

## Degree course in Physiotherapy

### **Integrated Teaching: PEDIATRIC CLINICAL SCIENCES**

**CFU: 7**

**SSD: MED/33, MED/38, MED/39, MED/50**

**Coordinator: PROF. ANTONELLA PALOMBO** e-mail: [antonella.palombo@unicamillus.org](mailto:antonella.palombo@unicamillus.org)

MODULE: APPLIED TECHNICAL AND MEDICAL SCIENCES

CFU: 2

SSD: MED/50

Professor: Antonella Palombo email: [antonella.palombo@unicamillus.org](mailto:antonella.palombo@unicamillus.org)

MODULE : GENERAL AND SPECIALIZED PEDIATRICS

CFU: 2

SSD: MED/38

Professor: Giovanna Maragliano email: [giovanna.maragliano@unicamillus.org](mailto:giovanna.maragliano@unicamillus.org)

MODULE : LOCOMOTIVE SYSTEM DISEASE

CFU: 1

SSD: MED/33

Professor: Luca Labianca email : [luca.labianca@unicamillus.org](mailto:luca.labianca@unicamillus.org)

MODULE : CHILD NEUROLOGY

CFU: 2

SSD: MED/39

Professor: Andrea Romigi. e-mail: [andrea.romigi@unicamillus.org](mailto:andrea.romigi@unicamillus.org)

### **PREREQUISITES**

#### **GENERAL AND SPECIALIZED PEDIATRICS**

*Basics of human anatomy, genetics and physiology, with regard to functions of main organs and apparatus.*

#### **CHILD NEUROLOGY**

*Basic concepts of Histology and Human Anatomy. Principles of Human Physiology, Cellular Biology and Biochemistry. Basic elements of Physic. Fundamentals of General Pathology.*

#### **LOCOMOTIVE SYSTEM DISEASE**

*Although there are no preparatory prerequisites, basic requirements of human anatomy, notions of biology and physiology, as well as cellular mechanisms and tissues for repair and bone formation are necessary.*

## **LEARNING OBJECTIVES**

### **APPLIED TECHNICAL AND MEDICAL SCIENCES**

At the end of the course the student will be able to define the concepts of health and disease in the omeostasis and daily life adaptation processes and to identify the main concepts of Nursing Sciences applied to clinical practice. The learning objectives will be reached through classroom lectures which will facilitate learning and the development of critical thinking to solve basic nursing problems.

### **GENERAL AND SPECIALIZED PEDIATRICS**

*The course intends to promote specific learning about physiology and most important pathologies of neonatal and pediatric age. Specific attention will be dedicated to prenatal and neonatal care, physiology of neonatal transition at birth, promotion of breastfeeding and prevention of neonatal and pediatric injuries.*

### **LOCOMOTIVE SYSTEM**

*Orthopaedics is the specialty that treats diseases or injuries of the body's musculoskeletal system. This system includes bones, joints, ligaments, tendons, muscles, and nerves and allows you to move, walk and be active. The course is focused about learning the most important and frequent pathologies in pediatric orthopedics and preparing the student to manage all the essentials pre and post trauma/surgery to regain a full healing.*

*A physiotherapist plays an essential role within the multidisciplinary team of doctors, nurses, occupational therapists, psychologists and play therapists.*

*The aim of the course is to teach how the physiotherapy gets joints and muscles moving and gains functional skills, such as learning to walk with crutches or a frame.*

*An experienced physiotherapist will complete an assessment of all children who are going to have orthopaedic surgery. The physiotherapy assessment is essential in aiding decision-making regarding surgery or other recommendations. It also allows us to prepare the family and the child for surgery, answer questions, and plan what help and further physiotherapy might be needed after you are discharged home.*

*A physiotherapist will help the child after surgery to regain mobility and independence in order to be discharged home.*

### **CHILD NEUROLOGY**

*Fundamental and indispensable objectives are the following:*

- To acquire precise scientific knowledge necessary to classify and correctly define the pediatric neurological diseases most frequently encountered in the clinical setting.*
- Comprehension of the main pathophysiological mechanisms responsible of the neurological deficit and specific in children.*
- Clinical approach to child affected by neurological diseases most encountered in rehabilitation clinical setting.*

## **LEARNING OUTCOMES**

### **APPLIED TECHNICAL AND MEDICAL SCIENCES**

#### ***Applying knowledge and understanding***

By the end of the lectures the student will be able to:

-Identify the main concepts of Nursing Sciences;

- Describe the Nursing Process and its steps;
- Describe the nursing care approach toward pediatric and adult patients.

