UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2012/13/2
Course:	Selected topics in physics
Code:	VETKFI1143S
Responsible department:	Institute of Physics and Mechatronics
Department code:	MKFI
Responsible instructor:	dr. Szabolcs Varga

Course objectives:

To provide those basic elements of the physics which are related to information and computer science.

Course content:

1. Mechanics: force, energy, Newton's laws. 2. Electric charge, Coulomb law, Electric and magnetic fields. 3. Capacity, capacitor, oscilloscope 4. Electric currant. Kirchhoff-laws. Voltage. RC circuit. 5. Maxwell-laws. 6. Basis of the Quantum mechanics. 7. Metals. Semiconductors. Diodes. 8. Transistors. Amplifiers. 9. Logical circuits. Digital-analogue and analogue-digital converters. 10. Fluorescence. Lasers. 11. Polarisation of the light. Optical fibres. 12. Liquid crystals. Practical applications: temperature-sensors, displays. 13. Statistical theory of liquid crystals.

Requirements, evaluation and grading:

exam

Required and recommended readings:

Hevesi Imre: Elektromosságtan, Nemzeti Tankönyvkiadó (1998) Halliday-Resnick: Fundamentals of physics, Wiley (1988) Fizika és Elektronika laboratóriumi gyakorlatok (jegyzet), Veszprémi Vegyipari Egyetem (1981) Messiah: Quantum mechanics, North Holand (1961) Kittel: Bevezetés a szilárdtestfizikába, Műszaki Könyvkiadó (1981) P.J. Collings: Liquid Crystals, second edition, Princeton University Press, (2002)