Good Practice Erasmus+ Strategic partnership “Blended Learning in Radiation Protection and Radioecology”

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Blended learning in radiation protection and radioecology (e-learning modules)
- Partner in an Erasmus+ strategic partnership
- Erasmus+ project ‘Blended learning in radiation protection and radioecology’
- Critical reflection and conclusions
PARTNER IN AN ERASMUS+ STRATEGIC PARTNERSHIP

Tips and tricks?

How to start an Erasmus+ strategic partnership project?
How to translate all the ideas in a targeted project?
Start of the project
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How to start an Erasmus+ strategic partnership project?

our educational network

CHERNE – network

our educational challenge

our Partnership
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- CHERNE (http://www.cherne.ntua.gr/)

- Open European academic network for Cooperation in Higher Education on Radiological and Nuclear Engineering
  UHasselt-NT was one of the founding members!
  Each member needs to organise 1 international activity/y open for other members

- since 2004
  16 IP of 2 weeks organized mostly with European grants
  - 300 students participated in teaching activities
  - UHasselt: Environmental measurements, radiochemistry, safe applications of radioactivity

- Annual Cherne workshop
- Chair: He2B-ISIB- Brussel
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How to start an Erasmus+ strategic partnership project?

our educational network

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Our educational challenge => project idea

within the strategy of the Cherne network:
looking for alternatives of Erasmus IP
1. continue but shorten the IPs with more harmonised pre-knowledge and skills
2. new topics of IP relevant for the future: modern approach
   blended learning (virtual and real mobility)
3. new EU legislation:
   define radiation protection expert and his tasks (market needs)
   harmonisation (international mobility)
   radiation protection and radioecology

translated into general EU priorities that we are targeting
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EU priorities that we are targeting

- Improving the **quality and relevance** of higher education
  - By identifying, in the partner countries, the **market needs** for a specific knowledge and training related to nuclear applications: UHASSELT

- Contributing to the development of a **European Area of Skills and Qualifications**
  - Through the development of the **blended learning project**: 2 modules for UHasselt

- Contributing to the **standardization of the knowledge across Europe** in radiation protection and safe use of radioactive materials
  - By **sharing** the knowledge in radiation protection and radioecology
    - Additional **new training**: waste management: UHasselt
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How to start an Erasmus+ strategic partnership project?
our educational network
   CHERNE – network

our educational challenge

our Partnership and target students

Erasmus + Strategic Partnership
8 academic members + network
‘Blended learning in radioecology and radiation protection’
01-09-2015 until 31-08-2017
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8 Academic Partners (from the CHERNE network)

- HE2B-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(CUT) – CZECH REPUBLIC
- NATIONAL TECHNICAL UNIVERSITY OF ATHENS(NTUA) - GREECE
- UNIVERSITAT POLITECTNICA DE VALENCIA (UPV)- SPAIN

2 Non-academic partners

- a research institute: THE NATIONAL RADIATION PROTECTION INSTITUTE (SURO) – CZECH REPUBLIC
- a regulatory body: GREEK ATOMIC ENERGY COMMISSION - GREECE

Target group for training schools: master students of each partner: Different background in knowledge and practical skills
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How to translate all the ideas in a targeted project?

Objectives => How to achieve them (project) => Deliverables

“Blended learning in radiation protection and radioecology”
Analysis of the market needs (D1)
6 e-learning modules : 12ECTS (virtual mobility) (D2)
6 training modules 12ECTS (real mobility) (D3)
Each partner has specific WP

Start of the project :
less budget was granted
roll of partners changed : 1 expert (D2) transfered to an institution not member of the partnership
More students interested then foreseen (20 instead of 16)
Submitting the project

- 1st submission March 2014 (3y project) not granted, too large budget but good scores
- 2nd submission March 2015 (2y project) : granted, started september 2015
- Promotor : He2B ISIB Brussels
- Good support by local international coordinators!!! A lot of administration!!!

Coordination and communication during the project

- Promotor – secretary : He2B – ISIB
- Cherne website
- 4 transnational meetings (Brussels – Hasselt – Cervia – Covilha)
Budget details of granted project

Asked: 250k euro

- Intellectual outcomes: 40105 euro: Only D2!!!
- Project management: 66000 euro
- Mobility for training modules: depending on distance (2 per partner/module): 57105 euro
- 1 Transnational meeting 575/pers: 4210 euro
- Multiplier events: not covered

Total: 169295 euro (80k less!)

