YENEPOYA

(DEEMED TO BE UNIVERSITY)
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YENEPOYA MEDICAL COLLEGE

Deralakatte, Mangaluru -575018

PROGRAM AND COURSE OUTCOMES

UNDERGRADUATE PROGRAM

BACHELOR OF SCIENCE IN ANAESTHESIA AND OT TECHNOLOGY

PROGRAM OUTCOMES

UNDERGRADUATE PROGRAM

BACHELOR OF SCIENCE IN ANAESTHESIA AND OT TECHNOLOGY

PO 1 To be a member of Surgical Team. Anaesthesia and OT technologist assists the anaesthetist and surgeon during the peri-operative period, knows the Preparation and maintenance of Anaesthesia Equipment,Anaesthesia delivery systems and Monitoring equipment before, during and after anaesthesia administration, and should have knowledge about types of anaesthesia.

PO 2 To know the Preparation and Maintenance of Operation Theatre equipment and the first level maintenance of anaesthesia and surgical equipment. They acquire a thorough knowledge of the set-up, operation and troubleshooting of anaesthesia delivery systems, monitors, ancillary devices and operation theatre equipment used during surgery.

PO 3 To Know the usage of Anaesthetic Drugs, Gases, emergency drugs, other medications used during surgery; know how to Check and Maintain Adequate supply of Anaesthesia drugs, Emergency drugs,other drugs , instruments and surgical supplies , sterilization of anaesthesia and surgical instruments.

PO 4 To know the Various types of IV cannulas and IV infusion fluids and Infusion sets. Assist the Anaesthetist in insertion of peripheral venous cannula and Administration of IV Fluids, Various drugs Antibiotics, Blood and blood products. Setting up the Arterial Pressure Monitoring line and Assist the Anaesthetist in insertion of Arterial cannula and Invasive Pressure Monitoring,Collection of Blood sample for Arterial Blood Gas Analysis.Assist in the Insertion of Central Venous Cannula.

PO 5 To be able to Communicate to the patients during Perioperative period

PO 6 To acquire an understanding of anatomy, physiology and pharmacology as it applies to anaesthesia and surgical care. Understands medical terminology as it relates to anaesthesia, Surgery and Peri operative patient care
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PO 7 To assist the Anaesthetist with patient assessments, evaluations, transport, positioning, induction, maintenance, monitoring and documentation of vital parameters and recovery of anaesthesia and insertion of intravenous and other invasive lines, and airway management.

PO 8 Assist anaesthetists in waking the patients , removing airway devices, transferring patients to PO care units after the surgery and care of patients in ICU or PO care units.

PO 9 To have the knowledge of practice of basic patient care and to coordinate with other members of the team in patient management in Critical areas.

PO 10 Should be able to provide Basic Life support in an unresponsive patient

PO 11 To Protect and uphold the rights of the patient with the knowledge of Ethical and legal issues and responsibilities in patient care and to Maintain professional confidentiality.

COURSE OUTCOME

UNDERGRADUATE PROGRAM

BACHELOR OF SCIENCE IN ANAESTHESIA AND OT TECHNOLOGY

Semester 1

	CO	Description
Anatomy	CO 1	Comprehend the gross,functional and applied anatomy of various structures in the human body along with their inter-relationships.
	CO2	Correlate the structure with the functions
	CO3	Competent to apply anatomical knowledge to perform minor technical procedural skills

	CO	Description
Physiology	CO 1	To broadly understand the physiological structure of each organ system and its physiological functions
	CO 2	To understand broadly the clinical abnormalities of organs and its clinical physiological implications

	CO	Description
Biochemistry	CO 1	Understanding the basic principles and procedures in specimen collection, reagent preparation and testing in Clinical laboratory

	CO 2	Understanding the properties of biomolecules, their function and biochemical process involved in health and disease
	CO 3	Understanding the importance of nutrition in health and disease

