

(9)

SYLLABUS

BACHELOR IN OPERATION THEATRE TECHNOLOGY

4 Years (VIII Semesters)

(3 Years+1 Year (VII-VIII Semester) Internship)



1 | Page

SEMESTER –I

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Human Anatomy	4	3	1	-	20	80	100
	Core	Human Physiology	4	3	1	-	20	80	100
	Core	General Biochemistry	4	3	1	-	20	80	100
	Core	Basic computers and information Science&Medical Law & Ethics	4	3	1	-	20	80	100
	Practical	Practical for all subjects / Clinical Posting	5	-	-	10	50	150	200
	Ability Enhancement Course	Environmental Science and Health	2	2	-	-	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	-	20	80	100

Total Credit- 25

Total Contact Hours- 30

***Credits of MOOC, SWAYAM and NEPTel will be considered similar to the credits of Open Elective /General Elective**

SEMESTER –II

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	General Microbiology	4	3	1	-	20	80	100
	Core	General Pathology	4	3	1	-	20	80	100
	Core	General Pharmacology	4	3	1	-	20	80	100
	Core	Introduction to Healthcare Delivery System in India	4	3	1	-	20	80	100
	Practical	Practical for all subjects / Clinical	5	-	-	10	50	150	200

		Posting		-	-				
	Ability Enhancement Course	Medical terminology and Record keeping	2	2	-	-	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	-	20	80	100
Total Credit- 25			Total Contact Hours- 30						

***Credits of MOOC, SWAYAM and NEPTel will be considered similar to the credits of Open Elective /General Elective**

SEMESTER –III

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Medicine	4	3	1	-	20	80	100
	Core	Principles of anesthesia	4	3	1	-	20	80	100
	Core	Basic techniques of Anesthesia	4	3	1	-	20	80	100
	Core	Basics of Surgical procedures	4	3	1	-	20	80	100
	Practical	Practical for all subjects / Clinical Posting	5	-	-	10	50	150	200
	Discipline Specific Elective	General Principles and Practices of Public Health/ Forensic Psychology	2	2	-	-	20	80	100
	Ability Enhancement Course	Computer/BASIC EMERGENCY MANAGEMENT	2	2	-	-	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	-	20	80	100
Total Credit- 27			Total Contact Hours- 32						

***Credits of MOOC, SWAYAM and NEPTel will be considered similar to the credits of Open Elective /General Elective**

SEMESTER –IV

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	CSSD Procedures.	4	3	1	-	20	80	100
	Core	Advance anesthetic techniques	4	3	1	-	20	80	100
	Core	Basic Intensive care	4	3	1	-	20	80	100
	Core	Professionalism and values; Principles of Management	4	3	1	-	20	80	100
	Practical	Practical for all subjects / Clinical Posting	5	-	-	10	50	150	200
	Discipline Specific Elective	Communication skill for Health care professional/ introduction to national healthcare system	3	3	-		20	80	100
	Skill Enhancement Course	MEDICAL LAW/ Ethics in public health	2	2	-	-	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	-	20	80	100

Total Credit- 28

Total Contact Hours- 33

***Credits of MOOC, SWAYAM and NEPTEL will be considered similar to the credits of Open Elective /General Elective**

SEMESTER –V

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Specialized surgery and anesthesia	4	3	1	-	20	80	100
	Core	Electronics and	4	3	1	-	20	80	100

		technology in surgery and anesthesia							
	Core	Biostatistics & Research Methodology	4	3	1	-	20	80	100
	Core	OT Management	4	3	1	-	20	80	
	Practical	Practical for all subjects / Clinical Posting	5	-	-	10	50	150	200
	Discipline Specific Elective	Medical psychology	3	-	-	3	20	80	100
	Ability Enhancement	Entrepreneurship development/ Introduction to quality and patient safety	2	-	-	2	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	2	20	80	100

Total Credit- 28

Total Contact Hours- 33

***Credits of MOOC, SWAYAM and NEPTEL will be considered similar to the credits of Open Elective /General Elective**

SEMESTER –VI

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Advances in OT Technology	4	3	1	-	20	80	100
	Core	Medical Devices	4	3	1	-	20	80	100
	Core	Regulatory Guidelines related to surgery	4	3	1	-	20	80	100
	Core	CLINICAL OPERATION THEATRE TECHNOLOGY	2	-	-	4	20	80	100
	Practical	Practical for all subjects / Clinical Posting	5	-	-	10	50	150	200
	Discipline Specific Elective	HOSPITAL MANAGEMENT/ Basics of clinical Skill Learning	3	3	-	-	20	80	100
	Skill Enhancement Course	BASIC AND ADVANCE LIFE SUPPORT/ ORGANIZATIONAL BEHAVIOUR	2	2	-	-	20	80	100
	*Generic Elective	*Students have to opt any one of the open elective	2	2	-	-	20	80	100

		courses offered by Institute/ College/University.							
Total Credit- 26			Total Contact Hours- 31						
*Credits of MOOC, SWAYAM and NEPTEL will be considered similar to the credits of Open Elective /General Elective									

SEMESTER – VII& VIII INTERNSHIP				
Subject Code	Course category	Course title	Evaluation	
			Internal	External
VII Sem	Core	Internship	20	80
VIII Sem	Core	Internship	20	80
Internship is for 12 months,				
SEMESTER	CREDIT			
I	25			
II	25			
III	27			
IV	28			
V	28			
VI	26			
VII	20			
VIII	20			
TOTALCREDITS	199			

Exit: Honours' OPERATION THEATRE TECHNOLOGY



SEMESTER-1

HUMAN ANATOMY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Human Anatomy	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Describe the anatomy & terminology of cell, tissues of body Skin & its Blood supply.	Remember
	Explain the blood circulation system & skeleton system with Classification of bones, Parts of developing long bone.	Understand
	Determine the muscular system, Muscles of Upper limb, Muscles of lower limb, Muscles of Neck, Muscles of back & joints.	Apply
	Analyse the respiratory system with Bronchopulmonary segments & circulatory system: Types of blood vessels, Heart & Pericardium.	Analyse
	Assess the digestive system, role of digestive juices & enzymes & reproductive system: spermatogenesis & oogenesis.	Evaluate
	Formulate the excretory system Pathway of glomerular filtration rate with structure & structure of nephrons.	Create

Taxonomy: Remember, Understand, Apply, Analyse, Evaluate, Create

Learning Outcomes	<ol style="list-style-type: none"> 1. To introduce the students to the concepts related to General anatomy, Muscular, Respiratory, Circulatory, Digestive and Excretory system 2. Demonstrate and understand the basic anatomy of Respiratory and Circulatory system 3. Demonstrate and understand the basic anatomy of Digestive and Excretory system 4. Knowledge of basic concept of human body anatomical structure. 5. Knowledge of interrelationships, gross, functional and applied anatomy of various structures in the human body.
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UNIT-I

Introduction to Anatomy Anatomical terms, planes, organization of human body- cell, tissue, organ & organ system.

Musculo-skeletal system:

Types of bones, structure & divisions of the skeleton system, name of all the bones and their parts, joints-classification. Structure and types of muscles

Anatomy of the Nervous system

Central nervous system & Peripheral nervous system- different components

UNIT-II

Anatomy of Circulatory system:

General plan of circulatory system and its components-

Heart- size, location, coverings, chambers, blood supply, nerve supply, the blood vessels

General plan of circulation, pulmonary circulation

Name of arteries and veins and their positions Lymphatic system - general plan Anatomy of the

Respiratory system:

Organs of Respiratory System (Brief knowledge of parts and position)

UNIT-III

Anatomy of the Digestive system:

Anatomy of alimentary tract; Parts of the tract

Accessory glands of digestion; Pancreas, Liver, Gall Bladder

Anatomy of Excretory system Kidneys- location, gross structure, excretory ducts, ureters, urinary bladder, urethra

UNIT-IV

Reproductive system

Male Reproductive System

Female Reproductive System Anatomy of the endocrine system

UNIT-V

Name of all endocrine glands their positions

Hormones and their functions- Pituitary, Thyroid, Parathyroid, Adrenal glands, Gonads & Islets of pancreas

PRACTICALS

1. Demonstration of parts of microscope and its uses
2. Demonstration of skeleton and joints.
3. Demonstration of deltoid and gluteus maximus, Cubital fossa.
4. Clinical Examination of Arterial Pulse
5. Demonstration of body temperature.

Reference Books:

- a. Human Anatomy Regional and Applied Vol. 1, Vol.2 & Vol.3, B.D.Chaurasia C.B.S.Publishers, New Delhi- 9th edition -2022
2. Hand Book of General Anatomy B.D.Chaurasia, C.B.S.Publishers, New Delhi-9th edition -2022
3. Text Book of Human Histology Inderbir Singh, Jaypee Brothers, Medical Publishers, Delhi -7th edition - 2021

5. Gray's Anatomy Susan Standring, Elsevier Churchill Livingstone, Edinburg – 42nd edition- 2021

HUMAN PHYSIOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Human Physiology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describe the basic physiology of hematology, Homeostasis, Hemopoiesis, Hemogram, Anemia, Body Fluid, Immunity.	Remember
Explain the basic physiological concept of cardiovascular system, functions, properties of cardiac muscle, Origin of Cardiac Impulse.	Understand
Determine the nerve – muscle physiology, neuromuscular junction & Mechanism of muscle contraction & central nervous system.	Apply
Analyze the Physiologic anatomy, functions of respiratory system, Mechanism of respiration & circulatory system.	Analyze
Assess the physiology of digestive system Composition and functions of all Digestive juices, Movements.	Evaluate
Formulate the physiological concept of excretory system, structure & function of excretory organs.	Create

Taxonomy: Remember, Understand, Apply, Analyze, Evaluate, Create

Learning outcomes	<ol style="list-style-type: none"> 1. To understand the basic physiological concepts of General physiology 2. To understand the basic physiological concepts of Hematology 3. To understand the basic physiological concepts of Nerve-Muscle physiology. 4. To understand the basic physiological concepts of Respiratory physiology. 5. To understand the basic physiological concepts of Cardiovascular physiology
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UNIT-I

General Physiology

Cell, Transport across cell membrane, homeostasis, resting membrane potential, action potential

Blood

Composition and functions of Blood

RBC, WBC, Platelet count, Hemoglobin

Blood Groups - ABO and RH grouping

Hemostasis & Anticoagulants

UNIT-II

Cardio vascular system

Cardiac muscle, Pacemaker & conducting tissue

Cardiac Cycle

Cardiac output, Heart rate, ECG

Arterial blood pressure

Respiratory System

Functions of Respiratory system

Mechanism of respiration, lung volumes & capacities

UNIT-III

Nerve & Muscle physiology

Neuron structure & properties

Neuromuscular junction

Skeletal muscle structure mechanism of contraction

Cerebrospinal Fluid (CSF): Composition, functions & Circulation.

Central & autonomic Nervous system Organization of CNS

Functions of various parts of Brain, in brief

Composition, functions and circulation of CSF

Differences between sympathetic and parasympathetic division

UNIT-IV

Digestive system

Functional Anatomy, organization & innervations

Composition and functions of all Digestive juices

Digestion & Absorption of carbohydrates, proteins and fats

UNIT-V

Excretory System

Kidneys: Functions, Nephron, Juxta-glomerular Apparatus

Renal circulation

Mechanism of Urine formation

GFR

Endocrine and Reproductive systems Endocrine glands & hormones secreted

Functions of Reproductive system

Male Reproductive System: spermatogenesis, Testosterone.

Female reproductive system: Ovulation, Menstrual cycle.



Pregnancy test

PRACTICALS

1. Estimation of Hemoglobin Concentration
2. Determination of Bleeding Time and Clotting Time
3. Determination of Blood Groups
4. Recording of normal Blood Pressure
5. Determination of Vital Capacity

Reference Books:

1. A.K. Jain, Textbook of Physiology (Volume I & II) -9th edition -2021.
2. Dr. Venkatesh.D and Dr. Sudhakar H.S. Basic of Medical Physiology- Wolter-Kluwer Publication- edition – 4th edition - 2018
3. Chaudhari (Sujith K) Concise Medical Physiology - New Central Book- 7th edition - 2016



GENERAL BIOCHEMISTRY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	General Biochemistry	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describe the biomolecules Introduction and scope of biochemistry, Chemistry of carbohydrates, proteins, lipids.	Remember
Explain the metabolism of glucose, fats & amino acids & their regulatory pathways.	Understand
Determine the structure & function of enzymes & its clinical importance	Apply
Analyze the RDA, Sources of Vitamins and Minerals, functions and deficiency of Fat-soluble vitamins.	Analyze
Assess the balanced diet, Satiety value, Energy imbalance- obesity, starvation, Limitations of the daily food guide.	Evaluate
Formulate the conventional & specialized lab investigation, Principle and applications of Colorimeters, pH Meter.	Create

Taxonomy: Remember, Understand, Apply, Analyze, Evaluate, Create

Learning outcome	<ol style="list-style-type: none"> To identify the five classes of polymeric biomolecules and their monomeric building blocks. Explain the specificity of enzymes (biochemical catalysts), and the chemistry involved in enzyme action. Explain how the metabolism of glucose leads ultimately to the generation of large quantities of ATP. Describe how fats and amino acids are metabolized, and explain how they can be used for fuel.
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UNIT-I

Cell: Morphology, structure & functions of cell, cell membrane, Nucleus, chromatin, Mitochondria, Endoplasmic Reticulum, Ribosomes.

Carbohydrates: Definition, chemical structure, functions, sources, classifications, Monosaccharides, Disaccharides, Polysaccharides, mucopolysaccharide and its importance, glycoproteins

UNIT-II

Lipids: Definition, function, sources, classification, simple lipid, compound lipid, derived lipid, unsaturated and saturated fatty acid. Essential fatty acids and their importance, Blood lipids and their implications, cholesterol with its importance.

