



Erasmus+



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Blended learning in radiation protection and radioecology

Development of the Erasmus+ Blended Learning Training Module 'Environmental Measurements'

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Blended learning in radiation protection and radioecology
(e-learning modules)

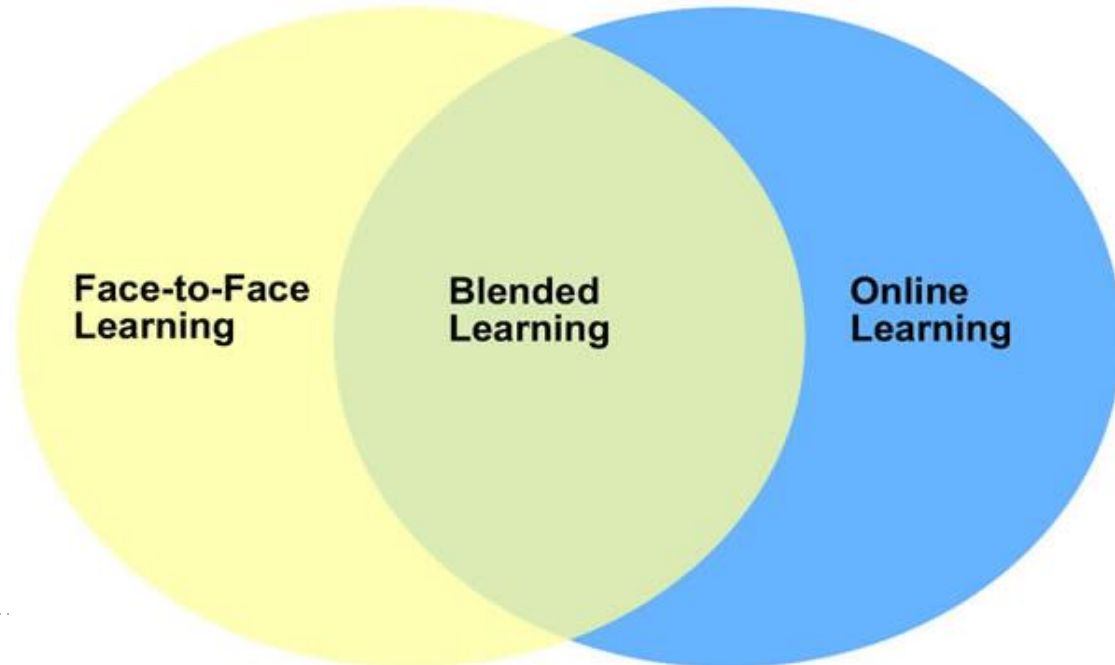
Erasmus+ blended learning project

- ▶ 6 E-learning modules (12ECTS)
 - ▶ Contents support the training modules
- ▶ 6 Training modules (12 ECTS)
 - ▶ From Ximer 2016 to ‘Environmental measurements’ training school
 - ▶ **Tasks in Ximer 2016**
 - 2 weeks program : 4 ECTS
 - Transform into a 1 week program of 2ECTS + 2ECTS e-learning
 - Waste management in labo and transfer to waste processing
 - decontamination

Blended Learning

- ▶ Mix of online and face-to-face methods
- ▶ Students actively involved with contents
- ▶ Individual or with interaction with peers or professor

(Vandeput, 2011)



How does Ximer look like anno 2016?

- ▶ 2 weeks training : 1 week UHasselt + 1 week ISIB
- ▶ Activities
 - ▶ Introduction lectures
 - ▶ Introduction practical exercises
 - ▶ 3 Fieldtrips
 - ▶ Laboratory exercises
 - ▶ Preparing report and oral presentation
 - ▶ Social events