	CO	Description
Anaesthesia equipment 1	CO 1	Basic Idea about Physics Related to the Functioning of Anaesthesia Equipments
	CO 2	Storage of Medical gases and Distribution of Medical Gases. Various safety features involved in Storage and Distribution of Medical Gases
	CO 3	Vacuum and Suction Equipment: Importance of Suction equipment, Various types and components of Suction apparatus and Precautions to be taken during suctioning.
	CO 4	Anaesthesia Machine and Anaesthesia Workstation : Various Components , Safety features, Prevention of Delivery of Hypoxic Gas Mixtures
	CO 5	Checking and Maintenance of Anaesthesia workstation

	CO	Description
English and Communication skills	CO 1	Provide sufficient information to ensure that the patient/bystander can participate and respond appropriately
	CO 2	Clearly discuss the diagnosis and options with the patient
	CO 3	negotiate appropriate treatment plans in a sensitive manner that is in the patient's and society's interests.

	CO	Description
Kannada	CO 1	To comprehend and communicate in simple Kannada and improve their vocabulary of daily usage

	CO 2	to understand distinct sounds and improve pronunciation
	CO 3	to form simple sentences to talk to patients, bystanders and the localites

	CO	Description
Constitution Of India	CO 1	Uderstanding the structure of Constituent Assembly
	CO 2	To understand the fundamental duties and rights of Indian citizen
	CO 3	Knowledge regarding electoral process of India
	CO 4	Understand the importance of directive policies of state policies
	CO 5	Understand the structure and composition of Indian Constitution, and the ways of amending the constitution
	CO 6	Stimulate the roles of each of the three branches of government
	CO 7	Understand the provisions in the constitution for different areas

Semester II

General Pathology	CO 1	To be able to define the medical terms, define and classify disease and understand the concepts of the disease.
	CO 2	Able to describe the causes and mechanism of common diseases that occur during the routine work and also changes seen in different individuals and various organs and fluids
	CO 3	Able to enumerate the laboratory tests eg: urine, blood, body fluids and its application on various diseases

	CO	Description
Microbiology	CO 1	Understanding of role of microbial agents in health and disease
	CO 2	Understand and practice various methods of Sterilization and disinfection

	CO	Description
Introduction to anaesthesia and OT technology	CO 1	Brief History of General and Regional Anaesthesia and Few Pioneers of Anaesthesia
	CO 2	Basic applied Anatomy and physiology of Respiratory, Cardiovascular, Renal, Hepatic and Neuromuscular system relevant to Anaesthetists
	CO 3	Layout of the Operation Theatre.
	CO 4	Appropriate operation room attire
	CO 5	Monitoring a patient and documentation of Vital Parameters
	CO 6	Identification of few Common Surgical Instruments

Healthcare	CO 1	Describe the concepts of health, illness and national health policy various welfare programmes in India.
	CO 2	Explain the concepts of Nursing
	CO 3	Explain the basic ,special needs of the patient ,bandaging and first aid for common emergencies
	CO 4	Explain infection control

	CO	Description
Environmental studies	CO1	Students will be able to learn about environment, factors affecting it, environmental ethics and its protection
	CO2	Students will be able to Describe a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
	CO3	Students will be able to Critically analyze technical subject matter (written or oral) for scientific merit apply learned environmental knowledge and understanding to solve technical/research problems in new contexts

	CO	Description
Sociology	CO 1	Able to understand the meaning of sociology, it relationship with other disciplines and also to gain knowledge on the sociological methods of invstigations
	CO 2	Able to understand social factors and its role in health and disease
	CO 3	Able to understand the meaning, importance and agencies of socialization
	CO 4	Able to understand the concept and role of social groups in health, sickness and rehabilitation
	CO 5	Able to understand the meaning of family and its role in health, nutrition and sickness among members
	CO 6	Able to understand the meaning, features and health hazards of rural and urban communities
	CO 7	Able to understand the concept of culture and health and their raltionship
	CO 8	Able to understand the meaning of social change, factors of social change, social change and stress , social change and health

	CO 9	Able to understand the meaning of social problems and types of social problems in the society
	CO 10	Gain knowledge on the social security and social legislation measures for the disabled
	CO 11	Able to understand the meaning of social work and role of medical social worker

	CO	Description
Ethics	CO 1	To understand the fundamentals of medical ethics
	CO 2	To understand the ethical issues in professional conduct of healthcare
	CO 3	To gain knowledge in medico legal aspects of health records in healthcare practice
	CO 4	.to be able to explain the respective ethical challenges and potential conflicts of interest in the functional departments of the organization
	CO 5	To increase and respect the rights of patient and the duties and responsibilities of the healthcare people and to understand the rights of the patient and the duties responsibilities of healthcare people

SEMESTER III

	CO	Description
Systemic Pathology	CO 1	To be able to define the medical terms, define and classify disease and understand the concepts of the disease.
	CO 2	Able to describe the causes and mechanism of kidney diseases that occur during the routine work and also changes seen in different individuals
	CO 3	Able to enumerate the laboratory tests eg: urine, blood, body fluids and its application on renal diseases

Applied Microbiology

CO	Description
CO 1	To understand health care associated infections and antimicrobial resistance
CO 2	To acquire knowledge of the principles of sterilization and disinfection in hospital

Pharmacology

CO	Description
CO1	Know the basics of pharmacology like history , scope , & general principles
CO 2	Describe the pharmacokinetics and drug interactions of commonly used drug
CO 3	To appreciate adverse reactions and drug interactions of commonly used drugs and Knowledge on essential drugs in special conditions such such as diuretics,opiods, Corticosteroids, antihistamines , antiemetics ,IV fluids and immunusuppresants

Anaesthesia equipments 2

CO	Description
CO 1	Knowledge of Anaesthesia Workstation and Anaesthesia Machine, different components and troubleshooting
CO 2	Understanding of Various Components of Anaesthesia Gas Delivery System, Vaporisers, CO2 Absorbent System, Anaesthesia Ventilator, Suction Equipments
CO 3	Knowledge of Safety features to prevent the administration of Hypoxic gas mixture, Detection of Leak in the system, Filling and Draining the Vaporiser Liquid, Mounting the Vaporizer, Change of Soda Lime.
CO 4	Cleaning, Disinfection and Sterilization of Various Components used in Airway Management
CO 5	Checking and Maintenance of Anaesthesia workstation and equipments used in airway management

	CO	Description
Basics of anaesthesia and OT technology	CO 1	The role of A&OT Technologist in the Operating and Post operative areas.
	CO 2	How to ensure safety of the patient in perioperative environment
	CO 3	Preparation of the Operation Theatre for Various Types of Anaesthesia and Surgery
	CO 4	Standard precautions to Prevent Infection and Prevention of Infection in the Operation theatre
	CO 5	Biomedical Waste Management.

	CO	Description
Psychology	CO 1	Seeing things from patient's perspective is quite revealing, Not only does it provide the doctor with a better understanding of patient concerns it also allows the patient to see the doctor's empathetic, understanding and compassionate side.
	CO 2	This course concerns with how to approach Patients with a firm therapeutic decisions.

	CO	Description
Medical Records	CO 1	Students will gain knowledge in Medico legal aspects of medical records and confidentiality regarding medical information
	CO 2	Students will learn certain functions and procedures in understanding & analyzing records, ensuring compliance with laws, ensuring accuracy of data; to store and classify medical records
	CO 3	Students will be able to analyze data and determine the appropriateness of medical services that are given to patients.
	CO 4	Students will be able to evaluate the reliability and accuracy of data found in the medical record.

SEMESTER IV

Disinfection, Sterilisation and Infection Control

CO	Description
CO 1	Different methods of physical and chemical Sterilization.
CO 2	Sterilization methods used for various equipment used in Surgery and Anaesthesia.
CO 3	A brief idea about the Central sterile supply department: the areas associated, various indicators used to check the efficiency of sterilization.
CO 4	Sample collection for Microbiology culture from OT, ICU and post-operative ward.
CO 5	Precautions to be taken by a health professional while caring a patient.
CO 6	Biomedical waste management.

