



SUBJECT DATASHEET

Semester:	2009/10/2
Subject:	Chemical Technologies II
Code:	VEMKTEV213T
Responsible department:	Department of Hydrocarbon and Coal Processing
Responsible department code:	MKOL
Responsible lecturer:	Dr. László Bartha

Educational objectives:

To give an overall view of the hydrocarbon industry its products and calculation methods

Detailed content of the subject:

1. E.: The fossil fuels, resources, production. Overall refinery flow. Integrated hydrocarbon processing; Gy.: Comparison of the hydrocarbon mixtures with simple mixtures. Property estimation of hydrocarbon mixtures (empirical, semiempirical methods; nomogrammes, computer simulation packages. 2. E.: Crude oil properties; Gy.: ASTM distillation, densities of petroleum products. 3. E.: Products of the hydrocarbon industry; Gy.: True boiling point distillation, mid-yield curves, property-yield curves, iso-curves. 4. E.: Processes in the hydrocarbon industry; Gy.: Average boiling points. Characterization factor. Molecular weight of petroleum fractions. API density. Estimation of these parameters. 5. E.: Catalytic refining processes. Hydrodesulfurization; Gy.: Phase envelope of defined mixtures. Phase diagram of petroleum fractions. Retrograde phenomena. Critical and pseudocritical properties. Corresponding state. 6. E.: Catalytic reforming process variables. Case-study; Gy.: Equilibrium flash vaporization curves. Relations among the distillation curves, their application. 7. E.: Lube oil processing; Gy.: Estimation of distillation curves 8. E.: Supporting processes. Hydrogen and carbon dioxide management; Gy.: Equilibrium flash vaporization curves at sub- and superatmospheric pressures. 9. E.: The role and production of petrochemical feedstocks; Gy.: Estimation of liquid and vapour densities 10. E.: Petrochemical processes based on ethylene; Gy.: Calculation of vapour-liquid equilibrium 11. E.: Production of other intermediates; Gy.: Calculation of vapour-liquid equilibrium 12. E.: Polymerisation processes; Gy.: Enthalpy and heat of vaporisation of hydrocarbon mixtures. Enthalpy diagrams. 13. E.: Production of other oxygen containing compounds; Gy.: Enthalpy and heat of vaporisation of hydrocarbon mixtures. Enthalpy diagrams. 14. E.: Production of paraffin hydrocarbons; Gy.: Blending of petroleum products 15. E.: Additives in hydrocarbon industry; Gy.: Blending of petroleum products.

Requirements:

Rating the personal performance is done based on an examination paper. Examination paper is based on theoretical questions and practical examples. The marking are based in points and for the pass level minimum 50% of the total points are required.

Required and suggested references:

Speight, J.G.: The chemistry and technology of petroleum. Marcell Dekker, 1991. Gary, J.H.: Petroleum



SUBJECT DATASHEET

Semester:	2009/10/2
Subject:	Chemical Technologies II
Code:	VEMKTEV213T
Responsible department:	Department of Hydrocarbon and Coal Processing
Responsible department code:	MKOL
Responsible lecturer:	Dr. László Bartha

Required and suggested references:

refining technology and economics. Marcell Dekker, 1984. Chauvel,A, Lefebre,G.: Petrochemical processes I-II. Gulf. 1989. Edmister,W.C., Lee,B.I.: Applied hydrocarbon thermodynamics, Gulf, 1985 API Technical Data Book - Petroleum Refining, 1992 PRO/II Input Manual, Pro/II Reference Manual, 1994 Reid,R.C., Prausnitz,J.M.,Poling,B.E.: The Properties of gases and liquids, McGraw-Hill, 1987 Hancsók, J., Baladincz, J., Magyar, J.: "Mobilitás és környezet", (ISBN 978-963-9696-50-1), Pannon Egyetemi Kiadó, 2008, 229 oldal