C. U. SHAH INSTITUTE OF NURSING

Managed by Wardhman Bharti Trust

Surendranagar – Ahmedabad Highway, Nr. Kothariya village,
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FACULTY OF NURSING

SEMESTER: I

CODE: **ANAT 105 & PHYS 110**

NAME: **APPLIED ANATOMY & APPLIED PHYSIOLOGY**

Teaching & Evaluation Scheme: -

COURSE CODE	COURSE/ SUBJECT TITLE	TEACHING SCHEME								Evaluation Scheme				
		Theory Credits	Theory Contact Hours	Lab / Skill Lab Credits	Lab/ Skill Lab Contact Hours	Clinical Credits	Clinical Contact Hours	Total credits	Total Hours	Internal	End Semester College Exam	End Semester University Exam	Hours	Total Marks
ANAT 105 & PHYS 110	Applied Anatomy	3	60						60	25		75	3	100
	& Applied Physiology	3	60						60					

Applied Anatomy and Applied Physiology: Question paper will consist of Section-A Applied Anatomy of 37 marks and Section-B Applied Physiology of 38 marks.

APPLIED ANATOMY

DESCRIPTION:

The course is designed to assists student to recall and further acquire the knowledge of the normal structure of human body, identify alteration in anatomical structure with emphasis on clinical application to practice nursing.

COMPETENCIES: On completion of the course, the students will be able to

1. Describe anatomical terms.
2. Explain the general and microscopic structure of each system of the body.
3. Identify relative positions of the major body organs as well as their general anatomic locations.
4. Explore the effect of alterations in structure.
5. Apply knowledge of anatomic structures to analyze clinical situations and therapeutic applications.

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COURSE OUTLINE
T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	8 (T)	Define the terms relative to the anatomical position Describe the anatomical planes Define and describe the terms used to describe movements Organization of human body and structure of cell, tissues membranes and glands. Describe the types of cartilage Compare and contrast the features of skeletal, smooth and cardiac muscle	**Introduction to anatomical terms and organization of the human body** Introduction to anatomical terms relative to position – anterior, ventral, posterior dorsal, superior, inferior, median, lateral, proximal, distal, superficial, deep, prone, supine, palmar and plantar. Anatomical planes (axial/ transverse/ horizontal, sagittal/vertical plane and coronal/frontal/oblique plane) Movements (flexion, extension, abduction, adduction, medial rotation, lateral rotation, inversion, eversion, supination, pronation, plantar flexion, dorsal flexion and circumduction. Cell structure, Cell division Tissue – definition, types, characteristics, classification, location. Membrane, glands – classification and structure , Identify major surface and bony landmarks in each body region, Organization of human Body Hyaline, fibro cartilage, elastic cartilage	Lecture cum Discussion Use of models Video demonstration Use of microscopic slides Lecture cum Discussion Video/Slides	Quiz MCQ Short answer

			Features of skeletal, smooth and cardiac muscle Application and implication in nursing	Anatomical Torso	
II	6 (T)	Describe the structure of respiratory system. Identify the muscles of respiration and examine their contribution to the mechanism of breathing	**The Respiratory system** Structure of the organs of respiration Muscles of respiration Application and implication in nursing	Lecture cum Discussion Models Video/Slides	Short answer Objective type
III	6 (T)	Describe the structure of digestive system	**The Digestive system** Structure of alimentary canal and accessory organs of digestion Application and implications in nursing	Lecture cum Discussion Video/Slides Anatomical Torso	Short answer Objective type
IV	6 (T)	Describe the structure of circulatory and lymphatic system.	**The Circulatory and Lymphatic system** Structure of blood components, blood vessels – Arterial and Venous system Position of heart relative to the associated structures Chambers of heart, layers of heart Heart valves, coronary arteries Nerve and blood supply to heart	Lecture Models Video/Slides	Short answer MCQ

			Lymphatic tissue Veins used for IV injections Application and implication in nursing		
V	4 (T)	Identify the major endocrine glands and describe the structure of endocrine Glands	**The Endocrine system** Structure of Hypothalamus, Pineal Gland, Pituitary gland, Thyroid, Parathyroid, Thymus, Pancreas and Adrenal glands	Lecture Models/charts	Short answer Objective type
VI	4 (T)	Describe the structure of various sensory organs	**The Sensory organs** Structure of skin, eye, ear, nose and tongue Application and implications in nursing	Lecture Explain with Video/ models/charts	Short answer MCQ
VII	10 (T)	Describe anatomical position and structure of bones and joints Identify major bones that make up the axial and appendicular skeleton Classify the joints Identify the application and implications in	**The Musculoskeletal system:** **The Skeletal system** Anatomical positions Bones – types, structure, growth and ossification Axial and appendicular skeleton Joints – classification, major joints and structure Application and implications in nursing	Review – discussion Lecture Discussions Explain using charts, skeleton and loose bones and torso	Short answer Objective type