Applied anaesthesia and OT technology

CO	Description
CO 1	The preoperative management of the patient: Pre Anaesthetic Evaluation, receiving the patient in the operation theatre, transportation of patient inside the OT, Recording the Vital Parameters before induction of Anaesthesia , checking the surgical safety checklist
CO 2	Preparation for the administration of anaesthesia to the patient. Checking the Anaesthesia workstation, insertion of various Cannula for the patient.
CO 3	Preparation for Endotracheal intubation, Nasogastric tube insertion, Urinary Catheterization, intercostal drain insertion, pleural fluid aspiration.
CO 4	Positioning of the patient for various surgeries, Securing the patient in that position, the complications of positioning and prevention
CO 5	Assisting a sterile procedure , Principles, procedure and the material for draping.
CO 6	The various parameters monitored during the surgeries.

	CO 7	Post-operative care and wound management .
	CO8	Equipment used during surgical procedures like Diathermy, Tourniquet, Ultrasound machine, Defibrillator, laser, Irrigation fluids
	CO9	Basic Surgical Instruments and Suture materials,

	CO	Description
Medicine relevant to Anaesthesia & OT Technology	CO 1	Basic knowledge of clinical examination of patients
	CO 2	Understanding of common medical diseases like Diabetes Mellitus, Hypertension, Ischemic Heart Disease, Anaemia, Chronic obstructive pulmonary disease, Chronic liver and kidney diseases. Anesthetic Considerations in theses patients
	CO 3	Physiological changes in pregnancy and common problems associated with pregnancy and child birth, Teratogenicity
	CO 4	Anesthetic Implications, types and clinical features of Obesity
	CO 5	Anesthetic considerations in elderly patient, cerebrovascular accident and Epilepsy
	CO 6	Applied pharmacology of various drugs.

	CO	Description
Clinical Anaesthesia and OT Technology I	CO 1	Preparation of the Operation theatre for the Administration of Anaesthesia.
	CO 2	Checking the Various equipments required for the the Administration of General Anaesthesia.
	CO 3	Checking the Various equipments required for the the Administration of Regional Anaesthesia

	CO 4	Applying Various Monitors to the Patient
	CO 5	Securing Venous access in a patient
	CO 6	sterilisation and disinfection.

	CO	Description
Computer Applications	CO 1	Describe the usage of computers and why computers are essential in business and society
	CO 2	Utilize the internet web resources and evaluate online e business system
	CO 3	Identify categories of programs,system softwares and applications
	CO 4	Describe various types of network standards and communication softwares

	CO	Description
BIOSTATICS	CO 1	At the end of the course students will be familiar with statistics methods and techniques.
	CO 2	After the completion of the course students will be able to manage the data with various validation and cleaning process
	CO 3	At the end of the course students will be familiar with different types of data analysis techniques.
	CO 4	At completion of the course students can able to operate the statistical software to describe the data with proper presentation.

SEMESTER V

	CO	Description
Anaesthesia Techniques I (General Anaesthesia)	CO 1	The types of Anaesthesia choices available for the patient
	CO 2	Preparation of the patient for general anaesthesia and Induction of General Anaesthesia.
	CO 3	Maintanance of anaesthesia, Monitoring, Documentation and Complications during maintenance of Anaesthesia.
	CO 4	Recovery from Anaesthesia and Complications during Recovery
	CO 5	PACU (Recovery Room/Post operative ward) :Equipments required in PACU and Care of patient after Anaesthesia and Surgery

	CO	Description
Anaesthesia Techniques II (Regional Anaesthesia)	CO 1	Types of regional/local anaesthesia
	CO 2	Preparation of the patient for Regional Anaesthesia
	CO 3	Checking equipment, monitors, workstation and equipments used for resuscitation.
	CO 4	Aseptic precautions before administering regional anaesthesia.
	CO 5	Anatomy of vertebral column, spinal cord, spinal covering, spinal nerves, Cerebrospinal Fluid production, circulation and absorption.
	CO 6	Mechanism of Conduction across nerve and Action of Local anaesthetic agents
	CO 7	Identifying and Injecting drugs for Sub Arachnoid Block, Epidural Anaesthesia/analgesia,Caudal Anaesthesia/Analgesia, Plexus block and peripheral nerve block.

