

## **MSFP02, Medical Radiation Physics: Clinical Training and Legislation, 30 credits**

*Medicinsk strålningsfysik: Klinisk praktik och lagstiftning, 30 högskolepoäng*  
**Second Cycle / Avancerad nivå**

---

### **Details of approval**

The syllabus was approved by Study programmes board, Faculty of Science on 2021-12-08 and was last revised on 2023-11-17. The revised syllabus comes into effect 2023-11-17 and is valid from the autumn semester 2024.

### **General information**

The course is included in the later part of the medical physicist education (semester 9), and combines theoretical components with practical placements. The course is compulsory for the degree of Master of Science in Medical Physics according to The Higher Education Ordinance 2006:1324 (Degree of Master of Science in Medical Physics 300 credits).

*Language of instruction:* Swedish and English

The teaching is mainly given in Swedish but certain lectures and exercises can be held in English. A predominant part of the reading list is in English.

*Main field of study*

Medical Radiation  
Physics

*Specialisation*

A1F, Second cycle, has second-cycle course/s as entry  
requirements

### **Learning outcomes**

The course covers applied medical radiation physics and consists of both theoretical and practical components. Periods of practical placements include both diagnostic and therapeutic applications of ionising radiation.

### **Knowledge and understanding**

After completing the course, the student should be able to:

- describe principles of patient safety work, event analysis and improvement work in the fields of the medical physicist

- identify and formulate ethical problems in diagnostic and therapeutic situations by means of ethical theory and knowledge of traditions and humanistic value system
- describe information systems for handling and archiving of images, study and patient data.

### **Competence and skills**

After completing the course, the student should be able to:

- carry out basic tasks in the different domains of medical physicists
- identify the need of, and initiate preventive radiation protection work within health care for patients, staff and the public
- communicate information about radiation and radiation protection in general, as well as about specific examination or treatment methods to staff, patients and relatives
- apply methods for both event analysis and for systematic improvement work
- discuss and compile specifications and evaluate tenders through an understanding of the regulatory framework for the procurement process
- demonstrate ability to teamwork and cooperation with other employee categories.

### **Judgement and approach**

After completing the course, the student should be able to:

- interpret, give an account of, and critically discuss statutes in radiation protection, patient safety, confidentiality, and quality systems in the health care
- critically reflect on ethical problems in diagnostic and therapeutic situations.

### **Course content**

The course treats:

- Practical placements in the working domains of the medical physicist: diagnostic X-ray, nuclear medicine, magnetic resonance, radiotherapy, staff and patient radiation protection. Quality systems and patient safety in health care.
- Legal theory: international and Swedish laws and regulations in health care, especially for activities with ionizing radiation and quality assurance.
- Medical Ethics: basic ethical concepts, terms and principles.
- Decision models for ethical problems in health care.
- Information systems for communication and archiving of medical images and administrative data (methods, patient data, patient journal, RIS2 - system), particularly the structure and use of the DICOM3 standard. The regulatory framework and practical procedures for procurement of medical-technical equipment, and examples of tender specifications.

## Course design

The course contains practical placements under supervision, with designated tasks and small projects. During the placement periods, the student keeps an individual, reflective course portfolio. Placements are assigned by the course coordinator. The course also contains thematic parts about medical ethics and legislation, relevant for the areas of medical physics, where the teaching consists of lectures, exercises, and seminars. Compulsory attendance applies to all parts.

## Assessment

The internship tasks are assessed by the supervisors for the different placement periods and by the student's presentation in the reflective course portfolio. The thematic parts about medical ethics and legislation are assessed through written assignments and oral seminars. The entire course, including the course portfolio, is assessed by the course coordinator in close consultation with the clinical supervisors and teachers responsible for the thematic parts.

Unless otherwise specified by the examining teacher, the use of tools based on generative artificial intelligence (GAI tools) is not permitted for creation of the final version that is submitted or presented for examination. For cases where the examining teacher states that the use of GAI tools is permitted, the use must be clearly declared by the student.

For students who have not passed at the regular examination, an additional examination session is offered after agreement with the course coordinator and the director of studies. The number of examination sessions is limited to two. A student who has failed two examinations is not given any additional examination session.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

## Grades

Grading scale includes the grades: Fail, Pass

To pass the whole course, the grade Pass is required for all modules.

## Entry requirements

Admission to the course requires a Pass grade on all previous courses (240 credits) according to the programme syllabus of Degree of Master of Science in Medical Physics (NASJF) 300 credits (25/5/2023 U 2023/626).

## Further information

Apart from the aim and contents of the course as above, the qualification descriptor for professional qualification as medical physicists (The Higher Education Ordinance 2006:1324) is used as a basis for the aim of the course, contents and implementation.

The course can not be included in exam qualifications together with MSFM31 Medical radiation physics: Clinical internship and legislation, 30 credits.

The course is given at the department of medical radiation physics, Lund university.