ESTRO SCHOOL 2020

Physics for Modern Radiotherapy

Joint Course for Clinicians and Physicists

7 - 10 September 2020 - **ONLINE COURSE**

Kick-off with welcome and introduction at 12:50 on 7 of September. End of course on 10 of September at 17:30pm. Pre-recorded lectures will be available 2 weeks prior the course.

New concept

Innovative online course with a blended learning approach where pre-recorded lectures, practical exercises (homework) and web-based interactive sessions and feedback are combined.

Target group

The course is primarily aimed at:

- Trainees in radiation oncology or radiation physics
- Radiation oncologists and medical physicists early in their career

The course is also suitable for:

- Clinicians and physicists that are eager to update their knowledge on physics and technical aspects of radiotherapy.
- Dosimetrists and radiation technologists having a strong interest in the application of physics and technology in radiotherapy.
- PhD students in radiation therapy or physics.

Course aim

The lectures aim to:

- Provide knowledge and understanding of physics relevant to modern clinical radiotherapy
- Provide comprehensive overviews of imaging and volume concepts in radiotherapy
- Discuss modern dose delivery techniques, such as IMRT, rotational therapy (VMAT, helical tomotherapy), S(B)RT, IGRT, adaptive therapy (ART), particle therapy and brachytherapy
- Discuss safety issues in lectures on commissioning and QA/QC, radiation protection, in vivo dosimetry and induction of secondary tumours.
- Complimentary to the lectures, this course has clinical case discussions as an important component. The case discussions aim at teaching physics by practical application in treatment planning.

Learning outcomes

By the end of this course participants should be able to:

- Discuss and select modern treatment techniques based on their pros and cons
- Select physics and technical measures that enhance effective and safe application of radiation therapy.

COURSE DIRECTORS
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WORKING SCHEDULE
Monday 7 September:
12:50 – 14:30
15:00 - 17:00

Tuesday 8 September :
11:00 – 13:00
14:00 – 15:30
16:00 - 17:15

Wednesday 9 September
13:00 – 15:00
15:30 – 17:30

Thursday 10 September
11:00 – 13:00
14:00 – 15:30
16:00 - 17:15

For detailed schedule please follow the link:
ONLINE_Physics-for-Modern-Radiotherapy-Scientific-Program

LANGUAGE
The course is conducted in English.
No simultaneous translation will be provided.

COURSE ORGANISATION
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Course content

Lectures on:

- IMRT/VMAT - physics aspects, clinical application and impact
- Stereotactic radiotherapy (cranial and extra-cranial)
- Rotational therapy (VMAT, helical tomotherapy)
- Particle therapy (electrons, protons, ions)
- Volumes in external beam radiotherapy
- Imaging for GTV definition
- Imaging for treatment preparation and planning
- PTV margin calculation
- IGRT (equipment for in-room imaging, set-up correction strategies, clinical examples)
- Adaptive radiotherapy
- Dose prescription and plan evaluation
- Field junctions (how, when, and alternatives)
- Commissioning and Quality Assurance/ Control of equipment and software
- Brachytherapy
- Radiobiology in the clinic
- Implementing patient-specific dosimetric QA
- Radiation Protection and risk analysis
- Induction of secondary tumours.

Specific for clinicians:

- Basic radiation physics
- Dose calculation: principles and application in the TPS
- Radiotherapy equipment
- Physics of advanced radiotherapy.

Specific for physicists:

- Reference and non-reference dosimetry
- Modern dose calculation algorithms
- QA for advanced delivery techniques
- Oncologic concepts.

Clinical case discussions:

The participants are invited to prepare treatment plans for selected clinical cases (homework), based on case descriptions and CT scans as provided prior to the course. During the course, the plans are discussed regarding selected treatment techniques, planning solutions, constraints and objectives, choice of margins, protocols for image guidance, QA, etc, guided by a clinician and physicist teacher.

Prerequisites

The participants are invited to prepare the homework for the clinical case discussions (above).

Teaching methods

The course includes:

- Pre-recorded Lectures (available prior to the start of the course; details will be provided in the beginning of August)
- Live Webinars
- Interactive Discussion Session

Key words

Physics and technology in radiotherapy, modern treatment techniques

Registration

More detailed information about registrations and fees can be found at www.estro.org/courses