaypee Publications*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
3	CUTM1813	Basic Principles of Hospital Management	3 0 1	4

Description: Hospital management involves the application of principles and practices to efficiently and effectively run healthcare facilities, ensuring the delivery of quality patient care.

Course Outcome:

CO1: To gain a comprehensive knowledge of the healthcare system.

CO2: To identify ethical dilemmas and legal challenges that arise in hospital management.

CO3: To be able to evaluate hospital management system, including protocols for emergencies. CO4: To develop strategic plan in healthcare management.

Module I: Introduction to management & Organization:
The evolution of Management, Definition and importance of Management. Planning – Organizing – staffing – Motivating – Leading – Controlling. Management of health care units (in brief).

Module II: Individual behaviour in organization; organizational functioning (Group/Individual); Perception; Motivation MBO; Organizational Development.

Module III: Planning and Management of Hospitals & Clinical Services:
Building and physical layout – space required for separate function – Planning of infrastructure facilities, clinical services, equipment & Human resources – Types of Hospitals.

Module IV: Organization and administration of various clinical services; outpatient services. In-patient services, emergency services, operation theatres, ICU's and super specialty services.

Module V: Organizing of support clinical services & Hospital management:
Imaging – CSSD – Laboratory – Blood Bank – diet – Medical Records – Mortuary. Housekeeping – Maintenance (Water, Electricity, Civil, air Conditioning, Lift)-Pest Control-transport-Security. Forecasting-Purchasing & procurement (Sourcing, methods and procedures)

Module VI: Storing & issuing, Concept of inventory control, Maintenance of equipment and contracts (with special reference to major biomedical equipment). Trends in financing of Health and Hospital Services – Classification of Hospitals depending on source of financing – roles of financial institutions.

Module VII: National Programmes of Health and disease eradication / control

a. Health Programmes:

i. Family Welfare Programme
ii. National Programme for water supply and sanitation.
iii. Nutritional Programmes.
iv. Immunization and universal immunization programme.

b. Disease Eradication programme: Leprosy & Guinea worm, polimyclitis.

c. Disease control programmes: Tuberculosis, Malaria, Filaria, S.T.D, Goitre, Cholera and other diarrhoeal diseases and National Programme for prevention of blindness including trachoma, vector bone disease.

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
4	CUTM1814	Basics in Medical Physics & Electronics	3 0 1	4

Description: Hospital management involves the application of principles and practices to efficiently and effectively run healthcare facilities, ensuring the delivery of quality patient care.

Course Outcome:

CO1: To understand the concept of laser, radiation & nuclear physics, Electromagnetism. CO2: To apply the techniques associated with diagnostic imaging and radiation oncology. CO3: To analyse medical radiation related instrumentation.

CO4: To evaluate the knowledge, ideas and procedures associated with health care practitioners, researchers and other key stakeholders.

Module I: Laser

Nature of light-Reflection-Refraction-Total internal reflection-Optical fibers-Applications in Medicine – Laser-Principles-Action-Types of laser, Basic principles of laser in Medical Application – Argon- Iron laser photo coagulator-Photo Thermal-Photochemical Application-Applications of laser in Medicine-Laser hazards and safety measures.

Module II: Radiation Physics

Introduction to radiation physics, X-ray, production of x- ray, Properties of x-ray radiations – Biological effects of radiation, Radiation damage in matter, Radiation protection principles, radiation detection and measurement.

Module III: Nuclear Physics Introduction to nuclear physics, Radioactivity: Radioactive radiations, Nature of Nuclear radiations- Properties of Alpha, Beta and Gamma rays, Natural and artificial radioactivity, Half-life period- Nuclear Fission and Fusion- Nuclear reactions. Medical applications of radio isotopes.

Module IV: Introduction to Imaging Technique

Principles of Microscope: Simple microscope and compound microscope-Radiography: Making and X-ray Image-Fluoroscopy. CT Scans, MRI – Ultrasonography: Ultrasound picture of Body-A-Scan- M-Scan-Ultrasound Diathermy-Phonocardiography – Radio isotopes: Uses of Radio isotopes – 99mTc Generator – Scintillation detectors – Application of scintillation detectors – Gamma Camera – Positron Camera

Module – V: Electricity & Electromagnetism

Electric charge- Conductors and insulators- Coulomb`s law- Electric field-Electric lines of force-properties of lines of force- Electric field strength-Capacity- Units of capacity- Potential energy of a charged conductor-Principle of a condenser- Capacity of a parallel plate condenser-Electric current and its units- Potential difference-Electromotive Force- Ohm’s law – Electric Power and Electric Energy-Kirchhoff`s Law.

Module VI: Semiconductor devices

Principles of diodes and Transistors – Integrated circuits – Amplifiers – Basic configuration and types – differential and operational amplifiers – Waveform generators – Timer – A/D and D/A converters – Active filters – Transducers – Basic configuration and types.

Module VII : **Gas physics:** States of matter, Temperature conversion, Humidity, Pressure measurement, Gas flows and diffusion, Gas laws, Miscellaneous concepts such as density and specific gravity

REFERENCE BOOKS:

1. *New Understanding physics for advanced level – Jim Breithauput.*
2. *Advanced Physics for you by Keith Johnson, Simmons Hewett, Sue holt, John miller*
3. *Christensen's Physics of diagnostic Radiology by Thomas S. Curry III, M.D., Robert C Murry, Jr. PhD, Dow Dey, PhD.*
4. *Applied Electronics, A. Subramanyam, The National Publishing co., Madras (1996).*
5. *Design and Development of Medical Electronic Instrumentation, David Prutchi and Michael Norris, John Wiley & Sons (2005).*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
5	CUTM1815	Basics of Nursing	3 2 0	5

Description: Basics of Nursing is a foundational subject that introduces students to the fundamental principles and concepts of nursing practice. It forms the basis for more advanced nursing education and provides the essential knowledge and skills necessary for entry-level nursing roles.

Course Outcome:

CO1: To understand the concept of health and health care delivery system. CO2: To demonstrate the theories and models of nursing practice.

CO3: To relate with the scope of nursing practice.

CO4: To be able to appraise the attitude desirable for professional conduct.

