UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2012/13/2
Course:	Mechatronics of Process Systems
Code:	VEMKFOB255F
Responsible department:	Department of Process Engineering
Department code:	MKFO
Responsible instructor:	dr. Béla Lakatos

Course objectives:

The aim is to introduce the fundamentals and methods of analysing the complex process systems used for production of mechatronic elements and equipments, as well as the mechatronical parts of process systems.

Course content:

1. Anatomy of process systems. Continuous, batch and discrete event systems in production. 2. Hierarchy and levels of control and management of process systems. 3. Unit operations and equipments of process systems of industrial scale. 4. Measurements, measurement methods. Elaboration of measurement data for control purposes. 5. Fundamentals of statistical control of processing systems. 6. Scheduling of events of complex batch process systems. 7. Analysis and design of discrete event systems in industry. 8. The Arena and its applications in analysing and design of process systems. 9. Mechatronic elements of flow systems: continuous and discrete flows. 10. Mechatronic elements of transport and storage systems. 11. Workcells in processing systems. 12. Fundamentals and mechatronics of flexible production systems.

Requirements, evaluation and grading:

Grading is based on two midterm examinations and the results of solving two home problems. Each examination consists of 2 general questions and 2-4 problems to be solved. The final mark is determined according to following table based on the weighted average of the points obtained for the midterm examinations and the home work. The weights of midterm exams and home work are=0.3, 03, 0.2, 02. % final mark above 85 excellent (5) 75-84 good (4) 65-74 medium (3) 50-64 pass (2) below 50 fail (1)

Required and recommended readings:

Lakatos B., Folyamatrendszerek mechatronikája. Jegyzetvázlat. Pannon Egyetem, Veszprém Szalay J. (szerkesztő), 1978, Folyamatirányító rendszerek. Műszaki, Budapest. Blanchard, B.S. & W.J. Fabrycky, 1998, Systems Engineering and Analysis. (3rd Edition). Prentice Hall, Upper Saddle River, New Jersey. Alciatore, D.G., M.B. Histand, 2003, Introduction to Mechatronics and Measurement Systems. McGraw-Hill, Boston. Bishop, R.H. (Ed.), 2002, The Mechatronics Handbook. CRC Press, Boca Ranton