COURSE DATA

DATA SUBJECT

Code: 34339
Name: Orthopodiatry I
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1208 - Degree in Podiatry	Facultat d'Infermeria i Podologia	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1208 - Degree in Podiatry	Orthopodiatry	COMPULSORY

COORDINATION

JORDA VALLES ADRIAN

SUMMARY

The subject of Orthopodology consists of 18 ECTS credits and includes 3 courses: ORTHOPODOLOGY I, which is taught in the first semester of the 2nd year; ORTHOPODOLOGY II, taught in the second semester of the 2nd year; and ORTHOPODOLOGY III, which takes place in the first semester of the 3rd year.

In the ORTHOPODOLOGY I course, students will develop skills and competencies in the use of instruments, materials, and machinery used in the fabrication and application of orthopodological treatments.

The course covers general concepts of orthopodology, the orthopodology workshop and its main work areas, the technology and specific characteristics of therapeutic orthopodological materials, as well as the fundamentals and various techniques for foot-leg molding. In addition, students will learn about the different types of materials used in the making of plantar and digital orthoses, as well as their physical properties.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

*ORTOPODOLOGÍA I, II AND III, compulsory taught in 1 st and 2 n semester of 2nd year and 1 semester of 3rd year.

RECOMMENDATIONS: Having acquired the competencies of the foundational subjects: Biomechanics and Podiatric Pathomechanics, Human Anatomy, Podiatric Pathology, Biochemistry, and Biophysics

COMPETENCES / LEARNING OUTCOMES

1208 - Degree in Podiatry

Design, procure and implement plantar supports, digital orthoses, prosthesis and splints using different techniques and materials. Plantar and digital orthotics. Study of footwear and shoe therapy. Prescription of lower extremity orthopedic treatments.

Develop the skill and dexterity in the use of instruments, equipment and machinery used for the preparation and implementation of orthosis treatments. General concept of orthopedics. The orthosis workshop. Orthosis therapeutic materials technology. Fundamentals and techniques for foot-leg casts.

Know and implement the exploration techniques to give a diagnosis and prognosis, and to design the orthopodologic treatment plan of the lower limb pathology. Bone, ligament and muscle injuries. Pathology of the forefoot and hindfoot. Congenital deformities. Neurological damage. Amputations. Asymmetries.

DESCRIPTION OF CONTENTS

1. INTRODUCTION TO ORTHOPODOLOGY

Topic 01: History of orthopodology. Definition of orthopedics. Definition of orthopodology. Introduction to the course syllabus. Relationship of the course with other core curriculum subjects.

Topic 02: Classification of the different types of orthopodology: palliative, compensatory, corrective, and substitutive orthopodology. Definition, characteristics, and indications. Provisional and definitive orthopodological treatments. Application guidelines and indications for use.

Topic 03: Definition of orthoses and prostheses. Types, characteristics, and application criteria.

2. ORGANIZATION OF THE ORTHOPODOLOGY WORKSHOP

Topic 04: Description of the orthopodology workshop. Required features of the workshop. Ergonomic arrangement of furniture and tools. Rules of use. Description of machinery specific to an orthopodology workshop.

Topic 05: Hygiene and safety regulations in the orthopodology workshop.

3. MOLDS. MOLD ROOM AND MATERIALS FOR FOOT MODELING

Topic 06: Description and characteristics of the materials used in mold fabrication. Instruments used in the making of molds. Description and methodology of use.

4. MOLDS. TYPES OF MOLDS. POSITIVE AND NEGATIVE MOLDS

Topic 07: Definition of a mold. Indications. Types. Negative mold and positive mold (or casting). Classification of molds according to the foot segment to be reproduced. Methodology for obtaining negative and positive molds.

5. MOLDS. PLANTAR MOLD IN PARTIAL WEIGHT-BEARING AND FULL WEIGHT-BEARING

Topic 08: Plantar mold in non-weight-bearing, partial weight-bearing, and full weight-bearing. Methodology for obtaining plantar molds under load, partial load, and unloaded conditions. Neutralization techniques. Assessment of mold neutrality.

6. MOLDS. CLINICAL CASES

Topic 09: Molds: clinical cases.

7. CAD/CAM SYSTEMS

Topic 10: Design system for functional orthoses using CAD/CAM technology. Practical cases.

8. CHARACTERISTICS OF MATERIALS USED IN ORTHOPODOLOGY

Topic 11: Physical properties of materials and their relevance in orthopodology: density; optical, thermal, electrical, and mechanical properties.

Topic 12: Classification of materials used in orthopodology.

