

Branch Name:	BPT
Program Code:	PT101
Course Title:	Human Anatomy (HA)
Course Code:	3PT1010101
Pre-requisite Course:	Basic Science

Teaching and Examination Scheme:

Teaching Scheme			Evaluation Scheme (Marks)				
Lecture (L)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
180	120	16	80	20	80	20	200

Course Outcomes:

1. Describe common anatomical terms (K)
2. Describe the basic embryological development of structures (K)
3. Discuss the classifications of bones, their general features, structure, functions and the mechanism of displacement and common sites of fractures (KH)
4. Identify the skeletal muscles, their origin, insertion, nerve supply, actions, and main relations. (KH)
5. Describe Muscle Groups, their actions, nerve supply and effects of nerve injury. (K)
6. Discuss the joints of the body, their movements, and the muscles responsible for the movements. (KH)
7. Identify the borders of the named anatomical regions along with their associated fascia, ligaments, tendons, or cartilages. (KH)
8. Recognize anatomical structures and describe the topographic anatomy of the regions of abdomen, pelvis, perineum, thorax, and extremities. (KH)
9. Describe the anatomy of the components of organ systems of the body based on the anatomical region. (Thorax, abdomen, pelvis, and perineum). (K)
10. Describe the components of the nervous system, including the cerebrum, brainstem, cerebellum, spinal cord, peripheral nerves, sensory motor, and autonomic nerve system. (K)
11. Identify clinically relevant injuries, lesions and anatomical malformations including musculoskeletal and nervous system. (KH)

Course Contents: B.P.T. HA 101 (L)

Unit No. 1

- HA 1.1. Define Scope of Anatomy
- HA 1.2. Discuss the Anatomical Position and anatomical Terminology common anatomical terminologies (Groove, tuberosity, trochanters etc.)
- HA 1.3. Identify Anatomical positions of body, axes, and planes

Bone:

- HA 1.4. Discuss Composition, Functions, Classification based on Morphology,
- HA 1.5. Describe Development and Structure; Formation / Development of Bones esp. Long Bones; Parts of Long Bones
- HA 1.6. Discuss the Blood Supply of Bones

Cartilage:

- HA 1.7. Describe Types and Features of cartilage

Joints:

- HA 1.8. Define and state types of joints.
- HA 1.9. Discuss the features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints
- HA 1.10. Explain the movements of joints, factors permitting and limiting these movement
- HA 1.11. Discuss blood supply of joints; applied aspects.

Muscles:

- HA 1.12. Discuss Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture
- HA 1.13. Describe Blood supply and nerve supply of Skeletal Muscle; Motor Unit
- HA 1.14. Discuss the Types of Skeletal Muscles based on their action i.e. Agonists, Antagonists, Fixators, Synergists, Origin & Insertion, Tendon; Isometric & Isotonic contractions; Applied Aspects

Connective Tissue:

- HA 1.15. Explain Composition i.e. Cellular & Non-Cellular components;
- HA 1.16. Types and functions of connective tissue;
- HA 1.17. Types and functions of Ligaments;
- HA 1.18. Applied Aspects.

General Embryology:

- HA 1.19. Describe Ovum, Spermatozoa, fertilization and formation of the Germ layers and their derivations. Development of skin, Fascia, blood vessels, lymphatic, (outline only details not required).
- HA 1.20. Discuss Development of bones, axial and appendicular skeleton and muscles, Neural tube, brain vessels and spinal cord, Development of brain and brain stem structures.

Integumentary System:

- HA 1.21. Discuss the Structure of skin and its appendages

Unit No. 2

Musculo Skeletal Anatomy of Upper Extremity

- HA 2.1. Identify Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, and Phalanges.
- HA 2.2. Identify Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of fore arm, back of fore arm, palm, dorsum of hand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity.
- HA 2.3. Explain Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.
- HA 2.4. Discuss Arches of hand, skin of the palm and dorsum of hand.

