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## ENEN ASSOCIATION AND ITS ROLE IN STRENGTHENING NUCLEAR EDUCATION AND TRAINING

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European Nuclear Education Network (ENEN) Association was established in 2003 as a non-profit-making association pursuing the preservation and the further development of higher nuclear education and expertise. There are effective and associated members. The effective members are academic institutions and research centres providing high-level scientific education in nuclear field. The associated members have a firmly established tradition of relation with members in the field of nuclear education, research, and training. They commit themselves to support the ENEN Association.

The main objectives of ENEN Association comprise the following activities:

- to deliver a European Master of Science degree in nuclear engineering,
- to encourage PhD studies,
- to promote exchange of students and teachers participating in the network,
- to establish a framework for mutual recognition,
- to foster and strengthen relations between universities, nuclear research laboratories, industries, and regulatory bodies,
- to ensure the quality of academic nuclear engineering education training and research,
- to create incentives and increase career attractiveness for the enrolment of students and young academics in nuclear disciplines.

The ENEN Association was established as a result of the fifth European Framework Programme (FP) project entitled European Nuclear Education Network. To demonstrate the feasibility of European nuclear engineering educational schemes, several educational courses were established. The courses on Nuclear Thermal Hydraulics and Nuclear Reactor Theory, organised within the Belgian post-graduate programme on nuclear engineering, are organized in a highly modular way and taught in English to facilitate and enhance participation of European students. The Eugene Wigner Course for Reactor Physics Experiments is another example of international networking. It is a three-week course with a high involvement of practical exercises organized by four European universities for master and postgraduate students from European as well as non-European countries.

The educational networking activities which have started within the 5FP were further deepened and also extended towards training of professionals in the scope of the 6FP project NEPTUNO (Nuclear European Platform for Training and University Organisations). This project has brought together all aspects of European education and training in nuclear engineering, nuclear safety, and other nuclear disciplines. Its main objectives were to ensure that the courses in nuclear education offered by European universities are high quality and compatible with the Bologna declaration and to harmonise professional training and accreditation schemes in the sector. Along with educational course mentioned above which were continuing also within this project, several training courses were also introduced. The

Training Course on Nuclear Safety and/or Nuclear Safety for Subcontractors can be cited as examples of training courses with international participation. The project has delivered an operational network of institutions for academic education in nuclear studies at the master, doctoral and post-doctoral level that is complemented with research organisations, regulatory bodies, and industrial partners supporting research and development, bench-training and continuing professional learning schemes.

Based upon a mutual recognition as well as an intensive exchange of views between the ENEN partners, consisting of a representative cross-section of nuclear academic institutions and research laboratories of the EU-27, a coherent and practicable concept for a European Master of Science in Nuclear Engineering (EMSNE) has emerged. This concept is compatible with the Bologna philosophy of higher education for academic engineers in Europe. The students register in one ENEN-accredited institution and acquire the required credits in ENEN-institutions of their choice. After obtaining the formal degree of Master of Science in Nuclear Engineering from their home institution, the ENEN, on behalf of its members, grants the quality label European Master of Science in Nuclear Engineering. The first series of EMSNE certificates has been awarded to three students (two from France, one from Romania) in a ceremony on December 12, 2005.

Finally, the expertise of the ENEN Association in harmonization of European education and training schemes in the field of nuclear engineering has led to an application for another 6FP project entitled “Consolidation of European Nuclear Education, Training and Knowledge Management” under the acronym ENEN-II. The project was approved and runs under the coordination of the ENEN Association since October 2006. This Coordination Action consolidates and expands the achievements of the ENEN and the NEPTUNO projects attained by the ENEN Association in respectively the 5th and 6th framework programme. The ENEN-II project is aiming at developing ENEN Association in a sustainable way in the areas of nuclear engineering, radioprotection and radwaste management, including underground disposal. Nuclear education and training networks will be developed at the national level to provide a solid basis for networking at the European dimension.

Supported by the 5<sup>th</sup> and 6<sup>th</sup> Framework Programme of the European Community, the ENEN Association established the delivery of the European Master of Science in Nuclear Engineering certificate. In particular, education and training courses have been developed and offered to materialise the core curricula and optional fields of study in a European exchange structure. Pilot editions of those courses and try-outs of training programmes have been successfully organised with a satisfying interest, attendance and performance by the students and the support of nuclear industries and international organisations. The involvement of ENEN in the 6<sup>th</sup> EC Framework project EUROTRANS will further enlarge its field of activities into a realm of nuclear disciplines. The ENEN Association further contributes to the management of nuclear knowledge within the European Union as well as on a world-wide level, through contacts with its sister Network ANENT in Asia, and by its participation to activities of the World Nuclear University.