



SUBJECT DATASHEET

Semester:	2010/11/2
Subject:	Enzyme technologies
Code:	VEMKBMB312E
Responsible department:	Research Institute on Bioengineering, Membrane Technology and Energetics
Responsible department code:	MKBM
Responsible lecturer:	Dr. László Gubicza

Educational objectives:

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

Detailed content of the subject:

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:

The lectures' materials



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Requirements:

Required and suggested references:

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