COURSE DATA

DATA SUBJECT

Code: 34094
Name: Orthopaedics
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Facultat de Farmàcia i Ciències de l'alimentació	5	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	Orthopaedics	ELECTIVES

COORDINATION

NAVAS PUCHADES JULIAN

SUMMARY

Orthopedic is an elective subject in the fifth course of Pharmacy degree that is taught in the Faculty of Pharmacy, University of Valencia. This course has a total of 4.5 ECTS credits offered during a semester.

The main objective of the course is training in the medical devices used in orthopedics, orthotics, prosthetics, support products, effects and accessories and diseases treated with these products, with the aim to acquire knowledge leading to the manufacture and / or adapt them to the patients that need them according to their pathology.

Therefore, this course is aimed at training students who, in their professional future, either both in hospitals and in the area of the Office of Community Pharmacy, or the industry of medical devices and, more specifically, the products orthoprosthetic, want to develop this health discipline that historically has always been linked to the pharmacy.

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PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

For Orthopedics is necessary to have a basic knowledge of Biology, Physics, Chemistry, Physiology, Pathophysiology and Anatomy. Such knowledge is included in the subjects taught during the previous courses of Pharmacy Degree.

COMPETENCES / LEARNING OUTCOMES

1201 - Degree in Pharmacy

Acquire the appropriate terminology in the field of healthcare products and handle information sources.

Act with autonomy in learning, making informed decisions in different contexts, issuing judgements based on experimentation and analysis, and transferring knowledge to new situations.

Adapt orthoses and prostheses to patients safely and effectively.

Address strategies for three-dimensional design and manufacture of orthopaedic and prosthetic material.

Apply quality control processes and standard operating procedures in orthopaedics and prosthetics.

Apply such knowledge to the professional world, contributing to the development of human rights, democratic principles, principles of equality between women and men, solidarity, environmental protection and promotion of a culture of peace with a gender pe

Apply the scientific method and acquire skills in handling legislation, information sources, bibliography, drafting of protocols and other aspects considered necessary for the design and critical evaluation of preclinical and clinical trials.

Carry out measurements and recordings of anthropometric variables.

Collaborate effectively in work teams, assuming responsibilities and leadership roles and contributing to collective improvement and development.

Contribute to the design, development and implementation of solutions that respond to social demands, taking into account the Sustainable Development Goals as a reference.

Demonstrate critical and self-critical thinking in the field of the degree programme, considering aspects such as professional ethics, moral values and the social implications of the different activities carried out.

Design, prepare, supply and dispense other healthcare products.

Develop communication and information skills, both oral and written, to deal with patients and other health

professionals in the centre where professional activity is carried out. Promote teamwork and collaboration skills in multidisciplinary teams and wi

Identify, design, obtain, analyse, control and produce raw materials of healthcare interest for human use.

Interpret orthoprosthetic prescription forms, effects and accessories, and carry out the provision of the services.

Know and understand, within the field of the degree programme, gender inequalities in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem solving.

Know how to communicate effectively, both orally and in writing, adapting to the characteristics of the situation and the audience.

Know how to interpret, evaluate and communicate relevant data in the different areas of pharmaceutical activity, using information and communication technologies.

Know the functionality and pathologies of the upper limbs, lower limbs and spine.

Know the legislation on orthopaedic medical devices at regional, national and European levels.

Possess and understand knowledge in the different areas of study included in pharmacist training.

Propose creative and innovative solutions to complex situations or problems within the field of knowledge, to respond to diverse professional and social needs.

Recognise one's own limitations and the need to maintain and update professional competence, placing particular emphasis on self-learning of new knowledge based on available scientific evidence.

Reinforce the acquisition of the general competences of the curriculum.

Transmit ideas, analyse problems and solve them with critical spirit, acquiring teamwork skills and assuming leadership when appropriate.

DESCRIPTION OF CONTENTS

1. Introduction and general concepts

History of orthopedics. Basic concepts and definitions. Classification of orthoprosthetic products, their effects and accessories. Current state of orthopedics and interest for pharmacists. Materials used in the production and fitting of orthoses and prostheses. General processes and techniques in manufacturing and fitting prosthetics

2. Legislation and Quality Management

European Directives. National and regional legislation. Orthoprosthetic features. Quality Systems. Standards of Quality. Standard Operating Procedures. Official Catalogs of orthoprosthetic material.

3. Effects and Accessories

Dispensation of effects and accessories under the framework of pharmaceutical benefits. Catalog of the General Council of Official Colleges of Pharmacists. Cotton. Gauze. Bands. Plasters. Dressings. Eye patches. Douche. Irrigators and accessories for irrigators. Rectal and vaginal cannulas. Apparatus for containment of hernias and incisional hernias. Braces and suspenders. Incontinence pads and other systems. Apparatus for inhalation. Probes. Urine collection bags. Collectors of penis and accessories. Bags for colostomy, ileostomy, urostomy. Ostomy Accessories. Ostomy dressings. Ostomy irrigation systems and accessories. Systems of continent colostomy. Cannule of tracheostomy and laryngectomy.

4. The foot

Revision of the anatomy and biomechanics of the foot. Foot Pathologies of child and adult. Feet arches. Flat feet. Metatarsalgia. Diabetic foot. Biomechanics of walking. Pathological March. Analysis of the foot and measurament. Pedigraphs. Podoscope. Molds. Computerized registration system of pressures and scanning of the feet. Plantar Orthoses. Orthosis of silicone. Orthopedic shoes.

