Syllabus for
Sports Physiology; Sports Nutrition; Sports Biochemistry; SportsBiomechanics; Sports Psychology (PGQP51)

Biochemistry: Structure and Function of Carbohydrate, Protein, Nucleic acid, Fatty acids, Lipids and Enzymes, Bioenergetics, Glycolysis, Gluconeogenesis, Pentose Phosphate Pathway, Citric AcidCycle, Electron Transfer System, Oxidative Phosphorylation; Metabolic Regulation of Glucose and Glycogen, Lipid Biosynthesis, Fatty Acids Catabolism, Biosynthesis, Oxidation and Production of Urea.

Genetics: Principles of inheritance, linkage & crossing over, chromosomal aberrations, mutation, extrachromosomal inheritance, replication, transcription, translation, DNA repair, transformation, transduction, conjugation and population genetics

Human Physiology: Cellular Physiology; Exercise and Energy Metabolism; Macronutrients, micronutrients and water, Basic energy systems and their functions, Drugs and doping; Blood, Body fluids and Endocrinology; Exercise and Muscular system: Classification of muscle, Physiological anatomy of skeletal muscle, Motor unit and All-or-none law, Muscular adaptations in response to training; Exercise and Cardiovascular system: Basic anatomy of heart and vessels, Cardiac output and cardiac cycle; Exercise and Respiratory system: Physiological anatomy of respiratory system, Internaland external respiration; Exercise and Nervous system: Nervous system types, components and their functions, Structure, types and functions of neuron, Synaptic junction; Exercise and Thermoregulation; Hypo- and hyperthermia, Mechanisms of heat exchange.

Human Psychology: Introduction to Psychology and Sport Psychology; Cognitive processes Motivation and Emotion; Personality and Intelligence; Group dynamics; Mood Disorders-Unipolar Disorder, Bipolar Disorder, Depression; Personality Disorders and Schizophrenia; Growth and Development at different stages of life; Learning Processes; Personality, Motivation and Emotion; Coping with Stress

Mechanics: Scalar and Vector, Force, Momentum, velocity work, momentum, projectile motion, gravitation, circular motion, rotational motion, Simple harmonic motion, Sound waves, potential and kinetic energy, conservation of energy, Elasticity, Angular Momentum, Moment of Inertia, Radius of gyration.

Food and Nutrition: - Food groups and RDA, Functions, metabolism, sources and deficiency of nutrients, water, energy, CHO, proteins, fats, vitamins and minerals. Cereals and millets, Legumesand oil seeds, Fruits and vegetables, Flesh foods and Eggs, Milk and milk products, Sugar andjiggery, Fats and oils. Etiology, symptoms,
and dietary management in diseases of the gastrointestinal tract, metabolic disorders, kidney diseases, diseases of cardio vascular system, diet for weight management, diet for allergic conditions. Introduction to quality control, evaluation and assurance, organization of quality control department; Food laws and standards, control of food quality, evaluation of food safety. Food adulteration- classification & detection methods of adulterants Hygiene and sanitation- issue in food safety, potable water, cleaning and washing, cleaning agents, personal hygiene of the food handlers, food contamination and its hazards.