



Information about the subject

Degree: Bachelor of Science Degree in Physiotherapy

Faculty: Faculty of Medicine and Health Sciences

Code: 240203 **Name:** Physiotherapy of the Nervous System

Credits: 6,00 **ECTS Year:** 2 **Semester:** 2

Module: MODULE 2: SPECIFIC

Subject Matter: Specific Methods of Intervention in Physical Therapy **Type:** Compulsory

Field of knowledge: Health Sciences

Department: Physiotherapy

Type of learning: Classroom-based learning

Languages in which it is taught: English, Spanish

Lecturer/-s:

242A	<u>Jorge Alarcón Jiménez</u> (Responsible Lecturer)	jorge.alarcon@ucv.es
	Laura García Martínez	laura.gmartinez@ucv.es
242Q	<u>Jorge Alarcón Jiménez</u> (Responsible Lecturer)	jorge.alarcon@ucv.es
	Laura García Martínez	laura.gmartinez@ucv.es
283DC	<u>Jorge Alarcón Jiménez</u> (Responsible Lecturer)	jorge.alarcon@ucv.es
	Laura García Martínez	laura.gmartinez@ucv.es
474DF	<u>Jorge Alarcón Jiménez</u> (Responsible Lecturer)	jorge.alarcon@ucv.es



Universidad
**Católica de
Valencia**
San Vicente Mártir

Course guide

Year 2025/2026
240203 - Physiotherapy of the Nervous System

474DF Laura García Martínez

laura.gmartinez@ucv.es





Module organization

MODULE 2: SPECIFIC

Subject Matter	ECTS	Subject	ECTS	Year/semester
Fundamentals of Physical Therapy	6,00	Fundamentals of Physiotherapy	6,00	1/1
Assessment in Physiotherapy	6,00	Assessment in Physiotherapy	6,00	1/2
General Procedures for Intervention in Physiotherapy	12,00	General Procedures of Intervention I	6,00	2/1
		General Procedures of Intervention II	6,00	2/2
Physiotherapy in clinical specialties	6,00	Medical-Surgical Conditions and their Treatments	6,00	2/2
Specific Methods of Intervention in Physical Therapy	30,00	Cardiocirculatory and Respiratory Physiotherapy	6,00	3/1
		Physiotherapy of the Locomotive System I	6,00	2/2
		Physiotherapy of the Locomotive system II	6,00	3/1
		Physiotherapy of the Nervous System	6,00	2/2
		Sports Physiotherapy	6,00	3/1
Kinesitherapy	6,00	Kinesitherapy	6,00	2/1
Legislation, Public Health and Health Administration	12,00	Community Physiotherapy and Public Health	6,00	3/1



Legislation, Public
Health and Health
Administration

Social Morality. Ethics

6,00

4/1

Recommended knowledge

Have adequate knowledge about:

- Neuroanatomy and Neurophysiology
- Assessment in Physiotherapy

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Knows the foundations of the different pathologies of the Nervous System, as well as the multidisciplinary work in them.
- R2 Distinguishes the different hierarchies and priorities in the health care of patients.
- R3 Knows and distinguishes the different physical and emotional components of the patients, and their relationship with the health-disease process.
- R4 Knows and applies techniques and procedures of assistance and conservative treatment, in diseases of the nervous system.
- R5 Knows and applies techniques and procedures for physiotherapeutic assessment and diagnosis, in diseases of the nervous system.
- R6 Looks for bibliographic information from different sources and knows how to analyze it with a critical and constructive spirit.
- R7 Argues with rational criteria from the work.
- R8 The student is able to write a comprehensible text, organized on topics related to physiotherapy and to work in groups.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students demonstrate knowledge and understanding in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.		X		
CB2	Students know how to apply their knowledge to their work or vocation in a professional way and possess the skills usually demonstrated by developing and defending arguments and solving problems within their area of study.			X	
CB3	Students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.		X		
CB4	Students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.			X	
CB5	Students develop those learning skills necessary to undertake further studies with a high degree of autonomy.			X	
SPECIFIC		Weighting			
		1	2	3	4
CE1	Students learn human anatomy and physiology, highlighting the dynamic relations between structure and function, especially of the locomotive system and the nervous and cardio-respiratory systems.		X		
CE2	Students identify the physiological and structural changes that can occur as a result of the application of physiotherapy.			X	
CE8	The psychological and social factors that influence the health/disease status of the individual, family and community.		X		



