

Subject Title:	PT in Orthopedics (ELECTIVE I)
Subject Code:	1PT2010203
Year:	Second Year MPT
Pre-requisite Subject	- NONE -

Objectives of course:

1. The extension of knowledge, expertise and skills towards the Diagnosis in Musculoskeletal Conditions in improvement of professional practice.
2. It provides advanced study and reflection on practice in various Musculoskeletal Conditions in the physiotherapy practice by both drawing on a student's professional experience and expertise, and extending it.

Subject Contents (150 Hours)

ANATOMY, PHYSIOLOGY AND BIOMECHANICS

- 1 Embryological development of musculoskeletal system.
- 2 Osteology; structure of bone, ossification of bones, skull bones, facial bones, bones of upper extremity,, lower extremity, pelvis, vertebral column, ribs.
- 3 Myology; Structure of muscles , type of muscle, muscle fibers, origin , insertion,, nerve supply of muscles of upper extremity, lower extremity, Trunk.
- 4 Structure of joints, types of joints, detailed structure and formation of all the joints, detailed structure and formation of all the joints, neurobiology of joint.
- 5 Neurology: peripheral nerves, dermatomes and myotomes.
- 6 Physiology: Joint physiology (movements), muscle physiology.
- 7 Biomechanics of normal joints and Pathomechanics of fractures, deformed joints.

Musculoskeletal Conditions- Assessment and Evaluation

Introduction, principles and concepts of Patient history, observation, Examination, Principles, scanning examination, examination of specific joints, functional assessment, specific tests, reflexes, cutaneous distribution, joint play movements, palpation and diagnostic imaging.

- 1 Head and Face:
Patient history, observation Examination, examination of the head, examination of the face, examination of the eye, examination of the nose, examination of the teeth, examination of the ear, special tests, reflexes and cutaneous distribution, joint play movements, palpation, diagnostic imaging.
- 2 Cervical Spine:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, peripheral joint scanning examination, myotomes, functional assessment, special tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 3 Temporo mandibular Joint:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 4 Shoulder:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 5 Elbow:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.

- 6 Forearm, Wrist and Hand:
Patient history, Observation – common hand and finger deformities, other physical findings Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 7 Thoracic (dorsal) Spine: Patient history, observation Kyphosis, scoliosis, breathing chest deformities. Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 8 Lumbar Spine:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 9 Pelvis:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 10 Hip:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 11 Knee:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements , palpation, diagnostic imaging.
- 12 Lower leg, Ankle and Foot:
Patient history, observation Examination, active movements, passive movements, resisted isometric movements, functional assessment, specific tests, reflexes and cutaneous distribution, joint play movements, palpation, diagnostic imaging.
- 13 Assessment of Gait:
a) Normal patterns of gait, stance phase, swing phase, joint motion during normal gait Normal parameters of gait, base width, step length, stride length, lateral pelvic shift, vertical pelvic shift, pelvic rotation centre of gravity, normal cadence. Overview and patient history, Observation – foot wear Examination, locomotion score, compensatory mechanisms.
b) Abnormal gait, antalgic (painful) gait, arthrogenic gait (stiff hip or knee), ataxic gait, contracture gait, equines gait, gluteus maximus gait, gluteus medius (Trendelenburg's) , hemiplegic or hemiparetic gait, parkinsonian gait, plantar flexor gait, psoatic limp, quadriceps gait, scissors gait, short leg gait, steppage or drop foot gait.
- 14 Assessment of Posture:
a) Postural development, factors affecting posture, causes of posture Common spinal deformities, Lordosis, kyphosis, scoliosis Patient history, Observation – standing, forward flexion, sitting, supine lying prone lying Examination.
- 15 Assessment after acute injury of bone, ligament, and tendon.
a. Mechanism of injury
b. History
c. Observation d. Examination
e. Special tests
f. Palpation and diagnostic imaging

- 16 Assessment of the Amputee:
 - a. Levels of amputation
 - b. Patient history, observation
 - c. Examination, measurements related to amputation active movements, passive movements, resisted isometric movements, functional assessment, sensation testing, psychological testing , palpation, diagnostic imaging.
- 17 Pre operative and post operative assessment in orthopaedic surgeries.
- 18 Assessment and evaluation of pain Apart from the above; the student is expected to learn assessment and evaluation in the following clinical conditions (pre operative and post operative).