	CO8	Various local anaesthetic agents, their concentration and Additives used for various blocks.
	CO9	Indications, technique, complications, contraindications of Varios regional Anaesthesia Techniques

	CO	Description
Anaesthesia Techniques III (Monitoring)	CO 1	Minimum mandatory monitoring during anaesthesia
	CO 2	Pre Induction and Post Induction Monitors
	CO 3	ECG, SpO2, Capnograph, Temperature, Respiration Monitoring
	CO 4	Non Invasive Monitoring and Interpretation of Values.
	CO 5	Setting up of Arterial Blood Pressure Monitoring
	CO 6	Setting up CVP Monitoring

	CO	Description
Clinical Anaesthesia and OT Technology II	CO 1	Receiving the Patient for Surgery and Shifting the Patient to Operation Theatre
	CO 2	Preparation of the Operation theatre for the Administration of Anaesthesia.
	CO 3	Checking the Various equipments required for the the Administration of General Anaesthesia.
	CO 4	Checking the Various equipments required for the the Administration of Regional Anaesthesia
	CO 5	Applying Various Monitors to the Patient
	CO 6	Securing Venous access in a patient
	CO 7	Setting of Invasive Pressure Monitoring

SEMESTER VI

	CO	Description
Specialty Anaesthesia I	CO 1	Preparation and Conduct of General surgery Procedure in the Operation Theatre
	CO 2	Additional Considerations in Emergency surgeries.
	CO 3	Preparation and Conduct of pediatric surgery Procedure in the Operation Theatre
	CO 4	Preparation and Conduct of laparoscopic surgery Procedure in the Operation Theatre
	CO 5	Preparation and Conduct of bariatric surgery Procedure in the Operation Theatre
	CO 6	Preparation and Conduct of oncosurgery Procedure in the Operation Theatre
	CO 7	Preparation and Conduct of urology surgery Procedure in the Operation Theatre
	CO8	Preparation and Conduct of robotic surgery Procedure in the Operation Theatre

	CO	Description
Specialty Anaesthesia II	CO 1	Know the preparation of the operation theatre for anaesthesia and surgery (both Elective and Emergency Surgery) in Obstetric and Gynaecology
	CO 2	Know the preparation of the operation theatre for anaesthesia and surgery (both Elective and Emergency Surgery) in Orthopedics.
	CO 3	Know the preparation of the operation theatre for anaesthesia and surgery (both Elective and Emergency Surgery) in ENT and Head and Neck Procedure.
	CO 4	Know the preparation of the operation theatre for anaesthesia and surgery (both Elective and Emergency Surgery) in Neurosurgery, Thoracic Surgery.
	CO 5	Know the preparation of the operation theatre for anaesthesia and surgery (both Elective and Emergency Surgery) in Cardio Thoracic Surgery and Vascular Surgery.
	CO 6	Know the preparation of the for anaesthesia and procedure at remote locations, Endoscopy room, Bronchoscopy room and diagnostic and therapeutic radiological procedure

	CO 7	Preparation in the Ophthalmology Operation Theatre
	CO8	Anaesthesia for Outpatient Surgery

	CO	Description
Basic Intensive care and Emergency Medicine	CO 1	General care of the ICU patients and Methods to prevent infection in an ICU.
	CO 2	Monitoring in ICU
	CO 3	Connecting the patient to Ventilator, Ventilator setting and Weaning the patient from the ventilator.
	CO 4	Types of shock; the causes and management of each type of shock.
	CO 5	Assessment of patient at the Emergency medicine department and Triage.
	CO 6	Basic Life Support
	CO 7	Preparation of Infusions and administration of Ionotropes, vasopressors, antihypertensives, insulin and heparin

	CO	Description
Clinical Anaesthesia and OT Technology III	CO 1	To Observe and Assist the Surgical team in Various operation theatres during patient management. Before, during and after the Surgery
	CO 2	Care of the Patient in Recovery Room and Postoperative Ward
	CO 3	Care of the Patient in Intensive Care unit and emergency medicine department