Module I: Introduction of Health

Health care system, major health problems of the country, nature of disease pattern, technological advances and national health programmes, health for all by 2000 AD. Role of health care workers in the health care delivery system, impact of illness of the individual family and community.

• Communication Skills
• Relationship with patients, process of communication

Module II: Patient care:

Nursing Processes, Problems solving approach, assessment, diagnosis, planning, implementation and evaluation.

Module III: First Aid and Emergencies

Definition, basic principles, scope and rules, Wounds, haemorrhages, shock, fracture, dislocation and muscle injuries, respiratory emergencies, resuscitation, unconsciousness, Miscellaneous conditions, burns, scalds, foreign bodies in the skin, eyes, ear, nose, throat and stomach. Frost bite, effects of heart cramps, bites and stings. Poisoning, Transporting injured persons.

Module IV: Organization of OT:

a) Technician role and responsibilities b) Safety norms, c)Air exchange and air condition, d) Defibrillation, e) Crash cart and its contents, f)Cardiac pacing.

Module V: Drug administration and pain

- Administration of drug-
- Different routes for drug administration-
- Care of Client with intravenous infusion-
- Responsibilities of a nurse in drug administration-
- Care of medicine and medicine cupboard-
- Oxygen Inhalation-
- Steam inhalation: purpose, principles, procedure-

- Nebulization: purpose, principles, and procedure-
- Definition, types, and characteristics- Physiology of pain
- Pain assessment: subjective and objective method

Module VI: Patient Hygiene and Health

• Care of skin, mouth, eyes, nails, hair

• Menstrual hygiene, clothing, mental health, common health problems of poor personal hygiene.

• Comfort, Rest and Sleep

• Hospital Housekeeping

Module VII: Health Education

Introduction to principles and methods of health education. Use of audio visual aids, mass education, role of nurse in health education.

Basics of Nursing Practice

1. First Aid
2. CPR,
3. Nursing Workshops.
4. Bandaging types
5. Various positions in nursing foundation lab.
6. Ward visit to monitor BMW management.
7. Demonstration of Patient care Procedures:
    a. Positioning of patient, transport of the patient, Dressing and Bandaging, Care of inter costal drain tube, Insertion of naso-gastric tube and feeding
    b. Phlebotomy and obtaining blood samples, Arterial Blood sampling for ABG
    c. Injections: intra muscular, intra venous, sub cutanious, intra dermal
    d. Insertion of intra venous catheter and infusion of medications, blood transfusion
    e. Recording of ECG and monitoring of patient
    f. Oxygen therapy: oxygen canula masks. Aerosol therapy: nebulization, in halers
    g. Suctioning and care of artificial airway
    h. Insertion of urinary bladder catheter
    i. PPE
8. Basic Life Support (BLS)

REFERENCE BOOKS:

1. *First Aid, CPR, Bandaging types.*
2. *Practice of various comfort devices, various positions in nursing foundation lab.*
3. *Health talk, preparation of 3-5 types of A.V. Aids,*
4. *Ward visit to monitor BMW management*.

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
6	CUTM1816	Introduction to anesthesia and OT Technology	3 0 1	4

Description: "Introduction to Anesthesia" is a foundational subject that provides an overview of the principles, techniques, and practices involved in the administration of anesthesia. Anesthesia is a critical component of medical care, ensuring patients are comfortable and pain-free during surgical and medical procedures.

The Introduction to Anesthesia technology provides a foundational understanding for healthcare professionals involved in anesthesia care, including anesthesiologists, nurse anesthetists, and anesthesia assistants.

Course Outcome:

CO1: To understand safe anesthesia techniques for various elective and emergency procedures in and outside the operation theatre.

CO2: To apply knowledge of proper functioning of various anesthetic equipment such as the work station, anesthesia monitors, syringe pumps etc.

CO3: To demonstrate basic skills of cardiopulmonary resuscitation, post-operative and intensive care unit management.

CO4: To appraise various surgical procedures including the surgical instruments.

Module I:

- **Introduction To Anesthesia:** History of Anesthesia: Prehistoric (Ether) era; Inhalational anesthetic era; Regional anesthetic era; Intravenous anesthetic era;Modern anesthetic era
- **Oxygen production devices:** liquid oxygen; compressed oxygen; oxygen concentrator;
- **PSA devices**
- **Medical Gas Supply:** Compressed gas cylinders; Colour coding, Cylinder valves; Cylinder storage, pin index; Diameter index safety system; Gas piping system, Alarms & safety devices;
- **Gas Administration Devices:** Simple oxygen administration device; Methods of controlling gas flow; Reducing valves; Flow meters; Regulators; Flow restrictors

Module II : Laryngoscope & Bronchoscope Different types of laryngoscope, parts of laryngoscope, bronchoscopy procedure and position of the patient.

Module III: Machine breathing system

- **Anaesthesia Machine:** Hanger and yoke system, Cylinder pressure gauge, Pressure regulator, Flow meter assembly, Vaporizers -types, hazards, maintenance, filling & draining, etc
- General considerations, Classification and breathing system, Mapleson System, Jackson Rees system of Bain circuit, Non breathing valves – Ambu valves, Others

Module IV: Face Masks & Airway Laryngoscopes

- Endotracheal tubes – Types, sizes, (RAE Tube, Flexo metallic). Complications – Use care and maintenance of anaesthesia equipment 2) Laryngoscopes in Anaesthesia
- **Oxygen Therapy:** Definition, Causes and responses to hypoxemia, Clinical signs of hypoxemia, Goals of oxygen therapy, Evaluation of patients receiving oxygen therapy, Hazards of oxygen therapy.

Module V: Mechanical ventilator

Setting up of ventilator, different modes of ventilator, ventilation and its types.

