



Erasmus+



ETRAP

23-26 March, 2021 - Online

HE²B
ISIB

THE “TRAIN THE FUTURE TRAINERS” PROGRAM, A WAY TO INCLUDE SOFT AND TECHNICAL SKILLS IN A BLENDED LEARNING PROGRAM

I. Gerardy, S Schreurs, D. Mostacci, L. Tinova, J. Rodenas , S. Soares , U.W. Scherer , S. Economides



Outline

Introduction

The partnership

General organisation

Methodological approach

Activities of the first year

The second year

NIRM 2

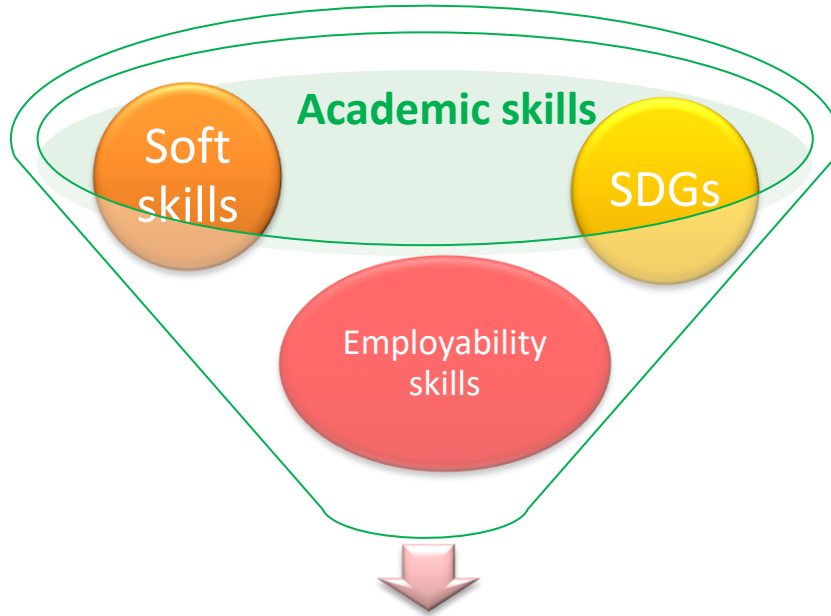
MERADE 2

MANTRA

Conclusion and perspectives



Introduction



Large need of professionals in nuclear sectors for the next decades:

- RPE/RPO
- Decommissioning
- Increased need of medical experts

Our current students will be at decisional level in 2030....

Erasmus + Strategic Partnership
“Train the future trainers”

The partnership

8 Partners (from CHERNE)

- ▶ HE2B-ISIB– **BELGIUM**
- ▶ UNIVERSITEIT HASSELT - **BELGIUM**
- ▶ HOCHSCHULE MANNHEIM - **GERMANY**
- ▶ UNIVERSITA DI BOLOGNA - **ITALY**
- ▶ UNIVERSIDADE DA BEIRA INTERIOR (Covilhã)-
PORTUGAL
- ▶ CZECH TECHNICAL UNIVERSITY IN PRAGUE –
CZECH REPUBLIC
- ▶ UNIVERSITAT POLITECNICA DE VALENCIA - **SPAIN**
- ▶ GREEK ATOMIC ENERGY COMMISSION – **GREECE**

