UCL Université catholique de Louvain

LMAPR2320

2010-2011

Process development in industrial organic chemistry

5.0 credits	30.0 h + 22.5 h	1q

Teacher(s) :	De Wilde Juray (coordinator) ; Bailly Christian ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	The course is divided in four parts, respectively devoted to crude oil refining, catalytic oxidation, polymerization processes and fine chemistry.
Aims :	The objectives of this course are twofold: 1. to illustrate the key components of industrial processes based on organic chemistry with the help of examples selected from the petrochemical, polymer and fine chemistry sectors; 2. to integrate concepts learned in other chemical engineering courses (thermodynamics, kinetics, transport phenomena, reactors design and optimization). The focus of the course is on process development and recent trends. At the end of their classes, the students will be able to understand and explain: 1. conversion units in petroleum refinery and hydrodesulphuration units 2. catalytic oxidation processes for hydrocarbons, olefins and aromatics 3. major polymerization processes for thermoplastics 4. selected examples of fine chemistry processes *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	Contents: 1. Refining and hydrodesulphuration 1.1 Thermal cracking 1.2 Hydrocracking 1.3 Fluid catalytic cracking (FCC) 2. Heterogeneous catalytic oxidations 2.1 Ethylene oxide 2.2 Acetaldehyde 2.3 Cyclohexanol/one 2.4 Terephthalic acid 3. Polymerization of thermoplastics 3.1 Molar mass control 3.2 Influence of physical and thermodynamic parameters 3.2 Main types of industrial polymerization and trends 3.3 Major examples : polyolefins, styrenics, PVC, polyesters, polyamides 4. Examples of fine chemistry processes Methods : Ex cathedra courses, completed by invited seminars and seminars prepared by the students; plant visits.
Other infos :	Prerequisites : basic formation in organic chemistry and chemical engineering (thermodynamics, kinetics, reactor design and transport phenomena, polymer chemistry)
Cycle and year of study :	> Master [120] in Chemical and Materials Engineering
Faculty or entity in charge:	FYKI