Module VI: MONITORING

- ECG
- Temperature
- IBP
- CVP
- PA Pressure
- LA Pressure
- Bio Medical engineering of Trouble sorting Management, care of cleaning
- ETCO2
- Urine output

Module VII: CSSD, Instrumentation, store and inventory**,** Anaesthesia Ventilator and Working principles

Recommended Books

1. *Text books: Recent edition*
2. *The Anaesthesia Technician and Technologists Manual by Ahanatha Pillai*
3. *Berry, Edna Carnelia & MarieLoius Kohn introduction to OR Techniques 4th edition*
4. *Dixon, Elleen-Theatre techniques-5th edition Reference books 1 Nurse Anaesthesia by Nagelhout and Plans-5th edition 2 Clincalanaesthesia by Pramila Bajaj-5th edition 3 Wards textbook of anaesthesia*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
7	CUTM2606	OT Instruments and Techniques	3 1 0	4

Module I. Sterilization

Sterilization - Types Dry Heat ,Moist Heat
Sterilization And Disinfections Used In OT
Methods of checking sterilization markers (biological, chemical)

Module II. Instruments terminology and identification

Laparoscopic instruments, Cheatles Forceps, Sponge Holding Forceps, Esmach's Bandage, Simple Tourniquet, Pneumatic Tourniquet, Common terminologies used
Bard Parker Knife Handle, Major Abdominal Incision, Artery Forceps and their Types, Instruments Used in Homeostasis, Kocher's Forceps, Single Hook Retractors, Czerny's Retractor,
Nerve Hook retractors, Morris Retractors, Deaver's Retractors.

Module III. Patient positioning and Operating theater equipment :

Operation Room, operating table, Electric Cautery, Suction Machine, Nerve stimulator, Bedside Ultrasound Fumigator

Module IV: Patient positioning and related physiology

Positions used for surgeries under anesthesia – physiology and associated complications related to patient positioning on OT table

Module V: Wound management

Wound Types of wound, Scissors And Its Types, Sucking Material and Techniques, Disinfectants And Irritants, Dressing Procedures, Different Types of Bandages, Surgical Needle & Needle Holders
Various Types of Suture Material, Various Types of Drains Using In Surgery

Module VI: Sterilization –types Autoclave, Hot air oven
Ethylene oxide Sterilization, Disinfection and various disinfectants, Fumigation of OR, Lay out of OR

Module VII: Ten golden rules in anesthesia
General anesthesia Protocols, Consent and medico legal aspects, Biomedical waste management
X-ray shooting basic views (AP & Lateral view)

Practical

- Sterilization
- Surgical instruments – various surgeries
- Powered Instruments
- Gloving Technique, Scrubbing Technique
- Various Equipments Used In OT

Recommended Books:

1. *S Ahanatha Pillai- Manual of ANESTHESIA for Operation Theater Technicians.*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
8	CUTM2679	Pharmacology	3 0 1	4

Description: Pharmacology is the branch of biology and medicine that deals with the study of drugs, their mechanisms of action, therapeutic uses, and potential side effects. It plays a crucial role in understanding how substances interact with living organisms, particularly in the context of medical treatment.

Pharmacology is an interdisciplinary field, involving elements of biochemistry, physiology, and medicine. It is essential for healthcare professionals, including physicians, nurses, pharmacists, and researchers, to ensure safe and effective drug therapy.

Course Outcome:

CO1: To understand the chemistry of drugs with respect to their pharmacological activity. CO2: To demonstrate the metabolic pathway of drugs, its adverse effects.

CO3: To analyse the structural activity relationship of different classes of drugs CO4: To evaluate the chemical synthesis of selected drugs.

Module -I: General Pharmacology Part I

Introduction, Routes of Drug Administration (local and systemic), Pharmacokinetics - membrane transport, absorption, bioavailability, metabolism, plasma half life, excretion and distribution of drugs

Module -II: General Pharmacology Part II

Pharmacodynamics – Mechanisms of drug actions – synergism and antagonism, agonist, antagonist, synergist, Adverse Drug Reactions - drug to drug interaction, drug to food interaction

Module -III: General Pharmacology Part III

Receptor pharmacology - G Protein coupled receptors, Ion channel receptors, Tyrosine kinase - linked receptors, cytokine-receptor family, Receptors with intrinsic enzymatic activity the receptor has intrinsic catalytic activity receptor tyrosine kinases.

Drug Nomenclature and Essential Drugs Concept

Module -IV: Cholinergic System

Cholinergic system – acetyl choline, cholinergic drugs, anticholinesterases, Irreversible Anticholinesterases – classification, mechanism of action, indications, contra indications and adverse effects

Module -V: **Drugs for GIT and Antiemetics**

Antihistamines – Histamine receptors, Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects.

Antacids - Classification, mechanism of action, routes of administration, indications, contra indications

and adverse effects.
Antiemetics - Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects.

Module -VI: Drugs for ANS
Autonomic nerves system – Basic Anatomy & functional organisation of sympathetic and parasympathetic nervous system. List of drugs acting on ANS including dose, route of administration, indications, contra indications and adverse effects

Module VII: Chemotherapy agents and other antibiotics
Chemotherapy – chemoprophylaxis, classification route of administration, indications, contra indications and adverse effects

Antimicrobial agents - spectrum of activity, dose, routes of administration, indications, contra indications and adverse effects of Tetracycline, aminoglycosides, metronidazole, ceftriaxone, azythromycin, pencillin, ketoconazole, flucanozole, amphotericin B

TEXT BOOKS:

1. *Essentials of Medical Pharmacology: K.D. Tripathi, 6th edition, Jaypee Publishers.*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
9	CUTM1819	CLINICAL PRACTICES IN HOSPITAL - 1	0 4 2	6

1. Protocols to be followed while entering hospital
    a. Hand Wash
    b. Usage of Hand Rub
    c. Usage of cap, mask, OT dress and Sterile Slippers, Apron, gowns.
    d. Glove technique
2. Case Sheet Proforma & different forms to be filled in the case sheet.
    a. General Proforma
    b. Consent forms.
    c. ICU forms
        i. Blood transfusion form
        ii. MLC form
        iii. PAC form
3. Recording of vitals.
    a. Blood Pressure
    b. SPO_2
    c. Respiratory Rate
    d. Temperature
    e. MAP
    f. Pulse rate
4. Procedures
    a. Venous blood sample
    b. Arterial blood sample
    c. I.V Cannulation.
        i. Site of cannulation
        ii. Finding vein
        iii. Technique of venu puncture
        iv. Urinary catheterization
        v. NG tube insertion
        vi. Oro – gastric tube insertion
5. Basic equipments & instruments
    a. Crash cart
    b. Glucometer
    c. Pulse oximeter
    d. Monitors
    e. Comfort devices
6. Basic Drugs
    a. Paracetmol
    b. IV fluids
    c. Blood & its products
    d. Diclofenac
7. Investigations
    a. CBP
    b. CRP
    c. LFT
    d. CUE
    e. RFT

    f. CBG
8. Antiseptics & Disinfectants
9. BMW Management.

