Overview report of higher education Chemical and process engineering study programmes in Lithuania

INTRODUCTION

This report is based on the external quality assessments of three study programmes corresponding to two different Lithuanian institutions: Vilnius College (VK) and Klaipėda University (KU).

The external evaluation visits were conducted by an international panel of experts (Angel Irabien – Spain, Andres Opik – Estonia, Marek Frankowicz – Poland, Eugenijus Norkus – Lithuania and Raimonda Celiešiūtė – Lithuania) with the supervision of the Lithuanian Centre for Quality Assessment in Higher Education in September 2012.

In total, two Bachelor Degree and one Master Degree programme were assessed. The programmes comprised of one Professional Bachelor's degree Chemical Analysis Technology study programme at Vilnius College, one Bachelor's degree Chemical Engineering study programme at Klaipėda University and one Master's degree study programme Oil Processing at Klaipėda University.

Vilnius College offers a analytical chemistry scope in the Professional bachelor's programme, with some specialisation in analytical techniques, but it was not related to Chemical engineering. The programmes of Klaipėda University offer an Engineering scope based mainly in technologies.

FIELDS OF ASSESSMENT: Programme Aims and Learning Outcomes. Curriculum Design. Staff. Material Resources. Study Process and Assessment. Programme Management

From the very beginning the essential shortcomings between the programme aims, learning outcomes, the offered degree, name and content were detected in the VK Professional Bachelor study programme because the aim of the programme is to prepare analytical chemistry technicians while the offered degree is a Professional Bachelor in Chemical Engineering. As this study programme does not correspond to the Chemical and Process engineering study field there are more essential shortcomings in the programme which have to be eliminated: curriculum design does not agree with a Chemical Engineering degree, there is no full time teachers with practical background in Chemical Engineering and during the visit it has not been found any specific material resources for Chemical Engineering subjects. These problems have lead to a final negative assessment of the study programme.

The programme aims and learning outcomes of the KU programmes correspond to Chemical Engineering degree but they need to be improved according to European and international standards and the new trends of Science and Engineering. The intended learning outcomes need to be correlated to the Lithuanian, European and global demands. A formal process of

obtaining up to date market information including employers' demands should be useful in order to correlate the regional, national and international demands of the Bachelor and Master studies.

The two Bachelor study programmes and one Master study programme show compliance with the national legal acts and sufficiency of study volume. The relative contribution of compulsory as opposed to optional subjects to the overall curriculum is, in general, appropriate.

Staff-student ratios are acceptable (VK) and, in some case, generous (KU) in the evaluated study programmes. Staff turnover is, generally, sufficient to refresh staff composition without being de-stabilising. In some instances increased staff turnover would be helpful in updating the staff skills and knowledge base, particularly in fast-developing subject areas. The staff was not appropriate for the Chemical Engineering studies at VK, they were specialists in Chemistry and they did not show experience in Chemical/Process Engineering subjects.

The staff base at KU is a blend of older, experienced teachers and younger, often recently recruited ones. All teachers bring knowledge of the subject area and requisite skills although in some cases, as outlined earlier, these may, to some extent, be outdated. Some teachers have some involvement in practical and other professional activities and research at a national level which they bring to bear in their work and which is much appreciated by the students.

Although teachers at KU undertake professional development, this is often the result of personal initiative rather than institutional planning. The expert panel concurs with the view of staff, students and employers, that the employment of more foreign academics would be beneficial in exposing students to a wider range of perspectives on their subject.

Facilities and learning resources at KU are in general related to the introduction of new information technologies, engineering and chemical processes laboratories. Although the space available and the general conditions of buildings are acceptable, however, old buildings are not well suited to delivering modern technologies. As a result, specialist accommodation is often less than ideal. Some new equipment, such as laboratories, are lacking. In addition, much specific equipment is outdated and in need of replacement.

Facilities at VK did not show any engineering and/or chemical processes laboratories making impossible a practical training in the subject.

At VK and KU computing facilities are limited. Practical training placements are often organised by the students or by staff on an informal, personal, basis. The result is that arrangements often lack the systematic approach necessary to ensure the compatibility of the placement experience with the programme aims, intended learning outcomes and students' interests. In general though, students welcome these activities and they often lead to employment opportunities. At KU some students demanded more practical work and training.

At KU and VK library provision is often limited. Journal and book stock is insufficient in many instances, particularly in English. This may also impact negatively on any attempts to attract more international staff and students.

Student recruitment is quiet constant with a slight trend to decrease, but a fall in the level of qualifications of entrants has been observed at KU.

Timetable of classes and examinations is generally acceptable. In some cases the recording and monitoring of student attendance in class could be improved to provide early warning of potential student withdrawal and/or failure. The students feel that more practical work is necessary. The Final Projects show an appropriate understanding and level in the graduates at KU and VK.

At KU and VK:

- Teachers' mobility is generally low, while students' mobility varies considerably. All students, not only those involved in mobility programmes, benefit from the experiences of returning students. In some instances more could be done to promote this activity to students and institutions could be more proactive in establishing mobility opportunities for their students. As in the case of staff, greater provision of opportunities to develop foreign language competences, particularly in English, would facilitate greater mobility.

-Arrangements for the final thesis are generally sound, with exposure to external audiences ensuring transparency and providing students with an opportunity to impress prospective employers. The results are consistent with the level of students' achievements.

-There is relatively little recognition of non-formal achievement, that is, accreditation of prior learning (APL) including experiential learning (APEL) even where mechanisms exist. In some cases no such mechanisms exist and no recognition is given.

-Employment rates are difficult to assess because of the nature of the data presented. Many students secure employment during their period of study; some continue on the programme, combining study with employment, but others leave. Many graduates obtain positions relevant to their programme of study but others obtain employment not directly related to their study programme.

In all programmes the quality management is based on the institution's organisation, it does not depend on the specific programme. A programme leader/manager/director would confer greater ownership on staff directly involved in the programme delivery; currently, programme management can appear to be rather remote. VK shows a recent work in the organization of the Quality Assessment based on an European project. Information provided in the self assessment reports did not always allow the panel to gain an insight into the day-to-day management of programmes or the more strategic decision-making process.

In general, there is the need for a more formal quality assurance system informed by transparent recording of student progression from year to year and students' performance as indicated by the level of final achievement. Without clear data on these key performance

indicators it will not be possible to ascertain precisely the quality of the provision or the academic standards they represent.

In all programmes new means of obtaining student feedback would benefit from a more formal arrangement, with clearer identification of key issues to be addressed. Although their views are canvassed, students were not always aware of the impact their contributions had made. There is a need for feedback to 'close the loop' and inform them of the outcomes of such deliberations. In many instances it was noticeable that systematic external input was lacking; external stakeholder input was often on an informal, ad hoc, basis. Institutions need to employ a more concerted and systematic approach to programme evaluation which incorporates the views of staff, current students, former students, employers and other external stakeholders. Employers who met the expert panel were more than willing to participate in this process. The expert panel considers that this is a valuable resource that institutions have failed to engage effectively with and recommends the establishment of an employers' forum or a more widely constituted advisory board. Notwithstanding these shortcomings, the expert panel recognises that there have been some significant improvements to the programmes, of which students voiced their appreciation.

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