Course syllabus for

Radiographic methodology 1, 7.5 credits

Radiografisk metodik 1, 7.5 hp
This course syllabus is valid from autumn 2022.
Please note that the course syllabus is available in the following versions:
Autumn2007 , Autumn2008 , Autumn2009 , Autumn2011 , Autumn2013 , Autumn2015 , Autumn2016 , Autumn2017 , Autumn2022 , Autumn2023

Course code	1RS004
Course name	Radiographic methodology 1
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Radiography
Level	G1 - First cycle 1
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Clinical Science, Intervention and Technology
Decided by	Programnämnden för röntgensjuksköterskprogrammet
Decision date	2007-06-20
Revised by	Education committee CLINTEC
Last revision	2022-07-07
Course syllabus valid from	Autumn 2022

Specific entry requirements

Mathematics 2a or 2b or 2c, Natural Sciences 2, Social Sciences 1b or 1a1+1a2.

Objectives

Part 1: Radiation physics, 4.5 HE credits

- describe, the basic concepts for radiation physics such as different types of energy, the structure of matter, mass, charge, magnetism and electromagnetism
- describe the physical and technical processes in the image for a X-ray image from X-ray tubes to screen
- describe different types of radiation such as electromagnetic radiation and particle radiation, ionizing and non-ionizing radiation
- describe the processes of interaction that affect the radiation attenuation through matter
- explain activity, decay and half-life
  explain how setting parameters that tube voltage and tube current influence the radiation quality at radiography

- account for the radiation concepts absorbed dose, effective dose and equivalent dose
- describe the properties and structure of digital images
- describe appropriate measures to minimise radiation doses to patients and staff and optimise the diagnostic quality of the image at the same time within X-ray and nuclear medicine.

Part 2: Radiographic techniques, 3 HE credits

- describe the structure and function of various radiographic modalities such as the computed tomograph, magnetic camera, ultrasound equipment, X-ray, mammography apparatus and gamma camera and hybrid system
- explain how information to patients, referrals and radiographic images are managed and archived in the computer systems RIS and PACS.
- describe the basics of artificial intelligence systems in radiology
- relate current research to the described modality

Content

The course is divided in two parts:

Radiation physics, 4.5 hp

Grading scale: VU

Radiographic techniques, 3.0 hp

Grading scale: VU

Teaching methods

Module1
This part is carried out with a number of lectures.

Module 2
This part is carried out with lectures and field studies on different modality. The students are divided into groups, and each group is assigned a modality. Each group independently produces a poster on their modality that is then presented orally in a poster exhibition at the end of the part.

In case of absence from compulsory course elements, the student is responsible to contact the course coordinator for complementary assignments. The course coordinator decides whether, and if so how, absence from compulsory course elements can be made up. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the course coordinator. Absence from a compulsory course element could mean that the student cannot retake the element until the next time the course is offered.

Examination

Part 1 is examined through a written examination with the grading scale Fail/Pass/Pass with distinction. Furthermore, submitted and approved laboratory reports are required.

Part 2 is examined through a written examination with the grading scale Fail/Pass/Pass with distinction. Furthermore, submitted and approved laboratory reports are required.

A Pass with distinction in the course requires a Pass with distinction in part 1 and laboratory reports that have been submitted on time, and a Pass with distinction grade in part 2.

The student is entitled to a total of six test occasions to get passed.

In Connections to the course three occasions will be given One within the course, two occasions at future re-examinations. In some cases, it is required that the student submits an exemption application before he/she has the results of his/her latest completed examination. Three more opportunities are provided according to the same set-up when the course is given next time.

If the course is examined by a extern exam, or other assignments with deadlines, a latest submission date is given at the introduction of the course. In cases where a completion is required a new date for latest submission is set. If the requirements for submission are not fulfilled the student is given the opportunity to submit the exam or the assignment at the next time course is given. Reasons for not meeting deadlines may be taken under consideration by examiner.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section of the course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

Transitional provisions

The student may be examined under a previous syllabus within a year after the date when a close-down or major changes of the course was decided.

Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Committee for Higher Education.

The course may not be credited in the degree at the same time as the completed and approved course, whose content fully or partially corresponds to the content of the course.

Literature and other teaching aids

Isaksson, Mats

Grundläggande strålningsfysik

Tredje upplagan : Lund : Studentlitteratur, [2019] - 340 sidor

ISBN:9789144128863 LIBRIS-ID:8kf267fw6rcpfs07

Library search

An Introduction to Medical Physics

Maqbool, Muhammed.

Cham : Springer International Publishing, 2017 - XII, 416 p. 245 illus., 149 illus. in color.

ISBN:9783319615400 LIBRIS-ID:22183028

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