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
10	CUTM1820	Pharmacology Related to Anesthesia Technology	3 0 1	4

Description: Pharmacology related to Anesthesia Technology is a specialized area of study that focuses on the principles and applications of pharmacology specifically relevant to the field of anesthesia. Anesthesia technology involves the administration of anesthesia and the maintenance of patient well-being during surgical or medical procedures.

This subject equips anesthesia technologists with the knowledge and skills required to assist anesthesia providers in the safe and effective administration of anesthesia. Students learn how to prepare, administer, and monitor anesthesia drugs, ensuring patient comfort, safety, and overall well- being throughout the perioperative period.

Course Outcome:

CO1: To understand the pharmacology of anesthesia and emergency drugs. CO2: To analyze anesthetics agents and their pharmacokinetics.

CO3: To demonstrate the routes of administration of antihistamines and antiemetics. CO4: To evaluate the effect of stimulants and depressant.

Module I: Respiratory system

Pharmacotherapy of respiratory disorders:- Introduction, Modulators of bronchial smooth muscle tone and pulmonary vascular smooth muscle tone. Pharmacotherapy of bronchial asthma, Pharmacotherapy of cough

Drugs for cough, Mucolytic agents, Corticosteroids, – Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects. Treatment for asthma

Module II: Cardio vascular system

Cardiovascular drugs- Classification, mechanism of action, routes of administration, indications, contra indications, adverse effects and complications of –

a. Antihypertensives
b. Antiarrhythmic drugs
c. Cardiac glycosides
d. Drugs used in congestive cardiac failure

Module III: General anaesthetics

Anaesthetic agents – Definition of general and local anaesthetics, types of anesthesia, stages of anesthesia

Classification of general anaesthetics, Pharmacokinetics and Pharmacodynamics of inhaled anaesthetic agents & Intravenous general anaesthetic agents

Local anaesthetics – Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects

Module IV: Drugs for Analgesia

Analgesics - Opioid receptors, Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects non opioid and opioid analgesics

Module V: Drugs for GIT

Antihistamines – Histamine receptors, Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects.

Antacids - Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects

Module VI: Drugs for CNS

CNS depressants - Sedatives, hypnotics and narcotics - Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects

CNS stimulants - Neuromuscular blocking agents and muscle relaxants - Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects

Module VII: Miscellaneous Drugs

Emergency drugs, IV fluids (Nacl, RL, DNS, hemacel, heparin) - various preparations and their usage, Drugs used in metabolic and electrolyte imbalance, Antitubercular drugs – Classification, mechanism of action, routes of administration, indications, contra indications and adverse effects

TEXT BOOKS:

1. *Essentials of Medical Pharmacology by KD Tripati*
2. *Textbook of Pharmacology for Dental and Allied Health Sciences by Padmaja Uday Kumar*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
11	CUTM1821	Concepts of Diseases and Techniques in Regional & General Anesthesia Including Complications medical	3 0 1	4

Description: The subject "Concepts of Diseases and Techniques in Regional & General Anesthesia" likely combines two important aspects within the field of anesthesia: an understanding of various diseases and their implications for anesthesia, as well as the techniques involved in administering both regional and general anesthesia.

This subject provides a comprehensive overview of the interface between diseases and anesthesia, equipping healthcare professionals with the knowledge and skills needed to navigate the complexities of providing safe and effective anesthesia care in diverse clinical scenarios.

Course outcome:

CO1: To understand the basics of balanced anesthesia, pre anaesthetic assessment.

CO2: To be able to execute intraoperative management and postoperative complications & management.

CO3: To analyse the technique and practical concept to handle patient with critical condition.

CO4: To investigate intra operative management and post operative complications and their management.

Module I: Introduction : First successful clinical demonstration: Balanced anesthesia, Minimum standard of anaesthesia, Who should give anaesthesia?, Ten golden rules of anaesthesia, Assess & prepare, starve, check the drugs and equipment suction, keep the airway clear, be ready to control ventilation have a vein open, monitor pulse & BP, have someone in the room to apply cricoids pressure – if needed.

Module II: Pre-op preparation: Pre anaesthetic assessment, History – HOPI, Past history – disease /surgery / anesth, Personal history – smoking / alcohol, General physical assessment, Systemic examination – CVS, RS, CNS, PA Local examination.

Module III: Investigations and Pre-anaesthetic orders

1) Routine – Urine, E.C.G, Chest x-ray
2) Patient – Informed consent, NPO
3) Premedication – advantages, drugs used, Special instructions – if any, Machine – Checking the machine, o2, N2O, suction apparatus, Laryngoscopes, ET tubes, airways, Things for IV accessibility, Other monitoring systems
4) Drugs – Emergency drugs, Anaesthetic drugs

Module IV: Intraoperative management and Postoperative complications & management

1) Confirm the identification of the patient, Monitoring – Non-invasive & invasive monitoring, Induction – drugs used, Endotracheal intubation, Maintenance of anesthesia, Positioning of the Patient, Blood / Fluid & electrolyte balance, Reversal from anaesthesia – drugs used, transferring the patient.
2) Recovery room – Set up, Things needed, Problems
3) Complications, Obesity, Anaemia

Module V: Minor sequelae and Major catastrophes

1) Nausea & vomiting, Sore throat, Laryngeal granuloma, Neurological complications, Awareness, Vascular
2) Mortality, Causes of death, Cerebral damage, Prevention

Module VI: ANAESTHETIC consideration in Cardiac Anaesthesia, Cardiac Anaesthesia: * NYHA classification * Arrhythmias -types of arrhythmias and antiarrhythmic drugs * Angina-types * Dyspnoea-causes * Premedication * Setting up of monitoring system * Monitoring - invasive and non - invasive * Getting ready for the case * Induction of cardiac patient, precautions to be taken

Module VII:
Water Electrolyte & Acid Base Disturbances Distribution of Body Water, Dehydration Hyperkalemia, Hypokalemia. Sodium, Calcium Acid Base Disturbances – Types and Treatment. Fluid management in OT, blood loss calculations
Endocrine Disease: Diabetes Mellitus, Thyroid Dysfunction – Thyrotoxicosis, Hypothyroidism Adrenal Gland Dysfunction Diabetes Insipidus.

