



Dutch  
Metrology  
Institute



## Course Practical Dosimetry for Radiotherapy

**A practical and comprehensive course on dosimetry in radiotherapy.**

Quality assurance is one of the foundations of radiotherapy practice. Due to a growing complexity of medical irradiation equipment, performing dosimetry is not always trivial. Therefore knowledge and expertise in dosimetry is of major importance to medical physics engineers and medical physicists.

### Contents and purpose

The complete course program consists of eight modules dealing with both dosimetry for teletherapy and brachytherapy. Also course programs dedicated to dosimetry for teletherapy (TT) or brachytherapy (BT) can be followed. Each course program includes a practical assignment.

The general modules of the course consists of dosimetric concepts, translated to a practical methodology for using absolute dosimetry in daily practice and dealing with uncertainties. The general modules take place during the first day and are included in the complete program as well as in the dedicated programs, TT and BT:

- G1. Interaction of ionizing radiation with matter;
- G2. Dosimetric concepts and quantities;
- G3. Absolute dosimetry: general aspects;
- G4. Primary standards in dosimetry.

Two course modules and a practical assignment deal with dosimetry in teletherapy:

- T1. Dosimetry protocols for teletherapy;
- T2. Relative dosimetry for teletherapy;
- TP. Practical assignment for teletherapy.

Two course modules and a practical assignment deal with dosimetry in brachytherapy:

- B1. Dosimetry for brachytherapy;
- B2. Dosimetry protocols for brachytherapy;
- BP. Practical assignment for brachytherapy.



As the Netherlands' national metrology institute (NMI), VSL makes measurement results of companies, laboratories and institutions directly traceable to international standards (SI units).

By providing services such as calibrations, consultancy, reference materials, interlaboratory comparisons and training courses, VSL makes an important contribution to the dependability, quality and innovation of products and processes in commerce and society.



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The course has been developed at VSL in cooperation with medical physicists and engineers in the field of radiotherapy.

### Objectives

After completion of the course, the participant will be able to:

- understand dosimetric concepts from a theoretical point of view;
- understand the operating principle of commonly used detector types;
- apply reference dosimetry in practice;
- select and characterize measurement equipment;
- autonomously set-up a measurement plan;
- apply codes of practice in radiotherapy;
- evaluate dosimetric results based on their uncertainties;
- understand the principles of primary standards and traceability.

### Course schedules

The complete course program consists of two days of theory in which the general (G), the teletherapy (T) and the brachytherapy (B) modules are treated. Participants may choose to follow a dedicated program in which, together with the general modules (G), either teletherapy dosimetry (T) or brachytherapy dosimetry (B) is treated (1.5 day). The practical assignment for participants in all programs will be performed at the participant's institute, followed by a 0.5 day plenary review of the assignments at VSL. This allows participants to learn from their fellow participants' experiences.

### Target group

The course is suitable for participants with a bachelor's degree or higher in a technical discipline and is given at post-bachelor's / academic level. It will help the participant to increase his/hers expertise with using dosimetric concepts in practice. The course is beneficial for both starting and more experienced medical physicists, dosimetrists and medical physics engineers working in radiotherapy departments or standards laboratories.

### Teachers

The course lectures are given by a team of professional experts and scientists from VSL with years of experience in the practical application of standard dosimetry both in relation to calibrations, uncertainties and international traceability.

### Duration of the course

Full program: ..... 2,5 days  
Teletherapy program: ..... 2 days  
Brachytherapy program: ..... 2 days

This course can also be organized as an in-company course.

### Certificate

All participants will receive a certificate of attendance at the end of the course.

### Location

The course takes place at:

VSL  
Thijsseweg 11  
2629 JA Delft  
The Netherlands

### Information

For further information  
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