Proteins: Definition, sources, amino acids, structure of protein, their classification, simple protein, conjugated protein, derived proteins and their properties.

UNIT-III

Enzymes: Definitions, mechanism of action, factors affecting enzyme action, enzyme of clinical importance.

Nutrition 1) Vitamins: Types, functions and role. 2) Principal minerals and their functions (Ca, P, Mg, Na, K, Cl) 3) Balanced diet, Diet for Chronically and terminally ill patients, post-operative patients

UNIT- IV

Carbohydrate Metabolism: Glycolysis, TCA cycle, Glycogen metabolism, Gluconeogenesis, Maintenance of Blood Glucose. Diabetes Mellitus and its complications. 9. Lipid Metabolism: Beta oxidation, Ketone bodies, Cholesterol and atherosclerosis, obesity.

UNIT-V

Protein Metabolism: Transamination, Deamination, Fate of ammonia, urea synthesis and its inborn errors. Water and Electrolyte, Fluid compartment, daily intake and output sodium and potassium balance

PRACTICALS

- 1.Introduction of Laboratory apparatus
- 2.Instruments (Theory & demonstration)
3. Urine Analysis
4. Analysis of blood sugar c.
5. RFTs (Estimation of blood urea, serum creatinine, creatinine clearance, and their implications)

Reference Books:

- 1: Essentials of Biochemistry – U.Satyanarayan , U.Chakrapani – 4th edition-2021
- 2: A textbook of Biochemistry – Dr SK Gupta – 2nd edition. -2019
- 3: Concise textbook of Biochemistry for paramedical students – DM Vasudevan, Sukhas Mukherjee – 2nd edition. -2021
- 4: Essentials of Biochemistry - Pankaj Naik -6th edition. -2022

Basic computers and information Science & Medical Law & Ethics

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Basic computers and information Science&Medical Law & Ethics	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Develop a clear understanding of the fundamental concepts, theories, and principles in computer sciences, medical law and ethics.	Understanding
Acquire practical skills in applying theoretical knowledge to real-world problems in computer sciences, medical law and ethics.	Application
Introduces learners to the linkages between the fields of law and health in order to assist them in taking informed	Receive
Describe how the ethical principles/virtues of autonomy, justice, trust, caring beneficence, and normalevidence apply to the delivery of health care	Receive
Recognize the importance of and bring to bear ethical principles, virtues, values and theory in professional discourse.	Characterize

Taxonomy: Remember, Application, Receive, Receive, Characterize.

Learning Outcomes	<ol style="list-style-type: none"> 1. Gain a solid understanding of the foundational concepts, theories, and principles in medical laws and ethics and basic computer sciences, including digital systems, circuits, programming languages, algorithms, data structures, and computer architecture. 2. Develop strong problem-solving skills by applying logical reasoning, critical thinking, and analytical approaches to identify, analyze, and solve complex problems in the field of electronics and computer sciences.
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UNIT-I

COMPUTER SYSTEM:

- Introduction to computers – Application of computers – Concepts of Data and information – Atypical computer system – Memory concepts – History of computers – Types of computers.
- Input - output devices – Data storage devices – Software–The definition – the role of software – Housekeeping.
- The computer Internals – Typical PC configuration – Booting – Virus, Anti- virus, Data compression Techniques – On software – Versions of software.
- Number system – Binary Arithmetic – Standard codes for unit of Information.
- Operating system - Definition – Classification – Introduction to windows – Features of Windows – Desktop and Desktop icons – Starting programs – Browsing and managing windows explorer – setting – Taskbars and creating short cuts.
- Introduction to MS-DOS and WINDOWS
- MSOffice–MS–Word, Power point, Access & Excel. Introduction to Internet and E-Mail.

UNIT-II

Medical ethics - Definition - Goal – Scope

Introduction to Code of conduct

UNIT-III

Basic principles of medical ethics –Confidentiality

Malpractice and negligence - Rational and irrational drug therapy

UNIT-IV

Introduction to Public Health Ethics

Theories of Justice and Distribution of Public Health Resources

Principle for Public Health Ethics

UNIT-V

Priority-Setting and Resource Allocation at the Macro Level

Priority-Setting and Resource Allocation at the Micro Level

Reference Books:

- Clinical Electroencephalography- by MisraUk
- 1.Law relating to medical negligence and compensation- Dr.K.P.D.A. Prabakar &Dr.J.Paulraj Joseph – 2023
- 2.A textbook of medical jurisprudence and toxicology – Justice K Kannan -25th edition – 1st edition – 2016
- 1.Ethics and Public Health – Archana Rani Sahoo &Patitapaban Das -2017

- 2.Public Health,Ethics and Equity-Sudhir Anand, Fabienne Peter and Amartya Sen – 2006

ENVIRONMENTAL SCIENCE & HEALTH

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	ENVIRONMENTAL SCIENCE & HEALTH	2	2	-	-	20	80	100

Course Outcomes:

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describes the components of Environment, basic concepts of Ecosystem & interaction of man & environment.	Receive
Discuss the Global environment problems, biodiversity loss, deforestation & desertification.	Respond
Demonstrate the environmental pollution with impact & control strategies of pollution in urban, rural & industrial areas.	Value
Define the environmental management, concept of health sanitation, environmental disease.	Organize
Revise the Environmental Protection Act, Environmental laws, National movements, environmental ethics.	Characterize
Follow the IUCN – role in environmental protection, aims & objectives of human right policies.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	
	<ol style="list-style-type: none"> 1. Current environmental issues and highlights the importance of adopting an interdisciplinary approach. 2. Sample an ecosystem to determine population density and distribution. 3. Create food webs and analyse possible disruption of feeding relationship

W. Abue

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UNIT-I

Components of Environment – Hydrosphere, lithosphere, atmosphere and biosphere – definitions with examples; Interaction of man and environment;

Ecosystem: Basic concepts, components of ecosystem, Tropic levels, food chains and food webs, Ecological pyramids, ecosystem functions, Energy flow in ecological systems, Characteristics of terrestrial fresh water and marine ecosystems.

UNIT-II

National Health Programme-Background objectives, action plan, targets, operations, achievements and constraints in various National Health Programme.

UNIT-III

Introduction to AYUSH system of medicine-Introduction to Ayurveda; Yoga and Naturopathy; Unani; Siddha; Homeopathy; Need for integration of various system of medicine.

UNIT-IV

Environmental Management – Concept of health and sanitation, environmental diseases – infectious (water and air borne) and pollution related, spread and control of these diseases, health hazards due to pesticide and metal pollution, waste treatment, solid waste management, environmental standards and quality monitoring.

UNIT-V

Environmental Protection Act – Environmental Laws, national movements, environmental ethics – holistic approach of environmental protection and conservation, IUCN – role in environmental protection. Concept with reference to UN – declaration, aim and objectives of human right policies with reference to India, recent north-south debate on the priorities of implementation, Environmental Protection Agency Bioremediation – Oil spills, Wastewater treatment, chemical degradation, heavy Metals.

Reference books:

- 1.National Health Programmes & Policies 2020-2021 – Samta Soni- 2nd edition.
- 2.Practical & Viva Community Medicine – J Kishore, Sneha Kumari- 5th edition. -2021
- 3.Textbook of Environmental Science – Dr Aruna Kumari Nakkella – 2022
- 4.Environmental Studies – Purnima Das - 2023



SEMESTER –II

GENERAL MICROBIOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	General Microbiology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describes the Classification of microorganism, size, shape and structure of bacteria & Use of microscope in the study of bacteria.	Remember
Explain the classification & different methods with advantages and disadvantages of the various methods infection control measures.	Understand
Determine the immunology & perform serological tests or microbiological laboratory procedures.	Apply
Analyse the etiological agents of global infectious diseases, causative agents, transmission methods, investigation, prevention & control.	Analyse
Assess the clinical relevance of bacteriology, parasitology mycology & virology.	Evaluate
Formulate the causative agents & guidelines to stop the spread of infection in healthcare system.	Create

Taxonomy: Remember, Understand, Apply, Analyse, Evaluate, Create

Learning Outcome	Upon completion, students should be able to demonstrate:
	<ol style="list-style-type: none"> 1. Knowledge of microorganisms and the disease process as well as aseptic and sterile techniques. 2. Perform microbiological laboratory procedures according to appropriate safety standards

UNIT-I

Microorganisms

- (a) Classification-Prokaryotes, Eukaryotes, Viruses, Fungi
- (b) Morphology-size, shape, arrangement
- (c) Special characteristics–spores, capsules, enzymes, mortality, reproduction
- (d) Gram staining, ZN staining
- (e) Different types of microscopes.

UNIT-II

Sterilization

- (a) Definition.
- (b) Different methods of sterilization including – Gaseous sterilization Plasma sterilization
- (c) Advantage and disadvantage of various methods and their controls
- (d) Sterilization of different instruments used in patients
- (e) Preparation of materials for Autoclaving: packing, loading, holding time, unloading

Disinfection

- (a) Definition
- (b) Different type of methods including High level disinfectants
- (c) Disinfection of patient care unit and rooms (O.T., Wards, ICUs & Laboratories)
- (d) Central supply department Areas and floor plan for instrument cleaning high level disinfection & sterilizing area

UNIT-III

Asepsis

- (a) Universal Precautions
 - (b) Use of aseptic precautions to prevent infection,
 - (c) Safety mechanisms including vaccination in prevention of blood borne infections
- Hospital acquired infections

UNIT-IV

Virology with special reference to hepatitis, poliomyelitis, HIV & Influenza

UNIT-V

Immunity – Non-specific

- Natural & Acquired
- Allergy and Anaphylaxis

PRACTICALS:

1. Compound microscope and its application in microbiology.
2. Demonstration of sterilization equipments: hot air oven, autoclave.
3. Demonstration of commonly used culture media, nutrient broth, nutrient agar, blood agar, chocolate agar, Mac conkey medium, L J media.
4. Grams staining.
5. Acid fast staining

Reference books:

- 1: Complete Microbiology – 7 th edition -2022
- 2: Text & Practical Microbiology – CP Baveja& V Baveja – 3rd edition - 2022
- 3: Essentials of Medical Microbiology- Apurba S Sastry & Sandhya Bhat – 3rd edition-2021
- 4: Textbook of Microbiology – 12th edition- 2022



GENERAL PATHOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	General Pathology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Number	CO Statement	Taxonomy
	Describes basis of systemic pathology & morphology of common disorders.	Remember
	Explain the general principles of hematology & histopathology techniques.	Understand
	Determine the general principle of cytopathology techniques & universal safety precaution.	Apply
	Analyse the general principles of clinical pathology techniques, autopsy & museum.	Analyse
	Assess the clinical information of accurate pathology diagnosis.	Evaluate
	Formulate the pathological laboratory procedures according needed for final pathologic report.	Create

Taxonomy: Remember, Understand, Apply, Analyse, Evaluate, Create

Learning Outcomes	<ol style="list-style-type: none"> The student should submit the appropriate tissue sections per protocol to demonstrate the lesion and other clinically-relevant information needed for the final pathologic report. To aid hematology in the reference ranges for hemoglobin, hematocrit, erythrocytes, and leukocytes in infants, children and adult.
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UNIT: I

Cell injury, cellular adaptation and cell death

- Causes of cell injury
- Reversible and Irreversible cell injury (Necrosis and its types with examples & morphology)
- Apoptosis
- Calcification
- Hyperplasia, Hypertrophy, Atrophy Metaplasia (Definition with examples).

UNIT-II

Inflammation and Repair

- Definition and type of inflammation
- Granulomatous inflammation with examples
- Chemical mediators of inflammation.
- Wound healing by 1st & 2nd intention.

UNIT-III

Fluid and Hemodynamic disturbances

- Oedema (Pathogenesis)
- Shock (Definition, Types)
- Thrombosis (Definition & Pathogenesis)
- Embolism (Definition & Pathogenesis)
- Infarction (Definition & Pathogenesis)

UNIT-IV

Neoplasia

- Definition and types of Neoplasia (Benign & Malignant neoplasms)
- Characteristics of Neoplasia.
- Pathogenesis of Neoplasia.
- Routes of spread

UNIT-V

Blood, Blood groups-ABO system, Rh system, Blood transfusion- Indication, transfusion reactions.

- Anemia- classification, morphological and Etiological, effects of anemia on body.

