



COURSE DATASHEET

Semester:	2014/15/1
Course:	Chemical technologies
Code:	VEMKTEV17XK
Responsible department:	Department of Organic Chemistry
Department code:	MKOK
Responsible instructor:	Dr. Szilárd Tőrös

Course objectives:

Educational objectives	
1.	To give a summary of the theoretical and practical knowledge on the catalysis.
2.	Presentation of raw materials, properties, manufacturing of classical silicate products (ceramics, glasses, binding materials).
3.	To give a short overview of principles of inorganic and organic chemical technologies. Selected industrial processes.
4.	Acquirement of the basic aspects of the nuclear fuel-cycle, as well as of the production and applications of radioactive materials

Course content:

Dr. Tőrös Szilárd: Organic chemical technology – 30 hours (1+1+0)	
1.	Importance of enthalpy-and entropy differences in organic syntheses. Their role in designing the technology discussed.
2.	Thermodynamically controlled industrial processes. Industrial explosives.
3.	Elucidation of the sulfonation reaction, some practically important sulfonation reagents. Industrial application of the sulfonation reaction. Syntheses of detergents, bacteriostatic materials.
4.	Similarities and differences in nitration and sulphonation reactions.
5.	Halogenation of organic substrates of different structure. Thermochemistry of the reaction and its role in the industrial application.
6.	Esterification and hydrolysis.
7.	Synthesis of emollient of plastics via esterification
8.	Mid-year calling to account.
9.	Acylation. Important acylation reagents, their use and characterization. Industrial application of the reaction: isocyanates, poliuretanes, important esterderivatives.



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Course content:

1 0.	Alkylation. Important alkylation reagents, their use and characterization. Industrial application of the reaction.
1 1.	"Reduction" in industry. Characterization of the heterogeneous and homogeneous hydrogenation. Similarities and differences. Advantages-disadvantages.
1 2.	Oxidation. Autooxidation and its prevention. Selective oxidation processes.
1 3.	Technologies of reductive amination and ammonolysis.
1 4.	Diazotization
1 5.	Consultation and discussion

Requirements, evaluation and grading:

Required and recommended readings:

Deák Gy.: Szerves vegyipari alapfolyamatok kézikönyve. Műszaki könyvkiadó, Budapest, 1978

K. Weissermel/H.-J. Arpe: Industrial Organic Chemistry, Fourth, Revised Edition; 2003; Weinheim; Wiley-VCH.

Réti T., Tungler A., Tőrös Sz.: Ipari technológiák és szennyezéseik (HEFOP 2004 / 3.3.1).