



SUBJECT DATASHEET

Semester:	2009/10/2
Subject:	Dosimetry and radiation protection
Code:	VEMKRK4212D
Responsible department:	Institute of Radiochemistry and Radioecology
Responsible department code:	MKRK
Responsible lecturer:	dr. János Somlai

Educational objectives:

The health effects of radiation and the radiation protection (regulatory) system (dose limitation, intervention etc.) and technics in use of ionising and nonionising radiation and radionuclides.

Detailed content of the subject:

Types and characteristics of radiations. Sources of radiations. Dose concepts and units of ionizing radiations. Effects of ionizing radiation on biomolecules. Effects of ionizing radiation on cells and living tissues. Health effects of ionizing radiation, radiation diagnostics. Dosimetric determination and calculations. Main objects of the radiation protection system, ALARA concept. Exemptions, practice and dose limits. Intervention, intervention and action levels, optimality, cost-benefit. Derivation of limits and action levels. Effects of nonionising radiations on biomolecules, cells and living tissues. Effects of nonionising radiations on man, dose concept and units. Regulations in the use of nonionising radiations. Dosimetric determinations of nonionising radiations.

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:

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., 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.