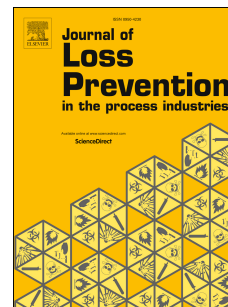


# Accepted Manuscript

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PII: S0950-4230(18)30061-5

DOI: [10.1016/j.jlp.2018.03.017](https://doi.org/10.1016/j.jlp.2018.03.017)

Reference: JLPP 3679

To appear in: *Journal of Loss Prevention in the Process Industries*

Received Date: 19 January 2018

Revised Date: 26 March 2018

Accepted Date: 31 March 2018

Please cite this article as: Perrin, L., Gabas, N., Corriou, J.-P., Laurent, André., Promoting safety teaching: An essential requirement for the chemical engineering education in the French universities, *Journal of Loss Prevention in the Process Industries* (2018), doi: 10.1016/j.jlp.2018.03.017.

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## Promoting safety teaching: an essential requirement for the chemical engineering education in the French Universities.

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### Abstract

The essential contribution of education to safety and loss prevention is emphasized in this paper. It provides a review of the chemical engineering undergraduate and graduate French curriculum “Process safety”. First, the specific situation of the French chemical engineering departments is situated in the Bologna Accord. Then the three main ways to teach occupational health, safety and loss prevention in chemical engineering cursus are discussed. The principle of a layered approach is reported with the corresponding levels of outcomes, competences and safe work practice expectations.

The content of the undergraduate safety mandatory program of the French University Institutes of Technology (IUT) is indicated for the concerned chemical engineering departments.

Finally, some selected detailed lists of the different safety mandatory and elective courses concerning the corresponding French Master degrees (topics – time allocation and European Credit Transfer and accumulation System ECTS) in two Chemical Engineering Schools ENSIC Nancy and ENSIACET Toulouse are commented.

**Keywords:** process safety, education, chemical engineering, teaching, pedagogy.

### 1. Introduction

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Most industrial incidents or major accidents happen because the necessary knowledge and/or competence were not available at the right time in the right place. Safety expertise is of by key importance for the process industries. Acquiring, maintaining and strengthening this competence is necessary from an environmental, economic and societal point of view.

From the feedback of the occurrence pattern of the accidents, Saleh and Pendley (2012) underlined the important contribution of loss prevention education. In the same way after the dedicated two day session on process and plant safety during ECCE 8 in 2011 at Berlin, a general consensus exists about the necessity to promote a substantial increase of the relevant safety culture at university. Schmelzer et al. (2011) reported the final key messages to all stakeholders in process and plant safety. Among others, they invited to:

- Continue and strengthen existing initiatives that develop systematic approaches to create and maintain process safety competence for design and operation.
- Support the idea of a European university curriculum on process and plant safety for relevant bachelor and master degrees, preferably with EFCE taking the lead.

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