NUCLEAR ENGINEERING POSTGRADUATE EDUCATION IN BELGIUM: TOWARDS A EUROPEAN DEGREE

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ABSTRACT

The four engineering schools of the French Community of Belgium have joined their efforts to propose a common postgraduate university degree in nuclear engineering to replace their four pre-existing curricula running in parallel. This one-year programme, called « DESGNUC, (Diplôme d'Etudes Spécialisées en Génie Nucléaire) » has been tailored for graduated (mechanical, electrical, materials science…) engineers and scientists (i.e. physicists, chemists) with a good background in applied thermodynamics, automatics and computer science, who wish to specialize in the branches of nuclear engineering dealing with the operation, maintenance, surveillance and management of light water power plants. Merging the programmes created an opportunity for upgrading them : the new curriculum is considered as pertaining to the « third cycle » (post-master education). The programme is made of a series of courses and a (master) thesis. A steering committee including eight academics from the four universities is the coordinating body. For the basic disciplines (nuclear physics, reactor theory, thermohydraulics, …), the students can choose between several courses taught at different locations. Advanced courses are organized jointly and are also offered to practitioners, in the framework of continuing education. Courses, theses and internships are organized in close cooperation with the nuclear research centre (SCK•CEN) at Mol and the industry. Implication of the research center is felt as the only possible way to give students an adequate training in the experimental aspects of nuclear engineering, university labs being unable to finance state-of-the-art equipment that have become extremely costly to operate because of the current regulatory rules.

The DESGNUC started in 1996-97. After three years of operation, the recruitment is slowly increasing at around 5 students per year. The steering committee is willing to make further steps towards a more complete integration. New plans include regrouping of some teaching activities at SCK•CEN and merging with the similar curriculum existing in the Flemish Community of Belgium. The teaching language could then be English. Contacts have been taken with the French INSTN to increase the present cooperation between the DESGNUC and the « programme de génie atomique ». SCK•CEN is interested to contribute to the creation of a European network in nuclear engineering education at Mol, an area where R&D and many industrial activities (Belgonucléaire, FBFC, Belgoprocess) take place.