Monday 11/04	Tuesday 12/04	Wednesday 13/04	Thursday 14/04	Friday 15/04
10h00 Lectures: <ul style="list-style-type: none"> • Introduction • E-learning tool • NORM presentations • Soil sampling • Detection portals 	Practical exercise Detection portal & intervention exercise	Fieldtrip Demerbroeken in partnership with SCK.CEN	Preparing reports	Transfer to Brussels
				13u00 sandwich Lunch Brussels (at the FANC)
Practical exercise: <ul style="list-style-type: none"> ▪ Soil sampling 	Preparation fieldtrip 17h30 <ul style="list-style-type: none"> • Jenevermuseum 19h00 <ul style="list-style-type: none"> • Dinner@borrelhuis 	Fieldtrip Demerbroeken in partnership with SCK.CEN 17h00: Cleaning tools!	Fieldtrip Megaports, Antwerp	@FANC, Brussels: presentations FANC : NORM in Belgium



Monday 18/04	Tuesday 19/04	Wednesday 20/04	Thursday 21/04	Friday 22/04
Lectures : Environmental radioactivity, sampling and measurement methods	Field trip in Saint-Hubert (Ardennes)	Laboratory work	Laboratory work	Preparing reports and oral presentations
			Social dinner	
Lecture: radon, sampling and measurement methods	Field trip in Saint-Hubert (Ardennes)	Laboratory work	Preparing reports and oral presentations	oral presentations and evaluation Farewell drink



Transformation : rational changes

How would ximer 2017 look like?

a 5 days training....=> Complete new schedule

- ▶ No or less introduction lectures
 - ▶ Replace by self study
 - ▶ Questions formulated in advance, collective answers first morning
- ▶ Introduction excercises prepared in advance
 - ▶ Visual manuals and hand-outs, video
- ▶ Less fieldtrips
- ▶ Evaluation before, during and after
 - ▶ Self-testing in advance
 - ▶ Credits of certain E-learning modules in advance
- ▶ Interaction between students of different institutes
 - ▶ pre knowledge not always the same
- ▶ Guidelines to prepare the training school

What was achieved during ximer 2016

- ▶ **Lectures :**

- ▶ Recording => video
- ▶ Uniform introduction ppts

- ▶ **Introduction exercises**

- ▶ Manual for soil sampling, detectors
- ▶ Pictures

- ▶ **Fieldtrips/lab exercises**

- ▶ Pictures
- ▶ Evaluation in frame of 5 days training

Recording video's

CamStudio:

<http://camstudio.org/>

+ Records screen and voice

+ Free

+ Easy

- Limited functionality

CamTasia:

<https://www.techsmith.com/camtasia.html>

+ Records screen, webcam and voice

+ Post Processing included

+ A lot of functions

- ~280 Euro



Video of intervention

Demerbroeken
Fieldtrip



With a little help from our students

E-learning as preparation for the training school, yes or no?

- + Costs can be reduced
 - + Learning is more individual (things already known can be skipped).
 - Less time for social activities
- => No clear tendency for yes or no within the group of students.

Improvement:

- Use of short videos (max. 5 minutes)
- There should still be 1-2 h left for questions

With a little help from our students

Fieldtrips:

- Mostly interesting
- Travelling is very time consuming

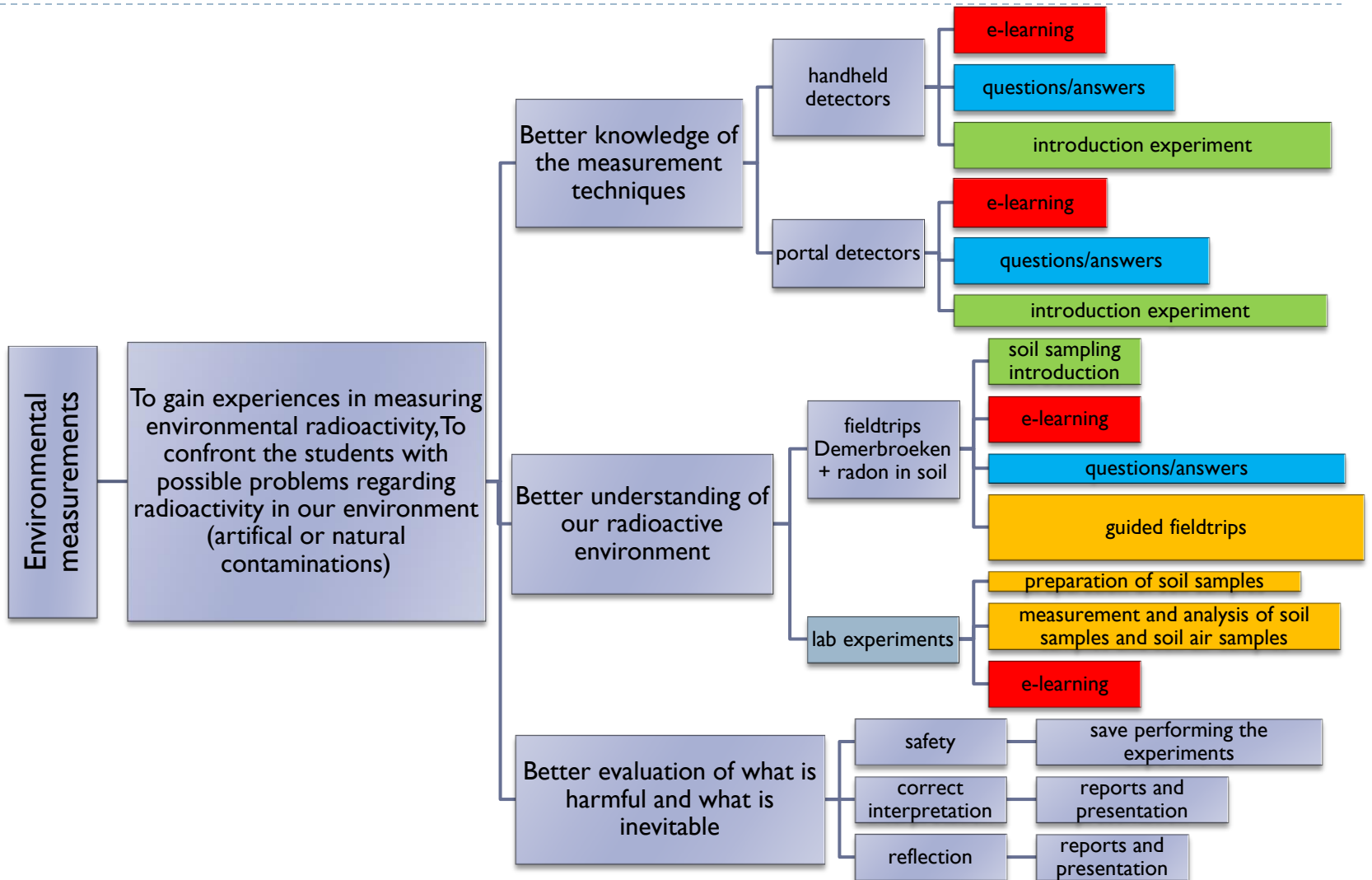
What's missing?

- More Info about the detectors.
- More Info about the spectral software (Genie 2000)
- More written material

How to proceed?

- ▶ **Formulate course goal, objectives and learning activities**
- ▶ **Put the learning activities in a 5 days schedule**
- ▶ **Construct guidelines**
 - ▶ To study the extra course material
 - ▶ To organise the communication
- ▶ **Further development of extra course material**
 - ▶ Shorter video's
 - ▶ Collection of background materials in the E-learning module
- ▶ **Evaluation procedure before, during and after**
 - ▶ Self testing of pre-knowledge
 - ▶ Guidelines of what is expected
 - ▶ for oral presentation / paper
 - ▶ Individual or in group
- ▶ **Publicity : NEXT YEAR : open for others than isib and uhasselt students**

