

# Dose Modelling and Verification for External Beam Radiotherapy

17-21 May 2020 | Barcelona, 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.

## 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

## Prerequisites

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

## ROADMAP

- ◆ RADIO THERAPY TREATMENT PLANNING AND DELIVERY
- MEDICAL PHYSICIST

## COURSE DIRECTORS

Tommy Knöös (SE)  
Brendan McClean (IE)

## TEACHERS

Anders Ahnesjö (SE)  
Maria Mania Aspradakis (CH)  
Crister Ceberg (SE)  
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## LOCAL ORGANISERS

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## PROJECT MANAGER

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## WORKING SCHEDULE

The course starts on 17 May 2020 at 09:00 and ends on 21 May 2020 at 13:00.

## LANGUAGE

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

## COURSE

For any further information please contact ESTRO:  
Alessandra Nappa, ESTRO Office (BE)  
E-mail: [anappa@estiro.org](mailto:anappa@estiro.org)  
Tel: +32 2 775 93 43

## ACCOMMODATION

We recommend that you search suitable accommodation through one of the online booking websites. ESTRO will not be providing any accommodation for this course.

## COURSE VENUE

Facultat de Medicina - Campus Clínic August Pi i Sunyer  
Carrer de Casanova 143  
08036 Barcelona, Spain  
[www.ub.edu/medicina/queoferim/en/index/planol\\_casanova.html](http://www.ub.edu/medicina/queoferim/en/index/planol_casanova.html)

## TECHNICAL EXHIBITION

Companies interested in exhibition opportunities during this teaching course should contact ESTRO:  
E-mail: [anappa@estiro.org](mailto:anappa@estiro.org)  
Tel: +32 2 775 93 43  
Fax: +32 2 779 54 94

## Teaching methods

- 21 hours of lectures
- 4 hours of practical workshops
- 2h of Q&A

## Methods of assessment

- MCQ
- Q&A
- Practical exercises
- Evaluation form

## Key words

Beam models and dose calculation approaches in treatment planning systems, commissioning, verification and quality assurance of treatment planning systems.

## PARTICIPANTS SHOULD REGISTER ONLINE AT: [WWW.ESTRO.ORG/COURSES](http://WWW.ESTRO.ORG/COURSES)

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

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E-mail: [education@estro.org](mailto:education@estro.org)

### Registration fees

**Early deadline: 18th February 2020**

ESTRO members can order products at substantially reduced prices. Please note that in order to benefit from the member price, you must renew your membership for 2020 before registering to the course. To benefit from these member rates, please visit the membership page to become a member or renew your membership BEFORE proceeding with your order.

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

\* Members with specialty RadiationTherapist (RTT) may register at the In-Training fee  
Early rates are applied **up to** three months before the starting date of the course.  
Late rates are applied three months before the starting date of the course.  
The fee includes the course material, coffees, lunches, and the social event.

### Advance registration & 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.

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

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.