INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

DPT GENIE ENERGETIQUE ET ENVIRONNEMENT
ENERGETICS AND ENVIRONMENTAL ENGINEERING
INSA Campus LyonTech - 9 rue de la Physique
Batiment Sadi Carnot - 69621 VILLEURBANNE
Phone 0472438430
E-mail : gen-s@insa-lyon.fr

Chemical engineering

Chemical reaction engineering

IDENTIFICATION

CODE : GEN-4-S1-EC-REA
ECTS : 2.0

HOURS

Lectures :	3.5 h
Seminars :	12.0 h
Laboratory :	4.0 h
Project :	0.0 h
Teacher-student contact :	19.5 h
Personal work :	25.0 h
Total :	44.5 h

ASSESSMENT METHOD

Final exam: 95%
Laboratory: 5%

TEACHING AIDS

Student textbook

TEACHING LANGUAGE

French

CONTACT

MME DUCOM Gaelle
gaelle.ducom@insa-lyon.fr

AIMS

The chemical treatment step is very often the heart of the process. Design of chemical reactors is studied, based on mass balances and chemical kinetics.

CONTENT

- Reaction kinetics
- Mass balance
- Batch reactors
- Continuous ideal reactors : continuous stirred tank reactor, plug flow reactor
- Reactors in parallel or in series
- Residence time distribution
- Optimal temperature profile

Laboratory:
- Continuous ideal reactors (residence time ditribution)

BIBLIOGRAPHY

J. VILLERMAUX, Génie de la Réaction Chimique. Conception et fonctionnement des réacteurs. 2nd Ed., Lavoisier Tec & Doc, 1993.

O. LEVENSPIEL, Chemical Reaction Engineering, John Wiley & Sons, 1962.

D. SCHWEICH Coor., Génie de la Réaction Chimique, Tec & Doc, 2001.

J. LIETO, Le génie chimique à l'usage des chimistes, Lavoisier Tec & Doc, 1998.