

Implementation of Innovative ICT based Teaching & Learning Methods (related to WP3)

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Workshop and Management meeting: July 4-5th (2022).

Erasmus+: Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems (CybPhys)



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Basic goal

ICT based tools

Virtual Learning Environments

Practical realisations

Pedagogical competences

Student trainings

Connecting WP3 and WP4



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Basic goal

Teaching and preparing students:

- to think and act as an academically skilled person,
- to realise an industry oriented career,
- to realise an academic and research oriented career.

A decent **learning process**, embedded in a learning environment, is needed to reach these basic goal(s).



Basic goal

The **learning environment** is often modelled as:

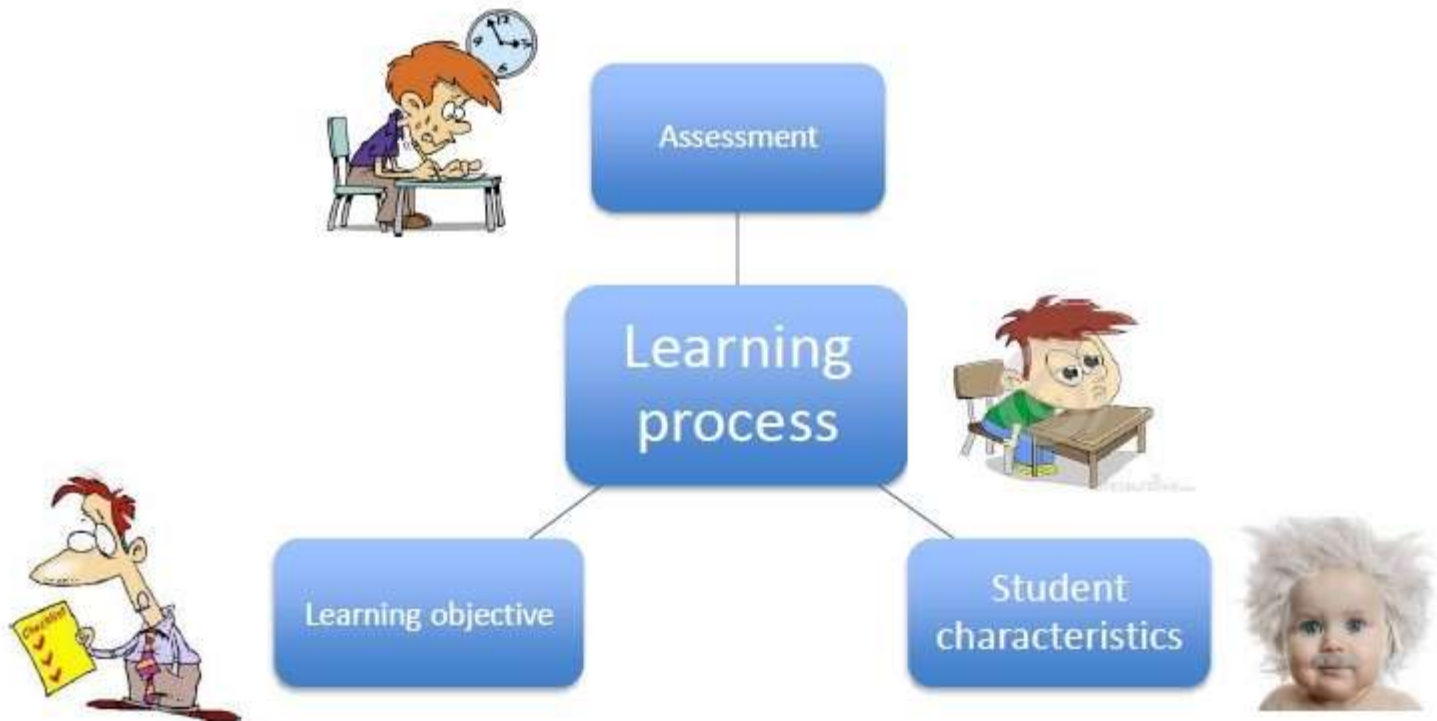


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ICT based tools

The learning process and the content of the course is very important.

Paper based course materials remain important. But

- **digital content** is easy to adapt to new circumstances,
- **digital content** is easy to structure,
- **digital content** provides new possibilities.

This is very important from the point of view of the teacher/professor.

ICT based tools

Digital content, ICT based tools are an important topic in the present Erasmus+ project CybPhys: **WP3**

- Creation of an **e-library**: we all together developed *e-books*

A **Virtual Learning Environment** is also an important tool.



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Virtual Learning Environments

A **Virtual Learning Environment** allows teachers to

- provide students with study material of different types (for example e-books),
- interact with the students in real-time,
- follow the evolution of the learning process,
- know the performance of each student in specific tasks,
- ...



Virtual Learning Environments

A **Virtual Learning Environment** is known to be especially useful when teaching 'science' and 'physics'.

Objects of many types of information can be used:

- Text documents
- Videos and mp3
- Scanned images
- Links to websites
- Animations
- Simulations
- ...



