Course title	**Movement and Control**				
Course code	**GEMD-203**				
Course type	Required				
Level	Undergraduate				
Year / Semester	Year 2, Semester 3				
Teacher's name	Theodoros Kyriakides and Joseph Joseph				
ECTS	13	**Teaching Periods per Week**			
		Large Group Learning	**Small Group Learning**	**Laboratories & Skills**	**Clinical Practice**
		6	6	5	6
Course purpose and objectives	The aim of this course is to: • Provide the students with an understanding of the structure and function of the nervous and musculoskeletal systems • Provide the students with an understanding of the pathology of neurological, inflammatory and non-inflammatory rheumatic diseases. • Introduce students to the principles of orthopaedics • Introduce the students to the characteristics, manifestations and investigation of neurological and rheumatic diseases • Introduce the students to the therapeutic and general management of autoimmune rheumatic conditions and neurological conditions • Develop the student's consultation and examination other skills and professional competencies in relationship to managing patients with chronic rheumatic diseases, neurological diseases and patients with trauma				
Learning outcomes	At the end of the course, the student will be able to: *Knowledge* 1. Describe the histology of bone, cartilage and skeletal muscle. 2. Describe the different types of collagens and explain their significance in health and disease 3. Explain the differences between the types of joints and describe the anatomy of a synovial joint 4. Explain the role of muscle, bone, tendon and ligament in movement and stability 5. Explain the function of skeletal muscle in terms of its cellular and molecular structure, and metabolic processes 6. Describe the bones, muscles, arteries veins, nerves and lymphatics of the upper and lower limbs 7. Outline the anatomy of the: • shoulder, elbow wrist and hand • hip, knee, ankle and foot				

	and explain the role of important tendons, ligaments and the action of muscles in the joint movements. 8. Describe the structure of the spine, including the numbers and types of vertebrae, and explain how the ligaments and muscles offer movement and stability 9. Describe the functional anatomy of the central, peripheral and autonomic nervous systems identifying the motor and sensory pathways 10. Describe the functional anatomy of sight, hearing and balance 11. Describe the role of neurotransmitters in the brain and peripheral nervous system and explain the effect of drugs that affect neurotransmission. 12. Describe the metabolism of calcium and vitamin D and relate these to the causes and effects of hypo and hypercalcaemia and vitamin D deficiency 13. Outline the neurophysiology of pain and describe the pathways involved in the experience of acute pain. Compare and contrast the various types of pain. 14. Define referred pain and explain the underlying mechanisms 15. Outline the biopsychosocial model of chronic pain and explain the relationship between psychology and pain including the roles of expectancy and controllability in the perception of pain. 16. List the common causes of back pain and discuss the important features in the history in coming to a differential diagnosis 17. Classify headache and discuss the causes of secondary headache 18. Discuss the mechanisms of head injury and distinguish the clinical signs and symptoms of concussion, cerebral oedema, extradural haematoma and subdural haematoma 19. Classify fractures and outline the basic principles of their management 20. Describe the common fractures of the upper and lower limbs and discuss their epidemiology and clinical significance 21. Define joint dislocation and explain the causes, management and neurovascular complications of shoulder dislocation 22. Identify the indications for joint replacement and outline the basic principles of joint replacement therapy 23. List the various benign and malignant bone tumours and recognise their common clinical presentations 24. Recognise the common types of soft tissue rheumatism • shoulder tendonitis and impingement • elbow epicondylitis • trigger finger and thumb extensor (De Quervain) tenosynovitis • trochanteric bursitis • tibial apophysitis • achilles tendinitis. 25. Define the following conditions and discuss their pathophysiology, epidemiology, symptoms and signs, diagnosis and management • osteoarthritis • rheumatoid arthritis • osteoporosis • gout and pseudogout • septic arthritis • osteomalacia. 26. Describe the common clinical features of the spondyloarthropathies, including the genetic background and discuss the link with the extra-

