UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2015/16/1
Course:	Up-to-date chemical engineering
Code:	VEMKFMM218M
Responsible department:	Department of Chemical Engineering Science
Department code:	MKMU
Responsible instructor:	dr. László Hanák

Course objectives:

Familiarizing students with up-to-date reaction engineering processes.

Course content:

1. Adsorption equilibrium, kinetics, pressure-swing adsorption (PSA) technics, gas separation, air separation.
2. Production of high-purity gases, gas mixtures, standards.

3. Extraction; solid-liquid extraction, equipments, supercritical extractions.

4. Membrane separation processes ; micro-, ultra-, nano-, hyperfiltration, applications.

5. Special type of distillation processes; pervaporation, extractive distillation, azeotropic distillation.

6. Crystallisation, fractional cristallisation, crystallisers.

7. Drying, special type of drying methods, equipments.
8. Adsorption, adsorption from liquids, multicomponent adsorption, equipments, regeneration.

9. Ion-exchange, characterisation of ion-exchangers, cyclic ion-exchange processes.

10. Cycling-zone ion-exchange, thermal ion-exchange parametric pumping methods.

11. Chromarographic separations, preparative, large scale chromatographic processes.

12. Simulated mowing bed (SMB) chromatography, closed-, and open-looped SMB methods.

UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2015/16/1
Course:	Up-to-date chemical engineering
Code:	VEMKFMM218M
Responsible department:	Department of Chemical Engineering Science
Department code:	MKMU
Responsible instructor:	dr. László Hanák

Course content:

13. Bioseparations, down-stream processes, RIPP schemes.

14. TQM, future trends inup-to-date chemical engineering.

Requirements, evaluation and grading:

2 mid-term papers, exam.

Required and recommended readings:

1. Bioseparations; Belter, P.A., Cussler, E.L.; Wei-shou-HU (John Wilez & Sons, New York). l988. 2. Chemical Engineering Vol.
2. Coulson, J.M., Richardson, J. F. (Pergamon Press. Oxford, 1991.)
3. Szárítási kézikönyv (szerk. Imret)