

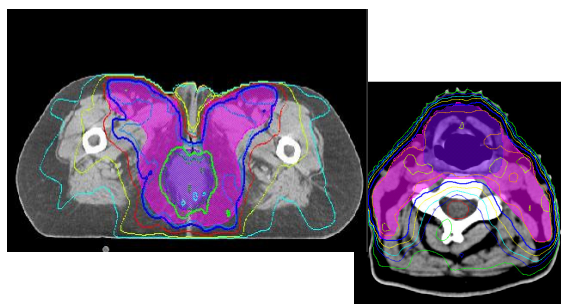
Hands-on course

Intensity-Modulated Radiation Therapy Treatment Planning

Coordinators: Iain Bruinvis, Emmy Lamers and
Jelle Scheurleer

Dates: 02-NOV-2009 – 06-NOV-2009

Venue: INHolland University of Applied Sciences, Haarlem, The Netherlands.



Introduction

The various and rapid developments in the field of 3D imaging, treatment planning and treatment delivery have lead to more accurate and optimal radiotherapy (RT) treatments. Intensity-Modulated Radiation Therapy (IMRT) is an example of an advanced treatment technique and has been or will be soon implemented in many RT clinics. During this course the RT professional will acquire the necessary knowledge and skills in the field of state-of-the-art *Treatment Planning (TP) of Intensity-Modulated Radiation Therapy (IMRT)*. The course “*IMRT TP*” has been developed by the research group Medical Technology of INHolland (INH) University of Applied Sciences, together with professionals from the RT department of the Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital (NKI-AVL). This course is the core part of a comprehensive educational module *IMRT TP*, but can be followed separately. The course itself will be given in collaboration with a number of companies providing treatment planning systems. The aim is an intensive course with optimum interaction between students and teachers. Therefore the number of participants will be restricted to 30, including the students that follow the complete module.

Target group and aims

The course is suitable for students with a bachelor’s degree or higher who have experience in conventional 3-D treatment planning. Potential students include radiation therapy technologists (RTTs), medical physicists/radiation oncologists in training and medical engineers working in RT departments. RTTs, physicists or engineers working for companies producing RT products will also benefit from this course. We offer RT professionals a programme on treatment planning for advanced RT that is complementary to their basic training. The module (course) is part of the MSc course *Radiation Oncology in Europe*. After completion of the course the student will be able to:

- Design optimal IMRT treatment plans for complex treatment techniques, using state-of-the art TP systems;
- Understand the principles of IMRT optimisation, including the influence of physical and biological factors;
- Estimate the influence of the size and position of the target volume and organs at risk on TP optimisation;
- Critically analyse the possibilities and limitations of TP systems with respect to inverse IMRT planning;

Contents

Interactive teaching sessions, focused on situations in practice, are an important part of the course; various experts from renowned RT departments will share their experience in IMRT TP. The core parts of the course are four hands-on sessions, “treatment planning labs” in the afternoons, given in cooperation with the companies on the different commercial TP systems. During these hands-on parts the possibilities of IMRT TP systems will be explored. The TP options comprise 3-D expansion of target volumes, integrated boost techniques, dose and dose-volume constraints, forward and inverse IMRT treatment planning, objective functions (EUD, DVH, min/max or uniform dose), effect of number of segments, segment size, beam energy and use of TCP, NTCP models. Participants will carry out exercises for different tumour sites (breast, prostate, head & neck and lung), exploring the potential of IMRT and the tools the systems offer. Experienced users of the systems and representatives of the companies will guide them. In the morning sessions various experts will provide background information for

the practical exercises. The participants will present the results of the afternoon sessions and motivate their choices made the next morning; the experts will guide the discussions. In order to prepare for the course, the participants will be sent introductory exercises to carry out at their home institute. In a half-day programme, preceding the course, these exercises will be discussed and the principles of IMRT will be summarized.

Organizers and teachers

The course is organised by the INHolland Academy (www.inholland.nl/academy) together with the research group Medical Technology of INH. The course director is Iain Bruinvis and the other organisers are Emmy Lamers and Jelle Scheurleer. The teaching faculty consists of radiation oncologists, medical physicists and radiation therapy technologists from the Academic Medical Centre (University of Amsterdam), Erasmus Medical Centre, Medical Centre Alkmaar, NKI-AVL, University Medical Centre Utrecht, Vrije Universiteit medical centre and other academic institutes. RT-product experts from well-known companies developing treatment planning systems will also participate in the hands-on course.

Practical data

The introductory session is organized on Sunday afternoon 01-NOV-2009 from 13:00 to 17:00 h and will take place in Golden Tulip Hotel Lion d'Or in Haarlem, The Netherlands (www.goldentulip.nl). From 12:00 h onwards participants can also register. The actual course starts on Monday morning 02-NOV-2009, ends Friday 06-NOV-2009 around noon and will take place at INH (www.inholland.com) in Haarlem. The course will be held in the English language.

Registration for the course should be done by e-mail to Alexandra.vanZutphen@inholland.nl before 01-OCT-2009 (maximum number of participants 30). After registration an invoice will be sent for the fee of € 750. This fee includes course material, coffee, lunches and a welcome party.

Further information

For more information about the course please contact Iain Bruinvis (e-mail Iain.Bruinvis@inholland.nl phone +31-647462133), Emmy Lamers (e-mail Emmy.Lamers@inholland.nl phone +31-20-5122197) or Jelle Scheurleer (e-mail Jelle.Scheurleer@inholland.nl phone +31-615279629). For all practical information, including accommodation and public transport from Amsterdam railway station and airport to the course venue, please contact the secretariat of the course: Alexandra van Zutphen, INHolland University of Applied Sciences, School of Health, Bijdorplaan 15, 2015 CE Haarlem, The Netherlands. E-mail: Alexandra.vanZutphen@inholland.nl, phone: +31-23-5412802.