

3.0 credits	30.0 h	2q
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Teacher(s) :	Dochain Denis ; Dutrieux Alexis ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	The course describes the nature of the major industrial hazards, introduces the physico-chemical modelling of the source term, the modelling of the dispersion of effluents, the design of safeguard systems, and the existence of the human factor. Moreover, it describes the context in which the engineer operates (economic, social and legal constraints), and introduces the safety culture and the quality culture.
Aims :	The course is aimed at increasing the students' awareness of the engineer responsibility in the design and operation of hazardous plants. <i>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".</i>
Content :	Lectures aimed at developing a global approach of the studied problems. Occasionally, external speakers are invited, and a visit of a chemical or a nuclear site is organised. The list of topics hereunder is given as an example: Elements of risk analysis. Hazards of the process industries: reference accidents. Hazards of the electro-nuclear industry; introduction to the biological effects of radiation; reference accidents. Dispersion models Elements of risk management, safety concepts. The human factor. Safeguards systems of reactors. Reliability and safety probabilistic analysis. The generation IV reactors. Management of radioactive wastes - Visit to SCKoCEN and BELGOPROCESS.
Other infos :	Evaluation method: The evaluation is based on a report written on a topic related to the course, and is achieved through an individual discussion with the students. The support of the course can be found on the web site: http://www.term.ucl.ac.be/cours/meca2645/index.htm
Cycle and year of study :	> Master [120] in Chemical and Materials Engineering > Certificat universitaire de contrôle physique en radioprotection (Classe I) > Master [120] in Mechanical Engineering > Master [120] in Environmental Science and Management > Master [120] in Electro-mechanical Engineering
Faculty or entity in charge:	MECA