Start with formulation of goals



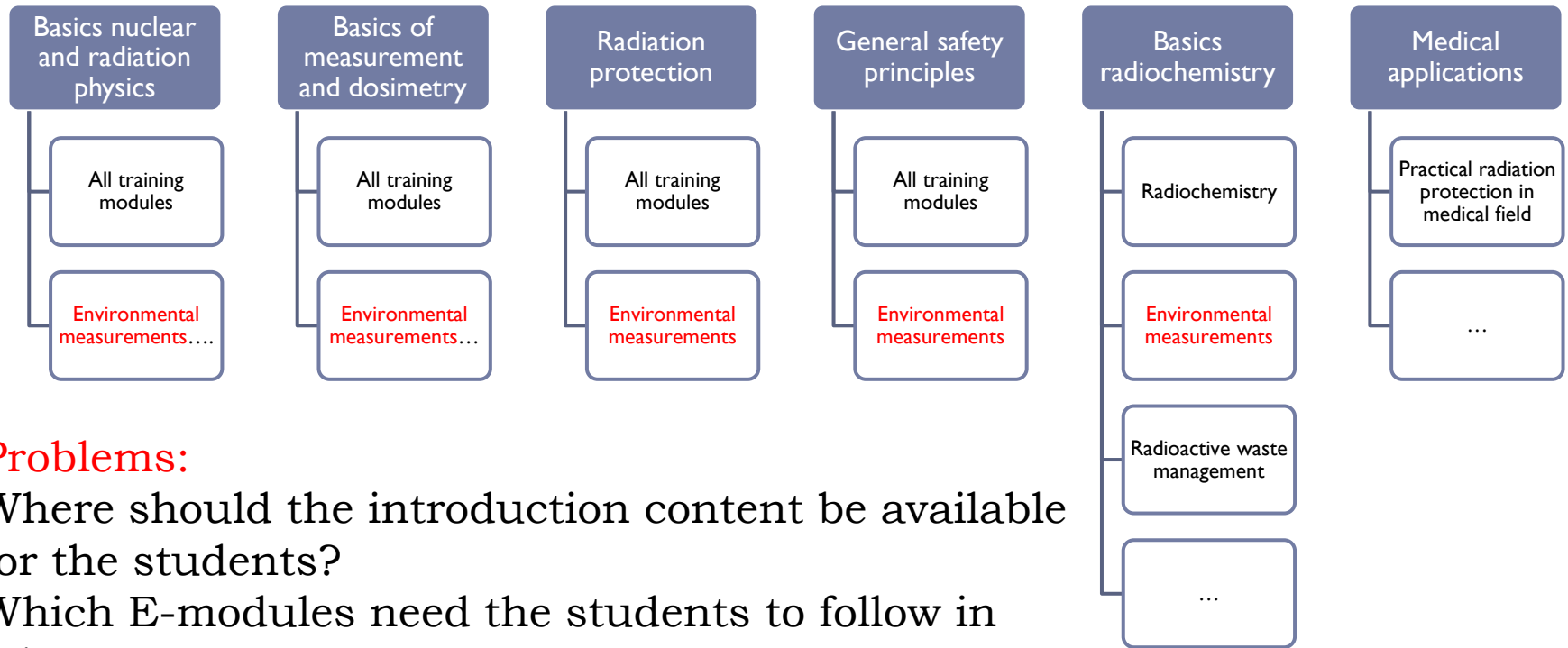
Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday
	<p>Answers to questions</p> <p>Practical exercise:</p> <ul style="list-style-type: none"> ▪ Soil sampling ▪ Handheld detectors ▪ Preparing fieldtrip 	<p>Practical exercise: treatment of soil samples</p> <p>Spectral analyses</p>	<p>Answers to questions</p> <p>Laboratory work</p>	Laboratory work	Preparing reports and oral presentations
	<p>PROPOSAL Start 1st week after Eastern</p>				
<p>Arrival in Brussels</p> <p>Welcome meeting</p> <p>Lecture @FANC?</p>	Field trip Demerbroeken	Field exercise Radon/ Soil air sampling	Laboratory work	Laboratory work/ Preparing reports	<p>Oral presentations and evaluation</p> <p>Farewell drink</p>

How to proceed?