	articular features of psoriasis, inflammatory bowel disease and iritis/uveitis including dactylitis and enthesopathy. 27. Define stroke and explain the different types of strokes and their consequences 28. Explain how the site of a stroke is related to the clinical signs and symptoms in a patient 29. Discuss the aetiology, diagnosis and management of • hydrocephalus • Parkinsonism • multiple sclerosis • myasthenia • motor neurone disease 30. Compare and contrast the aetiology, diagnosis and management of the various dementias 31. Discuss the aetiology, diagnosis and management of • errors of refraction • glaucoma • cataract 32. Discuss the aetiology, diagnosis and management of • hearing impairment • tinnitus • vertigo 33. Explain the mode of action, indications and side effects of opiate analgesics 34. Explain the mode of action, uses and side effects of non-steroidal anti-inflammatory drugs. 35. Explain the uses and list the potential adverse effects of corticosteroids in the treatment of musculoskeletal disease. 36. Explain the uses, side effects and monitoring of the disease modifying antirheumatic drugs (DMARDs) with emphasis given on: • Methotrexate • Sulphasalazine • Hydroxychloroquine • Leflunomide 37. Explain the mode of action, uses and side effects of the biologic agents in musculoskeletal diseases. *Skills* 38. Take a focused history from a patient with musculoskeletal disease and formulate a differential diagnosis. 39. Recognise the red and yellow flags in the history of a patient with back pain 40. Perform a full examination of the shoulder, elbow, wrist and hand. 41. Perform a full examination of the hip, knee and ankle and foot. 42. Perform a full examination of the spine including movements and neurological assessment. 43. Recognise the indications for and interpret the common blood tests used in the assessment of a patient with joint pain • Erythrocyte Sedimentation Rate (ESR) • C- Reactive protein

	• Rheumatoid factor • anti-citrulline antibody 44. Interpret a plain radiograph in the diagnosis of common fractures and arthritis 45. Take a focused history from a patient with neurological disease and formulate a differential diagnosis 46. Perform a full neurological examination including motor, sensory, cranial nerve and cerebellar functions 47. Conduct a clinical examination of the eye including the use of an ophthalmoscope 48. Conduct a clinical examination of the ear using an auriscope and tuning forks 49. Recognise delirium and distinguish it from confusion and dementia 50. Compare and contrast the indications for radiological assessment of the brain and nervous system and recognise common abnormalities in a variety of imaging modalities *Professional competencies* 51. Explain the expertise and role of physiotherapists and occupational therapists in patients with musculoskeletal and neurological conditions. 52. Discuss the importance and function of the multidisciplinary team as applied to management of chronic diseases of the musculoskeletal or nervous system. 53. Discuss the socioeconomic impact of rheumatic and neurological diseases 54. Debate the cost effectiveness of expensive novel treatments of rheumatic diseases and how the benefit to patient and productivity outweigh the cost of the drugs. 55. Discuss the major risk factors for cerebrovascular disease and how these can be mitigated 56. Discuss the psychosocial and economic impact of chronic pain on the patient and their family
Prerequisites	None **Required** None
Course content	• Structure and function of the musculoskeletal system • Introduction to orthopaedics and fractures • Pathology and immunology of rheumatic diseases • Clinical manifestations of rheumatic diseases and their management. • Consultation and examination skills when dealing with patients with rheumatic and orthopaedic conditions. • Structure and function of the central peripheral and autonomic nervous systems • Neurotransmission • Pathology of neurological disorders • Clinical manifestations and management of neurological disorders

	• Consultation and examination skills when dealing with patients with neurological disorders
Teaching methodology	Lectures – normally two face-to-face, two on-line per week Tutorials – two case-based learning small group sessions, two expert-led class discussions/debates Two Anatomy sessions per week Flipped classroom activities Community and/or hospital visits each week, relating to the case of the week as well as meeting 'expert patients' Student centred learning/self-study
Bibliography	Required textbooks/reading

Authors	Title	Edition	Publisher	Year	ISBN
James M. Ritter, Rod J. Flower, Graeme Henderson, Yoon Kong Loke, David MacEwan, Humphrey P. Rang		9th Edition		2019	

Recommended textbooks/reading

Authors	Title	Edition	Publisher	Year	ISBN

Assessment	The course will be assessed at the end of Semester 4 with a Summative Final Examination consisting of Single Best Answer MCQs (SBAs) and Short Answer Questions (SAQs). Clinical and consultation skills will be assessed in an OSCE
Language	English