



## SUBJECT DATASHEET

<b>Semester:</b>	2009/10/2
<b>Subject:</b>	Radioecology and Radiation Protection
<b>Code:</b>	VEMLRKM412K
<b>Responsible department:</b>	Institute of Radiochemistry and Radioecology
<b>Responsible department code:</b>	MKRK
<b>Responsible lecturer:</b>	dr. János Somlai

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### Educational objectives:

Environmental radiation sources, review of radiation protection basements.

### Detailed content of the subject:

Radioactivity, interactions. Dose concepts, dose quantities. Calculating of exposure from the radionuclide concentrations of environmental elements. Biological effects of ionizing radiations. Sources of natural radiations. Sources of artificial radiations. Handling and storing of radioactive wastes. Measuring of radioactivity, detectors. Measurement and monitoring of environmental radiations and radionuclides. Rules of radiation protection, dose limiting, origin of levels. Personal dosimetry, measuring of radiation levels in workplaces, radiation protection. Protection against external and internal radiation exposure. Radiating and nuclear accidents. Interventions in case of radiating accidents. International and national radiation protection laws and recommendations.

### 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:

Kanyár B., Béres Cs., Somlai J., Szabó S. A.: Radioökológia és környezeti sugárvédelem, tankönyv, Veszprémi Egy. Kiadó, Veszprém, 2000. Mészáros E.: Légekörtan. VE jegyzet, Veszprém, 1993. Merril Eisenbud: Environmental Radioactivity, UK Academic Press Inc., London, 1987. Eienne Van der Stricht: Radioecology, UIR, Fortemps, Belgium, 2001. Sztanyik B. L.: Sugársérülések megelőzése és gyógykezelése. Zrínyi K, Bp. 1989 NAÜ biztonsági szabályzat, Biztonsági sorozat No. 115, Magyar kiadás: OAH, Bp. 1996 Kanyár B.,



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### Required and suggested references:

Somlai J., Szabó L.D: A sugárzások elleni védelem dozimetriai és hatástani alapjai. VE jegyzet, 1996. Rontó Gy., Tarján I.: A biofizika alapjai, Semmelweis Kiadó, Bp., 2002. Köteles Gy.: Sugáregészségtan, Medicina Könyvkiadó, Bp., 2002.