PRACTICALS

1. Collection of blood Samples
2. Various instruments used in Hematology
3. H b estimation.
4. Blood grouping
5. Urine complete examination

Reference Books:

- 1: Review of Pathology – Sparsh Gupta – 12th edition - 2020
- 2: Textbook of Haematology – Dr Tejinder Singh -2017
- 3: Essentials in Hematology & Clinical Pathology – 2nd edition - 2017
- 4: A textbook of Pathology–Harsh Mohan– 8th edition. -2019



GENERAL PHARMACOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	General Pharmacology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describe the mechanism of anti-anginal drugs, hypertension, arrhythmias & partial or complete heart failure.	Remember
Explain the pharmacotherapy of insomnia & importance of new generation anti-histaminic drugs over old generation antihistamines.	Understand
Determine the corticosteroids & drugs which inhibit acid formation to prevent acidity and stomach/peptic ulcer.	Apply
Analyse the anti-thrombotic agents, lipid lowering agents & anti-atherosclerotic agents.	Analyse
Assess the antibacterial drugs & Narcotics with indications & contraindication in day to day life	Evaluate
Formulate the types of anesthesia and mechanism of action of local & general anesthetic drugs.	Create

Taxonomy: Remember, Understand, Apply, Analyse, Evaluate, Create

Learning Outcomes	<ol style="list-style-type: none"> Students will be proficient in Pharmacology with proficient knowledge about the different drugs / medicines to be given in various cardiovascular diseases, dose calculation and mode of administration. Also, recent advances in pharmacology will play a key role in research aspect of the students
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 22 | Page

UNIT- I

General Pharmacology

- a) Absorption, distribution, metabolism and elimination of drugs,
- b) routes of drug administration.
- c) Adverse reactions to drugs.
- d) Factors modifying drug response

UNIT- II

Autonomic nervous system & Peripheral nervous system

- b) Sympathetic nervous system - sympathomimetics, sympatholytic
- c) Parasympathetic - Cholinergic, Anticholinergics Drugs
- d) Skeletal muscle relaxants
- e) Local anesthetics

UNIT- III

Central nervous system

- b) Drug therapy of various CNS disorders like epilepsy, depression.
- c) Non-steroidal anti-inflammatory drugs
- d) General anesthetics

AUTOCOIDS

- a) Histamine and antihistaminic

UNIT- IV

Cardiovascular system

- a) Drug therapy of hypertension, shock, angina, cardiac arrhythmias
- b) Diuretics
- c) Coagulants and anticoagulants, antiplatelet drugs
- d) Hypo-lipidemic

Gastrointestinal and respiratory system

- a) Drug treatment of peptic ulcer
- b) Drug therapy of bronchial asthma

UNIT- V

Hormones

- a) Drug therapy of Diabetes
- b) Corticosteroids
- c) Chemotherapeutic agents - b- Lactam Antibiotics, fluoroquinolones, aminoglycoside, tetracyclines, chloramphenicol

PRACTICALS

Practical based on the topics mentioned in the theory syllabus

Reference Books:

- 1: Padmaja Uday Kumar – Pharmacology for Dental & Allied Health Sciences – 4th edition, 2017.
- 2: Joginder Singh Pathania, Rupendra Kumar Bharti, Vikas Sood-Textbook of Pharmacology for Paramedical Students 2019
- 3: KD Tripathi- Essentials of Pharmacology – 8th edition, 2018.
- 4: HL Sharma & KK Sharma – Principles of Pharmacology – 3rd edition, 2017.

Introduction to Healthcare Delivery System in India

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Core	Introduction to Healthcare Delivery System in India	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describes & Orient the students towards the Hospital Personnel Management and Legal Aspects in Hospitals	Receive
Discuss the parameters of Hospital Operations Management	Respond
Demonstrate the Recent Trends in Healthcare Systems	Value
Define the Do's and Don'ts for Occupational Health	Organize
Revise the Role of Planning and Organization of Utility Services in hospital	Characterize
Follow the skills for Inventory and Stores Administration Fundamentals of Financial Management	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Course Objective	1. To familiarize with the healthcare environment → To understand the concepts of management with relevance to hospitals
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UNIT I

Introduction – Theoretical frame work - Environment - Internal and External – Environmental Scanning – Economic Environment – Competitive Environment – Natural Environment – Politico Legal Environment – Socio Cultural Environment - International and Technological Environment.

UNIT II

A Conceptual Approach to Understanding the Health Care Systems – Evolution – Institutional Setting - Out Patient services – Medical Services – Surgical Services – Operating department – Pediatric services – Dental services – Psychiatric services – Casualty & Emergency services – Hospital Laboratory services – Anesthesia services – Obstetrics and Gynecology services – Neuro – Surgery service – Neurology services.

UNIT III

Overview of Health Care Sector in India – Primary care – Secondary care – Tertiary care – Rural Medical care – urban medical care – curative care – Preventive care – General & special Hospitals-Understanding the Hospital Management – Role of Medical, Nursing Staff, Paramedical and Supporting Staff - Health Policy - Population Policy - Drug Policy – Medical Education Policy

UNIT IV

Health Care Regulation – WHO, International Health regulations, IMA, MCI, State Medical Council Bodies, Health universities and Teaching Hospitals and other Health care Delivery Systems

UNIT V

Epidemiology – Aims – Principles – Descriptive, Analytical and Experimental Epidemiology - Methods - Use

Reference books:

- Seth,M.L. MACROECONOMICS, Lakshminarayana Agrawal, Edu, Pub.Agra.1996
- Peter,Z& Fredrick, B. HEALTH ECONOMICS, Oxford Pub., New York, 1997
- Shanmugansundaram, Y., HEALTH ECONOMICS, Oxford Pub. New York, 1997



MEDICAL TERMINOLOGY AND RECORD KEEPING

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	MEDICAL TERMINOLOGY AND RECORD KEEPING	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describes the basic importance of medical terms into their component parts.	Receive
Analyze and spell words correctly.	Respond
Identify combining forms, prefixes, suffixes and terminology associated with each of the body systems.	Value
Understand the importance and types of medical records along with its management	Organize
Revise to compose records in hospitals	Characterize
Follow the values and skills required in medical audit	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ol style="list-style-type: none"> 1. Ensuring successful learning of basic and advance medical terminology 2. Student will able to read, write, spell and understand the medical terminology 3. Understand the types, importance and role of medical records and its management techniques.
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UNIT-I

Commonly Used Prefixes, Suffixes and root words in Medical Terminology, Common Latin Terms used in Prescription Writing, Study of Standard Abbreviations.

UNIT-II

Medical Records Management: Meaning, functions, principles of record keeping, Importance of medical records to patients, doctors, and hospitals, classification of records like coding system, indexing system, types of forms basic and special, legal aspects of medical records.

UNIT-III

International Classification of Diseases (ICD), Electronic Medical Record (EMR), Records Management: Registers, forms, retention and preservation of MR, Role of MRD personnel.

UNIT-IV

Medical Registers: Meaning, types, advantages of Medical Registers, registers used in various departments, Statutory registers and reports to be maintained- specimens.

UNIT-V

Medical Audit: its process, role and importance in hospitals.

Reference Books:

- Davies, Juanita. Essentials of Medical Terminology. 3rd edition. New York. Delmar. 2008.
- Mogli. J.D. Medical Records: Organization & Management 2nd edition New Delhi: Jaypee Brothers.



SEMESTER –III

Medicine

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Medicine	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire foundational knowledge and concepts in medicine through comprehensive learning resources and instruction.	Receive
Apply critical thinking and clinical reasoning skills to diagnose and manage medical conditions effectively.	Respond
Recognize the importance of patient-centered care, empathy, and ethical practices in the field of medicine.	Value
Effectively organize and manage patient information, medical records, and treatment plans for optimal care coordination.	Organize
Differentiate and characterize various medical conditions, diseases, and treatment options based on clinical manifestations and evidence-based guidelines.	Characterize
Evaluate the effectiveness of medical interventions and treatment outcomes, making evidence-based decisions for patient care.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ul style="list-style-type: none">• Demonstrate proficiency in diagnosing and managing medical conditions through comprehensive medical knowledge and skills.• Apply critical thinking and evidence-based practices to make informed decisions in medical assessment and treatment.• Continuously update and expand medical knowledge, embracing lifelong learning and professional development in the field of medicine.
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UNIT-I

1. Common symptoms of diseases –

- a. Pain: pathophysiology, clinical types, assessment and management
- b. Fever: clinical assessment and management
- c. Cough, chest pain, dyspnoea, hemoptysis
- d. Edema, anasarca, ascites
- e. Pallor, jaundice
- f. Bleeding
- g. Anorexia, nausea and vomiting
- h. Constipation and diarrhea
- i. Hematemesis, melena and hematochezia
- j. Common urinary symptoms- dysuria, pyuria, anuria, oliguria, polyuria, nocturia, enuresis
- k. Body pains and joint pains
- l. Headache, seizures, fainting, syncope, dizziness, vertigo
- m. Disturbances of consciousness and coma
- n. Weight loss and weight gain

UNIT-II

2. Immune Response and Infections-

- a. Approach to infectious diseases – diagnostic and therapeutic principles
- b. Immune defense mechanisms
- c. Laboratory diagnosis of infections
- d. Principles of immunization and vaccine use
- e. Immunodeficiency disorders - acquired
- f. Immunodeficiency disorders – congenital

UNIT-III

3. Systems-

- a. Cardiovascular system- Clinical examination of the cardiovascular system, major manifestations of cardiovascular disease
- b. Respiratory system - Clinical examination of the respiratory system, major manifestations of respiratory disease
- c. Renal and genito-urinary system- Major manifestations of renal and urinary tract disease
- d. Liver and biliary tract disease - Viral hepatitis, alcoholism.
- e. Endocrinology and metabolism - Diabetes mellitus, Hyper - and hypothyroidism.
- f. Disorders of the Immune System, Connective Tissue and Joints
- g. Disorder of haemopoiesis - Anemia - iron deficiencies anemia.



Principles of anesthesia

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Principles of anesthesia	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire foundational knowledge and principles of anesthesia through comprehensive instruction and learning resources.	Receive
Apply critical thinking and clinical judgment to select and administer appropriate anesthesia techniques for diverse patient populations.	Respond
Recognize the importance of patient safety, pain management, and individualized care in anesthesia practice.	Value
Efficiently organize and manage anesthesia equipment, medications, and patient monitoring to ensure safe and effective anesthesia delivery.	Organize
Differentiate and characterize various types of anesthesia and their indications, risks, and benefits.	Characterize
Evaluate anesthesia outcomes and make evidence-based decisions for continuous improvement in anesthesia practice and patient care.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ul style="list-style-type: none"> • Demonstrate proficiency in applying the principles of anesthesia to ensure safe and effective patient care. • Apply critical thinking skills to assess patient needs, select appropriate anesthesia techniques, and monitor patients during procedures. • Continuously update knowledge and skills in anesthesia principles, embracing advancements and best practices in the field.
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UNIT-I

Principles of anesthesia:

1. Medical gas supply
 - a. Compressed gas cylinders
 - b. Color coding
 - c. Cylinder valves; pin index.
 - d. Gas piping system
 - e. Recommendations for piping system
 - f. Alarms & safety devices.
 - g. Scavenging of waste anesthetic gases

UNIT-II

2. Anesthesia machine

- a. Hanger and yoke system
- b. Cylinder pressure gauge
- c. Pressure regulator
- d. Flow meter assembly
- e. Vaporizers - types, hazards, maintenance, filling and draining, etc.

UNIT-III

3. Breathing system

- a. General considerations: humidity & heat
- b. Common components - connectors, adaptors, reservoir bags.
- c. Capnography
- d. Pulse oximetry
- e. Methods of humidification.
- f. Classification of breathing system
- g. Mapleson system - a b c d e f
- h. Jackson Rees system, Bain circuit
- i. Non-rebreathing valves - Ambu valves
- j. The circle system

UNIT-IV

4. Face masks & Airway laryngoscopes

- a. Types, sizes
- b. Endotracheal tubes - Types, sizes.
- c. Cuff system

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- d. Fixing, removing and inflating cuff, checking tube position, complications.

UNIT-V

5. Anesthesia ventilator and working principles.

6. Monitoring



- a. Electrocardiography (ECG)
- b. Pulse oximetry (SpO₂)
- c. Temperature- central and peripheral
- d. End tidal carbon dioxide (EtCO₂)
- e. Anesthesia gas monitoring
- f. Non-invasive blood pressure (NIBP) and Invasive blood pressure (IBP)
- g. Central venous pressure (CVP)
- h. PA Pressure, LA Pressure & cardiac output
- i. Anesthesia depth monitor
- j. Neuromuscular transmission monitor



Basic techniques of anesthesia

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Basic techniques of anesthesia	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire foundational knowledge and understanding of basic anesthesia techniques through comprehensive instruction and resources.	Receive
Apply critical thinking and clinical judgment to administer appropriate anesthesia modalities and manage patient responses.	Respond
Recognize the importance of patient safety, comfort, and individualized care in the practice of basic anesthesia techniques.	Value
Efficiently organize and manage anesthesia equipment, medications, and patient monitoring for safe and effective anesthesia delivery.	Organize
Differentiate and characterize various basic anesthesia techniques based on their indications, advantages, and limitations.	Characterize
Evaluate anesthesia outcomes and make evidence-based decisions to enhance proficiency in basic anesthesia techniques and patient care.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 1. Demonstrate proficiency in applying basic anesthesia techniques for patient management during surgical procedures. 2. Apply critical thinking and clinical judgment to select and administer appropriate anesthesia modalities and medications. 3. Continuously update knowledge and skills in basic anesthesia techniques, incorporating advancements and evidence-based practices.
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UNIT-I

1. Resuscitation techniques:

- a. Basic life support (Airway, breathing, circulation) and the equipment used for it.
- b. Drugs used in CPR.
- c. AED and Defibrillators.

UNIT-II

2. Anesthesia drugs and techniques:

- a. Principles of anesthesia.
- b. Basics of general anesthesia depth, mechanism and intubation.
- c. Techniques of general anesthesia.
- d. Various intravenous and inhalational agents.
- e. Regional anesthesia, spinal and epidural, posture and drugs.
- f. Local Anaesthetic agents.
- g. Neuro muscular blocking agents.
- h. Principles of oxygen administration along with the apparatus.
- i. Care of patient in the recovery room.
- j. Post-operative pain: evaluation and management.
- k. Types of fluid and therapy.
- l. Blood and blood components transfusion.
- m. Preparation of anesthesia machine, intubation kit, suction machine, anesthesia drugs.
- n. Patient identification, marking, shifting to OT before surgery and out of OT to recovery room after surgery, complete takeover and handover of the patient with vital signs recording before and after surgical procedure to the nursing staff.



