



## Dose Modelling and Verification for External Beam Radiotherapy

04-08 March 2023 | Malaga, Spain

Bemused by external beam modelling? Dazed by dose calculation algorithms? This course shines the spotlight on treatment planning systems and dose verification for external beam therapy.

### Target group

The course is primarily aimed at and recommended for medical physicists and experienced dosimetrists working in treatment planning. The participants should preferably have some practical experience in radiotherapy physics and treatment planning systems. A good medical physics background is required.

### Course aim

The course aims to:

- Review external beam radiotherapy physics and beam modelling
- Make understandable the concepts behind multi-source modelling and dose calculation algorithms in state-of-the-art treatment planning systems
- Identify and describe the important aspects of commissioning treatment planning systems
- Review dosimetry equipment and dose verification methods of importance for commissioning and verification measurements
- Enable practical implementation of concepts for dose verification in advanced external beam therapy.

### Course overview

#### Learning outcomes

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

- Identify and interpret the input data requirements for the configuration of beam models
- Illustrate modelling of the patient, treatment beam and energy deposition in the treatment planning process
- Present the concepts behind simple and advanced dose calculation algorithms as implemented on modern treatment planning systems and monitor unit or dose calculation check software tools
- Compare and critically evaluate the tools and methods available for the verification of the calculated dose
- Assess aspects of quality assurance specific to the treatment planning process

### Course content

- Review of basic concepts of fluence, radiation transport and convolution
- Linac head design and multisource models
- Patient and phantom characterisation for treatment planning systems
- Point kernel, pencil beam and grid-based approaches to dose calculation
- 1D, 2D and 3D detectors for measurement
- Use of measured data in beam models
- Monitor unit calculation and relation to beam models
- Commissioning and quality assurance of a treatment planning system
- Dose based metrics
- Practical exercises on monitor unit calculation and modelling

### ROADMAP

♦ RADIO THERAPY TREATMENT PLANNING AND DELIVERY

●●● RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST, OTHER SPECIALIST

### COURSE DIRECTORS

Tommy Knöös (SE)

Brendan McClean (IE)

### TEACHERS

Anders Ahnesjö (SE)

Maria Mania Aspradakis (CH)

Crister Ceberg (SE)

Núria Jornet (ES)

### WORKING SCHEDULE

The course starts on Saturday, 4 March 2023 at 09:00 and ends on Wednesday, 8 March 2023 at 13:00.

### LANGUAGE

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

### COURSE ORGANISATION

For any further information, contact ESTRO Office (BE): Agnès Delmas, Project Manager, [adelmas@estro.org](mailto:adelmas@estro.org), M +32 470 300 448

### COURSE VENUE

NH MALAGA, C/ San Jacinto 2, 29007 Málaga

### ACCOMMODATION

Contact ESTRO Office (BE): Agnès Delmas, Project Manager, [adelmas@estro.org](mailto:adelmas@estro.org), M +32 470 300 448

### TECHNICAL EXHIBITION

Companies interested in exhibition opportunities during this teaching course should contact Agnès Delmas, [adelmas@estro.org](mailto:adelmas@estro.org), M +32 470 300 448



## Prerequisites

Before commencing this course, you should preferably have attended the ESTRO course 'Physics for Modern Radiotherapy' or equivalent.

## Teaching methods

- 21.5 hours of lectures
- 4 hours of practical workshops
- 2 hours of Q&A

The course consists of didactic lectures, interactive discussion sessions and practical calculation and modelling sessions. Lectures and preparation workshops will be given on monitor unit calculation and beam modelling. Participants will engage in realistic monitor unit calculation scenario exercises. Participants will also undertake computer-based modelling of basic models for photon beam head scatter and kernel-based dose calculations.

## Methods of assessment

- MCQ
- Clinical case discussion
- Evaluation form
- Practical demonstrations

## PARTICIPANTS SHOULD REGISTER ONLINE [HERE](#)

These pages offer the guarantee of secured online payments. The system will seamlessly redirect you to the secured website of OGONE (see [www.ogone.be](http://www.ogone.be) for more details) to settle your registration fee.

If online registration is not possible, please contact us.  
ESTRO OFFICE: [education@estro.org](mailto:education@estro.org)

## Registration fees

Please check the early deadline date on our website.

	EARLY FEE	LATE FEE
In-training members *	€ 500	€ 675
Members	€ 650	€ 775
Non members	€ 800	€ 900

\*Radiation Therapist (RTT) members are eligible for the in-training fee.

The fee includes the course material, coffees, lunches, and the social event.

REDUCED FEES are available for ESTRO members working in economically less competitive countries. Check the eligible countries and the selection criteria on the website [HERE](#)

**ESTRO GOES GREEN** Please note that the course material will be available online. No printed course book will be provided during the courses.

## Advance registration and payment are required. On-site registration will not be available.

Since the number of participants is limited, late registrants are advised to contact the ESTRO office before payment, to inquire about availability of places. Access to homework and/or course material will become available upon receipt of full payment.

## Insurance and cancellation

The organiser does not accept liability for individual medical, travel or personal insurance. Participants are strongly advised to take out their own personal insurance policies.

In case an unforeseen event would force ESTRO to cancel the meeting, the Society will reimburse the participants fully the registration fees. ESTRO will not be responsible for the refund of travel and accommodation costs.

In case of cancellation, full refund of the registration fee minus 15% for administrative costs may be obtained up to three months before the course and 50% of the fee up to one month before the course. No refund will be made if the cancellation request is postmarked less than one month before the start of the course.

[WWW.ESTRO.ORG/COURSES](http://WWW.ESTRO.ORG/COURSES)

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