associate partners

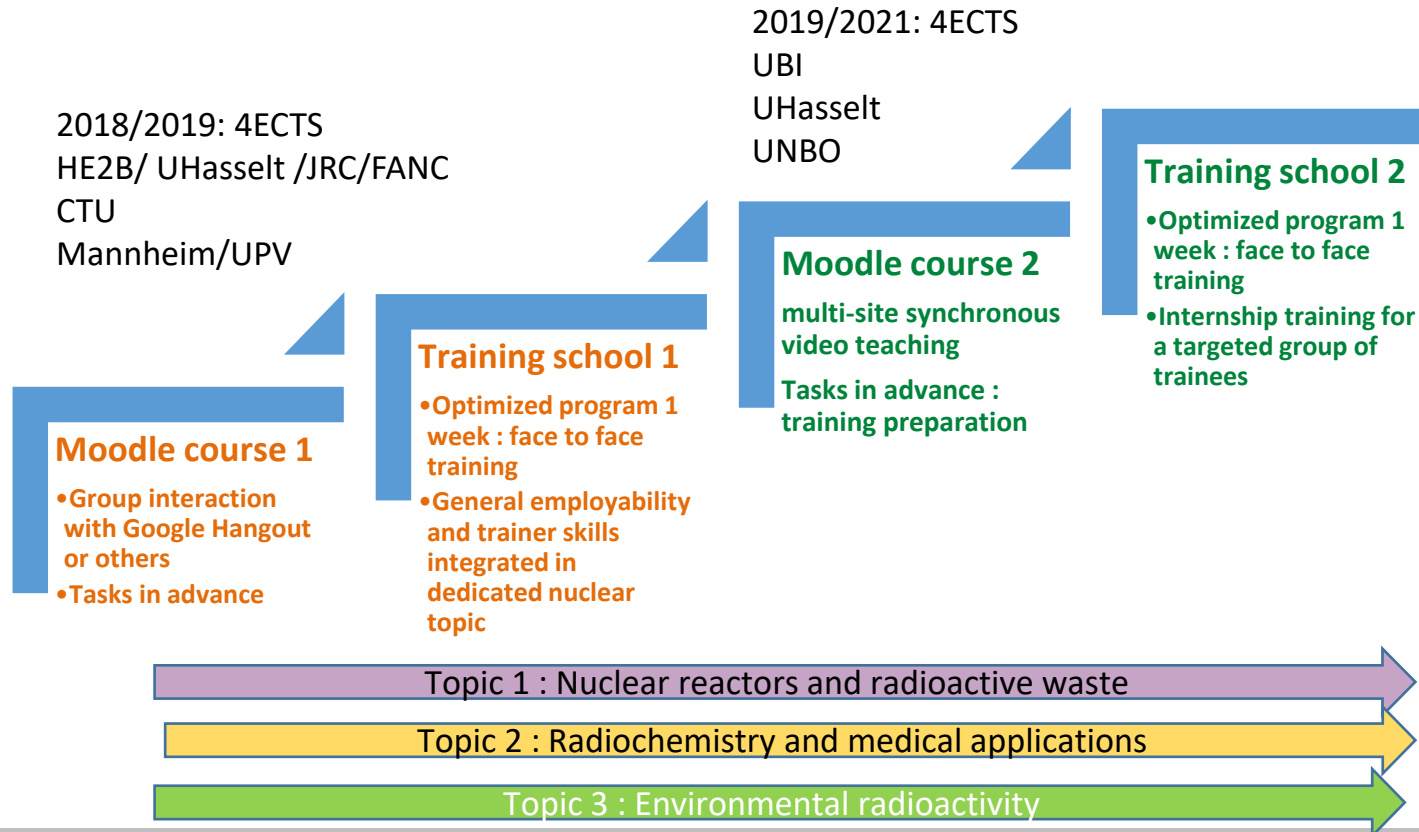
- ▶ JRC (JRC-Geel)
- ▶ Tecnubel/ECS/Transnubel
- ▶ FANC – Belgium

To assess the work market point of view

Target group for training schools : master students of each partner
Different backgrounds in knowledge and practical skills



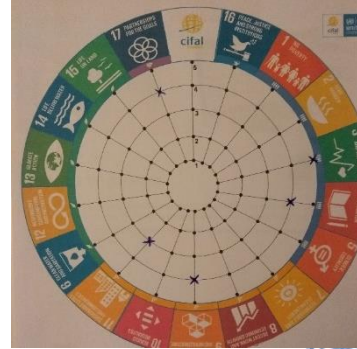
General organisation



Train the teachers

SDG and teaching staff:

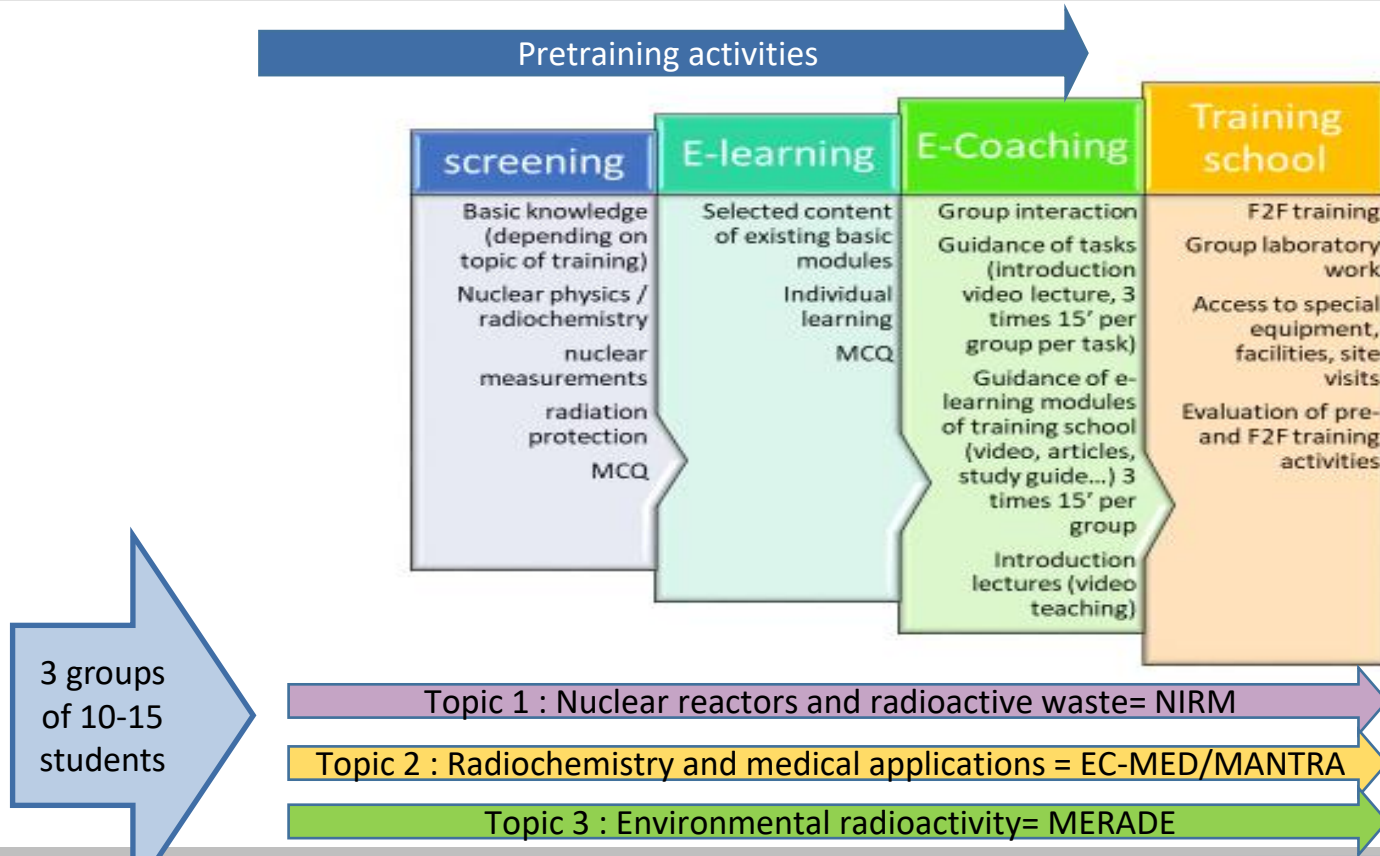
- Integrate SDG's in our lecture
- Use of learning platform
- Video conference tools



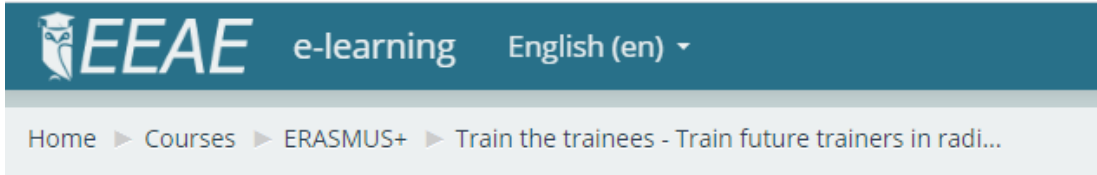
SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD



Methodological approach



Activities of the first year: screening



EEAE e-learning English (en) ▾

Home ▶ Courses ▶ ERASMUS+ ▶ Train the trainees - Train future trainers in radi...