Basics of Surgical procedures

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Basics of Surgical procedures	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire foundational knowledge and understanding of basic surgical procedures through comprehensive instruction and resources.	Receive
Apply critical thinking and technical skills to perform basic surgical procedures effectively and safely.	Respond
Recognize the importance of sterile technique, patient safety, and ethical considerations in surgical practice.	Value
Efficiently organize and manage surgical equipment, instruments, and supplies for optimal surgical workflow.	Organize
Differentiate and characterize various basic surgical procedures based on their indications, steps, and potential complications.	Characterize
Evaluate surgical outcomes, identify areas for improvement, and implement evidence-based practices to enhance surgical proficiency.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 1. Demonstrate proficiency in performing basic surgical procedures, following established protocols and safety measures. 2. Apply critical thinking and problem-solving skills to assess and respond to surgical challenges during procedures.
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UNIT-I

1. Blood Transfusion

- a. History of discovery of blood groups and genetics of blood groups.
- b. Types of blood groups and Rh factor.
- c. Coombs test.
- d. Collection of blood, its preservation and standardization.
- e. Various types of blood and blood products (Packed cells, PRP, FFP)
- f. Pre-transfusion checks.
- g. Transfusion reactions.
- h. Fluids and electrolytes
- i. Body fluid compartments and the effect of fluid administration on them.
- j. Types of fluids (crystalloids and colloids) and their chemical composition.
- k. Indications of specific fluids and their complications.

UNIT-II

2. General surgical procedure and para-surgical equipment

- a. Operating tables: structure, material used, maintenance, control, Hydraulic system and Electrical system.
- b. Different types of diathermy machine. Monopole, Bipolar, Ligasure, Harmonic Scalpel, CUSA- Principle, hazards, prevention, functioning and maintenance.
- c. Types of operation lights and light sources: Features, Care, cleaning, sterilization and maintenance.
- d. Operation Theatre sterilization- Different recent advances.
- e. LAR/APR--Positioning of patient, care-Prevention of hazards.
- f. Total thyroidectomy—with emphasis on proper positioning.
- g. Transthoracic esophagectomy—Different approaches.
- h. Venesection and Tracheostomy.
- i. Laproscopic Cholecystectomy – Pneumoperitonium - Creation and removing, principles.
- j. Nephrectomy.
- k. Breast surgery.
- l. Positioning of patient for different operations: Problems and hazards.
- m. Hypothermia and hyperthermia.



GENERAL PRINCIPLES AND PRACTICES OF PUBLIC HEALTH/ FORENSIC PSYCHOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	General Principles and Practices of Public Health/ Forensic Psychology	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
To provide students an insight into core concepts, theories and accounting practices which are adapted and practice on day to day basis in the organization.	Receive
It also helps to develop analytical and problem-solving skills which are required by administrators.	Respond
To learn Patient's record keeping preoperatively, during anesthesia and post-operatively.	Value
To learn Principles and techniques of temperature monitoring.	Organize
Positioning during surgical procedures	Characterize
Able to manage Indenting, Record keeping and inventory maintenance	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 3. To acquire understanding of the functions of management and administration of the healthcare business. 4. To understand healthcare delivery systems. 5. To acquire and practice leadership and managerial skills that will positively affect performance as a healthcare manager 6. Learn the basic nursing skills of various surgical procedures including the surgical instruments used in the surgical procedures 7. Assist in various invasive and non-invasive procedures
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UNIT-I

Introduction to Patient Care:

a) Principles of patient care b) Types of patients (gender, age, diseases, severity of illness, triage)

Communication:

Communication with doctors, colleagues and other staffs. b) Non-verbal communication, Inter-personnel relationships.c) patient contact techniques, communication with patients and their relatives

Documentation:

a.Importance of documentation,b.initial and follow up notes;c.documentation of therapy, procedures and communication.

UNIT-II

Universal Precautions and Infection Control:

- Hand washing and hygiene. b) Injuries and Personal protection, Insulation and safety procedures. c)Aseptic techniques, sterilization and disinfection. d)Disinfection and Sterilization of devices and equipment e) Central sterilization and supply department f) Biomedical Medical waste management.

UNIT-III

Medication Administration:

- a) Oral / Parenteral route
- b) Parenteral medication administration: Intra venous, intra muscular, sub-cutaneous,intra dermal routes, Intra venous Infusion
- c) Aerosol medication administration, Oxygen therapy
- d) Intravenous fluids,e)Blood and blood component transfusion Position and Transport of patient:
 - a) Patient position, prone, lateral, dorsal, dorsal recumbent, Fowler's positions, comfort measures, bed making, rest and sleep.
 - b) Lifting and transporting patients: lifting patients up in the bed, transferring from bed to wheel chair, transferring from bed to stretcher.
 - c) Transport of ill patients (inotropes, intubated /ventilated patients)

UNIT-IV

Bedside care:

a) Methods of giving nourishment: feeding, tube feeding, drips, transfusion.b)Recording of pulse, blood pressure, respiration, saturation and temperature.c)Bedside management: giving and taking bed pan, urine container.d)Observation of stools, urine, sputum, drainse)Use and care of catheters and rubber goods.f)Care of immobile/bed ridden patients, bed sore and aspiration prevention

Monitoring of Patient:

a) Pulse, ECG (Cardiac Monitor), Oxygen Saturation, Blood Pressure,Respirationb)Multi parameter monitors, Capnography and End Tidal CO₂ (ETCO₂)c)Hydration, intake and output monitoringd)Monitoring ventilator parameters: Respiratory Rate, Volumes, Pressures,Compliance, Resistance

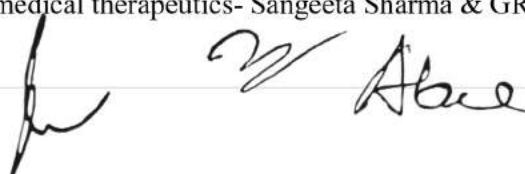
UNIT-V

Dressing and wound care:

a) Bandaging: basic turns, bandaging extremities, triangular bandages and their application.b)Surgical dressing: observation of dressing procedures.c)Suture materials and suturing techniquesd)Splintinge)Basic care of patient with burns.

Reference books:

- 1.Hospital and patient care management – Dr.Vidhya Srinivasan &Dr.Akshay Ch.Deka-2022
- 2.Principles of hospital practice and patient care – P Srinivasulu Reddy – 1st edition -2019
- 3.Principles & Practice of Critical Care – P.K Verma – 3rd edition- 2019.
- 4.Standard treatment guidelines – a manual of medical therapeutics- Sangeeta Sharma & GR Sethi – 6th edition – 2021.



38 | Page

FORENSIC PSYCHOLOGY

UNIT-I

1. The Psychology of Criminal Conduct
2. Offender Profiling

UNIT-II

3. Eyewitness Testimony and Identification
4. Investigative Interviewing of Children

UNIT-III

5. Investigative Interviewing of Suspects
6. The Psychology of Lying and the Detection of Deception

UNIT-IV

7. The Psychology of False Confessions
8. Famous Miscarriages of Justice

UNIT-V

9. Jury and Decision-Making
10. Juvenile Delinquency and Underage Crimes
11. The Psychologist as Expert Witness: Practical and Ethical Issues

Reference books:

- 1.The Forensic Psychology of Criminal Minds- Katherine Ramsland – 1st edition -2010
- 2.Forensic Psychology Workbook- Connor Whiteley – 2018
- 3.Forensic Psychology- Avery short introduction-David Canter – 2010.
- 4.Forensic Psychology-Dr Lakshmaeshwar Thakur-2019.



COMPUTER/BASIC EMERGENCY MANAGEMENT

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Computer/BASIC EMERGENCY MANAGEMENT	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Aim at imparting a basic level appreciation programme for the common man. Able to use the computer for basic purposes of preparing his personnel/business letters, viewing information on Internet (the web), sending mails, using internet banking services etc.	Receive
Make digitally literate.	Respond
Understand to aid the PC penetration program.	Value
Helps the small business communities, housewives to maintain their small account using the computers and enjoy in the world of Information Technology.	Organize
Characterize Cultural and Global Awareness.	Characterize
Receive knowledge of Professional Practice.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	On completion of this course, the students will be able to do the following: 1. Systems Thinking. 2. Problem-Solving. 3. Communication. 4. Teamwork. 5. Context Awareness.
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 40 | Page

UNIT-I

Introduction and Definition of Computer: Computer Generation, Characteristics of Computer, Advantages and Limitations of a computer, Classification of computers, Functional components of a computer system (Input, CPU, Storage and Output Unit), Types of memory (Primary and Secondary) Memory Hierarchy. Hardware: a) Input Devices- Keyboard, Mouse, Scanner, Bar Code Reader b) Output Devices – Visual Display Unit (VDU), Printers, Plotters etc. Software: Introduction, types of software with examples, Introduction to languages, Compiler, Interpreter and Assembler. Number System: Decimal, Octal, Binary and Hexadecimal Conversions, BCD, ASCII and EBCDIC Codes.

UNIT-II

MS – DOS: Getting Started on DOS with Booting the System, Internal Commands: CHDIR(CD), CLS, COPY, DATE, DEL(ERASE), DIR, CHARACTER, EXIT, MKDIR(MD), REM, RENAME(REN), RMDIR(RD), TIME, TYPE, VER, VOL, External Commands: ATTRIB, CHKDSK, COMMAND, DOSKEY, EDIT, FORMAT, HELP, LABEL, MORE, REPLACE, RESTORE, SORT, TREE, UNDELETE, UNFORMAT, XCOPY. **Introduction of Internet:** History of internet, Web Browsers, Searching and Surfing, Creating an E-Mail account, sending and receiving E-Mails.

UNIT-III

MS Word: Starting MS WORD, Creating and formatting a document, changing fonts and point size, Table Creation and operations, Autocorrect, Auto text, spell Check, Word Art, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge.

UNIT-IV

MS Excel: Starting Excel, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping, Sorting data, Auto Sum, Use of functions, Cell Referencing form, Generating graphs, Worksheet data and charts with WORD, Creating Hyperlink to a WORD document, Page set up, Print Preview, Printing Worksheets. **MS Power Point:** Starting MS–Power Point, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show, preparing notepages, preparing audience handouts, printing presentation documents. **MS – Access:** creating table and database.

UNIT-V

MS-POWERPOINT: Starting MS–Power Point, creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show, preparing note pages, preparing audience handouts, printing presentation documents.



BASIC EMERGENCY MANAGEMENT

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Emergency plan during crisis & knowledge of emergency equipments.	Receive
	Emergency plan specifies procedures for handling sudden or unexpected situations.	Respond
	Recognize common,urgent and emergent problems	Value
	Organize planning of special resuscitative procedures.	Organize
	Characterize medical & surgical emergencies.	Characterize
	Receive knowledge of emergency drugs or medicines.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	On completion of this course, the students will be able to do the following: 1. Emergency planning 2. Prevent fatalities & injuries 3. Complex medical and surgical emergencies management.
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UNIT-I

Emergency Equipment

1. Laryngoscopes
2. Endo-tracheal tubes (ETT), boogie
3. Ambo bag and mask
4. Airway adjuncts, supra-glottic airway devices including Laryngeal mask airway (LMA)
5. Types of oxygen masks, venturi etc.
6. Oropharyngeal and nasopharyngeal airways (OPA and NPA)
7. ICD tubes, bags, jars, instrument tray
8. Suction apparatus
9. Pulse oximeter
10. EtCO₂ monitor
11. Oxygen pipe-line and medical gas cylinders, pipelines and manifold
12. Ambulance (Cervical) Collar, Philadelphia Collar

UNIT-II

Introductions to Emergency Services

Principles of resuscitation

1. Sudden cardiac death
2. Cardiac, respiratory arrest
3. Basic cardiopulmonary resuscitation in adults, neonates, pediatrics& pregnancy.
4. Advanced cardiac life support

UNIT -III

Specific resuscitative procedures

1. Airway management
2. Breathing and ventilation management
3. Venous and intraosseous access

4. Defibrillation and cardioversion
5. Fluid and blood resuscitation
6. Vasoactive agents in resuscitation
7. Arrhythmias

UNIT-IV

1. Medical emergencies
2. Fluids and electrolytes
3. Respiratory Emergencies
4. Gastrointestinal Emergencies
5. Cardiovascular Emergencies
6. Central Nervous System Emergencies
7. Genito urinary emergencies
8. Hematological Disorders
9. Endocrine and Metabolic Emergencies

UNIT-V

Emergency Drugs - Drug introduction, indication, contra-indications, side – effects and routes of administration with doses of following drugs:

Toxicology

Emergencies due to venomous bites and stings:

Industrial Hazards

Obstetrical emergencies

Mental Health Emergencies

Pediatric emergencies

Reference books:

1. Medical Emergencies in general practice-S.P. Gupta & O.K. Gupta-2011
2. Manual of Emergency Medicine-Lippincott & Williams & Wilkins-6th edition-2011
3. Handbook of casualty and Emergency –Rajiv-2nd edition-2019.
4. Emergency medicines-SN Chough& Ashima Chugh-5th edition-2019



SEMESTER- IV

CSSD procedures

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	CSSD procedures	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Demonstrate the ability to receive and document medical instruments and equipment accurately.	Receive
Implement appropriate decontamination and sterilization processes in response to infection control standards.	Respond
Recognize the importance of maintaining a sterile environment and adhere to aseptic techniques during CSSD procedures.	Value
Effectively organize and manage CSSD equipment, ensuring proper storage, labeling, and inventory control.	Organize
Apply knowledge of different types of medical instruments and equipment, and characterize them based on their appropriate handling and processing methods.	Characterize
Evaluate the effectiveness of CSSD procedures and identify areas for improvement to enhance patient safety and infection control.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	On completion of this course, the students will be able to do the following: <ul style="list-style-type: none">• Demonstrate proficiency in decontamination and sterilization techniques to ensure patient safety.• Apply aseptic principles to maintain a sterile environment during CSSD procedures.• Organize and manage CSSD equipment effectively, promoting efficiency and inventory control.• Evaluate and improve CSSD procedures to enhance infection control and quality assurance.
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UNIT-I

1. Principles of sterilization and disinfection.
2. Methods of sterilization
3. Dry Sterilization.
4. Wet sterilization.
5. Gaseous sterilization.
6. Chemical sterilization.

