

Nuclear radiation detectors. Radiation measurement statistics and detection limits. Gas detectors. Scintillation detectors. Semiconductor detectors. Neutron detectors. Radon measurement instrumentation. Portable Instruments for radiation detection. Radionuclide determination techniques:  $\alpha$ -spectrometry,  $\gamma$ -spectrometry. Total- $\alpha$  and total- $\beta$  measurements. Liquid scintillation. Radiochemical methods. Radon concentration measurement techniques and radon exhalation measurements. Nuclear related techniques for trace elements determination: Instrumental Neutron Activation Analysis (INAA), X-ray fluorescence (XRF). Laboratory Exercises. To attend this course, sufficient knowledge of the material of the following courses is strongly recommended: Interactions of Ionizing Radiation with Matter, Radiation Protection – Dosimetry.