Virtual Learning Environments

A **Virtual Learning Environment** provides useful tools

- uploading of course material i.e. course content
- questionnaires + quizzes
- (peer)assessment
- communication (including chat sessions and forums)
- wikis and blogs
- tracking tools
- providing feedback to the students
- administration of student groups
- ...

Virtual Learning Environments

Virtual Learning Environments can be:

- Commercial software (e.g. Toledo, Blackboard)
- **Open source software** (e.g. Moodle)

In the present Erasmus+ project CybPhys, the decision has been taken to use **Moodle**.



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Practical realisations

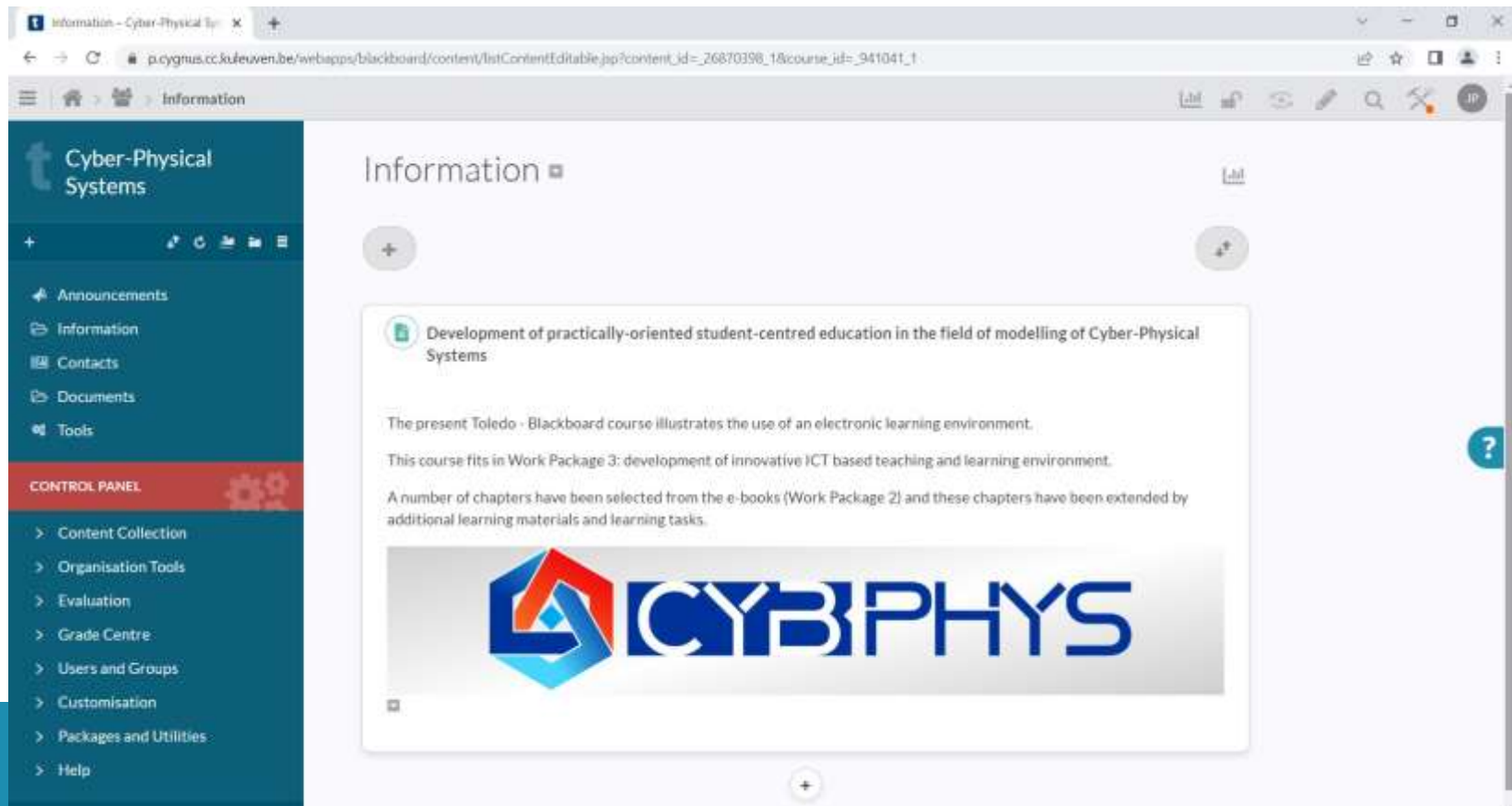
In combination with the **development of the e-book** on “cyber-physical systems for clean transportation” and other contributions to e-books:

- The KU Leuven has shown the possibilities of the use of a **Virtual Learning Environment** based on these course materials
 - This information has been useful during our **meetings.**
 - This information has been useful during the **teacher training organized in September 2021.**
- = development and use of “good practices”.

Practical realisations

Developping and using “good practices” with

- **Blackboard – Toledo: ‘Cyber-Physical Systems’**



The screenshot shows a web browser window displaying a Blackboard course page. The browser's address bar shows the URL: `p.cygnus.cc.kuleuven.be/webapps/blackboard/content/listContentEditable.jsp?content_id=_26870398_1&course_id=_941041_1`. The page title is "Information - Cyber-Physical Systems".

