



## COURSE DATASHEET

<b>Semester:</b>	2012/13/2
<b>Course:</b>	Enzyme technologies
<b>Code:</b>	VEMKBMB312E
<b>Responsible department:</b>	Research Institute on Bioengineering, Membrane Technology and Energetics
<b>Department code:</b>	MKBME
<b>Responsible instructor:</b>	Dr. László Gubicza

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### Course objectives:

Familiarization the students with the most important enzymatic technologies and their industrial applications.

### Course content:

1. The structure, operation and Kinetics of enzyme.
2. The most important parameters affecting the enzyme operations
3. Mono- and biphasic systems in organic solvents
4. Enzymatic reactions in organic solvents
5. Enzymatic reactions in solvent-free systems
6. Effect of organic solvents on the enzyme activity and selectivity
7. Correlation between the solvent and enzyme conformation
8. "Designer solvents": ionic liquids and supercritical fluids
9. Enzymatic reactions in supercritical fluids
10. Enzymatic reactions in ionic liquids
11. Enzyme activity, stability and selectivity changes in ionic liquids
12. Continuous enzymecatalytic reactions
13. Enzymatic reactions in gas-phase
14. Enzymatic reactions in reverse micelles.

### Requirements, evaluation and grading:



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### Requirements, evaluation and grading:

Terms of signature:

To write two successful exams (ZH) through the semester

There is one opportunity to make up (correct).

The grade, offered according to the two exams, can be improved by an oral exam.

### Required and recommended readings:

Bommarius, A. S., Riebel, B.R., Biocatalysis, WILEY-VCH Verlag Gmbh & Co. KGaA, 2004 Carrea, G., Riva, S.: Organic synthesis with enzymes in non-aqueous media, WILEY-VCH Verlag Gmbh & Co. KGaA, 2006 Wasserscheid, P., Welton, T., Ionic liquids in synthesis I-II, , WILEY-VCH Verlag Gmbh & Co. KGaA, 2007 Jessop, P.G., Leitner, W.: Chemical synthesis using supercritical Fluids, , WILEY-VCH Verlag Gmbh & Co. KGaA, 1999