Topic 13: Plant-based materials and their derivatives. Characteristics, physicochemical properties, and handling.

Topic 14: Animal-based materials: hides and leathers. Tanning process, parts of a hide and their characteristics. Types of leather and their features. Handling.

Topic 15: Types of thermoplastic materials: polyethylene, polypropylene, methacrylates. Resins: types. Resins for the fabrication of plantar supports. Resins for mold fabrication. Physicochemical properties and handling.

Topic 16: Thermoformable materials, polyethylene foams, ethylene-vinyl acetate (EVA). Physicochemical properties and handling.

Topic 17: Laminated composites. Physicochemical characteristics. Handling. Silicones.

Topic 18: Silicones. Types of silicones.

9. PRACTICAL CONTENT (Nos. 1¿2¿3¿4¿5¿6¿7¿8¿9¿10) (20 hours)

Practical 1: Introduction to the orthopodology workshop

Practical 2: Provisional orthopodological treatments

Practical 3: Localization of anatomical reference points

Practical 4: Mold using phenolic foam (I)

Practical 5: Mold using phenolic foam (II)

Practical 6: Negative plantar mold. Plaster bandage adaptation to the foot (I)

Practical 7: Negative plantar mold. Adaptation and correction techniques (II)

Practical 8: Negative plantar mold in prone position. Adaptation and correction techniques (III)

Practical 9: Negative plantar mold. Adaptation and correction techniques (IV)

Practical 10: Fabrication of different types of negative molds (using foam)

10. SEMINARS I, II, III, IV

Seminar I: Design and creation of templates (I). The base template. Definition. Reference points for its creation. Methodology for fabrication on the foot, mold, or pedigraphy. Reference points and methodology.

Seminar II: Design and creation of templates (II)

Seminar III: Negative molds and positive molds

Seminar IV: CAD/CAM system

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00

Theory	58,00
Laboratory	20,00
Classroom practices	10,00
Total hours	**90,00**

NON PRESENCIAL ACTIVITIES

Activity	**Hours**
Attendance at other activities	2,00
Individual or group project	4,00
Independent study and work	42,00
Preparation of lessons	9,00
Preparation for assessment activities	2,00
Resolution of case studies	1,00
Total hours	**60,00**

TEACHING METHODOLOGY

TEACHING MODALITY: IN-PERSON CLASS (To 58 hours)

Theoretical explanation of the content of the didactic units to the enrolled students (n), through lectures, explanations, and/or demonstrations led by the professor. Students will be able to access the class session materials through the virtual classroom, in the "documents" module of the Virtual Classroom. The schedule will be established in the corresponding course OCA (Official Course Announcement). Attendance control will be enforced in each class by having students sign attendance sheets.

TEACHING MODALITY: IN-CLASS PRACTICE (Seminar P, 10 hours)

Monographic supervised sessions with shared participation of professors and students. Attendance is mandatory for all enrolled students.

TEACHING MODALITY: PRACTICE IN TEACHING LABORATORY (L, 20 hours)

Practical exercises are essential for students to acquire relevant skills and procedures in the subject. These practices will be held in the workshop located in classroom S4. Student group assignments will be made by the center's administration, with group sizes (n/4) between 16 and 24 students. Assigned groups must be respected; no group changes will be allowed. Attendance to these laboratory practices is compulsory for all enrolled students, including repeaters. Attendance records will be kept for each practice session through sign-in sheets, which the professor will collect at the end of the session.

TEACHING MODALITY: TUTORING (U, 2 hours)

Three types of tutoring sessions will be offered:

Group tutoring (n/4) with 20¿25 students: To address doubts and difficulties encountered by students, supervise personal projects, and guide complementary academic activities to the class.

Personalized tutoring: To supervise students¿ personal projects and expand or deepen information provided in other learning situations.

Virtual tutoring: Available to all enrolled students via the University email:

Adrian.Jorda@uv.es

Marta.Izquierdo-Renau@uv.es

EVALUATION

The grading system will follow the provisions established by Royal Decree 1125/2003 of September 5, which sets the European Credit Transfer and Accumulation System (ECTS) and the grading system for official university degrees.

The evaluation will consist of an objective test, with essay questions or multiple-choice questions (with penalties for incorrect answers), and continuous assessment throughout the learning process. The passing grade threshold is set at 3.25 points out of 6.

The scores obtained in each part of the objective test will not be retained for future exam sessions.

Practical Competencies Evaluation:

A practical exam will be conducted, valued at 1.5 points, to allow the student to demonstrate that they have acquired the required competencies to pass the course. Practical competencies will be assessed according to a rubric.

It is also essential, to achieve a positive overall evaluation, to have passed at least 50% of the practical assessment (0.8 points) and the submitted material (practical competencies) with 1 point. Otherwise, the student will fail the practical competencies evaluation.

For the second exam session, practical competencies will be evaluated through a practical exam with the same characteristics as the first session.

Scores obtained in each part of the objective test will not be carried over to future exam sessions.

The grade sheet will record a grade of 4 (fail) if the student does not pass.

CRITERIA FOR AWARDING HONORS (MATRÍCULA DE HONOR):

The mention of "Matrícula de Honor" (Honors) may be awarded to students who have obtained the grade "Sobresaliente" (Excellent). The number of "Matrícula de Honor" mentions granted cannot exceed five percent of the students included in the same official grade sheet, unless the group is smaller than 20 students, in which case only one "Matrícula de Honor" may be awarded.

EVALUATION SUMMARY:

Evaluation and grading criteria (referring to competencies worked on during the course)

Written evaluation (60%): Objective test (60%) ¿ 6 points

Continuous evaluation (35%):

¿ Practical competencies (L) ¿ 2 points

¿ Practical exam ¿ 1.5 points

¿ Seminar P (0.5%) ¿ 0.5 points (0.1 points each)

Total grade value: 10 points

REFERENCES

- Revistas científicas: * Revista Española de Podología: https://www.revesppod.com/?AspxAutoDetectCookieSupport=1 * Revista Europea de Podología: https://revistas.udc.es/index.php/EJP/index * Revista de Internacional de Ciencias Podológicas: https://revistas.ucm.es/index.php/RICP * Journal of the American Podiatric Medical Association: https://meridian.allenpress.com/japma * Journal of the Foot and Ankle Research: https://jfootankleres.biomedcentral.com/ * Current Pedorthics: https://www.pedorthics.org/page/CurrentPedorthics * Podiatry Today : https://www.podiatrytoday.com/archive Asociaciones Internacionales: * American Podiatric Medical Association: https://www.apma.org/ * The American College of Foot and Ankle Orthopedics and Medicine: https://www.acfaom.org/ * American Academy of Orthopaedic Surgeons: https://www.aaos.org/ * American Orthopaedic Society for Sport Medecine: https://www.sportsmed.org/aossmimis

- SUBIRANA I CAMPÀ MQ. Manual de Técnicas en Ortopodología. Barcelona: Ediciones Especializadas Europeas; 2004.

- VÁZQUEZ MALDONADO B, editor. Manual de Ortopodología. Barcelona: Ediciones Especializadas Europeas; 2009.

- E Fuller: The Windlass Mechanics of the Foot: A Mechanical Model to Explain Pathology. JAPMA90 (1):35-46,200O. Komelia Kulig et al: Nonsurgital Management of Posterior Tibial Tendon Dysfunction with Ortheses and Resistive Exercise :A Randomized Controlled Trial Phys Ther.2009,89 : 26-37.

- 1. MICHAUD TC (1997). Foot Orthoses and Other Forms of Conservative Foot Case. Ortesis Plantares y Otras Formas de Tratamiento Conservador. (2ª ed.). Michaud, TC, Baltimore. 2. KIRBY KA. (1997). Foot and lower extremity biomechanics: A ten year collection of precision intricast newsletters. Precision Intricast, Inc, Payson, Arizona. Autor-Editor. 3. KIRBY KA. (2002). Foot and lower extremity biomechanics I: precision intricast newsletters, 1997- 2002. Precision Intricast, Inc., Payson, Arizona. Autor-Editor. 4. KIRBY KA. (2009). Foot and lower extremity biomechanics II: precision intricast newsletters, 2002-2008. Precision Intricast, Inc, Payson, Arizona. Autor-Editor. 5. KIRBY KA. (2016). Biomecanica del pie y la extremidad inferior. Vol V. Artículos de revisión. Intricast. 2011-2018. Autor-Edito. 6.RAMIRO J, coordinador. Guía de recomendaciones para el diseño de Calzado. Valencia:Instituto de Biomecánica de Valencia; 1995. 7. ZAMBUDIO PERIAGO R. Prótesis, ortesis y ayudas técnicas. Barcelona: Elsevier Masson; 2009 8.NÄDER M, NÄDER HG, editores. OTTO BOCK. Compendio de prótesis. Prótesis para la extremidad inferior. 2ª ed. Berlín: Schiele & Schön; 1993. 9. Viladot R, Cohí O, Clavell S. Ortesis y prótesis del aparato locomotor. Extremidad inferior. Barcelona: Masson; 1991