Unit No. 3

Thorax

Cardio-vascular system:

HA 3.1. Describe Mediastinum: Divisions and contents Pericardium

HA 3.2. Describe Thoracic Wall: position, shape and parts of the heart; conducting System

HA 3.3. Describe blood supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise.

Respiratory system:

HA 3.4. Outline the respiratory passages, Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments.

HA 3.5. Describe Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm.

HA 3.6. Describe Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.

Unit No.4

Musculo Skeletal Anatomy of Lower Extremity

HA 4.1. Identify Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.

HA 4.2. Identify Soft parts: Gluteal region, Anterior, posterior, medial and lateral aspects of the thigh (Femoral triangle, femoral canal and inguinal canal), medial side of the thigh (Adductor canal), lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of foot, skin of foot.

HA 4.3. Discuss Joints of the lower limb: Hip Joint, Knee joint, Ankle and joint, joints of the foot.

Unit No.5

Musculo skeletal anatomy of trunk & pelvis

HA 5.1. Identify Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.

HA 5.2. Discuss Soft tissue: Pre and Para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, Inter-vertebral disc.

HA 5.3. Describe Pelvic girdle and muscles of the pelvic floor.

Unit No.6

Abdomen:

HA 6.1. Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum.

HA 6.2. Describe large blood vessels of the gut.

HA 6.3. Identify Location, size, shape, features, blood supply, nerve supply and functions of the following: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, and gall bladder.

HA 6.4. Describe Pelvis: Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.

Unit No.7

Endocrine glands:

HA 7.1. Describe Position, shape, size, function, blood supply and nerve supply of the following glands: Hypothalamus and pituitary gland, thyroid glands, parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.

Unit No.8

Musculo Skeletal Anatomy of Head and Neck:

HA 8.1. Identify Osteology: Mandible and bones of the skull.

HA 8.2. Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck.

Unit No.9

Neuro Anatomy

HA 9.1. Discuss Organization of Central Nervous system - Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system (Cranial nerves,

Peripheral nervous system, Peripheral nerve, Neuromuscular junction, Sensory end organs, Central Nervous System, Spinal segments and areas, Brain Stem, Cerebellum, Inferior colliculi, Superior Colliculi, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemisphere, Lateral ventricles, Blood supply to brain, Basal Ganglia, The pyramidal system, Pons, medulla, extra pyramidal systems, Anatomical integration)

Practical: B.P.T. Human Anatomy 101 Practical: HA (P)

- 10.1 Identify the parts of bones (Upper limb, lower limb and spine)
- 10.2 Identify the muscles of extremities, trunk and face on a dissected human body/3 D models.
- 10.3 Identify the joints of extremities, trunk and face on a dissected human body/3 D models.
- 10.4 Identify the course and relationships of major peripheral nerves including plexuses formation.
- 10.5 Identify the surface markings of joints, fascia, ligaments and muscles of extremities, trunk and face on a model.
- 10.6 Identify the gross structure of heart, lungs, brain and spinal cord on a dissected body.
- 10.7 Human body/3 D models

Text Books:

1. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004.
2. Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers
3. Chaurasia BD. Human anatomy Volume- I, II & III, CBS Publisher; 2004.
4. Singh V. Textbook of clinical neuroanatomy. Elsevier Health Sciences; 2014

Reference Books:

1. Gray's Anatomy: Descriptive and Applied. Longman
2. Snell RS. Neuroanatomy.

List of Open-Source Software/learning website:

- k-hub.in e library/A single platform for all e resources (K-hub, E Resource)
 - o User Name- KB4605VNG
 - o Password- BL@69BX!
- knowledgegainer.delnet.in (Delnet, E Resource)
 - o User Name-gjspum
 - o Password- spu10924

Mapping of CO with PO:

Course Outcomes	Program Outcomes (POs)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	H										
CO2		M									
CO3			L								
CO4				M							
CO5					L						
CO6								M			
CO7							L				
CO8						H					
CO9									M		
CO10										L	
CO11											M

H: High, M: Medium, L: Low