

## BSc in Physiotherapy

**INTEGRATED COURSE TITLE:** REHABILITATION METHODOLOGY II

**NUMBER OF ECTS CREDITS:** 8

**SSD :** MEDS-26/C

**MODULE CONVENOR :** PROF. GIOVANNI GALEOTO

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MODULE: NURSING SCIENCES AND NEUROPSYCHIATRIC REHABILITATION TECHNIQUES

NUMBER OF ECTS CREDITS: 2

SSD: MEDS-26/C

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MODULE: NURSING SCIENCES AND NEUROPSYCHIATRIC REHABILITATION TECHNIQUES

NUMBER OF ECTS CREDITS: 2

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MODULE: NURSING SCIENCES AND NEUROPSYCHIATRIC REHABILITATION TECHNIQUES

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MODULE: NURSING SCIENCES AND NEUROPSYCHIATRIC REHABILITATION TECHNIQUES

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PROFESSOR: [Giovanni Sellitto](#) email: giovanni.sellitto@unicamillus.org

### PREREQUISITES

Knowledge of basic sciences (neuroanatomy and anatomy, physiology and neurophysiology) is required. Furthermore, in order to be admitted to the exam of this Integrated Course, the exams Human Anatomy and Physiology and Rehabilitation Methodology I are preparatory.

### LEARNING OBJECTIVES

This course aims at enhancing previous background on the functional evaluation of motor and neurological performance and providing the student additional expertise related to patients with neurological and motor diseases. A specific assessment of signs and symptoms together with analysis of balance, gait, posture, reaching and grasping will be provided in order to identify the treatment goals and design a rehabilitation plan in various fields.

## **LEARNING OUTCOMES**

### **Knowledge and Understanding:**

At the end of the lessons, students will:

- Understand the characteristics of ontogenetic neurodevelopment.
- Be familiar with the neurological examination procedures for newborns and infants, including the fundamentals of neurodevelopmental assessment for pre-term babies, particularly regarding general movements.
- Be able to develop Individual Rehabilitation Programs (IRPs) for developmental disabilities associated with neurological health conditions.
- Understand the procedures for assessing and rehabilitating rheumatic health conditions, including medical history, physical therapy examination, and clinical evaluation.
- Be proficient in clinical examination techniques, such as observation, palpation, assessment of mobility, and recognition of signs and symptoms associated with musculoskeletal and neurological health conditions, utilizing validated assessment tools when available.
- Recognize signs related to neurological health conditions, including muscle tone and activity, sensation, reflexes, coordination, balance, gait, motor function, cognitive functions, visceral functions, activities of daily living, and quality of life.
- Understand the fundamentals of guidelines and specific protocols for rehabilitating musculoskeletal and traumatic conditions of the spine, as well as those affecting the upper and lower limbs.
- Be familiar with specific rehabilitation protocols for the cervical, thoracic, and lumbar spine, as well as for the upper and lower limbs, employing techniques tailored to individual needs.
- Define "assistive device," "orthotic device," and "prosthetic device" for positioning and support, including rest orthoses, corrective orthoses, static, and dynamic functional orthoses

### **Applying Knowledge and Understanding**

At the end of the course, the student will be able to: Utilize the acquired knowledge to perform assessment and rehabilitative treatment of the main pathologies in the neurological field (Parkinson's disease, Multiple Sclerosis, and Stroke), in the orthopedic field (Hip prostheses, Knee prostheses, Rotator cuff injuries), in pediatric orthopedics (Congenital hip dysplasia, Congenital clubfoot, Scoliosis, Plagiocephaly), and neurological field (Cerebral Palsy).

### **Communication Skills**

At the end of the course, the student must have a proper understanding of the clinical and functional characteristics of the main neurological, orthopedic, and pediatric pathologies in order to interact, within the healthcare process, with users of all ages and/or with other healthcare professionals, in an appropriate verbal, non-verbal, and written form.

### **Making Judgements**

Advanced knowledge of rehabilitative protocols for orthopedic, neurological, and pediatric pathologies will assist the physiotherapist in developing critical thinking skills to determine the appropriate response to care needs, considering the various levels of complexity in the rehabilitative intervention.

### **Learning Skills**

The student will have acquired skills and learning methods suitable for deepening and improving their knowledge and skills in the field of rehabilitation sciences, also through consultation of scientific literature.



## COURSE SYLLABUS

### Syllabus Prof. Sellitto

#### 1. Definition and Purpose of Neurological Rehabilitation

Neurological rehabilitation is a therapeutic process aimed at restoring motor, sensory, and cognitive functions compromised by central and peripheral nervous system disorders. It is based on neuroplasticity and focuses on maximizing patient autonomy, improving quality of life, and preventing functional deterioration. The rehabilitation approach must be personalized, considering the severity of the disease, available resources, and the patient's specific goals.

#### 2. Functional Assessment of Major Neurological Diseases

Functional assessment is essential to determine the level of disability and guide rehabilitation treatment. The evaluation tools vary depending on the pathology.

#### 3. Definition and Identification of Treatment Goals for Each Clinical Condition

Multiple Sclerosis: Enhance fatigue resistance, optimize postural stability, and reduce motor disability.