UNIT-II

7. Sterilization by radiation (Gamma rays, ultraviolet rays)
8. Techniques of sterilization of rubber articles. (LMA, FOB, ETT, Laryngoscopes, Anesthesia machines and circuits.)

UNIT-III

9. Technique of sterilization of carbonized articles.

UNIT-IV

10. Methods of disinfection.
11. Boiling.
12. Chemical disinfection.

UNIT-V

13. Hazards of sterilization.
14. Prevention of hazards of sterilization.
15. Precautions to be taken during sterilization.
16. Recent advances in the methods of sterilization.



Advance anesthetic techniques

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Advance anesthetic techniques	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Demonstrate the ability to receive and assess patient information, history, and medical records for advanced anesthetic procedures.	Receive
Implement advanced anesthetic techniques and interventions based on patient needs and surgical requirements.	Respond
Recognize the importance of patient safety, pain management, and individualized care when administering advanced anesthesia.	Value
Effectively organize and prepare equipment, medications, and monitoring devices for advanced anesthetic procedures.	Organize
Differentiate and apply various advanced anesthetic techniques based on patient characteristics, surgical procedures, and clinical indications.	Characterize
Evaluate the effectiveness of advanced anesthetic techniques and adjust as necessary to ensure optimal patient outcomes.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none"> • Demonstrate proficiency in administering advanced anesthetic techniques for diverse surgical procedures. • Apply comprehensive knowledge of advanced pharmacology and anesthesia principles to ensure patient safety and comfort. • Utilize advanced monitoring and assessment techniques to accurately monitor patient responses during anesthesia administration. • Adapt anesthetic techniques based on individual patient characteristics, surgical requirements, and potential complications. • Continuously update skills and knowledge in advanced anesthetic techniques through ongoing professional development and research.
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UNIT-I

1. Heart as a pump.
2. Cardiac cycle.
3. Cardiac contractility and stroke volume.
4. Cardiac output and its measurement.
5. Various ECG Leads, their placement and Normal ECG.

UNIT-II

6. Cardiac Arrhythmias (atrial fibrillation, ventricular tachycardia, extra systoles)
7. Circulatory shock and its physiology.
8. Cardiac failure.
9. Physics of blood flow and pressure.
10. Measurement of blood flow.

UNIT-III

11. Electromagnetic flow meter, ultrasonic flow meter, plethysmography.
12. Regulation of arterial pressure and hypertension (Drugs used for treatment of hypertension)
13. Arterial circulation including cardiopulmonary bypass.

UNIT-IV

14. Artificial ventilation and related equipment:
 - a. Physiology of IPPV (Intermittent positive pressure ventilation)
 - b. Principles of mechanical ventilation.
 - c. Various modes of IPPV.
 - d. Automatic pressure and time cycled ventilators.
 - e. Operating room ventilators.
 - f. Other types of ventilators (HFJV, NIV)
 - g. Complications in patients on ventilators.
 - h. General care of a patient on ventilator.
 - i. Disinfection and sterilization of ventilators.
 - j. Humidification
 - k. Principles of oxygen administration and methods used to deliver oxygen.
 - l. Acid base balance.
 - m. Electrolyte imbalance and its relevance to anesthesia.



Basic Intensive care

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Basic Intensive care	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Demonstrate the ability to receive and assess critically ill patients in need of basic intensive care.	Receive
Implement appropriate interventions and treatments promptly to address the needs of patients in critical condition.	Respond
Recognize the importance of providing compassionate and patient-centered care in the intensive care setting.	Value
Effectively organize and manage resources, equipment, and medications required for basic intensive care.	Organize
Differentiate and characterize common conditions and procedures encountered in basic intensive care settings.	Characterize
Evaluate the effectiveness of basic intensive care interventions and adjust care plans based on patient responses.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none"> • Demonstrate competence in providing essential care and monitoring to critically ill patients in an intensive care setting. • Apply foundational knowledge and skills to assess, prioritize, and intervene in common critical care situations. • Value the significance of effective communication, teamwork, and interdisciplinary collaboration in delivering comprehensive care. • Utilize appropriate equipment and technology to support patient monitoring and management in the intensive care unit. • Continuously update knowledge and skills in basic intensive care techniques through ongoing professional development and evidence-based practices.
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UNIT-I

1. Care and maintenance of ventilators, suction machine, monitoring devices.
2. Sterilization and disinfection of ventilators.

UNIT-II

3. Care, maintenance and operational capabilities of beds, lights and other apparatus.
4. Air conditioning and control of pollution in ICU.
5. Attachment and intraoperative utility of ventilators and monitoring devices.
6. Care of unconscious adult and pediatric patients.
7. Physiotherapy techniques, feeding, Ryle's tube insertion and hyperalimentation.
8. Suctioning and posturing of semiconscious and unconscious patients.
9. Oxygen therapy, maintenance of clear Airway.

UNIT-III

10. Ventilation of patient in crisis:
11. Mouth to mouth.
12. Mouth to ET Tube.
13. Resuscitator/ bag valve mask assembly
14. Different types of Airways.
15. Short term ventilation/ Transport ventilators.

UNIT-IV

16. ICU Laboratory; Detection of blood gases of the patient, Principles of ABG machines.
17. Management of asepsis.
18. Management of tetanus patient.
19. Psychological aspects of the patient, relative and staff.
20. Hemofiltration and hemodialysis.

UNIT-V

21. Ventilators: Principles of working of different ventilators:
 - a. Volume cycled/Time cycled/Pressure cycled ventilators.
 - b. High frequency ventilators and other types.
 - c. Methods of measuring the expired gases from the patient; Types of spirometers, Principles of working of spirometers. Clinical application of above apparatus.
 - d. Apparatus and techniques of measuring of blood pressure and temperature; Principle and working of direct/indirect blood pressure monitoring apparatus; structure, principle and working of the oscillotonometer. Principles and working of aneroid manometer type B.P. instrument.
 - e. Laryngeal sprays; Types, material, principle and mechanism.
 - f. Monitoring techniques and equipment; Cardiac monitors, Respiratory monitors, Spirometers, Temperature monitors.

Professionalism and values/Principles of Management

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Professionalism and values; Principles of Management	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand the importance of professional values and ethics in healthcare and apply them in practice.	Receive
Demonstrate effective communication, problem-solving, and decision-making skills in a professional healthcare environment.	Respond
Recognize and appreciate the significance of diversity, cultural sensitivity, and patient-centered care in healthcare settings.	Value
Apply principles of management to effectively plan, organize, and allocate resources in healthcare organizations.	Organize
Identify and characterize various leadership styles and management approaches in healthcare settings.	Characterize
Evaluate personal and professional growth, and continuously improve leadership skills and management practices in healthcare.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none"> • Demonstrate professional behavior, ethics, and values in healthcare practice, promoting patient-centered care and collaboration. • Apply effective communication and interpersonal skills to engage with patients, colleagues, and healthcare teams. • Understand and apply principles of management to optimize resource allocation, decision-making, and organizational efficiency in healthcare settings. • Evaluate personal growth and development in professionalism and management skills, fostering continuous improvement and leadership capabilities.
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Professionalism and values

UNIT-I

1. Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality
2. Personal values- ethical or moral values
3. Attitude and behavior- professional behavior, treating people equally

UNIT-II

4. Code of conduct, professional accountability and responsibility, misconduct

UNIT-III

5. Differences between professions and importance of team efforts

UNIT-IV

6. Cultural issues in the healthcare environment

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Principals of Management

UNIT-I

1. Introduction to management
2. Strategic Management

UNIT-II

3. Foundations of Planning
4. Planning Tools and Techniques

UNIT-III

5. Decision Making, conflict and stress management
6. Managing Change and Innovation

UNIT-IV

7. Understanding Groups and Teams
8. Leadership

UNIT-V

9. Time Management
10. Cost and efficiency

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Communication skill for Health care professional/ introduction to national healthcare system

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Communication skill for Health care professional/ introduction to national healthcare system	3	3	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Explain and describe effective and non-effective communication techniques	Receive
Differentiate between verbal and non-verbal communication.	Respond
Identify behaviors that interfere with effective communication	Value
Understand interview techniques and demonstrate or explain appropriate patient education practices	Organize
Characterize relationships among various health care professionals and patients of various educational levels.	Characterize
Follow elements of active listening and benefits of professional communication	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	1. The purpose of this course is to prepare students with basic interpersonal and communication skills needed by the Medical Assistants in the medical office or clinic setting
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UNIT-I

Identify practices for effective verbal communication with patients and other healthcare providers.
Develop skills for listening and paraphrasing. Demonstrate methods of questioning the patient

UNIT-II

Explain how low health literacy may impact a patient's health. Describe strategies that will facilitate communication between a healthcare professional and a patient who is visually impaired, hearing impaired, or speaks a different language

UNIT-III

Identify the benefits of patient education. Distinguish the three types of learning styles. Describe the benefits of using visual aids and written materials

UNIT-IV

Explain how telecommunication, fax, and email differ from face-to-face communication. Discuss the guidelines for the effective use of the telephone in the healthcare setting. List the symptoms and conditions that require immediate medical help

UNIT-V

Explain the purposes of the parts of speech and punctuation. Illustrate correct sentence grammar

Reference books:

2. Communication Skills for the Healthcare Professional, First edition
3. McCorry, L., Mason, J, Lippincott Williams & Wilkins, Copyright 2011
3. Textbook of radiological safety- GK Rath – 1st edition – 2010
4. Aids to radiological differential diagnosis- Stephen Davies- Elsevier -6th edition -2013



INTRODUCTION TO NATIONAL HEALTHCARE SYSTEM

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	INTRODUCTION TO NATIONAL HEALTHCARE SYSTEM	3	3	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Describes & Orient the students towards the Hospital Personnel Management and Legal Aspects in Hospitals	Receive
	Discuss the parameters of Hospital Operations Management	Respond
	Demonstrate the Recent Trends in Healthcare Systems	Value
	Define the Do's and Don'ts for Occupational Health	Organize
	Revise the Role of Planning and Organization of Utility Services in hospital	Characterize
	Follow the skills for Inventory and Stores Administration Fundamentals of Financial Management	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	1. To familiarize with the healthcare environment → To understand the concepts of management with relevance to hospitals
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UNIT I

Introduction – Theoretical frame work - Environment - Internal and External – Environmental Scanning – Economic Environment – Competitive Environment – Natural Environment – Politico Legal Environment – Socio Cultural Environment - International and Technological Environment.

UNIT II

A Conceptual Approach to Understanding the Health Care Systems – Evolution – Institutional Setting - Out Patient services – Medical Services – Surgical Services – Operating department – Pediatric services – Dental services – Psychiatric services – Casualty & Emergency services – Hospital Laboratory services – Anesthesia services – Obstetrics and Gynecology services – Neuro – Surgery service – Neurology services.

UNIT III

Overview of Health Care Sector in India – Primary care – Secondary care – Tertiary care – Rural Medical care – urban medical care – curative care – Preventive care – General & special Hospitals-Understanding the Hospital Management – Role of Medical, Nursing Staff, Paramedical and Supporting Staff - Health Policy - Population Policy - Drug Policy – Medical Education Policy

UNIT IV

Health Care Regulation – WHO, International Health regulations, IMA, MCI, State Medical Council Bodies, Health universities and Teaching Hospitals and other Health care Delivery Systems

UNIT V

Epidemiology – Aims – Principles – Descriptive, Analytical and Experimental Epidemiology - Methods - Use

Reference books:

- Seth,M.L. MACROECONOMICS, Lakshminarayana Agrawal, Edu, Pub. Agra. 1996
- Peter,Z& Fredrick, B. HEALTH ECONOMICS, Oxford Pub., New York, 1997
- Shanmugansundaram, Y., HEALTH ECONOMICS, Oxford Pub. New York, 1997



SKILL ENHANCEMENT COURSE

MEDICAL LAW

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Medical Law	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Introduces learners to the linkages between the fields of law and health in order to assist them in taking informed	Receive
Contextualizes the constitutional dimension to 'right to health'	Respond
Relevant for doctors	Value
Identify and value legal sources and norms in the field of medical law at both a national, and international, level	Organize
Characterize the rules of medical law in a qualified manner and to identify possible solutions to biomedical legal problems	Characterize
Receive the interplay and differences between different types of legal responsibilities and sanctions in medical law	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none">1. The students are expected after the conclusion of the course to be able to:2. Understand the interplay between ethics and law in the field of biomedicine3. To identify and analyse the conflicts of interest and legal problems that are relevant in different areas of medical law
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UNIT-I

1. Medical ethics - Definition - Goal – Scope
2. Introduction to Code of conduct

UNIT-II

3. Basic principles of medical ethics –Confidentiality
4. Malpractice and negligence - Rational and irrational drug therapy

UNIT-III

5. Autonomy and informed consent - Right of patients
6. Care of the terminally ill- Euthanasia

UNIT-IV

7. Organ transplantation
8. Medico legal aspects of medical records –Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.

