COURSE DATA

DATA SUBJECT

Code: 34340
Name: Orthopodiatry II
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	Second quarter

SUBJECT-MATTER

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

COORDINATION

ALABAU DASI RAQUEL

SUMMARY

MODULE 3. SUBJECT:

- PODIATRIC PATHOLOGY.
- PHYSICAL AND PHARMACOLOGICAL ORTOPODOLÓGICOS TREATMENTS.PROVIDES THE KNOWLEDGE

MODULE 3:

Pathological processes structural and functional foot wide impact of locomotive. Technical knowledge and development of exploration for making a diagnosis, prognosis and treatment plan design ortopodológico. Knowledge of instruments, equipment and machinery used for the preparation and implementation of treatment ortopodológicos: requirements, design, production and application. Chiropodist¿s study of shoes and comprehensive changes to chiropodists associated with sports. application of physical methods, electrical and manual. Taping and treatment of pain and inflammation.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

RECOMMENDATIONS:
Have acquired the skills of raw materials :
HUMAN ANATOMY, BIOCHEMISTRY AND BIOPHYSICS AND PATHOLOGY GENERAL AND COMPULSORY COURSE: ORTOPODOLOGIA (I), BIOMECHANICS AND PATHOMECHANICS PODIATRIST.

COMPETENCES / LEARNING OUTCOMES

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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. BASIC CONCEPTS APPLICABLE TO ORTHOPODIATRIC TREATMENTS

TOPIC 1. Analysis of the different biomechanical models. Definition of the biomechanical model.
TOPIC 2. Theory of Root¿s static studies applied to the manufacture of a plantar orthosis.
TOPIC 3. Dynamic theories of Fuller, Kirby, Dananberg, and McPoil¿s tissue stress.
TOPIC 4. European Biomechanical Theory.
TOPIC 5. New concepts on evaluation models (VALUATOR).

2.MECHANICAL EFFECT OF ORTHOPEDIC COMPONENTS.

TOPIC 6: Mechanical effect of rearfoot orthopedic components: Medial Heel Skive (MHS)¿characteristics,

mechanical effect on different foot structures, issues arising from the use of MHS in orthopedic treatment.

TOPIC 7: Mechanical effect of rearfoot orthopedic components: Lateral Heel Skive (LHS)¿characteristics, mechanical effect on different foot structures, issues arising from the use of LHS.

TOPIC 8: Mechanical effect of rearfoot orthopedic components: Short heel cup¿characteristics, mechanical effect of the short heel cup, issues related to its application.

TOPIC 9: Mechanical effect of the medial longitudinal arch. Mechanical effect of applying a medial longitudinal arch (MLA) support. Geometric reproduction of the patient¿s MLA. Clinical considerations. Issues related to MLA application.

TOPIC 10: Mechanical effect of forefoot orthopedic components: Retro-capital pads (RCP) ¿characteristics, positioning, design, and location of the RCP. Mechanical effects of the RCP. Issues related to its use.

TOPIC 11: Fenestrations¿characteristics, positioning, design, and location. Forefoot pronation wedge (FPW)¿characteristics, design, and positioning. Issues arising from FPW application.

3.. APPLICATION METHODOLOGY FOR MATERIALS USED IN THE MANUFACTURE OF PLANTAR ORTHOSES

TOPIC 12: Definition of plantar orthosis. Description of its components. General concepts. Classification of different types of plantar orthoses. Characteristics. Indications.

TOPIC 13: Resin plantar orthosis. Fiberglass plantar orthosis.

TOPIC 14: Thermoformed orthosis. Characteristics. Manufacturing methodology. Applications. Indications. Combination with other materials.

TOPIC 15: Plantar orthosis made from thermoplastics. Characteristics. Indications. Manufacturing methodology for various materials: laminated composites, subortholen, polypropylene. Combination with other materials.

TOPIC 16: 3D application in the personalized fabrication of plantar orthoses.

