

Óbuda University <i>Kandó Kálmán Faculty of electrical engineering</i>		Institute of Instrumentation and Automation		
Name and code of the subject: Automatic manufacturing systems II. KMGY2ABNE Credits: 8				
Specialization: Electrical engineer,				
Subject leader:	Dr. Boráros-Bakucz András	Teachers:	András Boráros Bakucz Ph.D.	
Prerequisites: (codes)				
Number of lessons:	Lecture: 4	Seminar:	Laboratory exercise: 3	Consultation:
Way of marking (si,e,se):e	exam			
Education material				
<i>Students should acquire complex knowledge on automatic production systems, such as mechanical, electrical and software topic. Other goal is student should be able to recognize problems and solve them. They should be as creative as its is possible.</i>				
<i>Topics of lessons:</i>				
Topic:		Week	Lessons	
Theoretical (T:): industrial robots kinematics and application.		1.		
T: electrical and mechanical drives of industrial robots.		2.		
T: mechanical parts of industrial robots, grippers and tools.		3.		
T: mixed production systems, airplane factory and shipyard.		4.		
T: topological planning of production lines.		5.		
T: comparison line- and cell-like production		6.		
T: intelligent sensors,		7.		
T: visit Continental Automotive Ltd.		8.		
T: visit Visteon Székesfehérvár Ltd.		9.		
T: visit BSCH Electronic Ltd.		10.		
T: discussion of the industrial visits		11.		
T: evaluation of a real production system		12.		
T: evaluation of a real production system		13.		
Topic:		Week		
IPC programming with C and C++ programming languages.		1.		
IPC programming, sockets.		2.		
process visualization PERL-TK		3.		
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ARM programming.		5.		
ARM programming PWM		6.		
ARM programming CAN and Ethernet		7.		
FPGA basics		8.		

FPGA soft processors	9.	
FPGA soft processors	10.	
Requirements		
The exam conditions are students have to take a successful test during the semester. This can be a presentation or an oral sub exam. The exam is oral one.		
Literature: Sam Cubero:Industrial Robotics: Theory, Modelling and Control ISBN 3-86611-285-8		