UNIT-V

9. Professional Indemnity insurance policy
10. Development of standardized protocol to avoid near miss or sentinel events
11. Obtaining an informed consent

Reference books:

- 1.Law relating to medical negligence and compensation- Dr.K.P.D.A. Prabakar &Dr.J.Paulraj Joseph – 2023
- 2.A textbook of medical jurisprudence and toxicology – Justice K Kannan -25th edition – 1st edition – 2016
- 3.Law the doctor must know- Hitesh J Bhatt &Geetebdra Sharma – 2017
- 4.Law on medical negligence and legal remedies – Dr.AnnuBahlMehra& Harshit Kiran-2022



Ethics in Public Health

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Ethics in public health	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describe how the ethical principles/virtues of autonomy, justice, trust, caring beneficence, and nonmaleficence apply to the delivery of health care	Receive
Use a foundation in moral philosophy to make and support ethical decisions as a health care leader	Respond
Apply an ethical decision-making process to various contemporary and complex health care issues	Value
Influence decision-making among peers; use and model self-reflection, listening, empathy, and awareness as an ethical leader	Organize
Recognize the importance of and bring to bear ethical principles, virtues, values and theory in professional discourse.	Characterize
Receive of human rights in ethics.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<p>The students will develop:</p> <ol style="list-style-type: none"> 1. Clinical ethical Competency. 2. Ethical awareness, Empathy
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UNIT-I

1. Introduction to Public Health Ethics
2. Theories of Justice and Distribution of Public Health Resources
3. Principle for Public Health Ethics

UNIT-II

4. Priority-Setting and Resource Allocation at the Macro Level
5. Priority-Setting and Resource Allocation at the Micro Level

UNIT-III

6. Medical Ethics, Legal Aspects and Medical Terminology
 - 1) Role Definition and Interaction, Ethical, Moral, and Legal Responsibilities
 - 2) Medical terminology
 - 3) Medical waste Management

UNIT-IV

7. Contemporary Ethical and Legal Issues in Health Care: Legal regulation of a standalone diagnostic center, medico-legal cases and medical negligence, ethical aspects of health care.
8. Balancing Individual and Community Interests
9. Ethics and Health Promotion

UNIT-V

10. Role of Human Rights in Public Health
11. Ethics of Health Promotion and Disease Prevention

Reference books:

- 1.Ethics and Public Health – Archana Rani Sahoo &Patitapaban Das -2017
- 2.Public Health,Ethics and Equity-Sudhir Anand, Fabienne Peter and Amartya Sen – 2006
- 3.Nursing and healthcare ethics-Robinson & Doody-6th edition -2022
- 4.Ethics- William K.Frankena – 2nd edition-2015



SEMESTER –V

Specialized surgery and anesthesia

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Specialized surgery and anesthesia	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire specialized knowledge and skills related to surgical procedures and anesthesia management.	Receive
Implement advanced surgical and anesthesia techniques based on patient needs and surgical requirements.	Respond
Recognize the importance of patient safety, pain management, and individualized care during specialized surgery and anesthesia.	Value
Efficiently organize and coordinate surgical and anesthesia resources, including equipment, medications, and personnel.	Organize
Differentiate and characterize various specialized surgical procedures and anesthesia techniques based on clinical indications.	Characterize
Evaluate the outcomes of specialized surgery and anesthesia interventions, adjusting optimize patient outcomes.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none">• Demonstrate advanced knowledge and skills in performing specialized surgical procedures with precision and expertise.• Apply specialized anesthesia techniques and strategies to ensure optimal patient comfort, safety, and intraoperative management.• Evaluate and analyze outcomes of specialized surgery and anesthesia interventions, identifying areas for improvement and implementing evidence-based practices.
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UNIT-I

1. Cardiovascular and Respiratory System- Techniques, equipment, procedures and instruments
 - a. Diseases of cardiovascular and respiratory systems.
 - b. Types of perfusion machines.
 - c. Techniques of Perfusion and operational capabilities.
 - d. Intra-aortic Balloon pump.
 - e. Cell saver techniques.
 - f. Care, maintenance and working of Heart lung Machine.
 - g. Patient's record keeping preoperatively, during anesthesia and post-operatively.
 - h. Principles and techniques of temperature monitoring.
 - i. Positioning during cardiothoracic surgical procedures.
 - j. Positioning and techniques for:
 - ☐ Radial artery cannulation.
 - ☐ Central venous cannulation/pulmonary artery catheter.
 - ☐ Femoral artery/venous cannulation.

UNIT-II

2. Monitoring Techniques and Equipment:
 - a. Cardiac monitors, blood pressure and ECG monitoring.
 - b. Respiratory monitors, respiratory rate, Spirometers, SpO₂, and EtCO₂.
 - c. Temperature monitors.
 - d. TEE and echocardiography machine
 - e. Non- invasive cardiac output machine

UNIT-III

3. Positioning
 - a. During various neurosurgical procedures including sitting, prone, lateral and position for trans-sphenoidal hypo-physectomy.
 - b. Fixation of head during various neurosurgical procedures.
 - c. Prone and Knee chest position for spine surgery.

UNIT-IV

4. Requirements during intubation in a case of cervical spine fracture including fiber- optic laryngoscopy, awake intubation, LMA family especially ILMA.
5. Anaesthetic and surgical requirements during aneurysm surgery.
6. Surgical and Anaesthetic requirements during micro neurosurgery including types of microscopes, principle, structural features, microscopic photography and cameras used.
7. Anaesthetic and surgical requirements during thyroid surgery, adrenal surgery.
8. Anaesthetic and surgical requirements during abdominal surgery including Laproscopic surgery, genitourinary surgery including percutaneous nephrolithotomy, Endoscopic surgery, TURP, TURBT, Lithotripsy, ESWL (Extracorporeal shock wave therapy)
9. Anaesthetic and surgical requirement during renal transplant donor and recipient surgery including care and precautions during operative procedures of hepatitis B & hepatitis C positive patients.
10. Anaesthetic and surgical requirement during pediatric and Neonatal surgical procedures including emergency procedures like tracheo-esophageal fistula. Sub diaphragmatic hernia,

major abdominal and thoracic procedures. Foreign body bronchus and esophagus.

UNIT-V

11. Apparatus and techniques for measuring blood pressure and temperature.
12. Principle and working of direct/Indirect blood pressure monitoring apparatus.
13. Intraoperative and postoperative problems and complications of general surgery.
14. Management of emergency caesarean section.
15. Management of massive obstetrical hemorrhage.
16. Surgical management in major burns and craniofacial surgery.
17. Surgical management of joint replacement and arthroscopy.
18. Surgical management of endoscopies, laryngectomy with RND and cochlear implant.
19. Management of PPV and perforating eye injury.
20. Care and maintenance of Para-surgical equipment (Cautery, OT Lights, OT Table etc.)



Electronics and technology in surgery

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Electronics and technology in surgery	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand the principles and applications of electronics and technology in surgical settings.	Receive
Effectively utilize electronic surgical equipment and technologies to optimize patient outcomes.	Respond
Recognize the importance of integrating electronics and technology to enhance surgical precision, efficiency, and safety.	Value
Manage and organize electronic surgical equipment, instruments, and data for efficient and effective use.	Organize
Differentiate and characterize various electronic surgical technologies based on their functions and applications.	Characterize
Evaluate the impact of electronics and technology on surgical procedures, identifying opportunities for improvement and innovation.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none"> • Demonstrate proficiency in utilizing electronic surgical equipment and technology to enhance surgical procedures. • Apply knowledge of electronics and technology to optimize surgical precision, efficiency, and patient safety. • Evaluate and adapt to emerging technologies in surgery, fostering continuous learning and improvement in practice.
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UNIT-I

1. Electronics and electro mechanical techniques
 - a. Electrical safety precautions in operation theatre. OT tables, OT lights, suction machines, electrodes, pressure transducers, electrical safety, application, handling operation.
 - b. Basic electronics, basic principle, care and maintenance and uses of surgical diathermy machine, defibrillator, Boyle's apparatus, anesthesia machine, monitors, pace-makers and stimulators etc.
 - c. Engineering aspects of operation theatre equipment, power supplies, CVT, servostabilizers, and ups etc.

UNIT-II

2. Book keeping and Stock maintenance.
 - a. Moral aspects and duties of OT technologist.
 - b. Indenting, Book keeping and storage procedures of different articles.
 - c. Co-ordination with all working personal in operation Theatre.
 - d. Psychological aspects of patient, staff and relatives of the patient.
 - e. Management of operation theatre in routine and emergency.

UNIT-III

3. Computer data processing, software information and Data management
 - a. Logging on and off, Security concepts, Sending and receiving Emails.
 - b. Hospital information system.



Biostatistics & Research Methodology

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Biostatistics & Research Methodology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	To enable students to present, analyze and interpret data.	Receive
	To enable students to use concepts of probability in business situations.	Respond
	To enable students to make inferences from samples drawn from large datasets.	Value
	To enable students to apply univariate and multivariate statistical techniques	Organize
	Revise the issues in ethical research	Characterize
	Follow the basic concepts of biostatistics.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 1. To understand the importance & Methodology for research 2. To learn in detail about sampling, probability and sampling distribution, significance tests correlation and regression, sample size determination, study design and multivariate analysis.
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UNIT-I

1. Introduction to research methods.
2. Sampling methods

UNIT-II

3. Identifying research problem
4. Developing a research proposal

UNIT-III

5. Ethical issues in research

UNIT-IV

6. Research design
7. Types of Data

UNIT-V

8. Basic Concepts of Biostatistics
9. Research tools and Data collection methods

Reference books:

1. Research methodology- CR K othari & Gaurav Garg – 4th edition – 2019
2. Introduction to research methodology – Bhanwar Lal Garg, RenuKavdia, Sulochana Agarwal & Umesh kumar Agarwal – 2019
3. Research methodology for health professionals – RC Goyal – 2nd edition – 2023
4. Research Methodology and applied statistics – DN Sansanwal - 2020



OT Management

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	OT Management	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand the role of OT management in coordinating patient care and facilitating the flow of surgical cases.	Receive
Implement effective communication and problem-solving skills to address challenges and ensure smooth operations in the operating theater.	Respond
Recognize the importance of patient safety, quality assurance, and adherence to regulatory standards in OT management.	Value
Efficiently manage resources, schedules, and staffing to optimize utilization and productivity in the operating theater.	Organize
Identify and characterize various surgical procedures, specialties, and equipment utilized in the OT setting.	Characterize
Evaluate the effectiveness of OT management strategies and make improvements to enhance operational efficiency and patient outcomes.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<p>On completion of this course, the students will be able to do the following:</p> <ul style="list-style-type: none"> • Demonstrate proficiency in coordinating and managing surgical cases in the operating theater, ensuring efficient utilization of resources. • Apply effective communication and leadership skills to foster collaboration among surgical teams and optimize patient care. • Evaluate and implement quality assurance measures in OT management to enhance patient safety and improve surgical outcomes.
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UNIT-I

1.Introduction to Operating Theatre Management

- a. Overview of operating theatre functions and organization
- b. Roles and responsibilities of operating theatre personnel
- c. Ethical and legal considerations in operating theatre management

2.Operating Theatre Infrastructure and Equipment

- a. Design and layout of operating theatres
- b. Selection, procurement, and maintenance of operating theatre equipment
- c. Sterilization and infection control practices in the operating theatre

UNIT-II

3.Surgical Scheduling and Planning

- a. Principles of surgical scheduling and case prioritization
- b. Allocation of resources, including staff, equipment, and supplies
- c. Communication and coordination with surgical teams and other departments

UNIT-III

4.Patient Safety and Quality Improvement in the Operating Theatre

- a. Patient safety protocols and practices
- b. Risk management and adverse event reporting
- c. Quality improvement initiatives and performance monitoring

UNIT-IV

5.Human Resource Management in the Operating Theatre

- a. Recruitment, training, and competency assessment of operating theatre staff
- b. Staffing models and workload management
- c. Conflict resolution and team dynamics in the operating theatre

6.Financial and Resource Management in the Operating Theatre

- a. Budgeting and financial planning for the operating theatre
- b. Inventory management and control of surgical supplies
- c. Cost-effectiveness analysis and resource utilization optimization

UNIT-V

7.Emerging Trends and Technologies in Operating Theatre Management

- a. Introduction to new technologies and innovations in the operating theatre
- b. Integration of digital systems and electronic health records in operating theatre management
- c. Future directions and challenges in operating theatre management



Medical psychology

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Medical psychology	3	-	-	3	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
This course covers various aspects of medical psychology.	Receive
Understand different aspects of medical psychology essential in medical professional.	Respond
Apply medical psychology in clinical scenarios during clinical postings.	Value
Use of scientific methods for assessment.	Organize
Identify behaviors & experiences that promote health	Characterize
Follow the skills adapting changes in vision	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ol style="list-style-type: none"> 1. Cognitive thinking 2. Demonstrate skills in communication. 3. Ethical behavior.
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UNIT-I

1. Introduction to psychology
2. Intelligence, Learning, Memory, Personality, Motivation

UNIT-II

3. Body integrity- one's body image
4. Patient in his Milan

UNIT-III

5. Self-concept of the therapist, Therapist patient relationship-some guidelines
6. Illness and its impact on the patients.

