

**COURSE DATA****Data Subject**

<b>Code</b>	33014
<b>Name</b>	General proceedings for Intervention in physiotherapy I
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2022 - 2023

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>	<b>year</b>
1202 - Degree in Physiotherapy	Faculty of Physiotherapy	2	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1202 - Degree in Physiotherapy	10 - General procedures in physiotherapy intervention	Obligatory

**Coordination**

<b>Name</b>	<b>Department</b>
INGLES DE LA TORRE, MARTA	191 - Physiotherapy
MUÑOZ GOMEZ, ELENA	191 - Physiotherapy

**SUMMARY**

In the subject General Intervention Procedures in Physiotherapy I the student is expected to acquire the knowledge related to specific procedures related to electrotherapy and related areas, as well as its practical application in specific clinical cases.

**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)

### 1202 - Degree in Physiotherapy

- Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.
- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Know and understand the physiotherapy methods, procedures and interventions applied in clinical settings for both, functional recovering or re-education and in activities aimed at health promotion and maintenance
- Apply, direct and coordinate the physiotherapy intervention plan using the own therapeutic tools and considering the patient's individuality.
- Work in teams.
- Have the ability to organise and plan work.
- Acquire knowledge related to the information and communication technologies.
- Know about general physiotherapy procedures: Masotherapy, Electrotherapy, Magnetotherapy, Ergotherapy, Hydrotherapy, Balneotherapy, Climatotherapy, Thalassotherapy, Thermotherapy, Cryotherapy, Vibrotherapy, Phototherapy, Pressotherapy, and those derived from other physical agents.
- Know how to use general physiotherapy procedures: Masotherapy, Electrotherapy, Magnetotherapy, Ergotherapy, Hydrotherapy, Balneotherapy, Climatotherapy, Thalassotherapy, Thermotherapy, Cryotherapy, Vibrotherapy, Phototherapy, Pressotherapy, and those derived from other physical agents.



- Know, design and apply other therapies related to the physiotherapy field.
- Encourage the participation of the user in the recovering process.

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

The student will be able to apply the general physiotherapeutic procedures such as electrotherapy, magnetic therapy, vibrotherapy, light therapy, acupressure, and those resulting from physical agents.

## **DESCRIPTION OF CONTENTS**

### **1. DIDACTIC UNIT I. INTRODUCTION TO ELECTROTHERAPY**

1. Electrotherapy: concept and historical evolution. General physicochemical effects. Classification of currents. Patient safety.

### **2. DIDACTIC UNIT II. GALVANIC CURRENT. IONTOPHORESIS**

2. Galvanic current. Iontophoresis.  
3. Introduction to other techniques based on galvanic current: percutaneous electrolysis and transcranial direct current stimulation.

### **3. DIDACTIC UNIT III. LOW AND MEDIUM-FREQUENCY CURRENTS**

4. Electrostimulation I. Concept. Application parameters. Types of low- and medium-frequency currents with an excitomotor effect. Faradic and exponential currents.  
5. Electrostimulation II. Electrical muscle stimulation (EMS). Kotz currents. Technique for the application of variable currents.  
6. Electroanalgesia I. Analgesic exponential currents. Träbert currents.  
7. Electroanalgesia II. Diadynamic currents: types, application techniques and uses.  
8. Transcutaneous electrical nerve stimulation (TENS): concept, characteristics and types of stimulation.  
9. Medium-frequency currents: Interferential currents: concept and application procedures.

### **4. DIDACTIC UNIT IV. HIGH-FREQUENCY CURRENTS AND MAGNETOTHERAPY**

10. High-frequency currents I. Characteristics. Physiological effects. Dosages. Indications and contraindications.  
11. High-frequency currents II. Short wave. Radar. Diathermy by radiofrequency. Physiological effects. Application techniques.  
12. Magnetotherapy I. Physical principles, action mechanisms, biological effects. Magneto-osteogenesis: devices and parameters, norms of application, indications and contraindications  
13. Magnetotherapy II.. Introducción a la estimulación magnética transcraneal



### **5. DIDACTIC UNIT V. PHOTOTHERAPY**

- 14. Phototherapy: concept, main laws. Classification of phototherapeutic radiations.
- 15. Infrared and Ultraviolet radiation. Physiological and therapeutic effects. Application techniques and modalities.
- 16. Laser radiation. Physical aspects, characteristic and types of laser. Laser therapy.

### **6. DIDACTIC UNIT VI. VIBROTHERAPY**

- 17. Vibrotherapy I. Ultrasounds. Physical properties. Biological effects.
- 18. Vibrotherapy II. Application techniques of ultrasounds. Dosages. Indications and contraindications. Shock waves.

### **7. DIDACTIC UNIT VII. OTHER APPLICATIONS**

- 19. Pressure therapy: techniques and applications.
- 20. Biofeedback: principles, applications and indications.

