



SUBJECT DATASHEET

Semester:	2010/11/1
Subject:	Radiation Impact: Chemistry and Technology
Code:	VEMLRKM412T
Responsible department:	Institute of Radiochemistry and Radioecology
Responsible department code:	MKRK
Responsible lecturer:	dr. Zoltán Németh

Educational objectives:

To give special knowledge in the field of radiation chemistry and technology

Detailed content of the subject:

Interaction of radiation with matter. Radiation dose, dose measurement, radiation chemistry yield. Main phases of radiation chemistry procedure. Radiation chemistry of gases (hydrogen, oxygen and its compounds). Radiation chemistry of water and water solutions. Radiation chemistry of solids (metals, semiconductors). Physical, chemical and biological effect of radiations in human body. Basics of radiation technologies, radiation sources. Realized radiation technologies I.: sterilization with radiation. Realized radiation technologies II.: production of plastics. Radiation technologies under introduction I.: technologies in environmental protection. Radiation technologies under introduction I II.: radiation treatment of foodstuff. New trends in radiation technologies. Quality control during radiation technologies.

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:

Németh Zoltán: Radiokémiai és izotóptechnikai alapismeretek (VE 1996). Nagy L. Gy. Radiokémia és izotóptechnika, Tankönyvkiadó, Bp., 1998. Földiák G.: Az izotópok ipari alkalmazása, Műszaki Könyvkiadó Bp. 1972 A. Vértes, I. Kiss: Nuclear Chemistry. Akadémiai és Elsevier Kiadó, 1987. G. Choppin, J. Rydberg, J.O. Liljenzin: Radiochemistry and nuclear chemistry. Butterworth, Oxford, 1995.