CE9	Students assimilate theories of communication and interpersonal skills.	X		
CE12	The general aspects of pathology of endogenous and exogenous etiology related to physiotherapy of all devices and systems with their medical, surgical, physiotherapeutic and orthopedic treatments.		X	
CE13	The structural, physiological, functional and behavioral changes that occur as a result of the intervention of physiotherapy.			X
CE14	Students identify the theoretical bases of Physiotherapy as a science and profession. The models of action in Physiotherapy. The theoretical bases of the assessments, tests and functional verifications: knowledge of their modalities and techniques as well as the scientific evaluation of their utility and effectiveness. The diagnosis of Physiotherapy. Methodology of the research applied to Physiotherapy.			X
CE15	General physiotherapeutic procedures: Kinesitherapy, Massage and Massage Therapy, Electrotherapy, Magnetic Therapy, Ergotherapy, Hydrotherapy, Balneotherapy, Climatotherapy, Thalassotherapy; Thermotherapy, Cryotherapy, Vibrotherapy, Phototherapy, Pressotherapy, and the derivatives of other physical agents	X		
CE16	Physiotherapeutic Procedures based on specific Methods and Techniques of physiotherapeutic actions to be applied in the different pathologies of all the apparatuses and systems, and in all the specialties of Medicine and Surgery, as well as in the promotion and conservation of the health, and in the prevention of the disease.			X
CE21	Students give proof of the criteria and indicators that guarantee the quality in the provision of the physiotherapy service, through the use of good clinical practice guidelines and professional standards.		X	
CE28	Students prepare and systematically fill in the complete Physiotherapy Clinical History, where all the steps followed from the reception of the patient/user to the report at the discharge of Physiotherapy are properly and efficiently recorded.			X
CE29	Students assess the functional state of the patient/user, considering the physical, psychological and social aspects.			X
CE30	Students determine the Physiotherapy Diagnosis according to the internationally recognized standards and international validation instruments. This competency includes prioritizing the needs of the patient/user to attend with priority to those that most compromise the recovery process.		X	



CE31	Students know how to design the Physiotherapy Intervention Plan. To elaborate a specific Physiotherapy Intervention Plan using problem-solving skills and clinical reasoning: in line with the available resources; formulating the intervention objectives with the user and, if appropriate, with the significant people in his environment, collecting his expectations regarding care; selecting the protocols or procedures most appropriate to the planned care, attending to criteria of appropriateness, validity and efficiency.				X
CE41	Students keep the foundations of the knowledge, skills and attitudes of the professional competences updated, through a process of continuous training (throughout life); to critically analyse the methods, protocols and treatments of the care in Physiotherapy and to ensure that they are adapted to the evolution of scientific knowledge.	X			
CE47	Students maintain an attitude of learning and improvement. This includes expressing interest and acting in a constant search for information and professional improvement, committing to contribute to professional development in order to improve practice competence and maintain the status that corresponds to a qualified and regulated profession.			X	
CE51	Show respect, appreciation and sensitivity to the work of others.			X	
CE52	Develop the ability to organize and lead work teams effectively and efficiently.	X			
CE55	Show its orientation towards the patient/user, making it clear in its actions that the citizen and his/her needs are the axis around which its decisions revolve. As can be seen, some of the competencies that we have gathered as specific coincide in their denomination and contents with certain transversal competencies, but we have decided to incorporate them as specific competencies, given the extraordinary importance that national and international Professional Associations and Colleges confer on them	X			

TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Decision-making		X		
CT2	Problem solving.		X		



CT3	Capacity for organization and planning.	x		
CT4	Analysis and synthesis capacity.		x	
CT5	Oral and written communication in the native language.		x	
CT6	Information management capacity.	x		
CT9	Ethical commitment.	x		
CT10	Teamwork.		x	
CT11	Interpersonal relationship skills.	x		
CT13	Critical Reasoning	x		
CT16	Motivation for quality	x		
CT17	Adaptation to new situations.	x		
CT18	Creativity	x		
CT19	Autonomous learning			x
CT21	Leadership.	x		



