



SUBJECT DATASHEET

Semester:	2009/10/2
Subject:	Nuclear and Particle Physics
Code:	VEMKFISV12F
Responsible department:	Institute of Physics and Mechatronics
Responsible department code:	MKFI
Responsible lecturer:	dr. Péter Gurin

Educational objectives:

Basic concepts of the nuclear and particle physics, experimental methods and theoretical results.

Detailed content of the subject:

1. The building blocks of the matter and the experimental method to study them: scattering experiments. 2. Phenomenological description of the building blocks of the nucleus. 3. Models. 4. Nuclear radiation. 5. Nuclear physics in practis. 6. Interaction between matter and radiation. 7. Detectors. 8. Accelerators. 9. Material testing based on nuclear techniques. 10. Properties of elementary particles and their phenomenological description. 11. Classification of elementary particles based on symmetry principles. 12. Discrete symmetries. 13. Description of the interactions of elementary particles: gauge theories. 14. Standard model and beyond. 15. The formation of the universe.

Requirements:

exam

Required and suggested references:

A. Das, T. Ferbel: Introduction to nuclear and particle physics, John Wiley and Sons Inc. New York, 1994.
K.N. Muhin: Magfizika mindenkinek, Műszaki, Bp., 1975. K.N. Muhin: Kísérleti magfizika, Tankönyvkiadó, Bp., 1985. Patkós A., Polónyi J.: Sugárzás és részecskék, Typotex, Budapest, 2002. Marx György: Atommagközelben, Mozaik, Szeged, 1996.