



## SUBJECT DATASHEET

<b>Semester:</b>	2009/10/2
<b>Subject:</b>	Nuclear chemistry and isotope technique
<b>Code:</b>	VEMLRKM412M
<b>Responsible department:</b>	Institute of Radiochemistry and Radioecology
<b>Responsible department code:</b>	MKRK
<b>Responsible lecturer:</b>	dr. Kálmán Varga

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### Educational objectives:

Acquirement of the basic aspects of the nuclear chemistry and radioisotope application.

### Detailed content of the subject:

Isotope effects. Enrichment and separation of radioisotopes. Particle accelerators. Nuclear reactions: fundamentals. Nuclear reactions by neutrons and charged particles. Activation analysis. Production of radionuclides. Properties of radioactive isotopes. Radioactive decay series, radioactive equilibriums. Radioactive labeling: fundamentals and applications. 'Artificial' elements. Mössbauer-spectroscopy. Positronium-chemistry. Isotope-dilution-analysis.

### 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 explains 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:

Kiss - Vértes: Magkémia, Akadémiai Kiadó, Bp., 1979. Nagy Lajos György: Radiokémia és izotóptechnika (Tankönyvkiadó 1989). Szilárd testek vizsgálata elektronokkal, ionokkal és röntgensugarakkal. (szerk. O. Brümmer stb.), Műszaki Könyvkiadó, Bp., 1984.