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R7, R8	20,00%	OPEN QUESTIONS: Written exam in which theoretical knowledge and the student's ability to relate, integrate and express it coherently in written language are evaluated. It allows the following generic or transversal skills to be assessed: 4 Capacity for analysis and synthesis. 3 Capacity for organisation and planning. 5 Oral and written communication in the native language. 8 Knowledge of a foreign language. 2 Problem-solving 19 Autonomous learning.
R1, R2, R3, R4, R5	30,00%	TEST TYPE: Multiple choice test with one correct answer out of five possible ones. It allows the student to know in greater detail the contents acquired by him/her. It allows the following generic or transversal competences to be assessed: 2 Problem solving 1 Decision making 13 Critical thinking
R4, R5, R7	10,00%	PRACTICES: Oral test in which the student is asked to solve practical exercises, clinical cases or problems about the knowledge of the different subjects. It assesses the following generic or transversal competences: 4 Analysis and synthesis capacity. 3 Capacity for organisation and planning. 7 IT Knowledge. 6 Information management skills. 2 Problem-solving 1 Decision-making. 13 Critical thinking. 19 Self-directed learning.



R4, R5, R7	30,00%	PRACTICAL EXAM: The student is faced with a test in which s/he must demonstrate through practical application the acquisition of certain knowledge. For example, histological or anatomopathological diagnosis, image interpretation or diagnostic tests. This test evaluates the following generic or transversal skills: 13 Critical reasoning. 19 Autonomous learning.
	10,00%	PRESENTATION: The student develops, through an oral presentation, supported or not by audiovisual means, a subject or work commissioned by the teacher. This is the method of evaluation of the Final Degree's Project. At the end of the presentation, the teacher or the audience can ask questions.

Observations

This subject does NOT include the possibility of a SINGLE EVALUATION, as it requires the mandatory completion of practical activities with active student participation.

-Attendance at theoretical and practical classes is mandatory, and you cannot pass the first sitting if you do not complete 80% of the practical sessions and seminars

MINIMUM REQUIREMENTS:

Note: It is essential to pass the 2 tests with a 5 (theoretical, practical) and have submitted the directed work, to be able to do an average.

Evaluation criteria

a) First call:

1. Theoretical evaluation: = (A + B) The result of the examination will be the sum of the parts

Evaluation of test questions (30% of the final grade): It will consist of 30-40 multiple-choice questions. Evaluation open questions (20% of the final grade): a clinical case will be formulated.

The minimum grade to pass the theoretical evaluation will be 5 out of 10. This evaluation must be approved in order to be evaluated in the practical part.

Practical assessment Practical exam (40% of the final grade): the demonstration of 1-2 practical maneuvers from all the views will be requested during the practical sessions of the subject. The practical evaluation will be carried out at the end of the semester through a practical exam. The minimum grade to pass the practical evaluation will be 5 out of 10.

Only if the student passes the written test can they access the practical test.

The practical test will be evaluated by means of a rubric (which will be explained on the first day of class and they will have access to it on the platform), which includes the following sections:

"Selection of the technique (1 points), argumentation of the technique (2 points), application of the technique (3 points), technical language (2 points) and time spent developing the technique (2 points) "

Group work and presentation (10% of the final grade): It will be carried out in continuous evaluation throughout the semester, communicating to the students at the beginning of it the procedure of how



it will be carried out. They may be reading articles, individual or group work. Work delivered after the deadline will not be eligible.

b) 2nd Call.

Both the written test and the practical tests have the same structure and percentage.

