Date of Issue: June 10, 2025

SUBJECT NAME: Human Motor Control and Learning

SUBJECT DESCRIPTION

The subject will introduce the structure and function of the nervous system as it relates to the control of movement and behaviour across the lifespan. The content will provide an understanding of the application of principles and mechanisms underlying how motor skills are learned and executed, as well as the elements that determine skilled performance, including motor skill recovery following injury to the nervous system.

CONTENT COVERED

- Introduction to sensorimotor control
- Methods for studying motor behaviour
- Sensory contribution to sensorimotor control
- Cognitive factors influencing movement
- Motor systems and organization of action
- Principles of reaction time, movement speed and accuracy
- Sensorimotor control (theories, internal models)
- Motor learning
- Effects of neurological conditions on movement
- Effects of the environment and conditioning on behaviour

KEY PERFORMANCE INDICATORS (KPIs)

1. Understands fundamental principles and concepts in motor learning and control.
2. Understands the role of cognition, attention, and memory in motor learning and control.
3. Understands the roles of augmented information and practice organization in motor skill acquisition.
4. Identifies and explains possible sensory and motor signs and symptoms associated with damage to different areas of the nervous system.
5. Summarizes the principles of motor learning and explains how a movement or motor skill emerges from the interaction of factors related to the environment, task, and individual.
6. Applies knowledge of the sensorimotor systems to explain how the nervous system controls movement in real-life situations.
7. Applies concepts and principles in motor learning and control to teaching, coaching, skill development, and overall motor performance.
8. Understands and considers the process of skill and movement acquisition at significant developmental milestones.
9. Explains the effects of neuromuscular disease on motor behaviour.
10. Explains the process of acquisition, modification, and re-acquisition of motor skills related to the environment, general health, injury and task demand.
11. Understands and communicates motor learning and control terminology effectively to clients and stakeholders verbally and in writing.