		Nursing Describe the structure of muscle Apply the knowledge in performing nursing procedures/skills	**The Muscular system** Types and structure of muscles Muscle groups – muscles of the head, neck, thorax, abdomen, pelvis, upper limb and lower limbs Principal muscles – deltoid, biceps, triceps, respiratory, abdominal, pelvic floor, pelvic floor muscles, gluteal muscles and vastus lateralis Major muscles involved in nursing Procedures	Identifying muscles involved in nursing procedures in lab	
VIII	5 (T)	Describe the structure of renal system	**The Renal system** Structure of kidney, ureters, bladder, urethra Application and implication in nursing	Lecture Models/charts	MCQ Short answer
IX	5 (T)	Describe the structure of reproductive system	**The Reproductive system** Structure of male reproductive organs Structure of female reproductive organs Structure of breast	Lecture Models/charts	MCQ Short answer
X	6 (T)	Describe the structure of nervous system including the distribution of the	**The Nervous system** Review Structure of neurons CNS, ANS and PNS (Central, autonomic and	Lecture	MCQ Short answer

		nerves, nerve plexuses Describe the ventricular system	peripheral) Structure of brain, spinal cord, cranial nerves, spinal nerves, peripheral nerves, functional areas of cerebral cortex Ventricular system – formation, circulation, and drainage Application and implication in nursing	Explain with models Video slides	

Note: Few lab hours can be planned for visits, observation and handling (less than 1 credit lab hours are not specified separately)

APPLIED PHYSIOLOGY

DESCRIPTION:
The course is designed to assists student to acquire comprehensive knowledge of the normal functions of the organ systems of the human body to facilitate understanding of physiological basis of health, identify alteration in functions and provide the student with the necessary physiological knowledge to practice nursing.

COMPETENCIES: On completion of the course, the students will be able to;

1. Develop understanding of the normal functioning of various organ systems of the body.
2. Identify the relative contribution of each organ system towards maintenance of homeostasis.
3. Describe the effect of alterations in functions.
4. Apply knowledge of physiological basis to analyze clinical situations and therapeutic applications.

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COURSE OUTLINE
T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	4 (T)	Describe the physiology of cell, tissues, membranes and glands	**General Physiology – Basic concepts** Cell physiology including transportation across cell membrane Body fluid compartments, Distribution of total body fluid, intracellular and extracellular compartments, major electrolytes and maintenance of homeostasis. Cell cycle Tissue – formation, repair Membranes and glands – functions Application and implication in nursing	Review – discussion Lecture cum Discussion Video demonstrations	Quiz MCQ Short answer
II	6 (T)	Describe the physiology and mechanism of respiration Identify the muscles of respiration and examine their contribution to the mechanism of breathing.	**Respiratory system** Functions of respiratory organs Physiology of respiration Pulmonary circulation – functional features Pulmonary ventilation, exchange of gases	Lecture Video slides	Essay Short answer MCQ

			Carriage of oxygen and carbon-dioxide, Exchange of gases in tissue Regulation of respiration Hypoxia, cyanosis, dyspnea, periodic breathing Respiratory changes during exercise Application and implication in nursing		
III	8 (T)	Describe the functions of digestive system	**Digestive system** Functions of the organs of digestive tract Saliva – composition, regulation of secretion and functions of saliva. Composition and function of gastric juice, mechanism and regulation of gastric secretion. Composition of pancreatic juice, function, regulation of pancreatic secretion. Functions of liver, gall bladder and pancreas Composition of bile and function Secretion and function of small and large intestine Movements of alimentary tract	Lecture cum Discussion Video slides	Essay Short answer MCQ

			Digestion in mouth, stomach, small intestine, large intestine, absorption of food. Application and implications in nursing.		
IV	6 (T)	Explain the functions of the heart, and physiology of circulation	**Circulatory and Lymphatic system** Functions of heart, conduction system, cardiac cycle, Stroke volume and cardiac output Blood pressure and Pulse Circulation – principles, factors influencing blood pressure, pulse Coronary circulation, Pulmonary and systemic circulation Heart rate – regulation of heart rate Normal value and variations Cardiovascular homeostasis in exercise and posture Application and implication in nursing.	Lecture Discussion Video/Slides	Short answer MCQ
V	5 (T)	Describe the composition and functions of blood	**Blood** Blood – Functions, Physical characteristics Formation of blood cells	Lecture Discussion Videos	Essay Short answer

			Erythropoiesis – Functions of RBC, RBC life cycle WBC – types, functions Platelets – Function and production of platelets Clotting mechanism of blood, clotting time, bleeding time, PTT. Haemostasis – role of vasoconstriction, platelet plug formation in hemostasis, coagulation factors, intrinsic and extrinsic pathways of coagulation Blood groups and types Functions of reticuloendothelial system, immunity Application in nursing		MCQ
VI	5 (T)	Identify the major endocrine glands and describe them functions	**The Endocrine system** Functions and hormones of Pineal Gland, Pituitary gland, Thyroid, Parathyroid, Thymus, Pancreas and Adrenal glands. Other hormones Alterations in disease Application and implication in nursing	Lecture Explain using charts	Short answer MCQ

VII	4 (T)	Describe the structure of various sensory organs	**The Sensory Organs** Functions of skin Vision, hearing, taste and smell Errors of refraction, aging changes Application and implications in nursing	Lecture Video	Short answer MCQ
VIII	6 (T)	Describe the functions of bones, joints, various types of muscles, its special properties and nerves supplying them	**Musculoskeletal system** Bones – Functions, movements of bones of axial and appendicular skeleton, Bone healing Joints and joint movements Alteration of joint disease Properties and Functions of skeletal muscles – mechanism of muscle contraction Structure and properties of cardiac muscles and smooth muscles Application and implication in nursing	Lecture Discussion Video presentation	Structured essay Short answer MCQ
IX	4 (T)	Describe the physiology of renal system	**Renal system** Functions of kidney in maintaining homeostasis GFR	Lecture Charts and models	Short answer pMCQ

			Functions of ureters, bladder and urethra Micturition Regulation of renal function Application and implication in nursing		

Note: Few lab hours can be planned for visits, observation and handling (less than 1 credit lab hours are not specified separately)