MENTION OF DISTINCTION:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- | | |
|-----|---|
| M1 | Master class Problem solving Exposition of contents by the teacher. Explanation of knowledge and skills |
| M2 | Case resolution: Analysis of sample realities - real or simulated - that allow the student to connect theory with practice, to learn from models of reality or to reflect on the processes used in the cases presented. |
| M4 | Personalized attention. Period of instruction and/or guidance by a tutor with the aim of analyzing with the student their work, activities and their evolution in learning the subjects. |
| M5 | Set of tests carried out to know the degree of acquisition of knowledge and skills of the student. |
| M11 | Oral presentation |
| M12 | Group work: Group work sessions supervised by the teacher. Knowledge construction through student interaction and activity. |



- M14 Group work to search, discuss and filter information about the subjects
- M15 Seminar, supervised monographic sessions with shared participation
- M16 Student's study: Individual preparation of readings, essays, problem solving, seminars.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons M1, M11	R1, R2, R3, R4, R5, R6, R7, R8	32,00	1,28
Practice lessons M2, M12, M15	R2, R4, R5, R7	14,00	0,56
Seminar M15	R1, R2, R3, R4, R5, R7	6,00	0,24
Office Hours M4	R1, R2, R3, R4, R5, R6, R7	5,00	0,20
Assessment M5, M11	R1, R2, R3, R4, R5, R6, R7	3,00	0,12
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M16	R1, R2, R3, R4, R5	70,00	2,80
Group work M14	R6, R7	20,00	0,80
TOTAL		90,00	3,60



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DIDACTIC UNIT I: GENERAL AND ANATOMOPHYSIOLOGICAL RECORD	Unit1. Introduction to neurological physiotherapy. Unit 2.Neuroanatomy and functional neurophysiology applied
DIDACTIC UNIT II: ASSESSMENT AND EVALUATION OF THE NEUROLOGICAL PATIENT	Unit 3 Neurological assessment.Unit 4 Complementary examinations and general evaluation of the neurological patient. CIFUnit 5 Assessment of movement and gait.Unit 6. Motor ControlUnit 7. Motor Learning
DIDACTIC UNIT III: PHYSIOTHERAPY IN LARGE NEUROLOGICAL SYNDROMES AND BRAIN INJURIES.	Unit 8. Fundamentals of physiotherapy in patients with acquired brain damage: head trauma.UNIT 9. ACV. Fundamentals of physiotherapy in the patient with cerebrovascular accident. Hemiplegia Evaluation and treatment.UNIT 10. Fundamentals of physiotherapy in extrapyramidal and cerebellar disorders. Basal ganglia diseases. Parkinson's disease Koreas Athetosis DystoniaUNIT 11. Fundamentals of physiotherapy in patients with multiple sclerosis. Specific problems. Clinical picture and clinical forms. Initial balance. Deformity prevention. Muscle enhancement Fight against hypertonia.UNIT 12. Fundamentals of physiotherapy in patients with E.L.AUNIT 13. Fundamentals of physiotherapy in traumatic spinal cord injuries. Physiotherapy and spinal cord injury: History, therapeutic possibilities. Phases and effects of spinal cord injury. Problems in the bedding period. Surgical indications. Subacute phase: sitting, standing, walking
DIDACTIC UNIT IV: INTRODUCTION TO PHYSIOTHERAPY IN CHILDHOOD NEUROLOGICAL INJURIES.	UNIT 14. Fundamentals of physiotherapy in patients with P.C.I.UNIT 15. Fundamentals of physiotherapy in patients with BIFFINE SPINE and hydrocephalusUNIT 16. Rare diseases and congenital syndromes that present with neurological alterations(differential diagnosis in pregnancy: Down, Patau and Edwards)



DIDACTIC UNIT V: INTRODUCTION TO THE TECHNIQUES IN PHYSIOTHERAPY OF THE NERVOUS SYSTEM

DIDACTIC UNIT VI: PHYSIOTHERAPY IN PERIPHERAL INJURIES.