ERASMUS+ / Train the trainees - Train future trainers in radiation protection and nuclear technology

Search courses:

▶ Administration

▶ O1 - Methodological Approach

▶ O2 Development of pretraining activities

▶ O3 Pre-training + training schools

Screening test MCQ module I



Screening test I

*The test will open **ONLY** for the **NEW students** (who didn't follow the pre-training last year) of **MANTRA 2**: i.e. the training school on **medical dosimetry organised in Bertinoro** .*

*Not for the students of **MERADE 2!!!***

The test will be open from February 17 until February 24.

You have to answer at least 6 out of 10 questions correctly in order to pass the test.

Screening by MCQ:

- To assess basic knowledge
- On Moodle platform
- Based on course module developed by partners



First year activities regarding each theme

Nuclear reactors and waste management

(8-12/4/2019)

Reactor training
Waste treatment and management
Decontamination and waste management
Site monitoring and characterization
Teamwork, ethics
Multi languages

CTU

Environmental measurements

(7-13/3/2019)

Measurement techniques
Field trip and sampling
Analysis of sample in the laboratory
Training skills
Stakeholder awareness
SDG's
Multi languages

HE2B-ISIB

Radiochemistry and medical

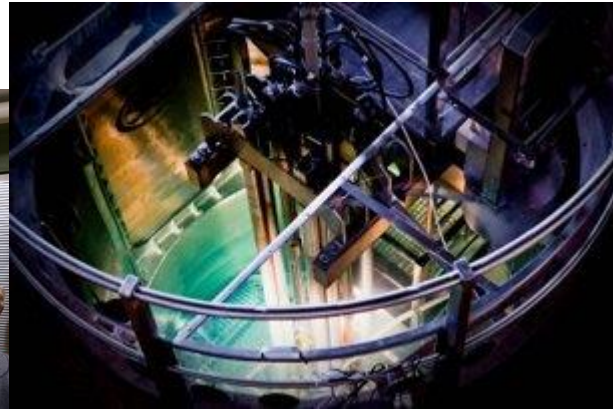
(4-8/3/2019)

Measurement of doses
Calculation of shielding
Cyclotron experiments
Risk communication
Software trainer tools
Multi languages

Mannheim



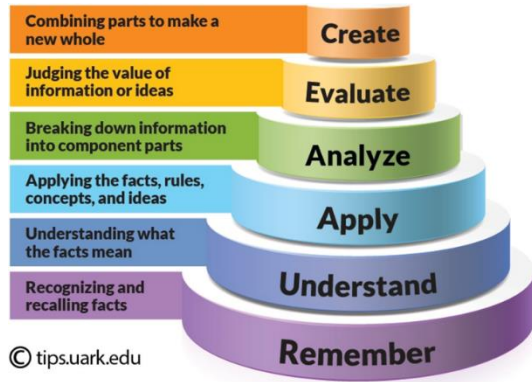
Activities of the first year: some pictures



Second year activities- NIRM and MERADE pre-training

Preparation of an activity dedicated to high school students

- Proposal of a communication/practical task
- Document to submit to a jury before training (real mobility)



Specific e-modules

- Some specific modules developed for each theme: courses, video, ...
- MCQ before the course (on Moodle) or during the training week

E-coaching

- Multinational group task before real mobility
- Coaching of each group by a teacher
- Zoom session
- Evaluation based on reports



NIRM and MERADE: Second year training week

Workshops and visits

- Technical considerations
- Discussion with professionals
- Specific lectures to improve the knowledge

Communication or practical task

- Different possibilities: presentation, role play, interactive experiment...
- Trainees: non specialist bachelor students and high school students
- Two repetitions with possibilities of improvement (evaluation by peers and by teacher)



NIRM 2: visit and workshop

Lecture: waste management

Workshop on ethics

Technical visit:

- Belgoprocess
- Euridice and HADES
- JRC



NIRM 2: example of activity

▶▶	UHASSELT	KU LEUVEN	PREPARATION OF A WORKSHOP ACTIVITY
----	-----------------	------------------	---

1. Identification

Group	1		
members	Niels Palmans Deborah Calabrese Joaquim Kessongo		
Site location	Uhasseelt: Nuclear lab H-E209		
Participants			Organisation
organisation	Group 3-4	date	28-29/11/2019
study domain	Radioprotection and risk management	time	Afternoon
age	17-20		
number of participants	34		

