UCL Université catholique de Louvain

LMAPR2330

2013-2014

Reactor Design

5.0 credits	30.0 h + 30.0 h	1q

Teacher(s) :	De Wilde Juray ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	and non-isothermal reactors with one and multiple reactions. - Analysis of the behaviour of non-ideal reactors. Study of the residence time distribution (RTD). Models of axial dispersion reactors and of tanks in series, with or without recycle. - Heterogeneous catalytic reactors. Influence of the catalyst on the global reaction rate (Thiele modulus). Catalyst deactivation. Design of fixed bed and fluidised bed reactors. - Liquid-gas reactors. Hatta theory. Design of mixing reactors and absorption columns.
Aims :	The objective of the course is to present and apply chemical engineering methods used for the design, the scale up and the modelling of reactors. *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 :	This course deals with the main model used in chemical engineering that intervene in the representation of reactors and the analysis of the behaviour. It is based in particular on the notions of mass and energy balances and of unit operations, and it involves an integration by considering examples drawn from applications in the process industry.
Other infos :	Written support : Levenspiel O. (1999). Chemical Reaction Engineering, 3rd edition, John Wiley, New York. Evaluation : final exam (90%); homeworks (10%).
Cycle and year of study :	> Master [120] in Chemistry and Bio-industries > Master [120] in Chemical and Materials Engineering > Master [120] in Biomedical Engineering
Faculty or entity in charge:	FYKI