



**TECHNOLOGICAL EDUCATIONAL INSTITUTE
(T.E.I.) OF ATHENS**

**School of Health and Welfare professions
Department of Radiologic Technologists**

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Erasmus-exchange course information 2009/10

Description

This course provides the student with a comprehensive overview of the principles, components, and operation of digital imaging systems found in CT and MRI. Topics include the fundamentals of digital imaging systems, principles and image procedures in CT and MRI. The course stretches over 12 weeks, from January till March 2010 and comprises 20 ECTS - 10 ECTS in Theory, 2 ECTS in social programme and 8 ECTS in Clinical Practice.

Theoretical Content

The subjects are formatted in individual outlines and can be sequenced according to the level of knowledge desired. Didactic coursework proceeds or is offered in conjunction with the clinical practice. The course is divided into 5 parts:

A. Fundamentals of digital imaging systems: Course introduces knowledge in computing and information processing and imparts an understanding of the physical principles and operation of imaging systems found in CT and MRI. The course covers an overview of CT and MR imaging parameters and terminology, safety and patient care procedures, equipment used to produce the image, and quality assurance measures.

B. CT Imaging Procedures: The course covers indications for the procedure, preparation, orientation and positioning, contrast media usage, scout image, selectable scan parameters, and filming. CT procedures will be explored for differentiation of specific structures and patient pathology. CT images will be reviewed for quality, anatomy and basic pathology.

C. MR Imaging Procedures: Course introduces knowledge of the parameters and imaging options used to create MR images. The course covers specific clinical application, coils that are available and their use, considerations in the scan sequences, specific choices in the protocols, and positioning criteria.

D. Clinical training in the CT and MR department.

E. Greek language and orientation about the Greek culture.

Clinical Practice Content

Activities include demonstration and observation of basic CT and MR procedures, after which the student assists in performing the activity. When a satisfactory degree of proficiency is apparent, the student can perform the activity under direct supervision.

Objectives

Upon completion the student will:

- Maintain a safe work environment for patients,
- Use standard protocols to perform routine CT and MRI examinations and identify when to modify a protocol and successfully perform the modification,
- Identify the probable cause of image quality problems and recommend an appropriate solution,
- Perform and monitor quality assurance tests.

Learning methods

Lectures and seminars will be in English. All lectures are mandatory. Clinical placements in CT and MR departments are given under the guidance of a qualified radiographer.

Assessment

In order to qualify the following is required:

- Attending to mandatory classes with a satisfactory contribution,
- Clinical placement passed,
- To write and present a case study concerning a patient's examination in CT or MR describing anatomy, disease, imaging procedure and patient care.

Course Literature

Seeram E, 2008, Computed Tomography: Physical Principles, Clinical Applications, and Quality Control, Saunders 3rd Ed.

Westbrook C, Roth CK, 2005, MRI in Practice. Oxford UK: Blackwell, 3rd Ed.

Literature in TEI library