- Parallel submission of IP at Uhasselt to cover the training activities
- Partner in an Erasmus+ strategic partnership
- Erasmus+ project ‘Blended learning in radiation protection and radioecology’
- Critical reflection and conclusions
ERASMUS+ STRATEGIC PARTNERSHIP
“Blended learning in radiation protection and radioecology”

6 ‘distance’ learning modules 2ECTS/module

<table>
<thead>
<tr>
<th>Basics nuclear and radiation physics</th>
<th>Basics of measurement and dosimetry</th>
<th>Radiation protection</th>
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<tbody>
<tr>
<td>General safety principles</td>
<td>Basics radiochemistry</td>
<td>Medical applications</td>
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Via E-learning module platform supervised by our partner: Greek Atomic Energy Commission (EEAE) [http://edu.eeae.gr](http://edu.eeae.gr)

Support for face to face learning activities in the training schools (one week)

Extra modules specially related to training schools can be added: practical information on the training activities and organisational aspects
<table>
<thead>
<tr>
<th>6 Training schools (2 ECTS/week)</th>
<th>Probability Risk Assessment PRA</th>
<th>Measurements of Environmental radioactivity in Belgium (MERiBel)</th>
<th>Safe industrial applications of radiation and radionuclides SARA</th>
</tr>
</thead>
<tbody>
<tr>
<td>where</td>
<td>UPV – Valencia</td>
<td>ISIB HE2B - Brussels</td>
<td>CTU - Prague</td>
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<tr>
<td>when</td>
<td>Feb 2017</td>
<td>April 2017</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>Students</td>
<td>20</td>
<td>20</td>
<td>20</td>
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</tbody>
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<tr>
<th>6 Training schools (2 ECTS/week)</th>
<th>Radiochemistry MARC</th>
<th>Practical radiation protection in medical field MANTRA</th>
<th>Management of radioactive waste MARAWAS</th>
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<tbody>
<tr>
<td>where</td>
<td>FHAachen – HE2B Jülich</td>
<td>Unibo – Bologna</td>
<td>UHasselt – Diepenbeek</td>
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<tr>
<td>when</td>
<td>Sept 2016</td>
<td>March 2017</td>
<td>Nov 2016</td>
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MARAWAS TRAINING SCHOOL EDITION 2016

- 20 students from 6 different partners: 5 groups of at least 3 different nationalities
- 2 ECTS => 60 h study load
- 5 full days training activities (38 h) ....
- Pre-training activities via extra module on module platform
  - Study guide: instructions
    - Study background documents
    - Formulate questions
    - Prepare lab exercises: lab text, manuals and videos
  - Round table topic concerning waste management in different European countries
    - per group: paper submitted and reviewed by 2 experts in advance
Training activities during 1 week

- Introduction: Answers to questions
- Practical exercises (3 half days)
  a. Decontamination and waste management in the radiochemistry lab: LSC
  b. Portal monitoring and intervention training
  c. From residues to building materials: Alkali activation
Technical visits (3 half days)

- Waste management and conditioning, short term storage: Belgoprocess, Dessel
- Decontamination techniques: Tecnubel, Dessel
- Long term waste management:
  - Underground laboratory Hades and exhibition center Euridice, Mol
- Portal systems: indoor and outdoor monitoring and intervention procedures
  - hospital
  - steel production plant
Invited lecture
Guest speaker Christian Cosemans (NIRAS)
“A Short Introduction to Radioactive Waste Management in Belgium”

Round table
Panel experts
Christian Cosemans
Herwig Janssens

5 topics (1/group)

- “Stakeholders in the medium and long term storage of radioactive waste”
- “On site waste management and monitoring in hospitals”
- “Waste management in university labs (on site) across Europe”
- “Transport procedures of radioactive waste to a treatment facility”
- “Approaches for the management of NORM waste in EU”
**Evaluation**

- Friday: presentation of the results of a practical session/group

- Final mark:
  - Evaluation of the paper
  - Round table participation
  - Presentation and skills in the practical sessions
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CRITICAL REFLECTION

Pre-training organisation
- New program: lot of administration and organisation
- Development of extra module on Moodle platform

Intensive guidance during training activities
- Different practical skills: supervision by many colleagues during practical exercises
- External experts and partner professors

Financial support ↔ project budget only for mobility not for organisation
- Erasmus and Hasselt University covered all training activities, social event, hosting, travel expenses
- Future fee?
CRITICAL REFLECTION

Student perspective:

- Highly appreciated program:
  practical exercises, technical visits, expert lecture,
  social event and hosting
  also our master students could attend certain activities
- Helpful background documents and study guide
- One week intensive training better than 2 weeks
- Preparation of the round table topic
  instructions should be more elaborated
  students didn’t know each other yet
- Mixed group of students: beneficial for other skills
- Most of them decided to attend future training modules
CRITICAL REFLECTION

Trainer perspective: Competences achieved

- Enlarge their knowledge and skills in nuclear waste management in different aspects
- Team work: collaboration before and during the course
- Improve English communication
- Elaborate network
- Appreciate each other qualities (differences in nuclear background training between partners)

Mission accomplished!

New edition: timing 27/11/2017 – 1/12/2017
**Critical Reflection: Overall Conclusion**

- **A strategic partnership:**
  - Strengthen the network partners
  - Learn from each other
    - All foreign training schools were visited (teacher mobility)
    - Activities will continue in future

- **A large effort**
  - => good team to rely on (also administrative, organisational)
  - => not all activities covered but still accomplished (D1,D3)

- **Time needed not easy to estimate in advance (timesheets)**

- **Validation in own curriculum: 2ECTS / module**
  - For training modules: Bachelorproject, laboratories
  - Evaluation of e-learning modules not finished

- **Overall positive: New project in preparation!**
Thank you for your attention!

Acknowledgements:
All external experts during the technical visits, round table.
All students and professors of the partnership
Financial support Erasmus+ and UHasselt