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
12	CUTM1822	Anesthesia Techniques Including Complication	3 0 1	4

Description: The subject "Anesthesia Techniques Including Complications" likely covers a range of topics related to the administration of anesthesia, encompassing both the techniques involved in delivering anesthesia and the potential complications that can arise during this process.
This subject aims to equip healthcare professionals, particularly those involved in anesthesia administration, with a comprehensive understanding of various anesthesia techniques and the skills to anticipate, recognize, and manage potential complications during the perioperative period.

Course Outcome:
CO1: To understand the monitoring of cardiac anesthesia and neuro anesthesia. CO2: To demonstrate the management of anesthesia in trauma and shock.
CO3: To be able to analyse the conditions in obstetric and paediatric anesthesia.
CO4: To appraise the conditions of anesthesia outside the operation room.

Module I: To setup the required equipments for general anesthesia, spinal, epidural, nerve block.

Module II: Regional anaesthesia technique – Introduction, Indication, Contraindication, Check list, Procedure, Complications, Management, Spinal, Epidural, Nerve Block

Module III: General Anesthesia techniques
General anesthesia techniques – LMA, Intubation, Total intravenous anesthesia, MAC

Module IV: Intra-operative Management
Confirm the identification of the patient. Monitoring – minimum (ISA standards) . Noninvasive & Invasive monitoring. Induction – drugs used. Endotracheal intubation. Maintenance of anaesthesia. Positioning of the patient. Blood/Fluid & electrolyte balance. Reversal from anaesthesia – drugs used. Transferring the patient Recovery room - set up,i. things needed ii. Problems. Post operative complications & management

Module V: Anesthetic consideration in different diseases
Endocrine disease: Pheochromocytoma b) Renal disease: Urolithiasis, TURP

Module VI: Monitoring and procedures done in ICU
Major Catastrophes - Mortality, Causes of death , Cerebral damage, Prevention.
Intensive Care: Central venous access, ECG monitoring, Invasive hemodynamic monitoring

Module VII: General care of patient in ICU-Eye, GI tract, Bladder, skin,
Case of mechanically ventilated patient, Tracheostomy, humidification, Vascular lines – arterial, venous line, Radiography, Physiotherapy – chest physiotherapy

Reference Books: *Davidson's Principles and Practice of Medicine - Elsevier Publications*
Harrison's Principle of Internal Medicine

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
13	CUTM1823	Clinical Practices in Hospital - 2	0 4 2	6

1. Equipments
    i. Infusion pump
    ii. Anesthesia machine
    iii. Suction machine
    iv. Defibrillator
    v. Diathermy
2. Emergency drugs
    i. Oxygen
    ii. Ionotropes
    i. Adrenaline
    ii. Noradrenaline
    iii. Dopamine
    iv. Dobutamine
    v. Isoprenaline
    vi. Vasopressine
    vii. Digoxin
    iii. Sympathomemmetics
        a. Mephenteramine
        b. Phenylnephrine
        c. Ephedrine
    iv. Vasodilators
        a. Sodium Nitroprusside
        b. Nitro-glycerine
        c. Nifedipine
    v. Anticholinergics
        a. Atropine
        b. Glycopyrrolate
    vi. Bronchodilators
        a. Deriphylline
        b. Aminophylline
        c. Salbutamol
    vii. Electrolytes
        a. Sodium Bicarbonate
        b. Calcium Gluconate
        c. Calcium Chloride
        d. Magnesium Sulphate
        e. Potassium Chloride
3. Methods of cleaning and sterilization of anesthetic equipment's
4. Equipment
    i. Checking the machine
    ii. Laryngoscopes
    iii. Tubes
    iv. Airways

v. Suction apparatus
vi. Oxygen Cylinder

5. Positioning and technique for spinal , epidural anaesthesia and general anaesthesia
6. Care of anaesthetized patient
7. Setting of emergency drug tray, intubation tray, IV cannulation tray, LP tray

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
14	CUTM1824	Anesthesia for Specialty Surgeries	3 0 1	4

Description: The subject "Anesthesia for Specialty Surgeries" focuses on the unique considerations, techniques, and challenges associated with administering anesthesia for specific types of surgeries falling under various medical specialties. Different surgical procedures often require tailored anesthesia approaches due to the diverse patient populations and specific intricacies involved.

This subject is designed to provide anesthesia providers with a comprehensive understanding of the specific demands and nuances associated with various specialty surgeries. It emphasizes tailoring anesthesia plans to meet the unique needs of patients undergoing procedures in different medical specialties.

Course outcome:

CO1: To learn about the necessary patient care measures before and after surgery. CO2: To understand the general concepts related to health and disease.

CO3: To be able to demonstrate pre operative requirements.

CO4: To appraise the significance of emergency drugs.