### **Communication skills**

*By the end of the lectures the student will be able to:*

- Use the specific Nursing Sciences terminology adequately;
- Develop communication abilities to sustain care relationships with patients of all ages and other health professionals during the care process.

### **Making judgements**

*By the end of the lectures the student will be able to:*

- Make evaluation regarding the covered topics;
- Make decisions through a scientific approach to solve the patient's problems.

### GENERAL AND SPECIALIZED PEDIATRICS

*At the end of the course, the student will have to be able to:*

1. Know the inspiring principles of health protection of patients in the evolutionary age
2. Know the organization of hospital levels of perinatal care
3. Know the organization of health professionalists team, engaged in support of newborn-mother dyad
4. Know how to classify a newborn on the basis of weight and gestational age
5. Know the steps of perinatal care of physiologic, pathologic and preterm newborn in the delivery room
6. Know how to define and classify neonatal asphyxia
7. Know the basics of most important pathologies of preterm newborn
8. Know the principles and basics of neonatal infections
9. Know the principles and basics of neonatal hematology
10. Know the promotion strategies of breastfeeding
11. Know the basic diagnostic tools of exanthematous diseases in paediatric age
12. Know the vaccinations timetable, according to Italian law
13. Know how to organize a weaning schedule
14. Know the main steps of puberal development
15. Know basic principles and definition of the main visual defects in paediatric age
16. Know the basic principles of coeliac disease, gastro-oesophageal reflux, congenital hip luxation
17. Know the main accidents and injuries of developmental age, and define prevention strategies.

### **Capacità di applicare conoscenza e comprensione (Applying knowledge and understanding)**

Al termine dell'insegnamento lo studente sarà in grado di:

- ↗ Utilizzare le conoscenze acquisite per l'ulteriore ed autonomo approfondimento di tematiche relative all'ambito specifico al quale lo studente si dedicherà nel corso della sua attività professionale

*At the end of the course, the student will be able to:*

- ↗ Use the acquired knowledge for further and individual deepening of specific issues related to professional future activity

### **Abilità comunicative (communication skills)**

Al termine dell'insegnamento lo studente dovrà:

- ↗ Essere in grado di esprimersi con terminologia scientifica in modo appropriato ed adeguato

*At the end of the course, the student will have to:*

↗ To be able to speak using scientific terminology, properly and appropriately.

### **Autonomia di giudizio (making judgements)**

Al termine dell'insegnamento lo studente dovrà sapere:

↗ Eseguire analisi e valutazioni in linea di massima sugli argomenti e sulle tematiche trattate.

*At the end of the course, the student will have to be able to:*

↗ Make general evaluations and judgements concerning treated issues and topics

## LOCOMOTIVE SYSTEM

### **Knowledge and understanding**

*At the end of this teaching the student will need:*

- *to know the pathologies of pediatric orthopedics described;*
- *to know the clinical and instrumental diagnostic criteria;*
- *to know the most commonly used treatment options;*
- *to know the possible mobilizations in the immediate post-trauma / surgery;*
- *to know how to produce a short-term and long-term rehabilitation therapy program;*
- *to know the alarm criteria for the recognition of post-trauma / surgery complications;*
- *to explain the peculiar physiological mechanisms underlying some pathologies characteristic of the pediatric age.*

### **Applying knowledge and understanding**

*Al termine dell'insegnamento lo studente sarà in grado di:*

- *Utilizzare le conoscenze acquisite per l'approfondimento autonomo di aspetti relativi al campo specifico al quale lo studente si dedicherà nell'ambito della attività professionale;*

### **Communication skills**

*At the end of the course the student will be able to:*

- *Use the knowledge acquired to independently investigate the aspects related to the specific field in which the student will be involved in his professional activity*