5. Lower limb

Revision of the anatomy and biomechanics of the lower limb. Orthosis in pathologies of the hip. Congenital hip dislocation. Perthes disease. Orthosis in the pathology of the knee meniscus and ligaments. Orthosis in pathologies of the ankle, ankle sprain. Ankle-foot orthoses. Short bitutors and foot drops. Orthosis knee-ankle-foot. Long way appliances. Functional Orthosis in lower limb fractures. Amputation and prosthetic limb. Rehabilitation of the lower limb amputees.

6. Upper limb

Revision of the anatomy and biomechanic of the upper limb. Orthosis in pathologies of the shoulder, tendinitis. Orthosis in pathologies of the elbow, epicondylitis. Orthosis in pathologies of the wrist, hands and fingers. Orthosis in the upper limb paralysis. Amputations and prosthetic of upper limb. Rehabilitation of upper limb amputees.

7. Vertebral column

Revision of the anatomy and biomechanics of the vertebral column. Cervical pathology. Collars. Minerva. Cervical traction. Cervical Pillows. Orthosis in the general pathology of the spine, lower back pain. Orthopedic belts. Corsets for the treatment of scoliosis, kyphosis and pathological lordosis. Boston brace. Milwaukee brace. Immobilization brace.

Orthotic treatment of the venous and lymphatic insufficiency diseases. Elastic material and compression orthesis. Treatment tights. Pressotherapy. Breast implants. Impairment, disability and handicap. Barriers.

8. Orthopaedic Miscellaneous

Adaptation of the housing of the disabled and their access. Product Classification Support (Technical Assistance). Products support for walking and activities of daily living. Wheelchairs. Walkers, Crutches. Adapted toilet and bath aids. Decubitus ulcers. Anti-bedsore cushions and mattresses. Orthesis in Sport Medicine

9. Laboratory

Practices are of mandatory attendance. There will be 3,5 hours / session. The manual of practice will be available directly in the laboratory. Students must submit a report after completing the practice and they must pass a written exam. Practices are scheduled as follows.
Session 1: Visit the company in the sector of orthopedics.
Session 2: Management of opening an orthopedics.
Session 3: Dispensing orthoprosthetic products. Using the catalog of materials and process of orthoprosthetic prescriptions.
Laboratory session 4: Study podográfico foot
Laboratory session 5: Description and adaptation of the main upper body member orthoses.
Laboratory session 6: Description and adaptation of the main lower body member orthoses.
Laboratory session 7: Description and adaptation of trunk orthoses.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	4,00
Theory	20,00
Seminar	5,00
Laboratory	16,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	4,00
Individual or group project	10,00
Independent study and work	7,00
Preparation of lessons	36,50
Preparation for assessment activities	5,00
Resolution of case studies	5,00
Total hours	**67,50**

TEACHING METHODOLOGY

The development of the course is structured as follows:

- **Lectures**. Include 2 hours each week in which the teacher give the student an overview of the topic, and information necessary to understand the contents of the subject. In these classes the students themsel encouraged to conduct the search for accessory or additional information, guiding the use of bibliograp sources. To monitor the class, the student will be recommended to review the material before the teach virtual classroom.
- **Specialized tutoring sessions in groups.** Small groups of students will be organized to guide the studer determine the functioning of the course. This will be the ideal environment for students to raise the diffe that they arise throughout the development of the program.
- **Practical sessions in computer** lab will be made in small groups and attendance is mandatory. The stud will be followed step by step, to evaluate if they acquire the skills in the manufacture and adaptation of orthoprosthetic products to resolve themselves practical cases. Students will present expose the resul discuss their interpretation. At the end, students must give a report with the results.
- **Seminars / jobs.** Small working groups will work on an issue raised by the teacher in order to expose it of the class and generate further debate. The report will be given to the rest of the studients prior to the The group will be personally supervised by the teacher on a regular basis and guide the search of biblio sources and critical analysis of the data found in these sources. The teacher will advise on the approac work, so to encourage the capacity for working, synthesis and research to the student.

EVALUATION

To pass the course the student will need to get 5 out of 10 points obtained by summing the grades from the sections corresponding to the theoretical and practical classes.

- Theoretical contents: there will be an examination corresponding to the contents of the program. The note achieved will contribute to the final with a rate of 70%. In this section the student must obtain at least a 4 out of 10, so it can be weighted with the score achieved on the examination of the practical classes.
- Practical classes: will be evaluated through the attendance and completion of a written exam to be held in the same call that the theoretical exam. The score in this evaluation represent 20% of the final grade. In this section the student must obtain at least a 1 out of 2, so it can be weighted with the grade in the theoric exam.
- The preparation and presentation of seminars represent 10% of the final grade. It will evaluate the content, structure and expression of written work and the capacity of synthesis and clarity in oral presentation.
- Students who do not attend the theoretical final exam, but they had assisted the laboratory practical classes or defended the seminar during the academic course, in the first achievement record of the course will be considered as "no presented" and in the second as "suspended".
- Students who fail the course in the first call, they keep the note for seminars and practical to the

second call.
- In addition to the assessment of learning, the teacher directly assesses the student's attitude and participation in both, theoretical and practical classes.

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