MODULE -I Neurosurgical Anesthesia

Cerebral Physiology and Pharmacology;
General Considerations in Neurosurgical Patients;
Anesthesia for Conditions with Raised lntracranial Tension;
Anesthesia for Awake Craniotomies (Stereotact ic Surgery);
Anesthetic Management of Spine Surgeries

MODULE -II Anesthesia for Obstetrics & Pediatric Anesthesia

Physiological Changes in Pregnancy, Effect of Anesthet ic Technique/ Drugs on Uteroplacental Circulation
Transfer of Anesthetic Drugs to Fetal Circulation, Anesthesia for Cesarean Section
Labor Analgesia (Painless Labor), Anesthesia for Manual Removal of Placenta
Anesthesia for Non-obstetric Surgeries during Pregnancy
Physiological/Anatomical Changes in Pediatric Population, APGAR score, Anesthetic Management
Regional Anesthesia in Pediatric Patients, Management of Neonatal Surgical Emergencies

MODULE III:

a) Cardiac disease – CAD, Valvular heart disease, congenital heart disease, Hypertension
b) Respiratory disease – COPD, Bronchial Asthma
c) Endocrine disease – DM, Thyroid dysfunction
d) Renal disease – CRF
e) Obesity

f) Cardiopulmonary bypass -indication and its function, I.C.U management, Chest tube management

MODULE IV: Anesthesia for ENT Surgery

Panendoscopy (Previously Called as Microlaryngeal Surgeries), Anesthesia for Bronchoscopy
Anesthesia for Adenotonsillectomy/Tonsillectomy, Anesthesia for Peritonsillar Abscess and Ludwig Angina
Anesthesia for Ear Surgery, Anesthesia for Nasal Surgery, Anesthesia for Parotid Surgery
Anesthesia for Obstructive Sleep Apnea Surgery, Anesthesia forTemporomandibular Joint (TMJ) Surgeries

MODULE V: Anesthesia for Day-care Surgery (Outpatient/Ambulatory Surgery)

Selection of Surgery/ Procedures and Patients, Preoperative Assessment and Premedication
Anesthesia for Day-care Patients, General Anesthesia, Total Intravenous Anesthesia, Regional Anesthesia
Monitored Anesthesia Care, Postoperative Period

MODULEVI: Day care Anaesthesia * Special features * Advantages * Disadvantages * Complication Laparoscopic Surgeries * Complications during laparoscopic procedures * Effects of increased intragasrtic pressure Geriatric Anaesthesia * Physiological changes * Anaesthetic challenges& problems during positioning.

MODULE VII: Trauma Anaesthesia, Thoracic Anaesthesia- Anaesthesia for Trauma & Hypovolemic Shock * Resuscitation -airway, breathing * Preooperative investigations& assessment * Circulatory management * Causes of unconsciousness * Rapid sequence induction.

* Tension pneumothorax-pathophysiology and management Thoracic Anaesthesia * Pulmonary function tests bed side * Preoperative preparation * Check list * Induction. Intubation Lung isolation- Indications, Techniques, Complications * Double lumen tubes * Monitoring during single lung ventilation * Pain management * Extubation * ICU management

Recommended Books.

1. *1 Paul Marino -The ICU Book -4th edition*
2. *2 Berry, Edna Carnelia & Marie Louis Kohn-Introduction to OR techniques -4th ed.*
3. *3 Brigden, Raymond. J-OT Technical-5th edition*
4. *4 Dixon, Elleen-Theater Techniques-5th edition*
5. *5 Nurse Anaesthesia by Nagelhout and Plans-5th edition (2014)Elsevier*

Reference books *1 Clinical Anaesthesia by Pramila Bajaj-3rd edition*

6. *1 Lee's Synopsis of Anesthesia-13th edition*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
15	CUTM1825	Anesthesia for Patients with Medical disorders	3 0 1	4

Description: The subject "Anesthesia for Patients with Medical Disorders" focuses on the challenges and considerations associated with administering anesthesia to individuals who have pre-existing medical conditions or disorders. It involves understanding how various medical conditions can impact the perioperative period and adapting anesthesia plans to ensure patient safety and optimal outcomes. This subject equips anesthesia providers with the knowledge and skills necessary to navigate the complexities of providing safe and effective anesthesia care for patients with a variety of medical disorders.

Course Outcome:

CO1: To learn the general concepts and principles of patient care.
CO2: To understand the basics of working in the operating and recovery rooms.
CO3: To analyse the general principles of patient care before, during and after surgery.
CO4: To evaluate the way to admit, prepare, and transfer the patient to the operating room.

MODULE -I Pre OP, Intra OP and Post OP anesthetic management of - Hypertension

Hypertension-commonly used antihypertensives - losartan, amlodepine, telmisartan, atenolol, methods to reduce hypertension intraoperatively, complications of intraoperative hypertension.

MODULE II : Pre OP, Intra OP and Post OP anesthetic management of Diabetes Mellitus
Diabetes -insulin preperations, methods to reduce blood sugar levels, complications of uncontrolled diabetes intraoperatively.

MODULE –III: Pre OP, Intra OP and Post OP anesthetic management of respiratory diseases, epilepsy, anaemia- Bronchial asthma/COPD-complications and its management intraoperatively, methods to avoid precipitating bronchospasm
Epilepsy- anaesthesia drugs precipitating an epileptic attack, drugs used for treatment * Anaemia- complications under anaesthesia

MODULE –IV: Pre OP, Intra OP and Post OP anesthetic management of Coronary artery disease-risk factors for having an myocardial/infarction under anaesthesia, drugs used in their management, complications of ischaemic heart disease patient undergoing non cardiac surgery

MODULE V: Pre OP, Intra OP and Post OP anesthetic management of Thyroid disorders-causes of hyper and hypothyroidism, challenges of anaesthetising a thyroid patient, thyroid storm and its management, complications after thyroidectomy

MODULE –VI: Pre OP, Intra OP and Post OP anesthetic management of Obesity,
Obesity-challenges of anaesthetising an obese patient.
Liver Failure Jaundice-intraoperative complications in a liver failure patient

MODULE VII: Pre OP, Intra OP and Post OP anesthetic management of Renal failure - anaesthetic challenges in renal failure patient, intraoperative complications in renal failure patients and its management.,important anaesthetic challenges during renal transplant

Recommended Books:

1. *Berry, Edna Carnelia & Marie Louis Kohn - Introduction to OR Techniques -4th edition*
2. *Brigden, Raymond.J - OT Technical-5th edition*
3. *Dixon, Elleen - Theater Techniques-5th edition*
4. *Nurse Anaesthesia by Nagelhout and Plans-5th edition (2014)Elsevier*
5. *Clinical Anaesthesia by Pramila Bajaj-3rd edition " Stoeltings Anaesthesia for Concurrent illness*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
16	**CUTM1734**	**Medical Law Ethics**	3 0 0	**3**

Description: "Medical Law and Ethics" is a subject that explores the legal and ethical dimensions of healthcare, focusing on the rights and responsibilities of healthcare professionals, patients, and the broader healthcare system. It provides an understanding of the legal framework governing medical practice and the ethical principles that guide decision-making in the field of healthcare.

