



## SUBJECT DATASHEET

<b>Semester:</b>	2010/11/2
<b>Subject:</b>	Uses of radioisotopes
<b>Code:</b>	VEMKRK4212R
<b>Responsible department:</b>	Institute of Radiochemistry and Radioecology
<b>Responsible department code:</b>	MKRK
<b>Responsible lecturer:</b>	dr. Zoltán Németh

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### Educational objectives:

To give special knowledge about different uses of radioisotopes

### Detailed content of the subject:

The operating principle of nuclear reactors. Paks NPP. Radioactive waste management in NPP. Contamination-decontamination in NPP. Nuclear analytical and dating methods. Radiography, autoradiography. Uses of radiometric systems in industrial technology. In vivo and in vitro diagnostic procedures. Radiation therapy. Radiation exposure technologies. Nuclear weapons. Isotope production.

### Requirements:

In the course of an oral examination two overall questions on the issues of the lectures are provided to each student. A short period of time (maximum 30 minutes) is supplied to the students to prepare some drafts of their answers. The exam is qualified in the following ways: - If draft and the answers provided by the student are clear, correct and explain every important relationship on the subject, the record is marked as excellent one (5). - If the student is able to make an overall analysis on the issue solely by the directions of the teacher, he (she) is assessed with a good record (4). - If the student is not able to give clear description on the main relationships of the subject but he (she) can define the fundamental conceptions, his grade is a fair (medium) (3). - If the student can define the fundamental conceptions of the issue by the directions of the teacher, he gets a pass (2). - Without having studied the fundamental conceptions the student is qualified with an unsatisfactory (fail) record (1).

### Required and suggested references:

Nagy L. Gy. Radiokémia és izotóptechnika, Tankönyvkiadó, Bp., 1998. Földiák G.: Az izotópok ipari alkalmazása, Műszaki Könyvkiadó Bp. 1972. W.D. Ehmann, D.E. Wance: Radiochemistry and Nuclear Methods of Analysis, J.W. & Sons, New York 1991. Z.B. Alfassi: Chemical Analysis by Nuclear Methods. J. Wiley, London, 1994. Kanyár B., Béres Cs., Somlai J., Szabó S. A: Radioökológia és környezeti sugárvédelem, VE 2000. J. O'M. Bockris, S. UM. Khan: Surface electrochemistry, Plenum Press, New York, 1993.