



13th Workshop

*on European Collaboration for Higher Education and
Research in Nuclear Engineering & Radiological
Protection*

Covilha (Portugal)

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Brief report on the current situation of the Cherne Network

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What is the CHERNE Network

- ▶ Open network bringing together academic institutions involved in education in Nuclear Engineering and Radioprotection (www.cherne.ntua.gr)
- ▶ 19 partners representing 8 countries
- ▶ Created in 2005
- ▶ Allows the sharing of large experimental devices and specific competences of teaching staff
- ▶ Organizing different learning/research activities:
 - ▶ Specific course of an Institution open to students of partners (increase the teaching offer)
 - ▶ IP courses (with the support of the European Lifelong learning program)
 - ▶ Erasmus exchanges
 - ▶ Access to PhD

CHERNE organisation

- ▶ *A minimal administrative organisation.*
- ▶ *Secretary elected at the annual meeting.*
 - ▶ *Helped by an advisory committee*
- ▶ *Web page through which the activities of the network are communicated:*
www.cherne.ntua.gr
- ▶ *Bulletin (Agnès Peeters)*
- ▶ *Databases for Erasmus placement and skills (Caroline Licour)*
- ▶ *Annual Meeting to evaluate the activities of the network and discuss new proposals.*
- ▶ *Annual Workshop open to non-members.*
- ▶ *For the moment no fee is foreseen for CHERNE membership.*

CHERNE membership

- Academic institutions,
- research institutions,
- companies or
- individuals
 - are accepted as *members* on *presentation* by two members, including at least one European academic member.
- Documents for this presentation as well as the list of partners can be found at the platform
- According to the declaration voted during the 11th council, **Associated members** who didn't participate in any CHERNE activity during the last 5 years or were not present at any yearly CHERNE workshop during the last 5 years will not remain a member of the CHERNE network

MEMBERS according to the last council

Full members

- Universidad Politécnica de **Valencia** (UPV), Valencia (Spain)
- Institut Supérieur Industriel de **Bruxelles** (ISIB) - (Belgium)
- Hasselt University, **Diepenbeek** (Belgium)
- University of Applied Sciences Aachen, **Jülich** Campus (Germany)
- Czech Technical University in **Prague** (Czech Republic)
- Facoltà d'Ingegneria, Alma Mater Studiorum - Università di **Bologna** (Italia)
- National Technical University of **Athens** (Greece)
- Aristotle University of **Thessaloniki** (Greece).
- Università degli Studi di **Catania** (Italia)
- Universidade da Beira Interior (UBI), **Covilhã** (Portugal)
- Universidade de **Coimbra** (Portugal)

Individuals

Dr. **Dieter Hennig**, Berlin (Germany)
Prof. **Francois Tondeur**, Brussels (Belgium)
Prof. **Herwig Janssens**, Diepenbeek (Belgium)

Associated members

- Instituto Superior Tecnico (**IST**), Lisboa (Portugal)
- Nuclear Engineering Department, Politecnico di **Milano** (Italia)
- Department of Nuclear Engineering of Università degli Studi di **Palermo** (Italia)
- Department of Physics, Università degli Studi di **Messina** (Italia)
- Escola Tècnica Superior d'Enginyeria Industrial (ETSII), UPC, **Barcelona** (Spain)
- Department of Physics, Università degli Studi di **Milano** (Italia)
- Universidad de **Salamanca** (Spain)
- Belarusian State University, **Minsk** (Belarus).

CHERNE activities

- A priority is given to teaching activities for students of member institutions
- Research, organized in the framework of master/PhD thesis or in a research project has to be enhanced
- Teaching activities should include at least a one-week/2 ECTS module.
- Practical training, including when possible access to large facilities.
- English is used in CHERNE activities.
- No cost, or very low fee, for students coming from partner institutions
- Cheap accommodation for students coming from abroad.
- When possible, organisation of CHERNE activities will be included in ERASMUS exchanges.
- Partners are encouraged to sign bilateral ERASMUS agreements.

Professor exchanges

- ▶ Isabelle Gerardy [**ISIB** → **UPV, AcUAS**]
- ▶ Patricia Vanden Cruyce [**ISIB** → **AcUAS**]
- ▶ Sergio Gallardo [**UPV** → **ISIB**]
- ▶ Alexandra Ioannidou [**UPV** → **Universita degli studi di Milano, Italy**]
- ▶ Enrico Zio [**Politechnic Milano** → **UPV**]

Students exchanges

	upv	isib	Salamanca	CTU	unibo	Catania	AcUAs
upv							
Isib							
Salamanca					2		
CTU							
Unibo		2					
Catania							
AcUAs					2		

Past Intensive Programs

- **PAN:** Practical Approach to Nuclear techniques
 - From 2002 to 2004
- **SPERANSA:** Stimulation of Practical Expertise in Radiological And Nuclear Safety
 - From 2006 to 2008
- **JUNCSS:** Jülich Nuclear Chemistry Summer School
 - From 2008 to 2010
- **ICARO:** Intensive Course on Accelerator and Reactor Operation and applications
 - From 2009 to 2011
- **SARA:** Safe Application of Radiation and radionuclides
 - From 2012 to 2014 (2015)
- **MANTRA:** Medical Applications of Nuclear Techniques and Radiations
 - In 2014

International Courses organised in 2016-2017

Organised without European grants; use internal funds, support from companies, regional grants

► RADAM

- Radiation Detection and Measurement; organised by AcUAs, 1 week

- Participants from AcUAs, Bologna NTUA

► Monte Carlo method applications to Laboratory, Industry and Medicine

- Organised in ISIB, students from ISIB, U Hasselt, 3 days

► Environmental radioactivity

- Seminar organised by UPV and given by Isabelle Gerardy (HE2B-ISIB using STA)

