



YENEPOYA

(DEEMED TO BE UNIVERSITY)

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YENEPOYA INSTITUTE OF ALLIED HEALTH SCIENCES

PROGRAM OUTCOMES AND COURSE OUTCOMES

UNDERGRADUATE PROGRAM

BACHELOR OF SCIENCE IN ANESTHESIA AND OT
TECHNOLOGY

ATTESTED

Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Daralskatte
Mangalore - 575 018, Karnataka

PROGRAM OUTCOMES
UNDERGRADUATE PROGRAM
B.Sc. ANAESTHESIA AND OT TECHNOLOGY

(K -Knowledge, S -Skill, A -Attitude)

- PO 1 To assist the Anesthetist with patient assessments, evaluations, transport, positioning, induction, maintenance, monitoring and documentation of vital parameters and recovery of anesthesia and insertion of intravenous and other invasive lines, and airway management. (K,S,A)
- PO 2 Assist anesthetists 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. (S)
- PO 3 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. (K,A)
- PO 4 Should be able to provide Basic Life support in an unresponsive patient (S,A)
- PO 5 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. (K,A)

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Dasakatte
Mangalore - 575 018, Karnataka

COURSE OUTCOMES

UNDERGRADUATE PROGRAM

B. Sc ANAESTHESIA AND OT TECHNOLOGY

Semester 1

Anatomy	CO	Description
	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
Physiology	CO	Description
	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
Biochemistry	CO	Description
	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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka

	CO	Description
Anaesthesia equipment 1	CO 1	Basic Idea about Physics Related to the Functioning of Anesthesia equipment's
	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	Anesthesia Machine and Anesthesia Workstation : Various Components , Safety features, Prevention of Delivery of Hypoxic Gas Mixtures
	CO 5	Checking and Maintenance of Anesthesia 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
Constitution Of India	CO 1	Understanding 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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Dorakatte
Mangalore - 575 018, Karnataka

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 anesthesia and OT technology	CO 1	Brief History of General and Regional Anesthesia and Few Pioneers of Anesthesia
	CO 2	Basic applied Anatomy and physiology of Respiratory, Cardiovascular, Renal, Hepatic and Neuromuscular system relevant to Anesthetists
	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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakotte
Mangalore - 575 010, Karnataka

	CO	Description
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, its relationship with the disciplines and also to gain knowledge on the sociological methods of investigations
	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

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Dr. Gangadhara Somayaji K.S.
 Registrar
 Yenepoya (Deemed to be University)
 University Road, Doralakatte
 Mangalore - 576 018, Karnataka

- 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 relationship
- 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

Ethics

- CO Description**
- 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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka

SEMESTER III

Systemic Pathology	CO	Description
	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, opioids, Corticosteroids, antihistamines , antiemetics ,IV fluids and immune suppressants
Anesthesia equipment's 2	CO	Description
	CO 1	Knowledge of anesthesia Workstation and Anesthesia Machine, different components and troubleshooting
	CO 2	Understanding of Various Components of Anesthesia Gas Delivery System, Vaporizers, CO2 Absorbent System, Anesthesia Ventilator, Suction Equipment's
	CO 3	Knowledge of Safety features to prevent the administration of Hypoxic gas mixture, Detection of Leak in the system, Filling and Draining the Vaporizer Liquid, Mounting the Vaporizer, Change of Soda Lime.
	CO 4	Cleaning, Disinfection and Sterilization of Various Components used in Airway Management

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka

	CO 5	Checking and Maintenance of Anesthesia workstation and equipment's used in airway management
Basics of anesthesia and OT technology	CO	Description
	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.

Kannada	CO	Description
	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 localities

SEMESTER IV

Disinfection, Sterilization 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 Anesthesia.
	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.

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka

**Applied
anesthesia and
OT technology**

- | | Description |
|------|--|
| CO 1 | The preoperative management of the patient: Pre Anesthetic Evaluation, receiving the patient in the operation theatre, transportation of patient inside the OT, Recording the Vital Parameters before induction of Anesthesia , checking the surgical safety checklist |
| CO 2 | Preparation for the administration of anesthesia to the patient. Checking the Anesthesia 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, |

**Medicine
relevant to
Anesthesia &
OT Technology**

- | | Description |
|------|--|
| CO 1 | Basic knowledge of clinical examination of patients |
| CO 2 | Understanding of common medical diseases like Diabetes Mellitus, Hypertension, Ischemic Heart Disease, Anemia, Chronic obstructive pulmonary disease, Chronic liver and kidney diseases. Anesthetic Considerations in these patients |
| CO 3 | Physiological changes in pregnancy and common problems associated with pregnancy and child birth, Teratogenicity |

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Dr. Gangadhara Somayaji K.S.
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Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka

- CO 4 Anesthetic Implications, types and clinical features of Obesity
- CO 5 Anesthetic considerations in elderly patient, cerebro vascular accident and Epilepsy

CO Description

Practical Applied Anesthesia and OT technology

- CO 1 should learn the sterilization of equipment's in details .
- CO 2 principles of auto claving and quality control of sterilization.
- CO 3 Preparation for administration of Anesthesia.

Human Rights & Gender Equity

CO Description

- CO 1 Basic Knowledge of Human Rights and its function and authorities in society and industry women's status, issues and gender equity.

BIOSTATICS

CO Description

- 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

Anesthesia Techniques I (General Anesthesia)

- CO 1 Knowledge on types of Anesthesia choices available for the patient
- CO 2 Preparation of the patient for general anesthesia and Induction of General Anesthesia.
- CO 3 Maintenance of anesthesia, Monitoring, Documentation and Complications during maintenance of Anesthesia.
- CO 4 Recovery from Anesthesia and Complications during Recovery
- CO 5 PACU (Recovery Room/Post operative ward) :Equipment's required in PACU and Care of patient after Anesthesia and Surgery

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**Clinical Anesthesia
and OT
Technology I**

CO	Description
CO 1	Knowledge in Preparation of the Operation theatre for the Administration of Anesthesia.
CO 2	Checking the Various equipment's required for the Administration of General Anesthesia.
CO 3	Checking the Various equipment's required for the Administration of Regional Anesthesia
CO 4	Applying Various Monitors to the Patient
CO 5	Securing Venous access in a patient
CO 6	Sterilization and disinfection.
CO 6	Mechanism of Conduction across nerve and Action of Local anaesthetic agents
CO 7	Identifying and Injecting drugs for Sub Arachnoid Block, Epidural Anesthesia/analgesia, Caudal Anesthesia/Analgesia, Plexus block and peripheral nerve block.
CO8	Various local anesthetic agents, their concentration and Additives used for various blocks.
CO9	Indications, technique, complications, contraindications of Various regional Anesthesia Techniques

**Anesthesia
Techniques III
(Monitoring)**

CO	Description
CO 1	Minimum mandatory monitoring during anesthesia
CO 2	Pre-Induction and Post Induction Monitors
CO 3	ECG, SpO ₂ , 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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yessopoya (Deemed to be University)
University Road, Beralakatte
Mangalore - 575 018, Karnataka

**Clinical Anesthesia
and OT
Technology II**

CO	Description
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 Anesthesia.
CO 3	Checking the Various equipment's required for the Administration of General Anesthesia.
CO 4	Checking the Various equipment's required for 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

**Specialty
Anaesthesia I**

CO	Description
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 onco-surgery 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

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 019, Karnataka

**Clinical specialty
Anesthesia I**

CO Description

CO 1 Preparation of operation theatre for emergency and elective cases in various specialties.

CO Description

**Specialty
Anaesthesia II**

CO 1 Know the preparation of the operation theatre for anesthesia and surgery (both Elective and Emergency Surgery) in Obstetrics and Gynecology

CO 2 Know the preparation of the operation theatre for anesthesia and surgery (both Elective and Emergency Surgery) in Orthopedics.

CO 3 Know the preparation of the operation theatre for anesthesia and surgery (both Elective and Emergency Surgery) in ENT and Head and Neck Procedure.

CO 4 Know the preparation of the operation theatre for anesthesia and surgery (both Elective and Emergency Surgery) in Neurosurgery, Thoracic Surgery.

CO 5 Know the preparation of the operation theatre for anesthesia and surgery (both Elective and Emergency Surgery) in Cardio Thoracic Surgery and Vascular Surgery.

CO 6 Know the preparation of the for anesthesia and procedure at remote locations, Endoscopy room, Bronchoscopy room and diagnostic and therapeutic radiological procedure

CO 7 Preparation in the Ophthalmology Operation Theatre

CO8 Anesthesia for Outpatient Surgery.

CO Description

**Clinical specialty
Anesthesia II**

CO 1 Preparation of operation theatre for emergency and elective cases in various specialties.

CO 2 Preparation for Anesthesia for Procedures at Remote Locations.

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Registrar
Yenepoya (Deemed to be University)
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**Intensive care and
Emergency
Medicine**

CO	Description
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 Inotropes, vasopressors, antihypertensives, insulin and heparin

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Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore - 575 018, Karnataka