

This course provides a practical and theoretical background to Radiotherapy with its main focus on Radiotherapy Physics aspects.

The curriculum covers many aspects and each course includes hands-on practical session on Saturday,

Included in the full cost of the course are a set of lecture notes, a link to the presentations, lunches, refreshments, cheese & wine and a course meal in a local restaurant.

Day One: Accelerators (Tuesday 6th March 2018)

Medical Electron Linear Accelerators
Production of a Clinical Beam
Multileaf Collimators: Characteristics and Commissioning
Accuracy and Quality in Radiotherapy: An Overview
Extremes I: kV X-ray Units
Extremes II: Cyberknife
Extremes III: Tomotherapy
Quality Control of Linacs
Course Meal

Day Two: Radiobiology (Wednesday 7th March 2018)

Introduction to Cell Biology
Tumour Cell Radiobiology
Radiobiology of Normal Tissues
Fractionation & Iso-effect & Gaps in Radiotherapy
Modelling the probability of Tumour Control (TCP)
Practical use of Radiobiology in Treatment Planning
Modelling Normal Tissue Complication Probability

Day Three: Brachytherapy (Thursday 8th March 2018)

Calibration & QA of Brachytherapy
Intracavitary Dosimetry
The Radiobiology of Brachytherapy
Gynaecology Cancers
3D Image based Brachytherapy Planning
Transperineal Prostate Brachytherapy
Radiation Protection Issues in Brachytherapy
Clinical Indication for Brachytherapy

Day Four: Verification Imaging (Friday 9th March 2018)

Quality Assurance in Clinical Trials
Image Guidance in Radiotherapy: Accuracy, Frequency Dose
Image Handling in Radiotherapy
IGRT Techniques
Errors & Margins in Image Guided Radiation Therapy
EPID Imaging in Routine Practice, Dosimetry & Quality Control
Radiation Protection in Radiotherapy
MR Guided Radiation Therapy
Cheese & Wine Evening

Day One: Fundamentals (Tuesday 6th November 2018)

Photon Interaction Mechanisms
Electron Interaction Mechanisms
Fundamental Principles of Dosimetry I
Fundamental Principles of Dosimetry II
Ionisation Chamber Design and Measurements
Characteristics and Calculations for Photon Beams
Radiotherapy and Cancer specific Lung Cancer
Practical Implementing of New Techniques
Course Meal

Day Two: Imaging for Radiotherapy (Wednesday 7th November 2018)

Applications of Monte-Carlo Methods
Treatment Planning Margins; ICRU 50, 62 and 83
MR Imaging for Radiotherapy Planning
PET Imaging for Radiotherapy Planning.
Photon Beam Algorithms
CT & CBCT for Radiotherapy Planning
Quality Control in Treatment Planning

Day Three: Treatment Planning (Thursday 8th November 2018)

Evaluation Tools in Treatment Planning
Prostate Cancer: XBRT Techniques and Trials
Oesophageal and Liver Tumours
Intensity Modulated Radiotherapy Algorithms (IMRT)
Inverse Treatment Planning for IMRT & VMAT
Dosimetry for Molecular Radiotherapy
Electron Beam Therapy in Clinical Practice

Day Four: Patient Specific Dosimetry (Friday 9th November 2018)

Radiotherapy of the Head and Neck
Adaptive Radiotherapy for Bladder Cancer in Clinical Practice
Radiotherapy for Breast Cancer: Current and Future Practice
Radiotherapy with Protons
Radiochromic Film Dosimetry
Verification and Image based Dosimetry for IMRT
In Vivo Dosimetry for Point Measurements
Large Field Techniques in Radiotherapy
Stereotactic Body Radiotherapy (SBRT) for lung tumours
Cheese & Wine Evening