The study of Medical Law and Ethics is crucial for healthcare professionals, administrators, and anyone involved in the healthcare system. It provides a foundation for ethical decision-making, legal compliance, and the delivery of patient-centered care within the framework of established laws and professional standards.

Course Outcome:

CO1: To understand the regulations formulated by statutory bodies of medical council.

CO2: Apply local, state, and federal standards and regulations for the control and use of health information.

CO3: To analyse the role of various policies in formation of law related to medical practice. CO4: To evaluate the professional standards in health practice.

Module I: General Considerations of Medical Ethics

1. Medical Ethics - Introduction
2. Three Core Contents in Medical Ethics - Best Interest, Autonomy Unrights
3. Doctors, Patient & Profession

Module II :Special Considerations of Medical Ethics

Consent, Confidentiality, Genetics, Reproductive Medicine, Mental Health, End of life and Organ Transporentation, Research & Clinical Trials

Module III :content and process for Value Education. Self-Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration. Continuous Happiness and Prosperity- A look at basic Human Aspirations.

Module IV: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence Understanding the harmony in the Nature Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self-regulation in nature.

Module V: Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in allpervasive space. Holistic perception of harmony at all levels of existence.

Module VI: Understanding Harmony in the Human Being - Harmony in Myself! Understanding Harmony in the Family and Society-

Module VII: Harmony in Human-Human Relationship . Implications of the above Holistic Understanding of Harmony on Professional Ethics

Recommended Books *Recent Editions.*

1. *Medical Ethics & Law, The Cor Curriculum*
2. *Author - Tony Hope Atla*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
17	CUTM1826	Clinical Practices in Hospital - 3	0 4 2	6

i. Maintaining registers
ii. Narcotic register
iii. Anesthesia notes
iv. MLC register
v. Death register
vi. Usage of peripheral nerve stimulator and ultrasound
vii. Procedure of all the above mentioned blocks,
viii. Asepsis
ix. Types of spinal needles
x. Touhy epidural needle
xi. Epidural set-contents(epidural catheter)
xii. Setting trolley for retrograde intubation
xiii. Setting of airway management equipment trolley for infants and children
xiv. Intraoperative anaesthetic management and monitoring
xv. Drugs used in regional anaesthesia + adjuvants (Morphine, Pethidine, Fentanyl, Sufentanil, Clonidine)
xvi. Atropine, ephedrine, mephentermine, Lipid emulsion
xvii. Difficult intubation cart, difficult airway management, setting up of IBP/CVP

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
18	CUTM1827	Anesthesia for specialties (Including Critical Care Assistance and Ventilation) Paper – II	3 0 1	4

Description: The subject "Anesthesia for Specialties (Including Critical Care Assistance and Ventilation)" is likely designed to provide comprehensive knowledge and skills for anesthesia providers, focusing on the administration of anesthesia in specialized medical fields. It encompasses the principles and practices of anesthesia tailored to the unique requirements of various medical specialties, with an emphasis on critical care assistance and ventilation.

This subject equips anesthesia providers with the knowledge and skills required to deliver safe and effective anesthesia in diverse medical specialties. By addressing the unique challenges of each specialty, anesthesia providers can enhance patient outcomes and contribute to the overall success of specialized surgical interventions.

Course Outcome:

CO1: To understand the monitoring of cardiac anesthesia and neuro anesthesia. CO2: To demonstrate the management of anesthesia in trauma and shock.

CO3: To be able to analyse the conditions in obstetric and paediatric anesthesia.

CO4: To appraise the conditions of anesthesia outside the operation room.

MODULE I: Cardiac anesthesia –

NYHA classification, Arrhythmias, Angina, Dyspnoea, Premedication, Setting up of monitoring system, Monitoring – invasive and non-invasive,

Getting ready for the case, Induction of cardiac patient, precautions to be taken, Transferring the patient to ICU, Care to be taken, ICU management

MODULE II: Neuro Anaesthesia

Glasgow coma scale, Signs of raised ICT, Premedication, Check list, Induction of a patient Positioning in neuro surgery, I.C.P. monitoring, Air embolism, Transferring to I.C.U.Ward

MODULE III: Anaesthesia for Trauma & Shock

Resusciation, Preopinvestigation/assessment, Circulatory management, Management of anaesthesia, Rapid sequence induction, Other problems

MODULE IV:Obstetric Anaesthesia

Differences between a pregnant and a normal lady, Risks for anaesthesia, Precautions to be taken Check list, regional vs general anaesthesia, Induction / maintenance. Resuscitation of the new born, APGAR score, Reversal and extubation, Emergencies – Manual removal of placenta, A.P.H,- P.P.H., Ruptured uterus, Ectopic pregnancy, Labour, Epidural analgesia,

MODULE V: Pediatric Anaesthesia

Theatre setting, Check list, Premedication, Induction, Intubations-securing the ETT, Monitoring, Reversal & extubation – problems, Transferring / IC management, Pain management.

MODULE VI: Day Care Anaesthesia

Special features, Set up, Advantages, Disadvantages, Complications, Future

MODULE VII: Equipment in ICU.
Monitors, ABG, different types of ventilators, CPAP, BiPAP, HFNC, ECMO

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
19	CUTM1828	Post Anesthesia care Unit	3 0 1	4

Description: The subject "Post Anesthesia Care Unit (PACU)" focuses on the specialized care provided to patients immediately after they undergo surgery and receive anesthesia. The PACU, also known as the recovery room, plays a crucial role in ensuring a smooth transition from the operating room to the postoperative phase.

The PACU is a critical component of the perioperative care continuum, and professionals in this setting play a vital role in ensuring the safety and well-being of patients as they recover from surgery. The subject "Post Anesthesia Care Unit" prepares healthcare providers with the knowledge and skills neceessary to manage the immediate postoperative period and contribute to positive patient outcomes.