- Participants from UPV, CTU

► Soft Computing

- Seminar organised by UPV and given by Enrico Zio (Politecnica de Milano)

- Participant from UPV but open to others

Strategic partnership

Blended Learning in Radiation protection and radioecology

from September 2015 to August 2017

first intermediate report sent 30 June 2016 and approved by ERASMUS
oral presentation of one training module “MARAWAS” during the Etrap congress (beginning of June 2017)

Objectives:

- **Development of a blended learning program** in radiation protection and radioecology
- **Continuous education program** for people already *involved* in radiation protection
- **Acquisition of specific competences** in the nuclear field for those who were *not involved* in nuclear and radiological techniques during their studies
- **Contribution towards standardization of the knowledge across Europe** in radiation protection and safe use of radioactive materials

Partnership:

- ▶ Academic Partners (from the CHERNE network) representing **7 countries**:
 - ▶ HAUTE ECOLE BRUXELLS BRABANT (ISIB) – **BELGIUM**
 - ▶ UNIVERSITEIT HASSELT (UHasselt)- **BELGIUM**
 - ▶ FACHHOCHSCHULE AACHEN (FH Aachen) - **GERMANY**
 - ▶ UNIVERSITA DI BOLOGNA (UNIBO) - **ITALY**
 - ▶ UNIVERSIDADE DE COIMBRA - **PORTUGAL**
 - ▶ CZECH TECHNICAL UNIVERSITY IN PRAGUE (CTU) – **CZECH REPUBLIC**
 - ▶ NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA) - **GREECE**
 - ▶ UNIVERSITAT POLITECNICA DE VALENCIA (UPV)- **SPAIN**
- ▶ Non-academic partners to add value to the partnership:
 - ▶ a research institute: NATIONAL RADIATION PROTECTION INSTITUTE (SURO) – **CZECH REPUBLIC**
 - ▶ a regulatory body: GREEK ATOMIC ENERGY COMMISSION (EEAE) - **GREECE**
- ▶ The non-academic partners have been chosen according to their competence in a specific field and their possibilities to promote the program during and after this project

Intellectual outputs: deliverable proposed

- ▶ O1: Analysis of the present situation in radiation protection and radioecology within the European countries
 - ▶ Leader U Hasselt
 - ▶ Report presented during the previous workshop
- ▶ O2: Implementation of course modules on an e-learning platform
 - ▶ Leader EEAE
 - ▶ Some modules are in finalization phase and will be presented during the workshop
- ▶ O3: Training in Radiation Protection and Radioecology
 - ▶ Leader CTU
 - ▶ All module were done during this academic year 2016-2017

O2: E-learning modules

Title	Basics nuclear and radiation physics	Basics of measurement and dosimetry	Radiation protection	General safety principles	Basics radiochemistry	Medical applications
Participants	SURO, Coimbra	NTUA, CTU	UPV, EEAE	ISIB	FHAachen, U Hasselt	Athens, (Unibo, FH Aachen) EEAE
Leader	CTU	FHAachen	SURO	UPV	ISIB	Coimbra

O3: Training modules

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Title	probability risk assessment	Environmental measurements	Safe industrial applications of radiation and radionuclides	Radio-chemistry	Radioactive waste management	Practical radiation protection in medical field
prof	ISIB, U Hasselt, Unibo	UPV	ISIB, U Hasselt SURO	U Hasselt Unibo	ISIB FHAachen, NTUA Unibo CTU	CTU U Hasselt ISIB FHAachen
Students (136 total)	ISIB, NTUA, U Hasselt, UPV, FHAachen, Unibo, CTU	ISIB, NTUA, U Hasselt, UPV, FHAachen, Unibo, CTU Coimbra	ISIB, NTUA, U Hasselt, UPV, FHAachen, Unibo, CTU	U Hasselt, UPV, FHAachen, Unibo, CTU	ISIB, NTUA, U Hasselt, UPV, FHAachen, Unibo, CTU	ISIB, NTUA, U Hasselt, UPV, FHAachen, Unibo, CTU Coimbra
Leader	UPV (02/2017)	ISIB/U Hasselt (04/2017)	CTU (12/2016)	FHAachen/ ISIB (09/2016)	U Hasselt (11/2016)	Unibo (03/2017)

First reflections about this year (1)

- ▶ About seminars, courses
 - ▶ 4 courses organised
 - ▶ This workshop is the best place to share idea and to develop courses....
 - ▶ Reliability is increased → more course seems to be possible to organise each year
 - ▶ Some students seems to have more facilities to move...
 - ▶ SP was very time consuming for all the partner involved....no more time to do other things
 - ▶ But we have to think about sustainability of the module
- ▶ About partners
 - ▶ **Always** some inactive partners since a (very) long period; will be excluded after 5 year of total absence of activity
- ▶ About students
 - ▶ **Always** really enthusiastic about meeting other students, acquiring new knowledge

First reflections about this year (2)

- ▶ About tools
 - ▶ bulletins to share experiences, announcement of activities, ...
 - ▶ Platform quite used
 - ▶ E- learning platform used mostly to prepare training modules
- ▶ About money
 - ▶ Still mostly related to short term mobility of students (more possibilities for short term mobility of staff like STA...)
 - ▶ Help for student mobility possible in some institutions if related to some research project
 - ▶ Difficult when no possibility of European funds
 - ▶ Need to obtain some financial support of companies but also national or regional fund; but how to do it?

➤ Thanks for your attention