4.PEDIATRIC ORTHOPODIATRY. TREATMENTS FOR CONGENITAL FOOT DEFORMITIES

TOPIC 17: Congenital foot deformities: *Congenital talipes equinovarus (clubfoot)*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive orthopedic treatment plan. Treatment progression.

TOPIC 18: Congenital foot deformities: *Congenital flatfoot or vertical talus*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 19: Congenital foot deformities: *Calcaneovalgus foot or talus foot*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 20: Congenital foot deformities: *Metatarsus adductus (bean-shaped foot)*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 21: Congenital foot deformities: *Metatarsus varus (serpentine foot)*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 22: Congenital foot deformities: *Rigid flatfoot or tarsal coalition*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 23: Plantar arch anomalies. Deformities of the medial longitudinal arch. *Flexible flatfoot*. Static and dynamic assessment of relevant parameters. Design and application of both provisional and definitive treatment plan. Treatment progression.

TOPIC 24: Plantar arch anomalies. Deformities of the medial longitudinal arch. *Simple cavus foot, cavovarus foot, and calcaneovarus foot (gun-shaped foot)*.

TOPIC 25: Rotational gait alterations. Study of abduction and adduction gait patterns. Biomechanical and clinical implications. Design and application of treatment plan.

5.PEDIATRIC ORTHOPODIATRIC TREATMENTS. APPLICATION OF SPLINTS FOR LOWER LIMB PATHOLOGIES

TOPIC 26: Definition of splint. Classification of splints according to biomechanical effect: *active and passive splints*. Materials used in splint fabrication. Characteristics. Application methodology. Evaluation.

TOPIC 27: Most common splints used in podiatry: *Antequinus splint*, *Denis-Browne splint*¿characteristics, indications, and application methodology.

TOPIC 28: *Congenital hip dysplasia (CHD)*. Conservative treatment: *Frejka pillow splint*¿characteristics, indications, and application methodology.

6. PRACTICAL CONTENT. INTERNSHIP PROGRAM WORKSHOP (L) 30 H:(

PRACTICES

Practice 1: Fabrication of thermoplastic plantar orthosis (subortholen type) (I).

Practice 2: Fabrication of thermoplastic plantar orthosis (subortholen type) (II).

Practice 3: Fabrication of thermoplastic plantar orthosis (polypropylene type) (I).

Practice 4: Fabrication of thermoplastic plantar orthosis (polypropylene type) (II).

Practice 5: Positive mold modification.

Practice 6: Fabrication of plantar orthosis using thermoadaptable resin material with vacuum technique (I).

Practice 7: Fabrication of plantar orthosis using thermoadaptable resin material with vacuum technique (II).

Practice 8: Fabrication of plantar orthosis using EVA material.

Practice 9: Fabrication of plantar orthosis using various materials (carbon fiber).

Practice 10: Fabrication of plantar orthosis using various materials (fiberglass).

Practice 11: Fabrication of plantar orthosis using thermoadaptable resin with direct adaptation technique (TAD).

Practice 12: Direct adaptation technique using pneumatic podo device with resins.

Attendance and successful completion of the practical competencies (L) throughout the course will be mandatory

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	58,00
Laboratory	30,00
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 Modalities

In-person classes (To, 58 hours):

Theoretical explanations of the course units will be given to the enrolled students (n) through expository, explanatory, and/or demonstrative sessions led by the instructor.

Students will have access to the class materials via the Virtual Classroom in the ¿Documents¿ section.

The course schedule will be established in the OCA for the corresponding academic year.

Attendance will be monitored in each class session through sign-in sheets for enrolled students.

Laboratory practical sessions (L, 30 hours):

Carrying out laboratory practices is essential for students to acquire the necessary skills and techniques relevant to the subject. These sessions will take place in the workshop located in classroom S4.

The students will be distributed into groups assigned by the school¿s administration. Each group (n/4) will consist of 16¿24 students.

Students must attend the session assigned to their group. Group changes are not permitted, and attendance is mandatory for all enrolled students, including those repeating the course.

Attendance will be recorded through sign-in sheets provided by the instructor at the end of each session.

