

Course Title	Musculoskeletal and Sports Sciences-I
Course Code	PT505
Course Credit	Lecture: 5
	Practical / Clinical Training: 2
	Total: 7

Course Objective

1. Students able to understand clinical aspects of various Musculoskeletal & Sports conditions
2. Assess and manage various cases and acquire the knowledge of hands on skills & clinical reasoning in Musculoskeletal and Sports Sciences
3. Integrate the knowledge of anatomy and biokinesiology in musculoskeletal and various sports injuries rehabilitation.

Detailed Syllabus

Sr. No.	Name of chapter & Contents	Hours Allotted
Section – I		
1.	Clinical Musculoskeletal and sports science : An introduction	2
	Physiotherapy in Musculoskeletal and Sports sciences Pt in pain and loss of function Principle of practice Structural stability and functional mobility Physiotherapy management during mobilisation and immobilisation	3
2.	Physiotherapy assessment of the patients with musculoskeletal disorders Outcome measure for physical and functional diagnosis: Patient's history, observation, palpation, examination, pain assessment, sensory, motor, balance, assessment of tone, flexibility, tightness, special test, postural and clinical gait assessment, functional assessment, Physical disability index according to ICF, etc... Hands on skills	8
3.	Investigation employed in Musculoskeletal disorders: X-ray, CT scan, MRI, bone densitometry, other Laboratory reports etc.	3

4.	Soft tissue injuries: Classification, Sign and Symptoms Assessment(Physical and Functional) Tendinitis, bursitis, capsulitis, sprain and strain ligament injuries, muscles injuries, etc... Management conservatives and surgical Physiotherapy management in acute and chronic injuries	12
5.	Fracture: Definition, types, signs and symptoms Fracture healing Conservative and surgical approaches of treatment Complications of fractures, Management of complications Close reduction and internal fixation Open reduction and external fixation Physiotherapy management during immobilisation and mobilisation	12
6.	Subluxation/ dislocations – Definition, types, signs and symptoms, assessment and management (conservative and operative). Physiotherapy management Structural stability and functional mobility	8
7.	Types of splints and Traction, techniques	4
8.	Common surgical techniques in MS and sports sciences Definition, Types, Indication Pre-operative physiotherapy assessment and management Surgical intervention procedure and intervention in brief	8
	Post-surgical physiotherapy assessment and treatment of 1. Open reduction and internal fixation (ORIF) 2. Close reduction external fixation (CREF) 3. Plates, nails, K-wire, etc... 4. Ilizarov's Technique and A.O. Method 5. Surgical correction Osteotomy, Arthrodesis, Arthroplasty, Correction on bone deformities and contractures 6. Bone grafting 7. Tendon transfers, Nerve Suturing and grafting	12
Section II		
9	Infection of the bone and joints: Types, Sign and Symptoms, physical and functional diagnosis, Conservative and Surgical treatment. Osteomyelitis Exogenous osteomyelitis Chronic osteomyelitis Sub-acute osteomyelitis Pyogenic arthritis Syphilitic infection of bone and joints	8

	Fungal infection of bone	
10	Amputation and physiotherapy intervention Introduction Indication Types of amputation Assessment (physical and functional) Surgical principle Pre and Post-operative treatment Complications	10
11	Arthritis: Definition, causes, pathology, sign and symptoms, assessment and conservative and surgical management including physiotherapy intervention Osteoarthritis Rheumatoid arthritis Seronegative spondyloarthritis Entropathic arthritis Metabolic arthropathy Haemophilic arthritis Reactive arthritis Synovial chondromatosis Villonodularsynovitis	10
12	Deformities and physiotherapy intervention Definition Classification Causes Effect on physical and functional performance Management of common congenital and acquired deformities	10
13	Metabolic bone disease: definition, causes, pathology, sign and symptoms, assessment and conservative and surgical management including physiotherapy intervention Rickets Osteomalacia Hyperparathyroidism Osteoporosis Fluorosis	6
14	Bone tumours related to physiotherapy intervention Definition Types and Classification Bone forming tumors Cartilage forming tumors Giant cell tumors Tumors of non-osseous origin Multiple myeloma Resorptive bone lesion	5

	Principle of tumor management Physiotherapy management	
15	Poliomyelitis, tuberculosis and Other conditions: Definition, causes, pathology, sign and symptoms, assessment and conservative and surgical management Poliomyelitis: Virology, stages of disease, neuropathology of recovery, treatment, late effects, physiotherapy rehabilitation	6
16	Sports medicine related to physiotherapy intervention Definitions Incidence and classification Role of physiotherapy Common sites Treatment Training of athlete Grooming of specific athletic skills	9
17	Congenital anomalies and Developmental bone disorder:physiotherapy intervention Osteogenesisimperfecta Osteopetrosis Leri's disease Fibrous dysplacia Neurofibromatosis Paget's disease Congenital multiple exostosis Multiple enchondromatosis Achondroplasia Chondro-osteodystrophy Cleidocranialdysostosis Nail-patella syndrome	8

Instructional Method:

1. Teaching and training sessions will be carried out through active learning. Active participation and contribution in group discussion and seminars are mandatory for students
2. Lectures to be conducted with the help of black board and/or audio-visual aids that includes multi-media projector, OHP, etc.
3. Problem based and/or case based assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
4. The course includes a laboratory where the students have an opportunity to build and appreciation for the concepts being taught in lectures.
5. Instruction method will be integrated with clinical training, bedside / class room teaching and tutorials as necessary.

Text books:

1. Essential Orthopaedics – Maheshwari, 3rd edition, Mehta Publishers
2. Essential of Orthopaedics for Physiotherapists- John Ebnezar, Jaypee publications
3. Outline of Orthopaedics- AdamsandHamblen, 13th edition, Churchill Livingstone
4. Outline of fractures- Adams and Hamblen, 11th edition, Churchill Livingstone

Reference Books:

1. Apley's System of Musculoskeletal and Fractures – 8th edition
2. Textbook of Musculoskeletal – Kotwaland Natarajan, Elsevier