



## SUBJECT DATASHEET

<b>Semester:</b>	2009/10/1
<b>Subject:</b>	Catalysis in hydrocarbon processing
<b>Code:</b>	VEMKOL5112K
<b>Responsible department:</b>	Department of Hydrocarbon and Coal Processing
<b>Responsible department code:</b>	MKOL
<b>Responsible lecturer:</b>	Dr. Jenő Hancsók

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### Educational objectives:

To give a summary of the theoretical and practical knowledge on the catalytic processes of hydrocarbon processing

### Detailed content of the subject:

Contents: Week 1. The role and importance of catalytic processes in hydrocarbon processing. Classification of catalytic processes 2. Requirements of catalysts. Properties of importance with regard to application 3. Classification, design and selection of catalysts 4. Catalysts of homogeneous processes 5-6. Catalysts of heterogeneous processes 7. Shape selective catalysis 8. Examples for catalyst manufacturing 9. Kinetics of catalysis 10. Reactors and reactor systems for catalytic reactions 11. The operation of catalytic reactors 12. Regeneration of catalysts 13-14. Recycling of the metal components of catalysts 15. Environmental issues.

### Requirements:

Examination paper. Examples of Examination Questions are in annex. (85%?)

### Required and suggested references:

1. Leach, B.E.: Applied Industrial Catalysis, Vol. 1-3. Academic Press, New York, 1983. 2. Le Page, J.-F. et al.: Applied Heterogeneous Catalysis. Éditions Technip. Paris, 1987. 3. Meyers, R.A.: Handbook of Petroleum Refining Process, McGraw-Hill Book Company, New York, Toronto, 1986. 4. Trimm, D.L. et al.: Catalysis in Petroleum Refining, 1989 Elsevier, Amsterdam, Tokyo, 1990. 5. Jones, T.C.: Diesel Plant Operations Handbook, McGraw-Hill Inc., N.Y., 1991. 6. Delannay, F.: Characterization of Heterogeneous Catalysts, Marcel Dekker, N.Y., 1984. 7. Szostak, R.: Molecular Sieves, Van Nostrand Reinhold, N.Y., 1989. 8. Moffat, J.B.: Theoretical Aspects of heterogeneous Catalysis, Van Nostrand Reinhold, N.Y., 1990. 9. Chen, N.Y. et al.: Shape Selective Catalysis in Industrial Applications 2. edition, Marcel Dekker Inc., N.Y. Basel Hong Kong, 1996. 10. Satterfield, C.N.: Heterogeneous Catalysis in Industrial Practice, McGraw-Hill Inc., N.Y., 1991. 11. Rase, H.F.: Fixed Bed Reactor Design and Diagnostics, Butterworths, Boston, 1990. 12. Stiles, A.B. és Koch, T.A.: Catalyst manufacture 2. kiadás, Marcel Dekker Inc., N.Y. Basel Hong Kong, 1995. 13. Masel, R.I.: Chemical kinetics and catalysis, John Wiley and Sons, Inc., 2001. 14. Becker, E.R. és Pereira, C.J.: Computer-aided design of catalysts, Marcel Dekker Inc., N.Y. Basel Hong Kong, 1993.