2. Subject of activity, goals and sub-goals, evaluation

Subject	
<i>Define the subject in one sentence</i>	
Simulation of an intervention: Decontamination exercise on a simulated contaminated part (of a reactor)	
Goals	
<i>What should the pupils learn from the activity (goal - subgoals)</i>	
<i>Subgoals are a stepwise approach to reach the overall goal</i>	
<i>How do you observe that the subgoals are reached? How you test is in paragraph 5 under evaluation. Here you can mention the feedback in real time</i>	
Main goal: An introduction to and familiarisation with natural radioactivity, as well as learning the decontamination procedure accompanied with the proper procedure of putting on and removing a hazmat suit.	
Sub-goals:	
➤ How to apply ALARA during an intervention	
➤ Learning how to operate a GM counter	
➤ Learning how to operate Identifinder	
➤ Basic interpretation of gamma spectrum produced by the Identifinder (will be done in more detail with the	

2 tasks on communication
=interactive lectures

- About radiation
- Nuclear power plant: good or bad

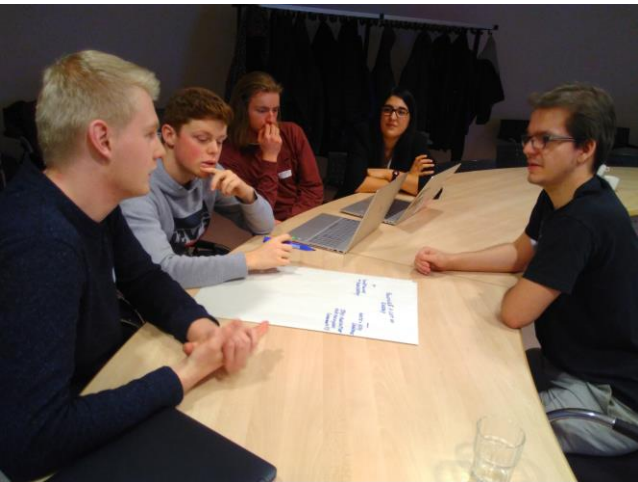
2 practical tasks= lab activities of the trainees

- Track on radiation and shielding
- Decontamination

Activity preparation began on videoconference and were finalised during the real mobility week

NIRM 2: Trainers and trainees

Different activities with high school students



MERADE 2: visit and workshop

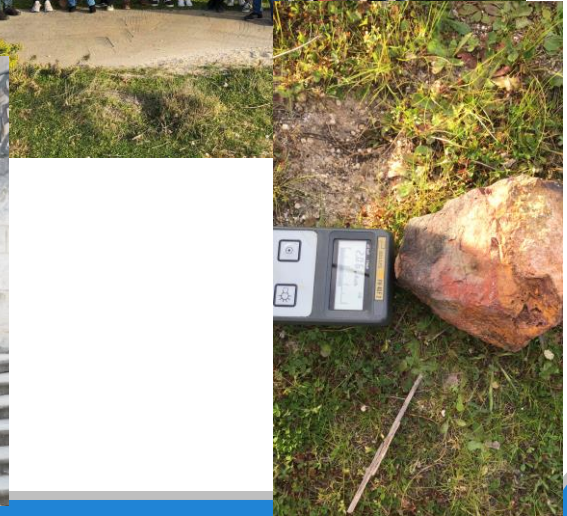
Lecture: “Environet” Portuguese environmental network

Workshop:

- NORM and Radon action plan

Technical visit:

- Laboratory of Natural Radioactivity
- Institute of Nuclear Science applied to health
- Old Uranium mine



MERADE 2: activities developed during the training week



2 tasks on communication
=interactive lectures

- SDG in environmental radioactivity
- Impact of nuclear accident on environment

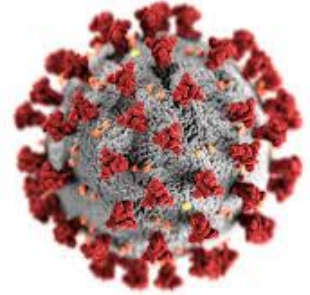
2 practical tasks= lab activities
of the trainees

- Radon in dwellings
- Dealing with NORM



Training week initially scheduled on late March 2020

- Two times postponed due to COVID 19 pandemic without any success
- Organisation had to be entirely redesigned to become distance learning activities
- The differentiation between pre-training and real training wasn't anymore of interest
- The partners involved wanted to keep the idea of multinational group of students working together

