UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2014/15/1
Course:	Process Dynamics
Code:	VEMKKI3313A
Responsible department:	Department of Process Engineering
Department code:	MKFO
Responsible instructor:	dr. Ferenc Szeifert

Course objectives:

Terminology and basic methods in engineering applications of process models.

Course content:

Introduction to system theory and technics. Verbal and formal definitions of system models. General properties of systems. Transport equation-based first principle models. Abstract automatons (Petri nets, etc.). Input-output models. State-space models. Continuous and dicrete (in time) models. Models in Laplace- and Z-transformed domain. Linear and non-linear models. Neural network models. Fuzzy models. Stochastic models (ARMA, etc.). Identification of system models (least-squares estimations). System analysis: Stability (Ljapunov's methods), observability controlability.

Requirements, evaluation and grading:

Grading is based on one written midterm examinations and one written final examination. Every written examination consists of 3 examination questions. The final mark is determined according to following table based on the weigthed average of the points obtained for the midterm and the final written examination (midterm 20%, final 80): % final mark above 80 excellent (5) 70-79.99 good (4) 60-69.99 medium (3) 50-59.99 pass (2) below 50.99 fail (1)

Required and recommended readings:

Szeifert F., Chován T., Nagy L., Almásy G.: Rendszermodellek-rendszeranalízis. VE jegyzet, VE-48/94, Veszprém, 1994. Aström, K.J., Wittenmark, B.: Computer Controlled Systems: Theory and Design, Prentice-Hall, Englewood Cliffs, 1990.