Tutorial sessions (U, 2 hours):

Three types of tutoring will be offered:

Group tutoring (n/4, around 20¿25 students):

Aimed at resolving doubts and difficulties, supervising student projects, and guiding complementary academic activities.

Personalized tutoring:

For supervising personal student projects and expanding or deepening the information provided in other learning situations.

Virtual tutoring:

Available to all enrolled students via the university email system:

Marta.Izquierdo-Renau@uv.es

Raquel.Alabau@uv.es

EVALUATION

Grading System

The grading system will follow Royal Decree 1125/2003, of September 5, which establishes the European

Credit Transfer System (ECTS) and the grading system for official university degrees.

Evaluation will consist of:

An objective test, which may include 2¿6 open-ended questions and/or 50 multiple-choice questions (for every 4 incorrect answers, 1 correct answer is subtracted).

Continuous assessment of the learning process throughout the course.

The minimum passing score for the objective test is 3.25 out of 6.

Repeat students (those retaking the course) must take the exam based on the contents described in the current guide for the academic year 2025¿2026.

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

Practical Competency Evaluation

A practical exam (worth 2 points) will be conducted to verify that the student has acquired the necessary skills to pass the course.

Practical competencies will be evaluated based on a rubric.

To receive a positive global evaluation, the student must pass the practical assessment percentage, consisting of:

1 point for practical competencies

1 point for the practical exam

Assessment Criteria (based on the competencies developed during the course)

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

Continuous assessment (40%):

Practical competencies (L) (20%) = 2 points

Practical exam (20%) = 2 points

Total grade: 10 points

If the student does not pass at least 50% of the practical evaluation (i.e., 1 point from competencies and 1 point from the practical exam), the student will receive a failing grade for the continuous assessment.

The official grade report will record a grade of 4 (Fail).

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

¿¿ As before, scores from the objective test will not carry over to future exam sessions.

Criteria for the Award of "Matrícula de Honor" (Honors Distinction)

The distinction of "Matrícula de Honor" may be awarded to students who receive the grade "Outstanding" (Sobresaliente).

The number of "Matrícula de Honor" distinctions may not exceed 5% of the students listed on the same official grade sheet.

If the group is smaller than 20 students, only one "Matrícula de Honor" may be awarded

REFERENCES

- 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. 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-Editor. 6. Baumgartner, René; Stinus, Hartmut (dir.) (1977). Tratamiento ortésico-protésico del pie. Barcelona: Masson. 7. Lavigne, Alain; Noviel, Daniel. (1994). Estudio clínico del pie y terapéutica por ortesis. Barcelona:Masson. 8. Levy Benasuly, Ana Esther; Cortés Barragán, José Manuel. (2003). Ortopodología y aparato locomotor: ortopedia de pie y tobillo. Barcelona: Masson. 9. Munuera Martínez, Pedro Vicente (2012). El primer radio: biomecánica y ortopodología. Santander: EXA, D.L. 2009. 10. Malagón Castro, Valentín; Arango Sanín, Roberto. (1987). Ortopedia infantil. Buenos Aires: Jims

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en carga con espuma fenólica. (Video) 9. Whitney, Alan K. (2016). Taxonomía triplanar de las deformidades del pie y de la extremidad inferior.Barcelona: Editorial Base. 10.Levy Benasuly, Ana Esther; Cortés Barragán, José Manuel. (2003). Ortopodología y aparato locomotor: ortopedia de pie y tobillo. Barcelona: Masson. 11.Ballester Soleda, Jorge. (2001). Desalineaciones torsionales de las extremidades inferiores: implicaciones clinicopatológicas. Sociedad Espanola de Cirugía Ortopédica y Traumatología. Barcelona: Masson. 12.Rodríguez Valverde, Evaristo. (1989). Ortopodología aplicada: experiencias. Barcelona: Podospecial. 13.Vázquez Maldonado, Bernat. (2009). Cuadernos de Podología. Manual de Ortopodología. Barcelona: Editorial Ediciones Especializadas Europeas, S.A