



UNIVERSITY of MISKOLC
Faculty of Materials Science and Engineering
**Antal Kerpely Doctoral School of Materials Science
& Technology**



Selected topics of petrochemical and organic chemical technologies

Dr. Zsolt Fejes

COURSE DESCRIPTION

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Selected topics of petrochemical and organic chemical technologies

Dr. Zsolt Fejes

Lecturer

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Recommendation

The lecture is proposed for all students of the Kerpely doctoral school, especially who are studying in the field of chemical or polymer technology.

Language

Hungarian or English.

Scope

The objective of the course is to give insight into some of the most important petrochemical and organic chemical intermediates, technologies and processes.

Methodology

For larger student numbers, the course is held in contact lectures. The time of contact courses is based on agreements with the students. In case of 1-2 students, lecture handout with keywords and fundamentals of the topics are given in electronic form. Basic questions are also given for the topics. 3 meetings are held to gather feedback from the students and discuss the answers for the basic and the students' questions.

Topics

- *Major basic intermediates of the organic chemical industry: the most important petrochemical technologies*
- *Chemicals from ethylene*
- *Chemicals from propylene*
- *Intermediates from the C₄ stream*
- *Chemicals from the BTX fraction*
- *Chemicals from methane and other alkanes*
- *Large-scale (commodity) polymers*

References

1. Kirk-Othmer (Ed.): Kirk-Othmer Encyclopedia of Chemical Technology, 5th Edition, John Wiley & Sons, Inc., 2007.
2. Barbara Elvers (Ed.-in-Chief): Ullmann's Encyclopedia of Industrial Chemistry, 7th Edition, Wiley-VCH, 2011.
3. Hans-Jürgen Arpe: Industrial Organic Chemistry, 5th Edition, John Wiley & Sons, Inc., 2010.

4. James G. Speight: The Chemistry and Technology of Petroleum, 5th Edition, CRC Press, 2014.

Exam

Oral exam.

Complex exam questions

1. Ethylene: sources and examples of its conversion routes
2. Propylene: sources and examples of its conversion routes
3. The C₄ hydrocarbon fraction: sources and examples of their conversion routes
4. The BTX fraction: source and examples of their conversion routes
5. Polyethylene and polypropylene production