Parkinson's Disease: Improve postural stability, reduce fall risk, and enhance motor coordination.

Stroke: Facilitate motor recovery through neuromotor approaches, reduce spasticity, and improve upper limb function.

Peripheral Facial Nerve Paralysis: Restore facial muscle function, improve symmetry, and prevent contractures.

#### 4. Rehabilitation Planning According to Neurological Damage

The rehabilitation approach varies depending on the disease phase and severity:

Acute phase: Prevention of secondary complications, fatigue management, and early rehabilitation goal setting.

Subacute phase: Early patient activation, motor re-education exercises, balance, and functional autonomy training.

Chronic phase: Maintenance of residual abilities, prevention of secondary disability, and adaptation strategies to improve quality of life.

### Syllabus Prof. Galeoto

Principles of treatment of pathologies of the musculoskeletal system and orthopedic semeiotics.

Planning of a rehabilitation program: orthopedic patient handling, treatment techniques, orthopedic aids and traumatology

Walking: principles of re-education on the journey

#### LOWER LIMB

- Rehabilitation after hip arthroplasty, osteosynthesis in acetabular fractures, osteosynthesis in fractures of the proximal epiphysis of the femur, diaphyseal and distal femoral epiphysis; osteosynthesis in tibial leg and pilon fractures, osteosynthesis in tibial and patella plate fractures, cruciate ligament reconstruction, meniscal tear surgery, knee and ankle joint replacement surgery, osteosynthesis in malleolar fractures.

- Rehabilitation in Achilles tendon lesions, in ankle sprain. in patellofemoral syndrome

### **Syllabus Prof. Frontani**

The debated disorders will be:

- painful shoulder and the different causes
- instable shoulder and the different causes
- stiff shoulder and the different causes
- the post-traumatic rehabilitation of the shoulder (scapular and humerus fracture)
- the rehabilitation following a shoulder replacement
- the rehabilitation following a rotator cuff surgery
- the post traumatic rehabilitation of elbow and wrist
- the post traumatic rehabilitation following the elbow dislocation.

### **Syllabus Prof.ssa Policastro**

- Psychomotor development of the child
- Skeletal development of the child
- Paramorphisms of the lower limbs
- varus/valgus knee
- flat/cavus foot
- Physiotherapy management of:
  - Congenital hip dysplasia
  - Congenital clubfoot
  - Congenital myogenic torticollis and postural torticollis
  - Postural Occipital Plagiocephaly
  - Osgood-Schlatter syndrome
  - Scoliosis
  - Obstetric brachial plexus palsy
- Physiotherapy in neonatology
- Infantile Cerebral Palsy
  - definition
  - etiology
  - clinical framework and forms of CP
  - evaluation and prognostic tools
  - physiotherapy tools and objectives
  - aids and orthoses
  - associated disorders
- Notes on the physiotherapy treatment of:
  - Spina bifida
  - Neuromuscular diseases
  - Neuromotor problems in children
- Concepts of inclusion and participation
- Child and family centered approach

### **COURSE STRUCTURE**

80 hours of frontal lessons. Attendance: at least 75% of the integrated course.

### **COURSE GRADE DETERMINATION**

Learning will be assessed through a written test consisting of 60 multiple choice questions. In order to access the compulsory oral exam, the student must correctly answer 45 questions. For the attribution of the final grade, the following criteria will be adopted:

**Unsuitable:** Poor or lacking knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations of the required contents; inability to use technical language.

**18-20:** Just enough knowledge and understanding of topics, with obvious imperfections; just



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sufficient capacity for analysis, synthesis and independent judgement; poor ability to use technical language.

**21-23:** Sufficient knowledge and understanding of topics; sufficient capacity for analysis and synthesis with the ability to logically and coherently argue the required contents; sufficient ability to use technical language.

**24-26:** Fair knowledge and understanding of the topics; discrete capacity for analysis and synthesis with the ability to rigorously argue the required contents; Good ability to use technical language.

**27-29:** Good knowledge and understanding of required content; good capacity for analysis and synthesis with the ability to rigorously argue the required contents; good ability to use technical language.

**30-30L:** Excellent level of knowledge and understanding of the requested contents with an excellent capacity for analysis and synthesis with the ability to argue the requested contents in a rigorous, innovative and original way; Excellent ability to use technical language.

### OPTIONAL ACTIVITIES

A group-based power-point exercises will be proposed with the aim to improve students' ability in presenting scientific papers.

### READING MATERIALS

Pennsylvania Child Welfare Resource Center (2005) Child and Adolescent Development Resource Book. University of Pittsburgh

Levitt, S., & Addison, A. (2018). Treatment of cerebral palsy and motor delay. Wiley-Blackwell. 6th edition

Physiotherapy in Orthopaedics - A Problem-Solving Approach  
Karen Atkinson Fiona Coutts Anne-Marie Hassenkamp – Elsevier

Davies, Patricia M. *Steps to follow: the comprehensive treatment of patients with hemiplegia*. Springer Science & Business Media, 2000.

O'Sullivan, Susan B., and Thomas J. Schmitz. *Improving functional outcomes in physical rehabilitation*. FA Davis, 2016.

Scientific articles will be inserted on the topics discussed