VNIVERSITAT DE VALÈNCIA

Course Guide
34094 Orthopaedics

COURSE DATA

Data Subject	
Code	34094
Name	Orthopaedics
Cycle	Grade
ECTS Credits	4.5
Academic year	2018 - 2019

Study (s)

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Faculty of Pharmacy and Food Sciences	5	First term

Subject-matter

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	27 - Orthopaedics	Optional

Coordination

Name	Department
GORGUES ZAMORA, JOSE	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

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.

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.

OUTCOMES

1201 - Degree in Pharmacy

- To possess and to understand the knowledge in the different areas of study included in the formation of the pharmacist.
- To apply this knowledge to the professional world, contributing to the development of Human Rights, democratic principles, principles of equality between women and men, solidarity, protection of the environment and promotion of a culture of peace with Gender perspective.
- Skill to communicate ideas, analyze problems and solve them with a critical mind, achieving team-working abilities and assuming leadership whenever required.
- Development of skills to update their knowledge and undertake further studies, including pharmaceutical specialization, scientific research and technological development, and teaching.
- Know how to apply the scientific method and acquire skills in the management of legislation, information sources, bibliography, elaboration of protocols and other aspects that are considered necessary for the design and critical evaluation of preclinical and clinical trials.
- To develop communication and information skills, both oral and written, to deal with patients and other health professionals in the center where they carry out their professional activity. To promote the capacity of work and collaboration in multidisciplinary teams and those related to other health professionals.
- To recognize personal limitations and the need to keep up to date professional competence, paying particular attention to the self-learning of new knowledge based on available scientific evidences.
- Reinforce the acquisition of the general competences of the Curriculum of Degree in Pharmacy.
- To intervene in the activities of health promotion, prevention of illness, in the individual, family and community; with a comprehensive and multi-professional vision of the health-illness process.

- Identify, design, obtain, analyze, control and produce raw materials of sanitary interest for human use.
- Design, prepare, supply and dispense other products of health interest.
- Acquire your own terminology in the field of healthcare products and manage information sources.
- Know the functionality and pathologies of the superior and the lower member and the backbone.
- Address three-dimensional design strategies and manufacture of orthoprosthetic material.
- Interpret the prescription of orthoprosthetic prescription, effects and accessories, and perform the execution of the benefits.
- Know the legislation of orthopedic health products at the regional, national and European levels.
- Adapt the orthoses and prostheses to patients in a safe and effective manner.
- Apply quality control processes and standardized work procedures in Orthoprothetic.
- To take measurements and record anthropometric variables.

LEARNING OUTCOMES

By undertaking this subject, students should acquire the following abilities and skills:

- Solid basic knowledge in orthopedics: Nomenclature. Classification. History and Legislation.
- Knowledge of the various issues that affect the functionality of the upper and bottom of the spine and orthotic solutions, prosthetic and assistive technology.
- Knowledge of medical devices including accessories and effects and their dispensing.
- Knowledge of Standard Operating Procedures and quality control in manufacturing processes and adaptation of orthoprosthetic products.
- Knowledge and use of information sources related to orthopedics: Databases, orthoprosthetic official catalog, websites and Legislation.
- Training students to perform experimental work. Contact an orthopedic workshop to motivate students to the occupation of orthopedics.

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.

8. Orthopaedic Miscellaneous

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

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Laboratory practices	16,00	100
Seminars	5,00	100
Tutorials	2,00	100
Attendance at events and external activities	4,00	0
Development of group work	5,00	0
Development of individual work	5,00	0
Study and independent work	5,00	0
Readings supplementary material	2,00	0
Preparation of evaluation activities	5,00	0
Preparing lectures	31,50	0
Preparation of practical classes and problem	5,00	0
Resolution of case studies	5,00	0
TOTAL	**110,50**	

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 the information necessary to understand the contents of the subject. In these classes the students themselves will be encouraged to conduct the search for accessory or additional information, guiding the use of bibliographical sources. To monitor the class, the student will be recommended to review the material before the teacher leave the virtual classroom.
- **Specialized tutoring sessions in groups.** Small groups of students will be organized to guide the students and determine the functioning of the course. This will be the ideal environment for students to raise the different issues 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 student's work will be followed step by step, to evaluate if they acquire the skills in the manufacture and adaptation of basic orthoprosthetic products to resolve themselves practical cases. Students will present expose the results and 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 to the rest of the class and generate further debate. The report will be given to the rest of the studients prior to the speach. The group will be personally supervised by the teacher on a regular basis and guide the search of bibliographic sources and critical analysis of the data found in these sources. The teacher will advise on the approach to the 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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- http://www.ceapat.org Portal del Centro de Referencia Estatal de Autonomía Personal y Ayudas Técnicas.
- http://www.san.gva.es/ Portal de la Consellería de Sanidad. Prestación Ortoprotésica.
- http:/www.tecnologias-sanitarias.com Portal sobre productos sanitarios