HUMAN ANATOMY AND PHYSIOLOGY PRINCIPLES

UNIT CODE: 0914441 08A

TVET CDACC UNIT CODE: ENG/CU/MDE/CC/03/5/MA
UNIT DURATION: 80 Hours

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Apply human anatomy and physiology principles

Unit Description

This unit specifies the competencies required to apply human anatomy and physiology principles. It involves applying knowledge of basics of human anatomy and physiology, musculoskeletal system knowledge, cardiovascular system knowledge, respiratory system knowledge, digestive system knowledge, urinary system knowledge, nervous system knowledge, reproductive system knowledge, dental anatomy knowledge, special sensory organs and basic patient care and medical ethics.

Summary of Learning Outcomes

S/No	Learning Outcome	Duration in hours.
1.	To apply basics of human anatomy and physiology	8
2.	To apply musculoskeletal system knowledge	7
3.	To apply cardiovascular system knowledge	7
4.	To apply respiratory system knowledge	7
5.	To apply digestive system knowledge	7
6.	To apply urinary system knowledge	7
7.	To apply nervous system knowledge	8
8.	To apply reproductive system knowledge	7
9.	To apply dental anatomy knowledge	7
10.	To apply special sensory organ knowledge	8
11.	To apply basic patient care and medical ethics knowledge	7

	TOTAL	**80**

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	**Content**	**Suggested Assessment Methods**
1. Apply Basics of Human Anatomy and Physiology	1.1 Medical terminologies 1.1.1 Directional terms 1.1.2 Regional terms 1.1.3 Body and plane sections 1.1.4 Terms of motion 1.1.5 Body cavities 1.2 Human body compartments 1.3 Human body cells, tissues and organ	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
2. Apply Musculoskeletal System knowledge	2.1 Bone anatomy and physiology 2.1.1 Functions of bones Types of bones 2.1.2 Bone structure 2.1.3 Microscopic structure of bone 2.1.4 Development of bone tissue 2.1.5 Healing of bone 2.1.6 Types of skeletons 2.1.7 Types of joints 2.2 Muscle Anatomy and Physiology 2.2.1 Organization of skeletal muscle	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

	2.2.2 The neuromuscular junction 2.2.3 Action of skeletal muscle 2.2.4 Principal skeletal muscles 2.3 Musculoskeletal disorders	
3. Apply Cardiovascular System knowledge	3.1 Heart Anatomy and Physiology 3.1.1 Position 3.1.2 Structure 3.1.3 Flow of blood through the heart 3.1.4 Blood supply to the heart (the coronary circulation) 3.1.5 Conducting system of the heart 3.1.6 The cardiac cycle 3.1.7 Cardiac output 3.2 Blood circulation 3.2.1 Blood pressure 3.2.2 Types of blood circulations 3.2.3 Fetal circulation 3.3 Cardiovascular disorders	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
4. Apply Respiratory System knowledge	4.1 Respiratory System Anatomy and Physiology 4.1.1 Nose and nasal cavity 4.1.2 Pharynx 4.1.3 Larynx	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment

	4.1.4 Trachea 4.1.5 Lungs 4.1.6 Bronchi and bronchioles 4.1.7 Respiratory bronchioles and alveoli 4.2 Respiration process 4.3 Respiratory disorders	• Oral Questioning
5. Apply Digestive System knowledge	5.1 Digestive System Anatomy and Physiology 5.1.1 The digestive tract 5.1.2 Pancreas 5.1.3 Liver 5.1.4 Biliary tract 5.1.5 Bile ducts Gall bladder 5.2 Digestive process. 5.3 Digestive disorders	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
6. Apply Urinary System knowledge	6.1 Kidney Anatomy and Physiology 6.1.1 Gross structure of the kidney 6.1.2 Microscopic structure of the kidney 6.1.3 Functions of the kidney 6.1.4 Ureters 6.1.5 Urinary bladder 6.1.6 Urethra 6.2 Urinary process 6.3 Urinary disorders	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
7. Apply Nervous System knowledge	7.1 Cells and tissues of nervous system.	• Practical Assessment • Project

	7.2 Nervous System Anatomy and Physiology 7.2.1 The meninges and cerebrospinal 7.2.2 fluid (CSF) 7.2.3 The meninges 7.2.4 Central nervous system 7.2.5 Brain 7.2.6 Spinal cord 7.2.7 Peripheral nervous system 7.2.8 Autonomic nervous system 7.3 Nervous disorders	• Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
8. Apply Reproductive System knowledge	8.1 Female Reproductive Anatomy and Physiology 8.2.1 External genitalia (vulva) 8.2.2 Internal genitalia 8.2.3 Breasts 8.2.4 Puberty in the female 8.2.5 The reproductive cycle 8.2 Male Reproductive Anatomy and Physiology 8.2.1 Scrotum 8.2.2 Testes 8.2.3 Seminal vesicles 8.2.4 Ejaculatory ducts 8.2.5 Prostate gland	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

	8.2.6 Urethra and penis 8.3 Human development process 8.4 Reproductive disorders	
9. Apply dental anatomy knowledge	9.1 The tooth and buccal cavity 9.2 Common dental disease and disorders 9.3 Dental diagnostic and therapeutic measures	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
10. Apply Special Sensory Organ knowledge	10.1. Eye Anatomy and Physiology 10.1.1 Structure 10.1.2 Physiology of sight 10.2. Ear Anatomy and Physiology 10.2.1 Structure 10.2.2 Physiology of hearing 10.3. Nose Anatomy and Physiology 10.4. Sensory Organs disorders	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning
11. Apply basic patient care and medical ethics knowledge	11.1 Basic patient care 11.2 Medical ethics 11.3 Code of practice	• Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

Suggested Methods of Instruction

- Practical

- Projects
- Demonstrations
- Group Discussions
- Role Play
- Interactive lectures
- Individual Assignments
- Industial Attachments
- Viewing of Related Videos
- Clinical and Hospital Trips

Recommended Resources for 25 trainees

S No.	Category Item	Description Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Reference books	Principles of Anatomy and Physiology" by Gerard J. Tortora and Bryan Derrickson Human Anatomy & Physiology" by Elaine N. Marieb and Katja Hoehn	5 pcs for each	1:5
2.	Charts	Assorted Human Anatomy diagrams	1	1:25
3.	Audio visual presentations	Projector, Atlas of Human Anatomy" by Frank H. Netter, 3D Anatomy Apps	1	1:25
B	**Learning Facilities & Infrastructure**			
4.	Lecture theory room	$60m^2$	1	1:25
C	**Consumable materials**			

5.	Assorted model materials	Skeletons, Organs	25 pcs for each	1:1
D	**Tools & Equipment**			
6.	Assorted Anatomical models	3D models of the human body	5 pcs	1:5