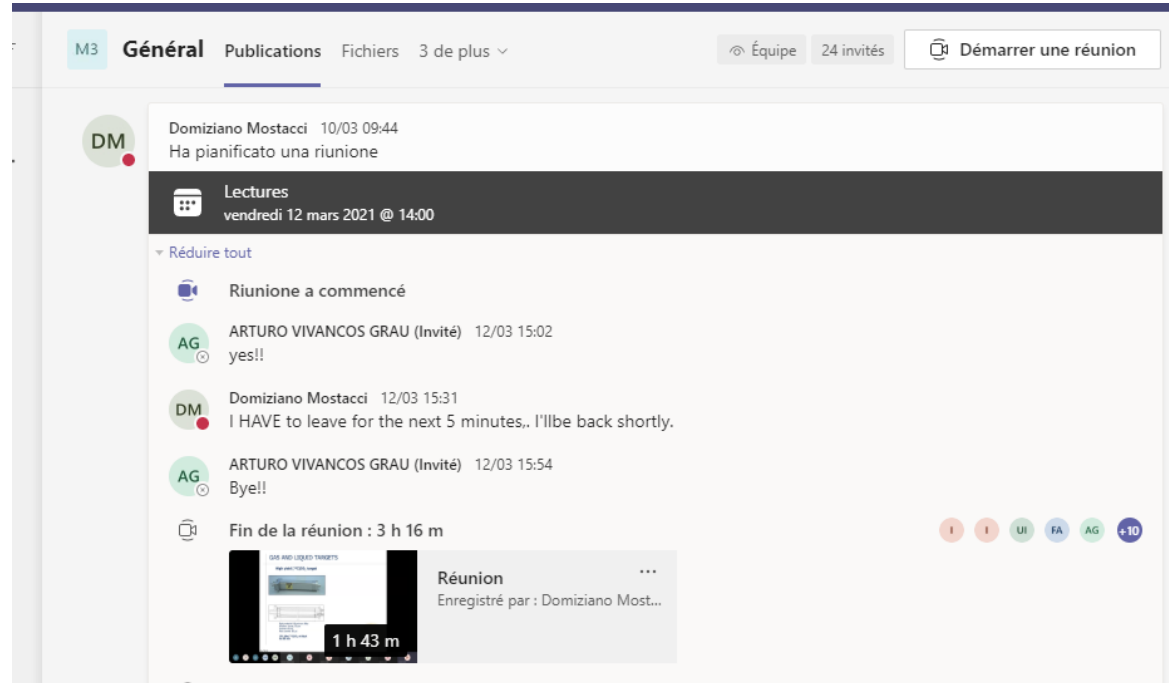


Mantra: new organisation of the second year

12 students enrolled

TEAMS created on the UNIBO domain

- Lectures on specific subjects
- Video: following a professional during his daily work
- Q&A forum with professionals



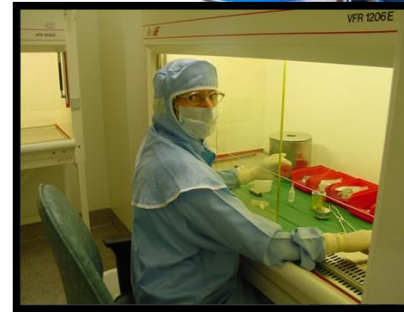
MANTRA: « practical part »

3 subjects defined and assigned to one transnational group of students

- Production of radiopharmaceuticals
- Metabolic radiotherapy
- Medical imaging

Task to be performed:

- Design and realisation of an innovative and interactive tool for radiation protection awareness of medical workers (nurses...)
- Specific support by a reference teacher and specialist in medical physics of the Meldola Hospital in Bologna
- Output will be presented to a jury of teachers and medical physicists by the end of April 2021



Conclusions and perspectives

Improvement of proposed teaching programs

- Importance of soft and communication skills
- Ethics and SDG's
- Remote activities to prepare the real mobility
- Transnational discussions and visits allow to enlarge the technical knowledge

Student's point of view:

- Always interested in international program mainly if it includes real mobility
- Possibility of ECTS valorization at home institution



Conclusions and perspectives

Improvement of employability

- Difficult to assess now; most of the students are not yet graduated
- Improvement of language competences already observed

Sustainability:

- Moodle platform can still be used by partners
- Methodology can be transferred to other courses/curricula
- Some real mobility modules could be organised with minimum cost.
- Training weeks could be proposed to institution outside the original partnership

