

Module name	Applications of Radiophysics in Medicine
Module number	Eul-BMT-C-SAM
Lecturer in charge	Prof. Dr. Christian Richter christian.richter@oncoray.de
Objectives	After completing the module, students have basic knowledge of the different types of radiation applications in clinical routine. They know the basic principles of action, technologies and treatment procedures. This enables them to classify and assign technologies.
Contents	The module covers radiation applications in medicine in terms of basic physical principles, technical implementation and medical benefits, in particular radiological diagnostics including X-rays, computed tomography, magnetic resonance imaging, nuclear medicine including principles, imaging diagnostics and therapy with open radionuclides and radiotherapy, for example internal and external radiation therapy: overview Brachytherapy and teletherapy with various radiation sources, basic radiation techniques.
Modes of teaching and learning	2 hours per week lectures, 1 hour per week exercises, 1 hour per week practical lab courses and self-study.
Prerequisites	The competencies to be acquired in the module Introduction to Radiophysics are required.
Usability	The module is a compulsory module in the basic studies of the degree programme Biomedical Engineering. It creates the prerequisites for the modules that list that module in the "Prerequisites" field.
Requirements for the award of credit points	The credit points are awarded when the module assessment is passed. The module assessment consists of a written exam of 90 minutes and a portfolio of 10 hours. Both exam and portfolio have to be passed.
Credit points and grades	5 credit points can be obtained by the module. The module grade is the weighted mean of the grades of the assessments. The written exam is weighted by 2/3 and the portfolio is weighted by 1/3.
Frequency	The module is offered every summer semester.
Workload	The total effort is 150 hours.
Duration	The module takes one semester.