Course Outcome:

CO1: To understand the structure, instruments, equipment, and standards of the post-anesthesia care unit, and the way to manage and work in that unit.

CO2: To execute good care of inpatients that need special attention.

CO3: To be able to analyse reports to help in the treatment of the patients.

CO4: To evaluate the possible postoperative complications and act under an anaesthesiologist's supervision.

MODULE-I Setting up of PACU- Definition of PACU, Set up Staff/patient ratio, Monitoring in PACU, Admission and discharge criteria, Criteria for Shifting into PACU, Aldred score, Discharge criteria, Fast trackig

MODULE-II Post Operative Complications And Its Management
Airway obstruction, desideration, bronchospasm, laryngospasm, Unresponsiveness
Neurological complications. - Coma, seizures, CVA(stroke), cerebral hypoxia,
Pulmonary edema, Haemorrhage from the surgical site, vascular complications-. DVT, embolism,(thrombus, air, fat, amniotic)
Trauma to teeth, Headache, Backache, Ocular complications -loss of vision

MODULE-III Shock-Anaphylactic shock, hypovolemic shock management
hypoxia and its management.

MODULE-IV Surgical Procedures

Gynecological/obstetric surgery
General surgeries Procedures
Urological surgery
Orthopedic surgery
Neurosurgery
Ophthalmic surgery
Otorhinolaryngologic and head and neck surgery (ENT)
Cardiac surgery

MODULE-V Post operative pain relief- * Management of postoperative pain- narcotics, NSAID(im/iv), local anesthetics through catheters, transdermal patches.

MODULE-VI: Causes of mortality in PACU- * Mortality -myocardial infarction, arrhythmias,

hypoxia, electrolyte imbalance, massive haemorrhage, embolism.

MODULE VII: Fluid Therapy * Fluid and electrolytes * Blood and blood components * Plasma * Allergies and reactions and its management * Informed consent * Use of body tissue and organ transplant * Records in OT , medico-legal cases

Recommended Books

1. *Paul Marino -The ICU Book -4th edition*
2. *Berry, Edna Carnelia & Marie Louis Kohn-Introduction to OR techniques -4th edition*
3. *Brigden, Raymond.J-OT technical-5th edition*
4. *Dixon, Elleen-Theater techniques-5th edition Reference books*
5. *Nurse Anaesthesia by Nagelhout and Plans-5th edition (2014) Elsevier*
6. *Drugs by Pramila Bajaj- clinical anaesthesia-13thedition*

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
20	CUTM1829	Health Care Management	3 0 1	4

Description: "Health Care Management" is a subject that focuses on the principles, practices, and skills required to effectively and efficiently manage healthcare organizations and systems. This field addresses the unique challenges and complexities of the healthcare industry, combining aspects of business, leadership, and healthcare delivery.

This subject equips individuals with the knowledge and skills necessary to navigate the complex landscape of healthcare management. Graduates in healthcare management may pursue careers as hospital administrators, healthcare executives, department managers, and leaders in various healthcare settings.

Course Outcome:

CO1: To understand the concept of Health Care and Health Policy.

CO2: To be able to implement the National Health Policy, Drug Policy, National Health Programme. CO3: To analyse the economics of communicable and non-communicable diseases.

CO4: To evaluate the determinants of health and health indicators of India.

Module I: Concept of Health Care and Health Policy

Health in Medical Care, Indigenous systems of Health Care & their relevance, Framework for Health Policy Development.

Module II: Health Organization

Historical development of Health Care System in the third world & India, Organization & Structure of Health Administration in India, Type of Health Organization including International Organizations, Private & Voluntary Health care Provider, Distribution of Health Care Services, Health Care System in Public Sector Organization, Health system of Various Countries.

Module III: Health Policy and National Health Programme

National Health Policy, Drug Policy, National Health Programs (Malaria, T.B., Blindness, AIDS etc.), Evaluation of Health Programs (Developing indicators for evaluation), Medical Education & Health Manpower Development.

Module IV: Health Economics-Fundamentals of Economics

Scope & Coverage, Demand for Health Services, Health as an Investment, Population, health of Economic Development. Economics of Health-Population based health services, Economics of Communicable and Non-Communicable diseases

Module V: Methods & Techniques of Economic Evaluation of Health Program

Cost Benefit & Cost-Effective Methods.

• Household & Health

Health Expenditure & Outcome, Rationale for Government action, Household capacity, income and schooling

Module VI: Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept.

- National Health Policy, Health Insurance, National Health Programmers (Brief Objectives and Scope). Population of India and Family welfare programme in India.

- **Family:** Influence of family on Individuals Health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their Importance to physiotherapy. The family, meaning and definitions. Functions, types of family. Changing family patterns.

Module VII: Culture and Health Disorders, Social Change, Meaning of social changes. Factors of social changes **Human** adaptation and social change, social change and stress. Social changes. Social changes and health programme. The role of social planning in the Improvement of health and rehabilitation

S.No	Subject Code	Name of the Subject	Subject Type (T - Pr -Pj)	No. Of Credits
21	**CUTM1830**	**Clinical Practices in Hospital - 4**		**6**

1. Ventilator(modes and settings)
2. Non invasive ventilation and invasive ventilation
3. Basic protocols and procedures in ICU
    a. Universal precautions in ICU
    b. Understanding reactions of patients and families
    c. Informed consent
    d. Patient care in ICU
    e. Setting of peripheral line central line catheterization tray
    f. Setting of emergency airway equipments trolley
    g. Setting of emergency drug trolley
    h. Setting of ventilator
    i. Setting of Infusion pumps
    j. Setting of defibrillator
    k. Setting and preparation for arterial blood pressure monitoring line
    l. Setting and preparation of tracheotomy set
    m. Parenteral nutrition in ICU

S.No	Subject Code	Subject Name		No. Of Credits
22	CUTM1831	Internship & Project - I	Comprehensive viva	20
			TOTAL CREDITS	20

S.No	Subject Code	Subject Name		No. Of Credits
23	CUTM1832	Internship & Project - II	Comprehensive viva	20
			TOTAL CREDITS	20