



**Karolinska
Institutet**

Course syllabus for

Magnetic resonance tomography, 7.5 credits

Magnetkameran, 7.5 hp

This course syllabus is valid from spring 2014.

Please note that the course syllabus is available in the following versions:

[Spring2010](#) , [Spring2012](#) , [Spring2013](#) , [Spring2014](#) , [Spring2018](#) , [Spring2019](#) , [Spring2022](#)

Course code	1RS034
Course name	Magnetic resonance tomography
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Radiography
Level	G2 - First cycle 2
Grading scale	Fail (U) or pass (G)
Department	Department of Clinical Science, Intervention and Technology
Decided by	Programnämnd 6
Decision date	2010-03-26
Revised by	Programme Committee 6
Last revision	2014-01-27
Course syllabus valid from	Spring 2014

Specific entry requirements

To be qualified to a higher semester, it is required that the student has taken at least 15 ECT credits from last semester, and all credits from previous semesters.

Objectives

On completion of the course, the student should be able to:

- explain the relationship between physical principles and imaging with magnetic resonance
- apply the examination methodology at commonly occurring magnetic resonance examinations
- adapt information and procedures in relation to the patient's medical history, needs and conditions associated to the examination with magnetic resonance imaging
- explain the clinical application of methods based on a scientific basis
- explain the relationship between the equipment and the parameters that control image optimization that affect the final magnetic resonance image

Content

The course will cover basic physical principles and design of the MRI system in relation to imaging. The course also aims to give a deeper understanding of the performance of examinations such as the investigation of spine and brain. Students are also trained in the identification of diagnostic information that the method can offer. This means that based on the patient understand how and why different image sequences are used and what can be imaged with current MRI technology.

The course also covers the risks that may occur in connection with the examination. Students learn to take adequate safety measures that are compatible at a MRI and inform patients, their families and various professionals about these. Safety measures include taking into account the magnetic field strength but also the ability to handle drugs in a safe manner.

Teaching methods

The working methods that are used during the course are clinical placement in connection with magnetic resonance examinations, seminars, laboratory sessions and lectures.

The course includes mandatory and seminars and clinical rotation. Course coordinator assesses whether and if so how absence from compulsory education elements might be assessed. Before the student participated in the mandatory sessions according to instructions the final study results cannot be reported.

The absence of a mandatory training component could mean that the student cannot make up for the time until the next time the course is offered.

Examination

The course is assessed through a practical examination and an individual written exam. The student shall be by a practical examination to apply and justify methods and precautions in connection with magnetic resonance imaging. The assessment is carried out on the basis of a specific assessment form.

For a Pass grade in the course active participation in compulsory parts is required. Clinical placement seminar and laboratory sessions is compulsory. Compensation of absence from compulsory part is planned in consultation with supervisors and course directors.

Students who are not approved for regular examination has the right to participate in five examinations. In connection to the course three occasions will be given one within the course, one during the following re-examination. The third opportunity is provided before the beginning of the next semester, or in close connection to that. Three more opportunities will be provided as described above when the course is run next time.

If the student has six examinations, no additional examination will be given. Each participating in one examination date counts as one occasion.. Submission of blank exam counts as examination. Examination for which the student registered but not participating are not counted as examination.

The examiner may with immediate effect interrupt a student's clinical rotation, or the equivalent, if the student demonstrates such serious deficiencies in knowledge, skills or attitudes that patient safety or patient confidence in healthcare is at risk. When clinical rotation is interrupted according to this, it implies that the student fails in the current part, and that one clinical rotation opportunity is used up.

In such cases, an individual action plan should be set up for required activities and examinations, before the student is given a possibility for a new clinical rotation in the course.

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 Board of Education at Karolinska Institutet.

Literature and other teaching aids

Westbrook, Catherine; Kaut-Roth, Carolyn; Talbot, John

MRI in practice

4. ed. : Chichester, West Sussex : Wiley-Blackwell, 2011 - vii, 442 s.

ISBN:9781444337433 (pbk. : alk. paper) LIBRIS-ID:12240838

[Library search](#)

Elster, Allen D.

Questions & answers in magnetic resonance imaging

Burdette, Jonathan H

2. ed. : St. Louis : Mosby, cop. 2001 - 333 s.

ISBN:0-323-01184-5 LIBRIS-ID:4816445

[Library search](#)

MRI : from picture to proton

McRobbie, Donald W.

2. ed. : Cambridge Cambridge University Press,c 2007 : Cambridge University Press, 2007 - xii, 394 s., [4] pl.-s. i färg

ISBN:0-521-86527-1 (inb.) LIBRIS-ID:10225303

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