

Process Safety Education: A Comparative Study

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ABSTRACT

The immediate causes for the study are discussions with staff from multiple European Universities, articles and position papers of advisory committees and professional organization. They all express their worries about both the decline of education of process safety in the curricula of Chemical Engineering and the decline of research in process safety subjects.

Keywords: Chemical Engineering; Process safety; bibliometric study

INTRODUCTION

Objective

The research of the study aims to either confirm or refute above articulated worries and to do so for the two levels of education: level 6 (\approx BSc), level 7 (\approx MSc, both regular and advanced).

Next, the incentive of the study is to start a discussion on how the alleged decline may be stopped.

Research question

Do the Chemical Engineering curricula of universities contain separate courses 'Process Safety' and if they do, what is the average time spent during the specific curriculum? A ensuing question reads:

Is the coverage of categories process safety adequate in the set of courses available for students? Is a student able to compose this said balance himself from a wide range of elective courses?

METHOD

The research method applied has been the examination of websites of randomly selected Chemical Engineering study programmers [1-3]. The levels looked into were: regular BSc (mostly in the mother tongue language), regular MSc and Advanced MSc (mostly in English). Subsequently the description of the encountered courses was searched for key words of process safety [2-4]. The topics treated within these courses were grouped into seven categories to allow an appreciation of the completeness of the course (i.e. The degree of coverage of categories).

RESULTS

Examination of courses 'Process Safety' if present within the curricula Chemical Engineering confirmed the trend of declining

interest in process safety in Chemical Engineering curricula [5].

Of the 64 universities that offer a BSc Chemical Engineering 32 do not offer a separate course 'proces safety', the range of % ECTS of the universities that offer 'proces safety' courses runs from 0.5%–8.3%, the average is 3.3%.

Of the 60 universities offering a regular MSc Chemical Engineering 20 don't offer a separate course 'proces safety' [6-7]. The range of % ECTS of the universities offering 'proces safety' courses runs from 0.5%–12.5%, average is 3.1%. The results of a bibliometric study into the research output will be reported in a following paper [8-9].

RECOMMENDATION

The article makes a plea to join forces among universities, preferably cross border cooperation between the faculties Chemical Engineering. Next, there is a lot of expertise and know how at commercial parties, be it industry, be it consulting firms (DNV, Dekra, Gexcon, ...). By joining forces sufficient critical mass is obtained for both teaching and research. The benefits are:

- exchange of expertise
- increased research output
- increased depth of research
- increased funding

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