VNIVERSITAT DE VALÈNCIA

Course Guide
44637 Functional recovery and new neurorehabilitation technology

COURSE DATA

Data Subject	
Code	44637
Name	Functional recovery and new neurorehabilitation technology
Cycle	Master's degree
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2220 - Master's Degree in Functional Recovery in Physiotherapy	Faculty of Physiotherapy	1	First term

Subject-matter

Degree	Subject-matter	Character
2220 - Master's Degree in Functional Recovery in Physiotherapy	6 - Functional recovery and new neurorehabilitation technology	Optional

Coordination

Name	Department
SANCHEZ SANCHEZ, MARIA LUZ	191 - Physiotherapy

SUMMARY

This course primarily aims to train students in the functional needs of patients with neurological conditions to adapt therapeutic interventions in the most efficient and successful as possible.This subject will be introduced in the field of neurorehabilitation and therefore the use of technology for therapeutic purposes depending on the disease or syndrome with the patient.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

2220 - Master's Degree in Functional Recovery in Physiotherapy

- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Ser capaces de obtener y de seleccionar la información específica y las fuentes relevantes para la resolución de problemas, elaboración de estrategias y planes de actuación, asesoramiento y ejecución de las diferentes actuaciones fisioterápicas en los
ámbitos de la recuperación funcional.
- Ser capaz de elaborar informes orales y escritos acerca de la situación funcional de las/os pacientes.
- Adquirir la metodología científica suficiente para la elaboración de proyectos de investigación en el campo de la recuperación funcional.
- Adquirir conocimientos específicos sobre los factores que influyen en la adherencia a la práctica física y las técnicas adecuadas para incrementarla.
- Ser capaces de saber utilizar el ejercicio físico terapéutico en todos los ámbitos de actuación de la recuperación funcional.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

At the end of the course the students will be able to design functional recovery programs to promote health and/or prevent secondary complications associated with neurological disorders. In addition, they will know the newest tools and procedures in the functional recovery of theses patients.

DESCRIPTION OF CONTENTS

1. Physical activity

Recommended levels of physical activity for maintaining the health of the patients with neurological conditions.

2. Assisted therapy and/or robotics

assisted therapy and / or robotics: application of these therapies (with torque feedback platforms, functional electrostimulation, Armeo ®, exoskeletons [eLegs, ReWalk, etc]) for recovery of certain functional capabilities.

3. Virtual reality

Virtual reality as a tool for therapeutic support and dynamic exercise.

4. Mirror neurons and motor imagery

Training techniques based on mirror neurons and motor imagery for motor recovery and treatment of neuropathic pain.

5. Transcranial magnetic electro-stimulation

Transcranial magnetic electro-stimulation as a method to evoke movements in the neurological patient.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	24,00	100
Laboratory practices	12,00	100
Development of group work	15,00	0
Study and independent work	54,00	0
Readings supplementary material	15,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	20,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

Theoretical-practical face-to-face classes in which the contents of the subjects will be worked on, discussed and carried out using different teaching resources.
The purpose of group work is to promote cooperative learning and reinforce the individual.
The individual and collective tutorials should serve as a means to coordinate the students in the individual tasks and group.

EVALUATION

Assessment system	Percentage of qualification
Individual work. The individual work may consist, depending on the characteristics of the subject received, in a bibliographic search on a specific subject of the subject taught, in a work on clinical cases, in activities on solving practical cases, a critical work. Students will solve and defend a clinical case taking into account the clinical reasoning guidelines studied and the issues discussed in classroom. Therefore, this evaluation test will consist of a written part and an oral presentation that the student will perform in order to pass the subject.	**10%**
Assistance and participation at class. This evaluation system takes into account the implication of the student in the classroom. It will be taken into account that the student responds to the questions formulated by the teacher, raises interesting debates about the information imparted in class, formulates doubts after having reviewed the previously received concepts and/or proposes activities that may be of interest for the dynamics of classroom.	**20%**
Theoretical-practical final test. This test will integrate the knowledge acquired during each of the subjects. Contents that may be conceptual or procedural. The exam may be written or oral depending on the nature of the subject taught.	**80%**

The final mark of the subject will be the weighted average of the different parts of the evaluation, as long as the student has obtained at least a 50% of the maximum mark in each of the tests.

REFERENCES

Basic

- Carr J, Shepherd R. 2010. Neurological Rehabilitation. Optimizing motor performance. 2nd Edition. Edinburgh; New York: Churchill Livingstone
- Lennon S, Stokes M. 2009. Pocketbook of neurological physiotherapy. New York: Churchill Livingstone
- Lamotte G et al. Effects of endurance exercise training on the motor and non-motor features of Parkinson's disease: a review. J Parkinsons Dis. 2015;5(1):21-41. doi: 10.3233/JPD-140425.
- Pearson Met al. Exercise as a therapy for improvement of walking ability in adults with multiple sclerosis: a meta-analysis. Arch Phys Med Rehabil. 2015 Jul;96(7):1339-1348.e7. doi: 10.1016/j.apmr.2015.02.011. Epub 2015 Feb 21.

Additional

- Carr J, Shepherd R. 2004. Rehabilitación de pacientes en el ictus: pautas de ejercicios y entrenamiento para optimizar las habilidades motoras. Elsevier España
- Motl RW et al. Benefits of Exercise Training in Multiple Sclerosis. Curr Neurol Neurosci Rep. 2015 Sep;15(9):62. doi: 10.1007/s11910-015-0585-6.