	Department of Biomedical Sciences **Physiotherapy Degree Programme** **Pathologies of the locomotor apparatus syllabus**
Academic year 2020-2021. Academic term: second semester of second year **Course coordinator: Prof. Elizaveta Kon**	

ORTHOPAEDICS (4 ECTS)	
Prof. Elizaveta Kon	Associate Professor of Diseases of the Locomotor System at Humanitas University. Head of the Orthopaedics Section, Centre for Knee Joint Reconstruction at Humanitas Hospital. E-mail: elizaveta.kon@humanitas.it
Dr Berardo Di Matteo	Researcher at Humanitas University. Consultant Orthopaedic Physician. Centre for Knee Joint Reconstruction at Humanitas Hospital E-mail: berardo.di_matteo@humanitas.it
Objectives	Learn the general terminology, anatomy, biomechanics and function of major

4) Knee pathologies

Biomechanics of meniscal and ligamentous injuries. Meniscal injuries: conservative and surgical treatment and post-operative rehabilitation. Anterior cruciate and posterior cruciate injuries, medial and lateral collateral ligament injuries: conservative and surgical treatment and post-operative rehabilitation

5) Hip diseases

Anatomy and biomechanics of the hip. Clinical/instrumental approach and physical examination. Congenital hip dysplasia, femoroacetabular impingement, osteonecrosis, coxarthrosis, greater trochanteric pain syndrome

6) Lumbago

Clinical/instrumental approach, physical examination and pathophysiological mechanisms of low back pain. Clinical/instrumental approach, physical examination and pathophysiological mechanisms of low back pain with or without leg pain. Epidemiology, symptoms and pharmaceutical treatment of low back pain with or without leg pain. Spondylolysis, spondylolisthesis and major pathologies

7) Herniated disc

Clinical/instrumental approach, physical examination and pathophysiological mechanisms of herniated disc. Epidemiology, symptoms and pharmaceutical treatment of herniated disc

8) Scoliosis

Aetiology and treatment of scoliosis and scoliotic attitude.

9) Fractures

Biology, biomechanics, clinic and treatment of fractures. Types and locations of fractures and their complications

Definition of idiopathic and secondary osteoarthritis. Clinical and radiographic characteristics of osteoarthritis. Pharmacological, non-pharmacological and surgical treatment of osteoarthritis

3) Osteoporosis and fibromyalgia

Definition, pathophysiology, clinical features of osteoporosis. Risk factors, symptoms and treatment of osteoporosis. Definition, pathophysiology, clinical features of fibromyalgia. Risk factors, symptoms and treatment of Fibromyalgia

4) Connective tissue disease

Definition, symptoms and treatment. Classification of connective tissue disease: systemic sclerosis, systemic lupus erythematosus, Sjögran's syndrome, polymyositis, dermatomyositis

5) Arthritis

Definition, pathophysiology clinical features of arthritis. Classification of arthritis, spondyloarthritis, ankylosing spondylitis, psoriatic arthritis, reactive arthritis, rheumatoid arthritis

IMAGING OF THE MUSCULOSKELETAL SYSTEM (2 ECTS)	
Dr Nicoletta Trenti	Graduated in Medicine and Surgery from the University of Milan in 1981. In 1986 she obtained her Specialisation in Radiodiagnostics and Radiotherapy from the same University. Since 2002 she has been working at the Medical Diagnostic Radiology Area of Humanitas Research Hospital in Rozzano, Milan. Expert in imaging of the musculoskeletal system. E-mail: nicoletta.trenti@humanitas.it
Objectives	The aim of the module is to provide students with sufficient content to recognise the clinical conditions depicted in the musculoskeletal system images and to discuss with radiologists.
Teaching methods	Lectures with classroom discussion.
Teaching material	Slides presented in class, available to physiotherapy students on

3) Lower limbs

Evaluation of mechanical and anatomical load and lower limb length discrepancies Study of congenital and acquired skeletal dysmorphisms.

Lower limb torsion defects: CT and EOS. Surgical planning and monitoring during corrective and lengthening treatment.

4) Knee

Imaging of anatomical structures of the knee. Indications and limitations of ultrasound, X-rays, CT and MRI in structural and functional investigations of the knee. Study of congenital and acquired skeletal dysmorphisms. Radiological characteristics of the most frequent skeletal and muscular pathologies: patellofemoral dysplasia, evaluation of prosthetic implants integration and ligament reconstruction, implant check-ups after knee traumatology and in traumatic and degenerative pathologies, distraction - injury and muscle haematoma.

5) Shoulder

Imaging of the anatomical structures of the shoulder. Indications and limitations of ultrasound, X-rays, CT and MRI: morphological, structural and functional investigations of the shoulder. Study of congenital and acquired skeletal dysmorphisms; radiological characteristics of the most frequent acromioclavicular and scapulohumeral pathologies: dislocation, labrum

scaphoid and avascular necrosis of the

2) Non-steroidal anti-inflammatory drugs (NSAIDs) (part 1)

Role of lipid mediators (eicosanoids) derived from arachidonic acid in inflammatory processes. The arachidonic acid cascade. Biosynthesis and function of leukotrienes: the lipoxygenase pathway and their pharmacological inhibition. Biosynthesis and function of prostanoids: the prostaglandin H synthase pathway and the cyclooxygenase enzymes COX-1 and COX-2.

Pharmacological inhibition of prostaglandin synthesis: mechanism of action of non-steroidal anti-inflammatory drugs (NSAIDs). The main chemical classes of NSAIDs.

3) Non-steroidal anti-inflammatory drugs (NSAIDs) (part 2) - Steroidal anti-inflammatory drugs

Main actions, therapeutic uses and adverse effects of the chemical messengers