## CHILD NEUROLOGY

### **Knowledge and understanding**

*At the end of this course the student will acquire:*

- *Basic knowledge of the "functional" anatomy of the cranio-cerebral system.*
- *Ability to classify and distinguish the different types of pediatric neurological diseases and their rehabilitative impact.*

### **Applying knowledge and understanding.**

*At the end of this course the student will be able to:*

- *Apply the acquired notions to correctly identify and define a neurological impairment or a determined outcome, go back to the origin, know its natural history and understand the specific pediatric context.*
- *Dispose of a sufficient body of knowledge to allow further autonomous deepening on more specific subjects included in the vast world of neuro-rehabilitation.*

### **Communication skills.**

At the end of this course the student will be able to:

- Use technical and proper terminology to describe any common neurosurgical scenario. To correctly describe the pathophysiology and the mechanism generating the disease.

### **Making judgment.**

At the end of this course the student will be able to:

- Correctly pursue a general assessment concerning the anatomical, physiological and clinical aspects of a certain child neurological condition and to predict a possible prognosis.

## **COURSE SYLLABUS**

### **APPLIED TECHNICAL AND MEDICAL SCIENCES**

- Nursing Sciences evolution throughout the years;
- The concepts of Man-Person, Health-Disease, Environment-Society and Nursing Care;
- The concept of Need related to the main social philosophical nursing theories;
- The nursing process applied to clinical practice for the care of pediatric and adult patients.

### **GENERAL AND SPECIALIZED PEDIATRICS**

#### **Course Syllabus**

Introduction to Pediatrics: neonatal and pediatric age – pediatric and neonatal training of health professionalist – prenatal development and adaptations to extrauterine life – classification of newborn: weight, gestational age, growth curves -newborn care in Delivery Room; Apgar score – first care of the newborn infant – neonatal resuscitation: respiratory, circulatory and metabolic - prenatal infections, TORCH diseases ; prevention of neonatal congenital infections – postnatal early and late infections: sepsis and meningitis – bilirubin metabolism: neonatal physiologic and pathologic jaundice – psychomotor development of the child; weaning and feeding in pediatric ages – puberty: physiologic phenomena; early and late puberty – mandatory vaccinations and infectious diseases – gastro-intestinal pathologies: coeliac disease – gastro-esophageal reflux, hypertrophic stenosis of pylorus – eye and ear’s defects in pediatric age – congenital hip luxation – accidents and injuries in pediatric age: classification and prevention strategies.

### **LOCOMOTIVE SYSTEM**

- Principles of physiology of the locomotor apparatus in children;
- Fractures typical of the pediatric age;
- Orthopedic pathologies of the pediatric age: epidemiology, treatment options, rehabilitation management;
- Diagnosis, treatment and rehabilitation pathways of the child with scoliosis;
- Diagnosis, treatment and rehabilitation pathways of the child with systematic analysis by body district concerned;
- Possible complications of orthopedic treatment with plaster in children;
- Management of communication with parents and with the child;
- The role of the physiotherapist in the pediatric orthopedic surgery department;
- Neuromuscular disorders: main features, orthopedic implications, meaning of orthopedic surgery, use of orthoses, rehabilitation;
- Flatfoot ;

- *Pediatric sports traumatology;*
- *Spondylolysis and spondylolisthesis: diagnosis, treatment and rehabilitation;*
- *Rehabilitation routes in the aquatic environment.*

## CHILD NEUROLOGY

### **Clinical Approach in Child Neurology**

- *The consultation*
- *History taking*
- *Neurological Examination*
- *Higher cognitive function*
- *Cranial nerves*
- *Peripheral nervous system*
- *Neonatal neurological examination*

### **Neurodiagnostic tools**

- *Principles of neuroradiology*
- *Principles of neurophysiology*
- *Laboratory tests*
- *Lumbar Puncture*
- *Neuropsychological testing*

### **Signs & Symptoms**

- *Agitation and confusion*
- *Sleepiness*
- *Developmental impairment*
- *Exercise limitations and muscle pain*
- *Floppy infant*
- *Foot deformities*
- *Gait abnormalities*
- *Headache and head abnormalities*
- *Speech difficulties*
- *Acquired brain/spinal cord injury*
- *Autoimmune diseases*
- *Epilepsy*
- *Migraine*
- *Infection of CNS*
- *Sleep disorders*
- *Neuromuscular diseases;*
- *Neuropediatric Emergencies:*
  - *Coma*
  - *status epilepticus;*
  - *acute motor symptoms*

## **COURSE STRUCTURE**

### **APPLIED TECHNICAL AND MEDICAL SCIENCES**

The course structure is of 20 hours of classroom lecture, divided in lectures of 2 or 3 hours based on the academic schedule.