- ▶ Formulate course goal, objectives and learning activities
- ▶ Put the learning activities in a 5 days schedule
- ▶ **Construct guidelines**
 - ▶ To study the extra course material
 - ▶ To organise the communication
- ▶ **Further development of extra course material**
 - ▶ Shorter video's
 - ▶ Written background materials and manuals
- ▶ **Collection of all background materials in the E-learning module**
- ▶ Evaluation procedure before, during and after
 - ▶ Self testing of pre-knowledge
 - ▶ Guidelines of what is expected
 - ▶ for oral presentation / paper
 - ▶ Individual or in group
- ▶ **Publicity : NEXT YEAR : open for others than isib and uhasselt students**

Erasmus+ blended learning project

Match training to E-learning modules



Problems:

Where should the introduction content be available for the students?

Which E-modules need the students to follow in advance

and pass the evaluation?

Overall problem....

How to proceed?

- ▶ Formulate course goal, objectives and learning activities
- ▶ Put the learning activities in a 5 days schedule
- ▶ Construct guidelines
 - ▶ To study the extra course material
 - ▶ To organise the communication
- ▶ Further development of extra course material
 - ▶ Shorter video's
- ▶ Collection of background materials in the E-learning module
- ▶ **Evaluation procedure** before, during and after
 - ▶ Self testing of pre-knowledge
 - ▶ Guidelines of what is expected
 - ▶ for oral presentation / paper
 - ▶ Individual or in group
- ▶ **Publicity : NEXT YEAR : your students are welcome**

Uniform approach

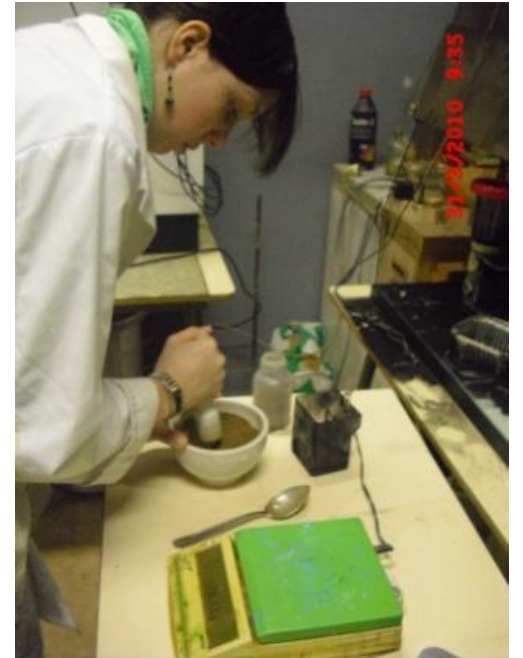
Welcome to our training school

contact : sonja.schreurs@uhasselt.be
licour@he-spaak.be



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Blended learning in radiation protection and radioecology

New training school in preparation !

- ▶ Preliminary programme
- ▶ You and your students are welcome!!!
- ▶ Call will follow soon : security check will take some time to enter the facilities!

Monday	Tuesday	Wednesday	Thursday	Friday	
<p>Arrival in Diepenbeek/ Brussel/ Aachen???</p> <p>Welcome meeting</p> <p>Answers to questions</p>	<p>Challenges of Monitoring waste</p> <p>Challenges of reuse of waste</p> <p>Demo</p>	<p>Technical visit : Nuclear waste</p> <p>Belgoprocess /Tecnubel</p>	<p>Technical visit: portal systems in several industrial settings (medical/waste/s crap/...)</p>	<p>Preparing reports and oral presentations</p>	
	<p>PROPOSAL NOVEMBER 2016</p>				
<p>Practical exercise: inter vention</p> <ul style="list-style-type: none"> ▪ Portal detectors ▪ Handheld detectors ▪ reporting 	<p>Practical Exercise Waste@labor atory exercise</p>	<p>Technical visit : long term waste management</p> <p>Hades</p>	<p>Preparing reports and oral presentations</p>	<p>oral presentations and evaluation</p> <p>Farewell drink</p>	

Thank you for your attention!!!



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