TARGET GROUP
The course is aimed at radiation oncologists, radiation physicists and professionals in allied fields, including trainees interested in particle therapy. Basic knowledge of radiation oncology and radiation physics are prerequisites. The course targets individuals who are either directly involved in a clinical particle therapy project, already practice particle therapy, or who desire to update their knowledge about particle therapy.

COURSE AIM
• To provide a detailed overview of the clinical rationale and indications of particle therapy and the status of supporting medical evidence including status of clinical trials
• To understand the distinguishing features of particle therapy compared to other radiotherapy modalities
• To deepen knowledge of physical, biological, and technical aspects of particle therapy implementation in clinical practice
• To study particle treatment systems, dosimetry, treatment delivery, treatment planning and to learn about latest technological developments in particle therapy
• To share challenges of particle centre projects in different health care environments.

LEARNING OUTCOMES
By the end of this course participants should be able to:
• Understand the radiobiological and physical basis and clinical rationale for particle therapy
• Have a basic understanding of accelerator technology, present equipment as well as the practical complexities of building a particle centre
• Understand the differences between active and passive beam delivery technology, and details of treatment planning, specifically of intensity modulated therapy and motion management
• Know the clinical rationale for proton and carbon ion therapy, the present indications and clinical practice according to various disease sites
• Know the current clinical evidence for particle therapy, and the status of clinical trials
• Have a general understanding of the integration of particle therapy in general radiation oncology
• Summarise the latest technical developments
• Have knowledge of future directions in research and development of particle therapy.

COURSE CONTENT
• Physical aspects of particle therapy
• Ion source accelerator, beam line and beam delivery technology
• Biological aspects of particle therapy
• RBE determination, biophysical modelling plan optimisation
• Beam delivery: passive and active techniques
• Imaging for treatment planning
• Treatment planning for proton and carbon ion therapy
• Plan evaluation, robustness, quality assurance
• Intensity-modulated particle therapy, image-guided particle therapy, dose-painting, LET-painting
• Physical and technical approaches to the treatment of moving organs.

Clinical indications, anti-cancer effects, toxicity, challenges and limitations of particle therapy
• Clinical challenges and pitfalls of proton and carbon ion therapy
• Current clinical indications and applications for proton and carbon ion therapy according to pathological and anatomical disease characteristics
• Review of the literature, clinical case reviews

ROADMAP
• RADIOLOGY TREATMENT PLANNING AND DELIVERY
• RADIATION ONCOLOGIST, MEDICAL PHYSICIST, RADIATION THERAPIST

COURSE DIRECTORS
Oliver Jäkel, Heidelberg (DE)
Wilfried De Neve, Ghent (BE)

TEACHERS
Piero Fossati (IT)
Jean-Louis Habrand (FR)
Henrik Hauwald (DE)
Eugen Hug (AT)
Marco Krengli (IT)
Anthony Lomax (CH)
Alejandro Mazal (FR)
Peter Peschke (DE)
Marco Schippers (CH)

LOCAL ORGANISER
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PROJECT MANAGER
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Tel : +32 2 775 93 39 - Fax : +32 2 779 54 94

COURSE VENUE
Oktogon (Halle A21)
Zeche Zollverein – Gelsenkirchener Str. 181
45309 Essen
www.oktogon.tv

TECHNICAL EXHIBITION
Companies interested in exhibition opportunities during this teaching course should contact ESTRO:
Mieke Akkers
E-mail: makkers@estro.org
Tel : +32 2 775 93 39 - Fax : +32 2 779 54 94

ACCOMMODATION
To book you room, please download the accommodation form from the ESTRO website: www.estro.org/school
and discussions, review of clinical trials
• New trends in radiation oncology and integration of particle therapy
• Future clinical directions and developments.

Roadmap for a particle therapy project
• How to build a new particle therapy facility – from project planning to starting clinical operation
• New technologies for hospital based particle centres.

Protocol and journal club about latest clinical and physics developments
Guided tour of facility

PREREQUISITES
Before commencing this course participants should:
• Have a basic understanding of radiobiology and radiation physics
• Know the basics of radiotherapy and radiotherapy planning
• Have a general understanding about the evaluation of medical evidence.

TEACHING METHODS
Tutorials, Journal Club, Case reviews and discussions, Tour of the Proton Facility

METHODS OF ASSESSMENT
• MCQ
• Evaluation form

KEY WORDS
Particle therapy, proton therapy, carbon ion therapy, radiotherapy

PARTICIPANTS SHOULD REGISTER ONLINE AT: WWW.ESTRO.ORG/SCHOOL

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 for more details) to settle your registration fee.

If online registration is not possible please contact us:
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Tel.: +32 2 775 93 39 • Fax: +32 2 779 54 94
E-mail: education@estro.org

REGISTRATION FEES
Please check the early deadline date on our website
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<th>EARLY FEE</th>
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<tr>
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<td>450 €</td>
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*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 of the ESTRO School.

ESTRO goes green: Please note that the course material will be available online. No 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 full registration fees to the participants, ESTRO 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/SCHOOL