INSTITUTE	**FACULTY OF PHYSIOTHERAPY**
PROGRAM	**MASTER OF PHYSIOTHERAPY**
SEMESTER	**2**
COURSE TITLE	**PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES-I**
COURSE CODE	**17MP0203**
COURSE CREDITS	**6**

Objective:

1 Have the Thorough knowledge of structures of the musculoskeletal system
2 Learn the advance assessment skills

Course Outcomes: After completion of this course, student will be able to:

1 Have detail knowledge of functional anatomy and biomechanics of the musculoskeletal system, enabling accurate assessment of musculoskeletal dysfunctions
2 Develop the ability to perform thorough physical assessments using advance assessment techniques and tools.
3 Utilize clinical reasoning to form differential diagnoses, based on patient history, physical assessment, and clinical presentations
4 Proficiency in the use of diagnostic tools such as gait analysis, posture assessments, and manual testing techniques to identify musculoskeletal issues.
5 Strengthen communication skills to effectively interact with patients, families, and other healthcare professionals.

Pre-requisite of course: To have deep knowledge of all the musculoskeletal conditions

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	50	50

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Contents : Unit	Topics	Contact Hours
1	**Anatomy, Physiology & Biomechanics** Embryological development of musculoskeletal system, Osteology; structure of bone, ossification of bones, skull bones, facial bones, bones of upper extremity,, lower extremity, pelvis, vertebral column, ribs., Myology; Structure of muscles , type of muscle, muscle fibers, origin , insertion,, nerve supply of muscles of upper extremity, lower extremity, Trunk., Structure of joints, types of joints, detailed structure and formation of all the joints, detailed structure and formation of al the joints, neurobiology of joint, Neurology: peripheral nerves, dermatomes and myotomes, Physiology: Joint physiology (movements), muscle physiology, Biomechanics of normal joints and Pathomechanics of fractures, deformed joints	40
2	**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)** Head and face, Cervical spine, Lumbar spine, Thoracic spine, Tamporomendibular joint, Shoulder, elbow, Forearm, Wrist and Hand, Hip, knee , Pelvis, Lower leg, Ankle and Foot complex, 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) 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., Assessment of Posture: 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., 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, 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., Pre operative and post operative assessment in orthopaedic surgeries, Assessmnet 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)	40
Total Hours		**80**

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Practicals/OPD/Case Presentation** Practicals/OPD/Case Presentation	80
Total Hours		**80**

Textbook :

1 Basic Biomechanis Of Musculoskeletal System, 3rd Edition , Margreta Nordin , Lipinkott Williams and Wilkins , 1998

2 Orthopedic Physical Assessment , David J Meggi, Elsevier, 2014

3 Joint Structure And Function: A Comprehensive Analysis Fourth Edition, Pamela K. Levangie, Pt, Dsc, Cynthia C. Norkin, Pt, Edd, F.A.Davis, 2005

4 Clinical Orthopedic Rehabiliattion, S . Brent Brotzman, Mosby, 2003

5 Textbook of Orthopedics, John Ebnezer, Jaypee Brothers , 2016

References:

1 Apley and Solomon's System of Orthopaedics and Trauma Tenth Edition, Apley and Solomon's System of Orthopaedics and Trauma Tenth Edition, Ashley W. Blom, TAYLOR AND FRANCIS GROUP, 2014

2 Gait Analysis - An Introduction , Gait Analysis - An Introduction , MICHAEL .W.WHITTLE, ELSEVIER, 2007

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
0.00	0.00	35.00	35.00	30.00	0.00

Instructional Method:

1 THEORY + PRACTICAL

Supplementary Resources:

1 NA

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