

ELECTIVE 1 & ELECTIVE 2 SYLLABUS

(Supplement from Department of Physiotherapy)

**Ph.D.
in
Physiotherapy**

To be Effective from Academic Year 2020-21 and Onwards



SARDAR BHAGWAN SINGH UNIVERSITY

BALAWALA, DEHRADUN 248001, UTTARAKHAND, INDIA

SEMESTER 1

Course Code & Name	Sub-code by Department	Course	Credit Points	Hours/Week	Marks
PHDC 713D Elective 1 D. Others [@]	PTPT01	Essentials of Pathology and Microbiology	2	2	50
PHDC 714 Elective 2: Subject in the Field of Discipline [§]	PTPT 02	Assessment Skills, Training and Advance Procedures	4	4	100
	PTPT 03	Physiotherapy Specific Conditions and its Outcome Measures			

[@] Supervised Self Study [03 Seminars, 03 Assignments, 01 Problem Solving Class/Two Week (n=8); All these under the supervision of Approved Supervisor/Co-supervisor]

[§] Supervised Self Study [05 Seminars, 05 Assignments, 01 Problem Solving Class/Week (n=15); All these under the supervision of Approved Supervisor/Co-supervisor]

PHDC 713D: ELECTIVE 1D: OTHERS

PHDC 713D PTPT 01 ESSENTIALS OF PATHOLOGY AND MICROBIOLOGY

2 CREDIT POINTS

1. Pathology (20 h)

Inflammation (acute, subacute, and chronic), healing (wound healing, fracture healing, Circulatory disorders (haemorrhage, shock embolism, thrombosis, ischaemia, oedema, gangrene and necrosis), repair, degeneration, metabolic and growth disorders of bone. Diseases of central nervous system and peripheral nervous system. Cardiac Arrhythmia, Hypotension and Hypertension.

2. Microbiology (10 h)

General Microbiology: historical introduction, microscopy and morphology of bacteria, growth and nutrition of bacteria, sterilisation and disinfection, culture media, culture methods, identification of bacteria, bacterial taxonomy, bacterial genetics, microbial pathogenicity.

**PHDC 714 ELECTIVE 2: SUBJECT IN THE FIELD OF
DISCIPLINE OF PHYSIOTHERAPY****PHDC 714 PTPT02 ASSESSMENT SKILLS, TRAINING AND ADVANCE
PROCEDURES 4 CREDIT POINTS****1. Recent Advance Procedures (20 h)**

Mental imagery, centering, arousal control, visualization, goal setting, positive self-talk, Relaxation techniques, reaction time, biofeedback. Robotic Therapy, Virtual Reality, Mental imagery, CIMT, Auditory rhythmic stimulation, Trans-cranial Direct stimulation, Trans-cranial magnetic stimulation. Human performance lab (Gait training and peak performance training, Treadmill training, Bicycle ergometry), Kinanthropometry (Body composition analysis). Cyriax concept, Maitland Techniques, Myofascial release, Mulligan concept, McKenzie concept, Dry needling, Muscle Energy Technique, Positional Release Therapy, Laser Therapy.

2. Exercise Physiology (20 h)

Physiological Responses to Exercise: Exercise effect on metabolism, muscle fatigue, respiratory and cardiovascular changes, second wind, and electrolyte regulation etc. Fitness testing and its analysis, flexibility defects and its correction. Strength training for children and Adolescents, environmental effects on training, exercise testing and prescription.

3. Nutrition (20 h)

Muscle building nutrition, carbohydrate loading, Female athletic triad (magnesium, phosphorous, iron), utilization sodium, potassium and chlorine, minerals and exercise performance, functions of body water and water requirement in physical activity. Optimal nutrition for physical activity, Diet planning, pre and postgame meals.

**PHDC 714 PTPT03 PHYSIOTHERAPY SPECIFIC CONDITIONS AND ITS
OUTCOME MEASURES 4 CREDIT POINTS**

1. Functional outcome measures (30 h)

Outline of pain and functional outcome measures used in Sports injuries Neurological conditions, and Orthopedic conditions over head and neck, Thoracic cavity (costo-vertebral and costo-transverse), temporomandibular joint, Shoulder girdle, elbow joint, wrist and hand complex, vertebral column, pelvic girdle, hip joint, knee joint ankle and foot joints.

2. Pathomechanics (30 h)

Muscle trauma, contusions, strains and rupture, effects immobilization and detraining, bone trauma, ligament and tendon, injuries, structure, mechanical properties and injury to articular cartilage, relationship between injury and nervous tissues, DOMS. Pathomechanics of Muscle – Bone, Ligament, Tendon, Articular Cartilage, and Nervous Tissues of various joints (Vertebral column, temporomandibular joint, Thoracic cavity, upper limb and lower limb joints).