Name of the subject: **Automatic manufacturing systems I.**	NEPTUN code: KMWAG5ABNE	Weekly hours: 2 lec+0 gs+ 1 lab	Credit: 3 Req: Examination
Subject leader: **Dr. György Schuster**		Prerequsites: KMXBR5ABNE	

Description of the subject:

Structure of classical process control computers, their peripherals and applied algorithms. Classification of production systems, basic phenomenons and their application fields. Subsystems of production systems. Material handling subsystems, processing subsystems, testing subsystems and subsystems of informatics. Structure and machines of electrical and electronical production systems, front end and back end lines. SMT devices, re-flow ovens, visual and RTG testers, ICT-s, FDL-s, etc . Structure and machines of mechanical production systems, CNC milling and lathe machines, cutting machines (laser, plasma, water jet), integrated CNC chamber, etc. Sensors and actuators. Simple binary sensors. Industrial robots, kinematic chain, driving system, control system, programming. Flexible manufacturing cell.

Laboratory exercise.
Phisical devices:
- pneumatic manipulator,
- traffic light,
- production machine controlled by embedded controller,
- PLC and PC,
- FPGA base board,
- ARM base board.
- Usage of FPGA (simple logical application, sequential application, soft processors),

Usage of 32 bit microcontrollers.

Literature:

Mikell P. Groover "Automation, production systems, and computer-integrated manufacturing" Prentice Hall 2007 ISBN 0-13-239321-2

J Norberto Pires "Industrial Robots Programming" Springer 2007 ISBN 0-387-23325-2

Steve Krar, Arthur Gill: "CNC Technology and Programming" Industrial Press 1990 ISBN: 0070233330

Remarks: