

Update On Nuclear Education In British Universities December 2003

INTRODUCTION

In the two years since information was gathered for the second study undertaken by the HSE-NII on the status of nuclear education in British universities there have been some encouraging signs of expansion in this field. Student numbers appear to be gradually increasing on existing courses and a number of universities have introduced new courses. There is no doubt that the Government's White Paper¹ on decommissioning has been a spur for action. The principal initiatives are listed below.

The last two years have also seen a growth in national and international collaboration. Given the parlous state of nuclear education in many countries such collaborations are vital if the full range of nuclear skills and competences necessary for the safe operation of plant are to be retained. The principal initiatives are listed overleaf.

UNIVERSITIES

University of Cambridge

New teaching within the nuclear area has been introduced in the form of a module on "Electricity and the Environment" within the MPhil in Technology Policy. The nuclear content of this degree is about 3%. Discussions are ongoing about the possibility of introducing an MPhil in Energy and the Environment.

City University

The MSc in Energy and Environmental Technology and Economics now has two nuclear elements: decommissioning (50% nuclear/50% offshore) and risk analysis for management. Companies such as British Energy, BNFL, UKAEA and NII provide lecturers for the course.

UHI Millenium Institute

Not yet a university, UHI will become the University of Highlands and Islands when it achieves its status in 2007. UKAEA Dounreay and UHI are to collaborate with Joseph Fourier University of Grenoble and the National Institute for Nuclear Sciences and Technology (CEA's training and education arm), in an initiative to establish common standards for vocational and academic training in decommissioning, the development of a joint European masters degree in nuclear decommissioning and student exchanges between the two countries.

North Highland College, Thurso, one of the academic partners that constitute UHI, runs a range of courses specifically for Dounreay. Most of these are below degree level and are designed for plant operators. However, there is a HNC course in decommissioning. In early 2004 the Decommissioning and Environmental Remediation Centre will begin to operate, offering degree level courses and post-graduate research. In addition, it is intended that in 2004 the current degree level courses in mechanical and electrical engineering will have a nuclear content.

¹ Managing the nuclear legacy – a strategy for action, July 2002.

Imperial College

The radiochemistry laboratory, dating from 1971, has now been completely refurbished. However, the counting equipment, which dates from the 1980's, still awaits updating.

Lancaster University

An MSc in Decommissioning and Environmental Clean-up started in October 2003. The course is two years part time with students attending 6 one-week taught modules. In addition there is coursework and a project. The nuclear content is 30-50% depending on the choice of project.

University of Liverpool

Three new modules have been added to the Radiometrics modules. As with the existing modules, these can be taken individually or as part of an MSc, PGDip or PGCert.

Victoria University of Manchester

Development of the proposed MSc in Nuclear Engineering continues in line with preparing to offer the course from September 2004.

Project Dalton involves the university, the North West Development Agency and BNFL in the establishment of a new institution at Manchester focused on nuclear science and engineering. Although primarily linked to nuclear decommissioning and clean up, Dalton will also create links with other areas such as fusion and nuclear medicine. Project Dalton has been established to define the scope of research and training activities – a business plan will be prepared by April 2004.

In addition to the above mentioned MSc in nuclear engineering, another MSc with specialisations in nuclear medicine and fusion power is envisaged for 2005. At the undergraduate level, the present considerable number of units containing some nuclear content will be rationalised into a coherent range of modules which can be used to form “with nuclear science” degree programmes.

Middlesex University

A new course on Integrated Risk Management has been introduced, which contains a small nuclear component.

HMS Sultan

HMS Sultan is providing new bespoke courses for Babcoc, British Energy and Rolls Royce Naval Marine.

University of Surrey

The university has set up a centre for Nuclear and Radiation Physics, with 20 plus members of academic staff and attracting more from outside.

Discussions continue with HMS Sultan about establishing an MSc course in nuclear decommissioning.

NATIONAL AND INTERNATIONAL COLLABORATION

National Academy for Nuclear Skills

It is proposed that a National Academy for Nuclear Skills be established for the NW of England in April 2004 and for the rest of the UK later that year. The initiative is funded by the North West Development Agency. The initial focus would be on NW England and decommissioning. The overall objective of NANS is "To secure the development of the skills infrastructure required by the civil nuclear industry in the UK". NANS is seen as a coordinating centre and will be a federation of existing organisations and institutions.

Cogent

Cogent is the Sector Skills Council that will cover the Polymer, Oil and Gas Extraction, Petroleum, Chemicals Manufacturing and Nuclear and Radiological industries. It will receive its licence towards the end of 2003. Their objective is to bring the employers within the industry together to share knowledge and develop a standard skills infrastructure. In so doing they will call on existing organisations and institutions as delivery vehicles.

World Nuclear University (WNU)

The World Nuclear University was launched on 4 September 2004. The objectives of the WNU are "the advancement of nuclear science and technology worldwide" and "the education and training of an expanding, globally distributed workforce". These objectives will be pursued by "expanding cooperation among the world's leading institutions of nuclear education and research". There is an Academic Council and 9 working groups. Three British academics are on the Council, one of the largest representations, and others sit on the working groups. Currently 34 universities or institutes from 24 countries are participating.

NEPTUNO

This is a EU 6th Framework initiative – Nuclear European Platform of Training and University Organisations. Due to start January 2004 its main objective is to preserve nuclear knowledge and expertise through maintaining higher nuclear engineering and education and training. A number of British universities are involved with this, amongst which Manchester.

ENEN

European Nuclear Engineering Network. This is a EU 5th Framework initiative involving 22 universities from 17 countries of the EU or candidate countries. ENEN aims at harmonising nuclear curricula in Europe and the aim is to develop a European postgraduate Masters course in Nuclear Engineering. Britain is represented by Birmingham University.

ENEN has now been set up as a legal entity in France. At the FISA meeting in Luxembourg, 10-12 November 2003, ENEN appointed a management board. Associate members can join for a fee of €5000. Details are available from:
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