UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Sustainable Chemical Processing Technologies

2526-1-124R008

Title

**Sustainable Chemical Processing Technologies
**

Teacher(s)

Heiko Lange ; Luca Zoia

Language

English

Short description

PhD students of essentially all chemical disciplines are directly or indirectly concerned with the im-plementation of sustainable chemical processing and analysis, including apart from the classical chemical sectors: i) the biotechnology sector; ii) the pharmaceutical industry; iii) water and soil remediation sectors; iv) waste treatment sectors, including agricultural waste management.

The course will introduce the different technologies nowadays available at various scales for a (more) sustainable and green(er) chemical processing. Such processing includes classical aspects of chemical synthesis, as well as

chemical processes encountered in contexts of water remediation, soil requalification, and waste treatment. The technologies that will be presented and critically discussed include flow chemistry tools, biotechnologies involving isolated biomass components as well as entire organisms, and state-of-the-art inline monitoring technologies. The course will highlight how the novel technologies intercept with computer-assisted planning and monitoring of processes, and data base-assisted real-time analysis for process control and optimisation.

The topics will be treated also in form of case studies: short introduction into the case by the lecturers, followed by elaboration of the cases in teamwork, presentation/discussion of results.
The language and the level of details will be tailored to the specific needs of the actual audience that will be evaluated at the beginning of the course; eventual knowledge differences will be accounted for by immediate interven-tions by the lecturer and in form of background material made available via the e-learning platform prior to the lectures.

Final evaluation: short presentation based on an article that deals with a topic covered during the course

CFU / Hours

2 CFU - 16 Hours (lecture)

Teaching period

II Semester

Sustainable Development Goals

QUALITY EDUCATION