



## SUBJECT DATASHEET

<b>Semester:</b>	2011/12/1
<b>Subject:</b>	Introduction to Process Engineering
<b>Code:</b>	VEMKFOB154B
<b>Responsible department:</b>	Department of Process Engineering
<b>Responsible department code:</b>	MKFO
<b>Responsible lecturer:</b>	dr. Sándor Németh

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### Educational objectives:

Introducing the theoretical fundamentals and practical methods of process engineering

### Detailed content of the subject:

Introduction. Review of the modeling of process system. CAPE software System analysis: process variables, degree of freedom, stability, controllability, sensitivity Mathematical representation of unit models: linear, nonlinear, differential, partial differential equation system. Application examples Structure of the technology system. Flow-sheet analysis, flow-sheet calculation Analysis of typical units: piping, valves, pumps, compressors Analysis of heat exchangers, and heat exchanger networks Dynamic simulation of complex system CFD models, numerical methods, typical problems, CFD Software Application of black-box models for the analysis of the system Neural networks, fuzzy models

### Requirements:

Grading is based on the results of 1 midterm exam, 2-3 midterm laboratory reports and final exams. All exams consist of theoretical and practical parts. Theoretical parts cover the modelling and analysis methods. Practical parts involve solving particular problems. The grade is determined with the weighting of results of the exams and the reports.

### Required and suggested references:

B. Wayne Bequette: Process Dynamic. Modelling, Analysis, and Simulation. Prentice Hall, New Jersey, 1998.  
D. M. Himmelblau: Hibafelismerés vegyi üzemekben. Műszaki Könyvkiadó, Budapest, 1984