### GENERAL AND SPECIALIZED PEDIATRICS

The course is organized in 20 hours of frontal lessons, divided into 2 or 3 hours on the basis of Academic year's timetable. Students will be free of doing verbal interventions during the lessons, in order to deal with one another and stimulate discussion in the group

### LOCOMOTIVE SYSTEM

*The teaching is structured in 10 hours of frontal teaching, divided into lessons of 2 or 3 hours according to the academic calendar. Lectures will include theoretical lessons and possibly supplementary seminars on the topics covered.*

### CHILD NEUROLOGY

*The course provides a total of 20 hours of frontal lessons divided in five 4h-lessons. Frontal teaching will include slides and clips projection, followed by interactive discussion of clinical cases related to the lesson topic.*

## **COURSE GRADE DETERMINATION**

### GENERAL AND SPECIALIZED PEDIATRICS

The student grade of knowledge will be verified by a written and oral exam. The written test will consist of 30 questions with multiple choice answers, for each correct answer a point will be assigned. The final score of the written test will be given by the sum of the partial scores assigned to each question answered correctly. To access the oral exam the student must have totaled at least a minimum of 18 points. During the oral exam the examining commission will assess the student's ability to apply the knowledge and will ensure that the skills are adequate to support and solve problems related to the diagnostic-therapeutic-rehabilitative and communicative path in pediatric orthopedics. The following will also be assessed: making judgments, communication skills (communication skills) and learning skills (learning skills) as indicated in the Dublin descriptors

### **OPTIONAL ACTIVITIES**

#### GENERAL AND SPECIALIZED PEDIATRICS

In addition to frontal theoretic lessons, the student will have the opportunity to attend seminars and ward activities in Pediatric and Neonatal Units of Castelli Hospital.

#### LOCOMOTIVE SYSTEM

*It will be possible for the interested student to be able to attend a few hours at the pediatric orthopedics or water rehabilitation (hydrotherapy) department in dedicated facilities.*

#### CHILD NEUROLOGY

*Besides the frontal didactics, opportunities to focus and expand any topics will be granted to the student, in an extra-time setting. This supplemental activity should be discussed in advance with the teacher. The issues reviewed in these sessions will not be considered examination matter.*

## **READING MATERIALS**

### **APPLIED TECHNICAL AND MEDICAL SCIENCES**

- Potter, Perry, Stockert, Hall. Fundamentals of Nursing (9th edition). Elsevier 2017
- Materiale didattico fornito dal docente

### **GENERAL AND SPECIALIZED PEDIATRICS**

- Cloherty and Stark's Manual of Neonatal Care , by Anne R. Hansen, Eric C. Eichenwald, Ann R. Stark , Camilia R. Martin – Lippincott Manual, November 23, 2016
- The Washington Manual of Pediatrics, by Andrew J White - Lippincott Manual; February 11, 2016

### **LOCOMOTIVE SYSTEM**

- Orthopaedic Physical Therapy Secrets - E-Book 3rd Edition Authors: Jeffrey Placzek David Boyce

### **CHILD NEUROLOGY**

*During each lesson the teacher will support the student with an abundant source of references, indicating the most important and recent literature to read. Fundamental Book Chapters will be also provided, directly by the teacher.*

*Pediatric Neurology 3<sup>rd</sup> Edition. Ed. Oxford University. Oxford: 2017. ISBN: 978019960363-3*

*Fenichel's Clinical Pediatric Neurology 8th Edition 2019 A Signs and Symptoms Approach Ed. Elsevier. ISBN 9780323496858*