

Radiology diagnosing imaging and radiotherapy techniques

INTEGRATED COURSE: *DIAGNOSTIC IMAGING TECHNIQUES I*

SSD: MED/36, MED/50

CFU: 8

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MODULE: Diagnostic Imaging and Radiotherapy

SSD: MED/36

CFU: 2

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MODULE: Medical Sciences and techniques I

SSD: MED/50

CFU: 6

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PREREQUISITES

Minimum basic knowledge of human anatomy, general and atomic physics is required.

LEARNING OBJECTIVES

The course aims to provide students with the specific skills to correctly use radiological equipment. The teaching, integrated with the study of radiographic techniques, is fundamental for the development of specific professional skills.

LEARNING OUTCOMES

knowledge and understanding

At the end of this course the student will have to know:

- Know the radiodiagnostic equipment and the physical principles of operation
- Describe the main components
- Know the physical principles of operation
- Explain the correct use of the equipment

- know and understand the main technical-practical notions, necessary for conducting traditional and contrast X-ray examinations in compliance with radiation protection regulations, and professional ethics.

Applying knowledge and understanding

At the end of the course, the student will be able to:

- Use the equipment consciously
- Perform radiographic projections independently
- Use the knowledge acquired for the autonomous study of aspects relating to the specific field to which the student will dedicate himself in the professional activity;
- Know and apply the basic principles of the various traditional radiological practices acquired, for carrying out in total autonomy and a correct practical execution necessary for the radiological study.

communication skills

At the end of the course, the student must know:

- Use specific scientific terminology appropriately.
- be able to apply their knowledge and understanding skills in order to demonstrate a professional approach to work and have adequate skills both to devise and support arguments and to solve problems in their field of study
- Must be able to collaborate in teams in order to perform radiological practices in the field of technical competence, to be supportive and to be able to involve patients during the radiological study.

making judgements

At the end of the course, the student must know:

- carry out general evaluations relating to the topics covered.
- Know the main correctness criteria for a careful evaluation of all radiological practices treated during teaching.

COURSE SYLLABUS

MEDICAL SCIENCES AND TECHNIQUES

- *trocostratigrafo*
- *remote controlled*
- *thoravision*
- *orthopantomograph*
- *computerized bone mineralogy (m.o.c)*

- tomograph
- mobile radiological systems
- systems for detecting digital images, direct and indirect
- Senology and the technician of Senology
- Physical and biological preconditions for the formation of the mammographic image
- History of the mammogram, from analog to digital imaging
- Mammographic technique
- Artifacts in mammography
- Criteria of correctness and self-assessment of the quality of the examination performed
- Special screenings
- Communication and relationship
- Execution of conventional AP and LL projections of skeletal districts
- Execution of special projections: (axial, oblique, tangential, etc.)
- Execution of tests in clino or orthostatism.
- Radiation protection of current regulations and technical applications.
- Execution of contrast tests:
 - RX Esophagus
 - Stomach RX
 - RX Digestive system
 - RX Matt Enema
 - RX Urography
 - Cystouretrography RX
 - Hysterosalpingography RX
 - RX Defecography

DIAGNOSTIC IMAGING

Basic principles of different projections and traditional radiological techniques. X-ray imaging.

COURSE STRUCTURE

The module of DIAGNOSTIC TECHNIQUES FOR IMAGES I is organized in lectures (80 hours) and theoretical and practical exercises. Lessons are held by projecting illustrative images (Power-Point) and through the use of paper material provided by the teacher

COURSE GRADE DETERMINATION

The exam is unique for the entire integrated course, it is not possible to take exam tests for the individual modules.

The test consists of a compulsory written test and an optional oral test. The written and oral tests are aimed at evaluating both the theoretical knowledge and the student's ability in solving clinical cases or physical principles of the equipment.

The final exam grade will be expressed in thirtieths and will be calculated according to the following criteria:

Not suitable: *Poor or lacking knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations of the requested contents; inability to use technical language.*

18-20: *Just sufficient knowledge and understanding of the topics, with obvious imperfections; just sufficient capacity for analysis, synthesis and autonomy of judgment; poor ability to use technical language.*

21-23: *Sufficient knowledge and understanding of the topics; sufficient ability to analyze and synthesize with the ability to reason with logic and coherence the required contents; sufficient ability to use technical language.*

24-26: *Fair knowledge and understanding of the topics; discrete ability to analyze and synthesize with the ability to rigorously argue the required contents; good ability to use technical language*

27-29: *Good knowledge and understanding of the required contents; good ability to analyze and synthesize with the ability to rigorously argue the required contents; good ability to use technical language.*

30-30L: *Excellent level of knowledge and understanding of the required contents with an excellent ability to analyze and synthesize with the ability to argue the required contents in a rigorous, innovative and original way; excellent ability to use technical language*

OPTIONAL ACTIVITIES

Students will have the opportunity to carry out theoretical / practical exercises and participate in seminars. The teachers will provide constant support during and after the lessons

READING MATERIALS

MEDICAL SCIENCES AND TECHNIQUES

- Diagnostic Radiology Physics: A Handbook for Teachers and Students. D.R. Dance, S. Christofides, A.D.A. Maidment, I.D. McLean, K.H. Ng. Technical Editors
- Hogg, Kelly, Mercer (Eds.). "Digital mammography. A holistic approach". Springer
- CLARK'S Positioning in Radiography A.Stewart Whitley, Charles Sloane, Graham Hoadley, Adrian D.Moore, Chrissie W.Alsop. HODDER ARNOLD.



- THE WHO MANUAL of DIAGNOSTIC IMAGING. Radiographic Anatomy, interpretation of the Muscoloskeletal System. A.Mark Davies, Holger pettersson

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