UNIT-IV

7. Maladies of the age and their impact on the patient's own and others concept of his body image.

UNIT-V

8. Adapting changes in vision
9. Why Medical Psychology needs / demands commitment?

Reference book:

1. Fundamentals of Psychology for graduate nurses- P Prakash-1st edition- 2016
2. Modern clinical psychology-Sheldon J. Korchin-2004
3. Psychology – Robert A. Baron & Girishwar Misra-5th edition – 2000
4. Applied psychology for nurses – R Sreevani– 4th edition- 2021



Entrepreneurship development/ Introduction to quality and patient safety

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	Entrepreneurship development/ Introduction to quality and patient safety	2	-	-	2	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Number	CO Statement	Taxonomy
	Inspire students and help them imbibe an entrepreneurial mind-set.	Receive
	Respond entrepreneurship impacted the world and their country.	Respond
	Introduced to key traits and the DNA of an entrepreneur	Value
	Organize the opportunity to assess their own strengths	Organize
	Understand the DNA of an entrepreneur and assess their strengths and weaknesses from an	Characterize
	Receive knowledge of Entrepreneurial perspective	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ol style="list-style-type: none"> 1. Develop awareness about entrepreneurship and successful entrepreneurs. 2. Develop an entrepreneurial mind-set by learning key skills such as design, personal selling, and communication. 3. Understand the DNA of an entrepreneur and assess their strengths and weaknesses from an 4. Entrepreneurial perspective.
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UNIT-I

Introduction to Entrepreneurship

Meaning and concept of entrepreneurship, the history of entrepreneurship development, role of entrepreneurship in economic development, Myths about entrepreneurs, agencies in entrepreneurship management and future of entrepreneurship types of entrepreneurs.

UNIT-II

The Entrepreneur

Why to become entrepreneur, the skills/ traits required to be an entrepreneur, Creative and Design Thinking, the entrepreneurial decision process, skill gap analysis, and role models, mentors and support system, entrepreneurial success stories.

UNIT-III

E-Cell

Meaning and concept of E-cells, advantages to join E-cell, significance of E-cell, various activities conducted by E-cell

UNIT-IV

Communication Importance of communication, barriers and gateways to communication, listening to people, the power of talk, personal selling, risk taking & resilience, negotiation.

UNIT V

Introduction to various forms of business organization (sole proprietorship, partnership, corporations, Limited Liability Company), mission, vision and strategy formulation.

Reference Books:

- 1: Title Entrepreneurial Development Author S S Khanka Edition reprint Publisher S. Chand Publishing, 2006
- 2: Entrepreneurship Development and Business Ethics Paperback – 1 January 2019 by Abhik Kumar Mukherjee and Shaunak Roy Author
- 3: Margie Lovett Scott, Faith Prather. Global health systems comparing strategies for delivering health services. Joney & Bartlett learning, 2014
- 4: Taxmann's Entrepreneurship development – CA(Dr.) Abha Mathur- 2021.



INTRODUCTION TO QUALITY & PATIENT SAFETY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Ability Enhancement Course	Introduction to Quality & Patient Safety	2	-	-	2	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Describes the Quality assurance and management	Receive
Discuss the Basics of emergency care and life support skills	Respond
Demonstrate the processes used in developing communication & Impact of communication skills on Organizational design	Value
Define the Infection prevention and control	Organize
Revise the Antibiotic Resistance	Characterize
Follow the skills required for Disaster preparedness and management - Fundamentals of emergency management,	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	Use healthcare data and analytics to measure healthcare quality and patient safety and plan improvement measures. Participate in research projects that can lead to quality improvement, risk reduction and enhanced patient safety within the healthcare system.
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UNIT-I

Quality assurance and management – Concepts of Quality of Care, Quality Improvement Approaches, Standards and Norms, Introduction to NABH guidelines

UNIT-II

Basics of emergency care and life support skills- Basic life support (BLS), Vitals signs and primary assessment, Basic emergency care – first aid and triage, Ventilations Including use of bag-valve-masks (BVMs), Choking, rescue breathing methods, One-and Two-rescuer CPR

UNIT-III

Bio medical waste management and environment safety - Definition of Biomedical Waste, Waste minimization, BMW – Segregation, collection, transportation, treatment and disposal (including color coding), Liquid BMW, Radioactive waste, Metals/ Chemicals / Drug waste, BMW Management & methods of disinfection, Modern Technology for handling BMW, Use of Personal protective equipment (PPE), Monitoring & controlling of cross infection (Protective devices)

UNIT-IV

Infection prevention and control - Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)], Prevention & control of common healthcare associated Infections, Components of an effective infection control program, Guidelines (NABH and JCI) for Hospital Infection Control

UNIT V

Antibiotic Resistance - History of Antibiotics, How Resistance Happens and Spreads, Types of resistance- Intrinsic, Acquired, Passive, Trends in Drug Resistance, Actions to Fight Resistance, Bacterial persistence, Antibiotic sensitivity, Consequences of antibiotic resistance.
Disaster preparedness and management - Fundamentals of emergency management, Psychological impact management, Resource management, Preparedness and risk reduction, information management, incident command and institutional mechanisms.

Reference books:

1. Handbook of healthcare quality & patient safety- Girdhar J Gyani & Alexander Thomas – 2nd edition- 2017
2. Total quality management in the healthcare industry: An efficient guide for healthcare management- Balasubramanian Mahadevan – 2022
3. Step by step Quality Hospital Care- Farooq Jan- 1st edition – 2013
4. Patient safety and healthcare improvement Willey Blackwell- 1st edition – 2014



SEMESTER-VI

Advances in OT Technology

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	Advances in OT Technology	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand the latest advancements in OT technology and stay updated with emerging trends and innovations.	Receive
Effectively utilize advanced OT technologies to enhance surgical procedures and improve patient outcomes.	Respond
Recognize the value of incorporating innovative OT technologies to improve efficiency, safety, and quality of care.	Value
Manage and integrate OT technologies into the surgical workflow, ensuring seamless implementation and optimal utilization.	Organize
Differentiate and characterize various OT technologies based on their functions, applications, and benefits.	Characterize
Evaluate the impact of advanced OT technologies on surgical practices, identifying opportunities for improvement and optimization.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ul style="list-style-type: none">• Demonstrate proficiency in utilizing advanced OT technologies to optimize surgical procedures and patient outcomes.• Apply critical thinking skills to assess, select, and integrate appropriate OT technologies into the surgical workflow.• Continuously update knowledge and skills in emerging OT technologies, fostering innovation and improvement in surgical practice.
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UNIT-I

1. Introduction to Advances in OT Technology
 - Overview of technological advancements in the field of operating theatre (OT) technology
 - Importance and impact of technology on surgical procedures and patient outcomes
 - Ethical and legal considerations in the use of advanced OT technology

UNIT-II

2. Robotics in Surgery
 - Introduction to surgical robotics and robotic-assisted procedures
 - Types of surgical robots and their applications
 - Benefits, challenges, and future trends in robotic surgery

UNIT-III

3. Imaging and Visualization Technologies
 - Advances in imaging modalities used in surgical planning and intraoperative guidance
 - Three-dimensional (3D) imaging, virtual reality, and augmented reality in the operating theatre
 - Integration of imaging technologies with surgical navigation systems

UNIT-IV

4. Minimally Invasive Techniques and Instruments
 - Introduction to minimally invasive surgical techniques
 - Advanced instruments and devices used in minimally invasive procedures
 - Benefits, limitations, and considerations of minimally invasive surgery

UNIT-V

5. Data Management and Digital Integration
 - Electronic health records (EHR) and digital documentation in the operating theatre
 - Data management and analysis for surgical outcomes and quality improvement
 - Interoperability and integration of OT technology with hospital information systems
6. Emerging Technologies and Future Trends
 - Introduction to emerging technologies in the field of OT
 - Artificial intelligence (AI) and machine learning in surgical decision-making
 - Future trends and potential impact of advanced OT technology.



Medical Devices

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	Medical Devices	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand the principles and functionality of different medical devices used in healthcare settings.	Receive
Effectively operate and respond to medical devices, ensuring accurate and safe usage for patient care.	Respond
Recognize the significance of medical devices in diagnosis, treatment, and monitoring of patients, prioritizing their proper utilization.	Value
Manage and maintain medical devices, including inventory control, calibration, and preventive maintenance.	Organize
Differentiate and characterize various types of medical devices based on their functions, indications, and limitations.	Characterize
Evaluate the performance and effectiveness of medical devices, identifying opportunities for improvement and ensuring regulatory compliance.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ul style="list-style-type: none"> • Demonstrate proficiency in operating and utilizing medical devices specific to surgical procedures, ensuring optimal patient care. • Apply knowledge of medical devices to assess, select, and effectively integrate them into surgical workflows for enhanced outcomes. • Evaluate the performance and safety of medical devices in surgical settings, making informed decisions to optimize patient outcomes and minimize risks.
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UNIT-I

1. Introduction to Medical Devices
 - Overview of medical devices and their importance in healthcare
 - Classification and regulatory framework for medical devices
 - Ethical and safety considerations in the use of medical device.

UNIT-II

2. Biomedical Instrumentation
 - Principles of biomedical instrumentation and measurement techniques
 - Sensors, transducers, and signal processing in medical devices
 - Calibration, maintenance, and troubleshooting of biomedical instruments
3. Diagnostic and Imaging Devices
 - Introduction to various diagnostic devices, such as ECG, ultrasound, and X-ray machines
 - Principles of operation and clinical applications of diagnostic devices
 - Quality control and image interpretation in diagnostic imaging

UNIT-III

4. Therapeutic Devices
 - Overview of therapeutic devices, including infusion pumps, ventilators, and defibrillators
 - Functionality and safe operation of therapeutic devices
 - Integration and monitoring of therapeutic devices in patient care
5. Implantable and Prosthetic Devices
 - Introduction to implantable devices, such as pacemakers and joint replacements
 - Design, materials, and performance considerations for implantable devices
 - Rehabilitation and fitting of prosthetic devices

UNIT-IV

6. Regulatory Compliance and Quality Assurance
 - Regulatory requirements and standards for medical devices
 - Quality management systems and risk assessment in medical device manufacturing
 - Post-market surveillance and adverse event reporting

UNIT-V

7. Emerging Technologies and Future Trends
 - Introduction to emerging technologies in the field of medical devices
 - Wearable devices, telemedicine, and remote patient monitoring
 - Future trends and challenges in medical device development and adoption.



Regulatory Guidelines related to surgery

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	Regulatory Guidelines related to surgery	4	3	1	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Understand and receive updated information regarding regulatory guidelines and standards specific to surgical practices.	Receive
Implement appropriate measures and responses to ensure compliance with regulatory requirements throughout the surgical process.	Respond
Recognize the importance of adhering to regulatory guidelines in promoting patient safety, quality assurance, and ethical conduct.	Value
Effectively organize and manage documentation, protocols, and processes in alignment with regulatory guidelines.	Organize
Differentiate and characterize various regulatory guidelines and their implications on surgical procedures and patient care.	Characterize
Evaluate compliance with regulatory guidelines, identify areas for improvement, and implement necessary changes to enhance surgical practices.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ul style="list-style-type: none"> Understand and apply regulatory guidelines and standards specific to surgical procedures, ensuring compliance and patient safety. Demonstrate proficiency in adhering to regulatory requirements throughout the surgical process, including pre-operative, intra-operative, and post-operative phases. Evaluate and implement best practices in accordance with regulatory guidelines to promote quality assurance, infection control, and ethical conduct in surgical settings.
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 80 | Page

UNIT-I

1. Introduction to Surgical Regulations
 - Overview of regulatory bodies and agencies governing surgical practices
 - Importance of regulatory guidelines in ensuring patient safety and quality of care
 - Ethical and legal considerations in surgical regulations

UNIT-II

2. Preoperative Regulatory Guideline
 - Preoperative assessment and patient preparation protocols
 - Informed consent and documentation requirements
 - Blood transfusion guidelines and infection control measures
3. Intraoperative Regulatory Guidelines
 - Surgical site marking and verification processes
 - Anaesthesia administration and monitoring regulations
 - Surgical safety checklists and time-out procedures
4. Postoperative Regulatory Guidelines
 - Postoperative monitoring and care guidelines
 - Pain management protocols and medication administration
 - Wound care, infection prevention, and discharge instructions

UNIT-III

5. Surgical Facility and Equipment Regulations
 - Accreditation and licensing requirements for surgical facilities
 - Sterilization and disinfection protocols for surgical instruments and equipment
 - Safety guidelines for operating rooms and surgical environment

UNIT-IV

6. Quality Assurance and Reporting
 - Quality improvement initiatives in surgical practices
 - Adverse event reporting and risk management
 - Compliance with documentation, reporting, and audit requirements

UNIT-V

7. Emerging Regulatory Trends and Future Directions
 - Introduction to emerging regulatory trends in the field of surgery
 - Impact of technological advancements on surgical regulations
 - Future challenges and opportunities in surgical regulatory frameworks



CLINICAL OPERATION THEATRE TECHNOLOGY

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	CLINICAL OPERATION THEATRE TECHNOLOGY	2	-	-	4	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Acquire knowledge and updates regarding clinical operation theatre technology, including equipment, procedures, and protocols.	Receive
Apply technical skills and respond promptly to manage and troubleshoot clinical operation theatre technology effectively.	Respond
Recognize the importance of clinical operation theatre technology in promoting patient safety, efficiency, and optimal surgical outcomes.	Value
Efficiently organize and manage clinical operation theatre technology, including equipment inventory, maintenance, and utilization.	Organize
Differentiate and characterize various clinical operation theatre technologies based on their functions, applications, and limitations.	Characterize
Evaluate the performance and effectiveness of clinical operation theatre technology, identifying areas for improvement and implementing best practices.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ul style="list-style-type: none"> Demonstrate proficiency in operating and managing clinical operation theatre technology specific to surgical procedures, ensuring smooth workflow and patient safety. Apply critical thinking skills to assess, troubleshoot, and optimize the use of clinical operation theatre technology in surgical settings. Continuously update knowledge and skills in emerging clinical operation theatre technology, fostering innovation and improvement in surgical practice.
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 82 | Page