DIDACTIC UNIT VII.- PRACTICES

UNIT 15. Fundamentals and neuromotor analysis of movement, and approach. UNIT 16. Fundamentals and technique of the treatment method of H. Kabat or Proprioceptive Neuromuscular Facilitation. UNIT 17. Fundamentals and techniques in neurological physiotherapy: Petö or Conductive Education method, Vojta or Reflex Locomotion method, Perfetti method. UNIT 18. Restrictive hand therapy, motor imaging, mirror therapy. UNIT 19. Therapeutic exercise in neurological patients

UNIT 20. Fundamentals of physiotherapy in patients with PERIPHERAL NERVOUS PATHOLOGY. UNIT 21. Fundamentals of physiotherapy in patients with polyneuropathies

1. Evaluation of the neurological patient.
2. Neuromotor analysis of movement.
3. Fundamentals of the KABAT method
4. Motor control, balance and gait.
5. Therapeutic Exercise in neurological patient.
6. Motor imagery, mirror therapy.
7. Neuromuscular Bandage in neurological pathology



Temporary organization of learning:

Block of content	Number of sessions	Hours
DIDACTIC UNIT I: GENERAL AND ANATOMOPHYSIOLOGICAL RECORD	1,00	2,00
DIDACTIC UNIT II: ASSESSMENT AND EVALUATION OF THE NEUROLOGICAL PATIENT	7,00	14,00
DIDACTIC UNIT III: PHYSIOTHERAPY IN LARGE NEUROLOGICAL SYNDROMES AND BRAIN INJURIES.	6,00	12,00
DIDACTIC UNIT IV: INTRODUCTION TO PHYSIOTHERAPY IN CHILDHOOD NEUROLOGICAL INJURIES.	2,00	4,00
DIDACTIC UNIT V: INTRODUCTION TO THE TECHNIQUES IN PHYSIOTHERAPY OF THE NERVOUS SYSTEM	5,00	10,00
DIDACTIC UNIT VI: PHYSIOTHERAPY IN PERIPHERAL INJURIES.	2,00	4,00
DIDACTIC UNIT VII.- PRACTICES	7,00	14,00



References

1. PAUL A. YOUNG, PAUL H. YOUNG. Neuroanatomía clínica funcional. Baltimore: Masson; 2001.
2. MARÍA PELLICER ALONSO Y COLS. Fisioterapeutas de instituciones sanitarias. Sevilla: MAD; 2000.
3. L. LÓPEZ-DURÁN STERN. Traumatología y ortopedia. Madrid: Luzán 5; 1998.
4. BOBATH, B. Hemiplejía del adulto. Bs. Aires: Panamericana; 1993.
5. BRUNNSTROM, S. Reeducción motora del hemipléjico. Barcelona: Jims; 1979.
6. CARR/SHEPHERD. Fisioterapia de los trastornos cerebrales. Bs Aires: Panamericana; 1985.
7. SOTKES, M. Rehabilitación neurológica. Colección de fisioterapia. Madrid: Harcourt; 2002.
8. VIEL, E. El método Kabat. Barcelona: Masson; 1989.
9. BERCIANO, J. Decisión clínica en Neurología. Barcelona: Jims; 1995.
10. BISBE, M; SANTOYO, C, Fisioterapia en neurología. Panamericana. 2012
11. CANO DE LA CUERDA; COLLADO VAZQUEZ. Neurorrehabilitación. Panamericana. 2012
12. Movilización Neuromeníngea: tratamiento de los trastornos mecanosensitivos del sistema nervioso. Autor: E. Zamorano. Editorial medica Panamericana.
13. La facilitación Neuromuscular Propioceptiva en la Práctica. Autores: Adler. Beckers. Buck. Editorial medica Panamericana.
14. El principio. Autor Václav Vojta. Editorial Springer Verlag Iberica.
15. Experiencias con el Concepto Bobath. Fundamentos, tratamientos y casos.
16. Adler S, Beckers D, Buck M. La facilitación neuromuscular propioceptiva en la práctica. Madrid: Médica Panamericana; 2012.
17. Butler, D. S. Movilización del sistema nervioso. Ed. Paidotribo, Barcelona, 2009.
18. Castillo Montes, F.J. Fisioterapia y Rehabilitación en pediatría. Formación Alcalá. 2017
19. Conejero Casares, J.A. Sociedad Española de Rehabilitación Médica Física: Rehabilitación Infantil. Panamericana. 2012
20. Paeth B. Experiencias en el Concepto Bobath. Panamericana, 2006.
21. Stokes M, Stack E. Fisioterapia en la rehabilitación neurológica. London: Elsevier Health Sciences Spain; 2014.