### **8. PRACTICE**

- P1. Introducción a la electroterapia.
- P2. Galvanic current. Iontophoresis
- P3. Electrostimulation I. Faradic and exponential currents.
- P4. Electrostimulation II. Electrical Muscle Stimulation (EMS). P5. Electroanalgesia I. Träbert and diadynamic currents.
- P6. Electroanalgesia II. Transcutaneous electrical nerve stimulation (TENS).
- P7. Medium-frequency currents. Interferential currents.
- P8. High-frequency currents.
- P9. Ultrasounds
- P10. Laser therapy + magnetotherapy.
- P11. Biofeedback.
- P12. Clinical cases resolution

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Laboratory practices	40,00	100
Theory classes	20,00	100
Development of individual work	25,00	0
Study and independent work	14,00	0
Preparation of evaluation activities	26,00	0
Preparing lectures	25,00	0
<b>TOTAL</b>	<b>150,00</b>	

**TEACHING METHODOLOGY**

Theoretical lessons will be delivered in the form of lectures in the classroom following the contents of the syllabus, and the development of certain activities proposed by the teacher.

Practical lessons will take place in the laboratory. Attendance to 80% of the practical lessons will be mandatory. Students will practise skills and will apply the theoretical knowledge acquired by using adequate apparatuses of different types.

They will also practise the general intervention skills and procedures covered in this subject through simulation practices, case studies and group work.

The teaching programme can be modified during the course if the lecturer deems it appropriate for the sake of the quality of education and of the acquisition of knowledge by students.

**EVALUATION**

The practical exam will consist on the resolution of 3 clinical cases using the available equipment, and the students will be asked to demonstrate the skills, attitudes and knowledge acquired in practical sessions. It will be held in the laboratory. Participation and attitude towards practical sessions will also be taken into consideration.

The theory exam will consist of 40 multiple-choice questions.

Each exam (practice and theory) will be evaluated from 1 to 10 and a minimum mark of 5 will be required in each exam for it to count towards the final mark. Pass marks obtained in one exam can be carried forward for the next examination session. Marks will be not kept between academical courses. Student's participation in the activities proposed by the teacher will be positively valued.

**6. 1. Theory exam**

Multiple-choice questions	Ⓟ Test with 40 multiple-choice questions with only one correct answer.	<b>40%</b>
	Ⓟ Results will be based on this formula: Mark = [correct answers -(errors/number of choices - 1)]x(highest mark possible/number of questions).	
		<b>40% of final mark</b>

**6.2. Practical exam**

Practical test	Ⓟ Resolution of 3 cases proposed by the teacher	<b>60%</b>
	Ⓟ Each of the cases will be scored from 0 to 10, and the mean is then calculated. The student's attitude and skills when using the equipment will be evaluated	
		<b>60% of final mark</b>

**REFERENCES****Basic**

- Albornoz Cabello, M.; Maya Martín; J. y Toledo Marhuenda, J.V. (2016). Electroterapia Práctica: Avances en Investigación Clínica. 1ª ed. Barcelona: Elsevier.
- Aramburu C, Muñoz E, Igual C (2003). Electroterapia, termoterapia e hidroterapia.Ed.Síntesis. 1ª edición. Madrid: Síntesis.



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- Bélanger, A.Y. (2015). Therapeutic electrophysical agents: Evidence behind practice. 3a ed Philadelphia: Wolters Kluwer Health.
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- Plaja, J. Analgesia por medios físicos (2003). 1a ed. Madrid: McGraw-Hill Interamericana.
- Rodríguez Martín JM (2004). Electroterapia en Fisioterapia. Ed.Panamericana 2ª edición.
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#### **Additional**

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- Albornoz-Cabello M. et al. (2017). Effect of interferential current therapy on pain perception and disability level in subjects with chronic low back pain: a randomized controlled trial. Clin Rehabil. 31(2): 242-249.
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- Heipartz W.; Schewe, H. y Hüter-Becker A. (2005). Terapia física. Termoterapia, mecanoterapia, electroterapia, ultrasonidos, fototerapia, inhalación. 1a ed. Barcelona: Paidotribo.
- Demida, A., Zarzycki, M. (2019). Touch and Pain Sensations in Diadynamic Current (DD) and Transcutaneous Electrical Nerve Stimulation (TENS): A Randomized Study. Biomed Res Int. 2019:9073073. doi: 10.1155/2019/9073073. eCollection 2019.
- Kim, E.D. (2019). Efficacy and Safety of a Stimulator Using Low-Intensity Pulsed Ultrasound Combined with Transcutaneous Electrical Nerve Stimulation in Patients with Painful Knee Osteoarthritis. Pain Res Manag. 2019:7964897.
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- Nalty T. (2000) Electrotherapy clinical procedures manual. 1a ed. New York: Mc Graw Hill.
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