UNIT-I

1. Introduction to Clinical Operation Theatre (OT) Technology
 - Overview of the role and importance of OT technology in surgical procedures
 - Introduction to the various components and equipment used in the OT environment
 - Ethical and safety considerations in the use of OT technology

UNIT-II

2. Operating Theatre Infrastructure and Design
 - Design and layout of an operating theatre for optimal workflow and patient safety
 - HVAC systems and infection control measures in the OT environment
 - Maintenance and safety protocols for OT infrastructure and equipment

UNIT-III

3. Surgical Equipment and Instrumentation
 - Introduction to surgical instruments and their proper handling and sterilization
 - Operating theatre equipment, such as anesthesia machines, surgical lights, and tables
 - Understanding the functionality, setup, and maintenance of OT equipment
4. Surgical Imaging and Visualization Technology
 - Introduction to imaging modalities used in the OT, such as X-ray, ultrasound, and endoscopy
 - Image-guided surgery and intraoperative imaging techniques
 - Integration of imaging technology with surgical navigation systems

UNIT-IV

5. Anesthesia and Life Support Systems
 - Anesthesia machines, monitors, and delivery systems
 - Basic principles of anesthesia administration and patient monitoring
 - Emergency response and life support systems in the OT

UNIT-V

6. OT Information Management Systems
 - Electronic health records (EHR) and digital documentation in the OT
 - Integration of information technology systems for scheduling, inventory management, and patient tracking
 - Data security and privacy considerations in OT information management
7. Emerging Technologies and Future Trends in OT Technology
 - Introduction to emerging technologies in the field of OT technology
 - Robotic-assisted surgery, virtual reality, and augmented reality in the OT
 - Future trends and potential impact of advanced OT technology



HOSPITAL MANAGEMENT/ Basics of clinical Skill Learning

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Discipline Specific Elective	HOSPITAL MANAGEMENT/ Basics of clinical Skill Learning	3	3	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Describes the Ability to use disciplines and concepts required in formulating, implementing and evaluating strategic choices in health care	Receive
	Discuss the Knowledge of key options in the policy, planning and financing of health care services	Respond
	Demonstrate the Understanding of the diversity of international health policies	Value
	Define International and comparative views on solutions and best practices	Organize
	Revise the Practical experience in managerial issues	Characterize
	Follow the skills required for Long-run orientation in problem analysis and solving	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 1. To provide an environment that enables students to benefit and learn nuances of Hospital Management from their collective learning experiences. 2. To offer opportunities to develop the ability to think analytically and build capacity for independent learning
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UNIT-I

Quality Concepts: Definition of Quality, Dimensions of Quality, Basic concepts of Total Quality Management, Quality Awards. Accreditations for hospitals: Understanding the process of getting started on the road to accreditation, National and International Accreditation bodies, overview of standards- ISO (9000 & 14000 environmental standards), NABH, NABL, JCI, JACHO.

UNIT-II

Hospital Information System: Hospital Information System Management and software applications in registration, billing, investigations, reporting, ward management and bed distribution, medical records management, materials management and inventory control, pharmacy management, dietary services, management, information processing. Security and ethical challenges.

UNIT-III

Inventory Control: Concept, various costs of inventory, Inventory techniques- ABC, SDE/VED Analysis, EOQ models. Storage: Importance and functions of storage. Location and layout of stores. Management of receipts and issue of materials from stores, Warehousing costs, Stock verification.

UNIT-IV

Operations management: Hospital equipment repair and maintenance, types of maintenance, job orders, equipment maintenance log books, AMCS, outsourcing of maintenance services, quality and reliability, concept of failure, equipment history and documents, replacement policy, calibration tests, spare parts stocking techniques and policies

UNIT-V

Biomedical Waste Management: Meaning, Categories of Biomedical Wastes, Colour code practices, Segregation, Treatment of biomedical waste-Incineration and its importance. Standards for waste autoclaving, microwaving. Packaging, Transportation & Disposal of biomedical wastes.

Reference books:

- 1.Hospital and patient care management – Dr Vidhya Srinivasan & Dr Akshay Ch. Deka – 2022
- 2.Hospital management & administration – BV Subrahmanyam – 2018
- 3.Hospital management- Manisha Saxena – volume 3 – 2018
- 4.Hospital management – Ashvini Arun Vora – 1st edition - 2018



BASICS OF CLINICAL SKILL LEARNING

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Describes the After successful accomplishment of the course, the students would be able to Measure Vital Signs	Receive
	Discuss the Do basic physical Examination of the patients, NG tube basics, Administration of Medicines	Respond
	Demonstrate the The students will learn about Asepsis and the Cleanliness related to asepsis and on mobility of the patients.	Value
	Define the They will also learn on the Basics of Nasal-Gastric Tube	Organize
	Revise the Also they will know about clean lines in the Asepsis	Characterize
	Follow the skills required for They will also learn on the Basics of Nasal-Gastric Tube.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcome	<ol style="list-style-type: none"> 1. To Understand and the basic ideas on how to check for Vital Signs of the Patient 2. They will also learn on the Basics of Nasal-Gastric Tube. 3. This course the student will learn how to handle the patients and their positioning
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UNIT- I

MEASURING VITAL SIGNS: Temperature: Axillaries Temperature, Pulse: Sites of pulse, Measurement, Respiratory, Blood Pressure, Pain: Pain Scale

UNIT-II

PHYSICAL EXAMINATION: Observation, Auscultation (Chest), Palpation, Percussion, History Taking.

UNIT- III

FEEDING: ENTAL FEEDING NG TUBE: Measurement, Procedure, Care, Removal of Nasal-Gastric Tube, Nasal-Gastric Tube Feeding, and Parenteral Nutrition

UNIT- IV

ASEPSIS: Hand wash Techniques, (Medical, Surgical) Universal Precaution, Protecting Equipment's: Using Sterile Gloves, opening a Sterile package and Establishing a Sterile Field, Sterile Dressing Changes, Surgical Attire, Wound Dressing, Suture Removal, Cleaning and Application of Sterile Dressing, Wearing and Removal of personal protective Equipment

UNIT- V

MOBILITY AND SUPPORT: Moving and positioning, range of Motion exercises (Active & Passive) Assisting for Transfer, Application of Restraints.

Reference books:

1. Basic surgical skills and techniques – Sudhir Kumar -3rd edition – 2018
2. Essentials of clinical diagnosis – Sunil K Sen-9th edition – 2019
3. Manual of clinical methods – P.S.Shankar – 4th edition – 2017
4. Communication skills in clinical practice – KR Sethuraman- 2nd edition - 2018



BASIC AND ADVANCE LIFE SUPPORT/ ORGANIZATIONAL BEHAVIOUR

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	Skill Enhancement Course	BASIC AND ADVANCE LIFE SUPPORT/ ORGANIZATIONAL BEHAVIOUR	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Demonstrate how to open a casualty's airway and check for breathing	Receive
Demonstrate how to place an unresponsive casualty in the recovery position	Respond
Perform Cardiopulmonary Resuscitation using a manikin	Value
Identify safety considerations when using an automated external defibrillator (AED)	Organize
Be able to safely use an automated external defibrillator	Characterize
Follow the skills need to commence Cardiopulmonary Resuscitation (CPR).	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ol style="list-style-type: none"> 1. Recognize the need to commence Cardiopulmonary Resuscitation (CPR) 2. Assess a casualty's level of consciousness
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UNIT- I

Review of anatomy and physiology of blood and cardio vascular system,
Assessment-History and Physical assessment • Etiology, Path physiology, clinical manifestations,

UNIT- II

- **Diagnosis, treatment modalities of:**
 - Vascular system
- Heart Congenital and acquired - Rheumatic Heart diseases

UNIT- III

- **Diagnosis, treatment modalities of:**
 - Infective Endocarditic, congenital heart Diseases
 - Cardiac emergencies and arrest
 - Cardio Pulmonary Resuscitation (CPR)

Drugs used in treatment of blood and cardio vascular disorders

UNIT- IV

Basic Life Support

- Airway Management
- Anaphylaxis
- Approach to Shock

Initial Management of Shock

UNIT- V

Basic Life Support

- Approach to Syncope
- Approach to Restless Patient
- Approach to Pediatric Patients
- Safe transfer of patients to definitive care areas
- Approach to Trauma Patients

Reference books:

- 1.Basic Life Support-Manual – AHA- 2016
- 2.Advance Emergency Life Support Protocols – Gireesh Kumar KP – 1st edition – 2015
- 3.First aid for nurses – TK Indrani- 2nd edition – 2018
- 4.ACLS Study Guide – Barbara Aehlert – 6th edition - 2022



ORGANIZATIONAL BEHAVIOUR

Course Outcomes

After completing this course, the student will be able to:

	CO Statement	Taxonomy
	Describes the organizational behavior, types, importance & Fundamental concepts of OB	Receive
	Discuss the individual behaviour related to motivation and rewards & Characteristics of motives.	Respond
	Demonstrate the processes used in developing communication & Impact of communication skills on Organizational design	Value
	Define the management of resolving destructive conflicts & Strategies for encouraging constructive conflict.	Organize
	Revise the group dynamics, Models and theories of Leadership Styles.	Characterize
	Follow the skills required for working in groups (team building) & Importance of Leadership Styles.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

- Learning Outcome
1. To analyze and compare different models used to explain individual behaviour related to motivation and rewards.
 2. To identify the processes used in developing communication and resolving conflicts. to explain group dynamics and demonstrate skills required for working in groups (team building)



UNIT-I

Organizational Behavior-Definition-Importance -Historical Background-Fundamental concepts of OB- 21st Century corporate-Different models of OB i.e. autocratic, custodial, Supportive

UNIT-II

Organization Structure and Design- Authority and Responsibility Relationships - Delegation of Authority and Decentralization-Interdepartmental Coordination-Emerging Trends in Corporate Structure, Strategy and Culture - Impact of Technology on Organizational design- Mechanistic vs Adoptive Structures – Formal and Informal Organization

UNIT-III

Perception Process - Nature & Importance - Perceptual Selectivity - Perceptual Organization - Social Perception - Impression Management. Learning-Processes of Learning-Principles of Learning- Organizational Reward Systems – Behavioral Management

UNIT-IV

Motivation - Motives - Characteristics - Classification of motives - Primary Motives - Secondary motives - Morale - Definition and relationship with productivity – Morale Indicators

UNIT- V

Leadership - Definition - Importance -Leadership Styles - Models and Theories of Leadership Styles. **Conflict Management** -Traditional vis-a-vis Modern view of conflict - Constructive and Destructive conflict - Conflict Process - Strategies for encouraging constructive conflict - Strategies for resolving destructive conflict

Reference Books:

- 1: Human Relations & Organizational Behaviour - R.S.Dwivedi 2007
- 2: Organizational Behaviour - Uma Sekaran 2005
- 3: Margie Lovett Scott, Faith Prather. Global health systems comparing strategies for delivering health services. Joney & Bartlett learning, 2014
- 4: Human Behaviour at Work - Keith Davis 2004

Generic Elective

Course Code	Course Category	Paper Title	Credits	Contact per week			Evaluation		
				L	T	P	Internal	External	Total
	*Generic Elective	*Students have to opt any one of the open elective courses offered by Institute/ College/University.	2	2	-	-	20	80	100

Course Outcomes

After completing this course, the student will be able to:

CO Statement	Taxonomy
Gain knowledge and understanding of the selected open elective course and its subject matter.	Receive
Demonstrate active engagement and participation in discussions, activities, and assignments related to the chosen course.	Respond
Recognize the value and relevance of the open elective course in broadening perspectives and enhancing academic and personal growth.	Value
Effectively organize and manage time, resources, and study materials to succeed in the selected course.	Organize
Differentiate and characterize key concepts, theories, and applications relevant to the chosen open elective course.	Characterize
Evaluate personal learning outcomes and growth achieved through the chosen open elective course, reflecting on its impact.	Receive

Taxonomy: Receive, Respond, Value, Organize, Characterize

Learning Outcomes	<ol style="list-style-type: none"> 1. Demonstrate a comprehensive understanding of the chosen open elective course in surgery and its relevance to the field. 2. Apply acquired knowledge and skills from the elective course to enhance surgical practice and patient care. 3. Evaluate and reflect upon the impact of the open elective course on personal and professional development in the surgical domain.
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SEMESTER – VII & VIII INTERNSHIP				
Subject Code	Course category	Course title	Evaluation	
			Internal	External
VII Sem	Core	Internship	20	80
VIII Sem	Core	Internship	20	80
Internship is for 12 months,				
SEMESTER	CREDIT			
I	25			
II	25			
III	27			
IV	28			
V	28			
VI	26			
VII	20			
VIII	20			
TOTALCREDITS	199			

Guidelines:

1. The internship shall commence after the student has completed and passed all subjects up to VI semesters.
2. The internship is compulsory.
3. The duration of the internship shall be one year.
4. The degree of Bachelor in Allied Health Sciences shall be awarded after the satisfactory completion of the internship.

Evaluation of Internees:

Formative Evaluation: Day to day assessment of the internees during their internship postings should be done by the Head of the Department/Faculty assigned.

The objective is that all the interns must acquire necessary minimum skills required for carrying out day to day professional work competently. This can be achieved by maintaining Records /Log Book by all internees. This will not only provide a demonstrable evidence of the processes of training but more importantly of the internee's own acquisition of competence as related to performance.

Summative Evaluation: It shall be based on the observation of the Sr. Technical staff / Faculty of the department concerned and Record / Log book maintained by the interns.

Based on these two evaluations, the Head of the Department shall issue certificate of satisfactory completion of training, following which the university shall award the degree or declare him/her eligible for it. To implement the project work uniformly for all the specialties in view of the curriculum and training to be acceptable internationally and the students to get opportunity for higher studies and employment.