The left sidebar is dark blue and contains the following navigation items:

- Cyber-Physical Systems
- Announcements
- Information
- Contacts
- Documents
- Tools
- CONTROL PANEL**
- Content Collection
- Organisation Tools
- Evaluation
- Grade Centre
- Users and Groups
- Customisation
- Packages and Utilities
- Help

The main content area is titled "Information" and contains the following text:

Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems

The present Toledo - Blackboard course illustrates the use of an electronic learning environment.

This course fits in Work Package 3: development of innovative ICT based teaching and learning environment.

A number of chapters have been selected from the e-books (Work Package 2) and these chapters have been extended by additional learning materials and learning tasks.

Below the text is a large banner image featuring the logo for CYBIPHYS, which consists of a stylized blue and red geometric shape next to the text "CYBIPHYS" in blue capital letters.

Practical realisations

Developping and using “**good practices**” with

- **Blackboard - Toledo: ‘Cyber-Physical Systems’**

Integrating pedagogical movies (multimedia materials).



Practical realisations

Developping and using “good practices” with

- **Moodle:** ‘Cyber-Physical Systems’

DEMO COURSE: CHAPTER 15: THE IMPACT OF ELECTRICAL VEHICLES ON THE POWER GRID

This chapter contains course documents which provide the student insight in the way the use of electric vehicles (implying loading the batteries of the vehicles) has an impact on the electrical power grid.

 Roadmap chapter 15

Click on 'Roadmap' to see the information.

 Learning outcomes chapter 15

Click on 'learning outcomes' to see the information.

 Pre-requisites chapter 15

Click on 'pre-requisites' to see the information.

 Theoretical lecture "The impact of electrical vehicles on the power grid"

Read carefully the document en try to understand the theoretical lecture on "The impact of electrical vehicles on the power grid".

 Assignment: consulting scientific papers

Having studied the theoretical lecture on "The impact of electrical vehicles on the power grid", consider the three papers below which inspired to a large extent the theoretical lecture.

Have a closer look at these three papers and

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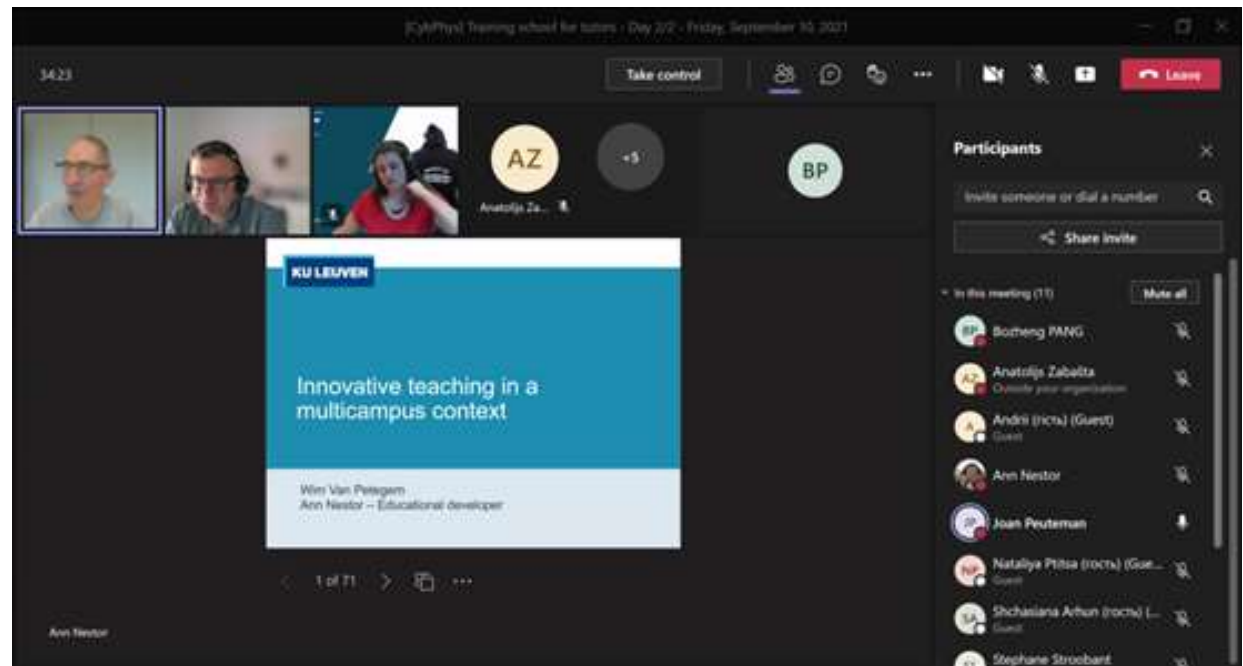
Pedagogical competences

European and Ukrainian partners learn from each other.

Exchanging knowledge and experience

Teacher training on September 9-10th (2021)

(MS TEAMS
due to
COVID-19
pandemic)



Pedagogical competences

European and Ukrainian partners learn from each other.

Exchanging knowledge and experience

English language training training

on September 13-17th (2021)

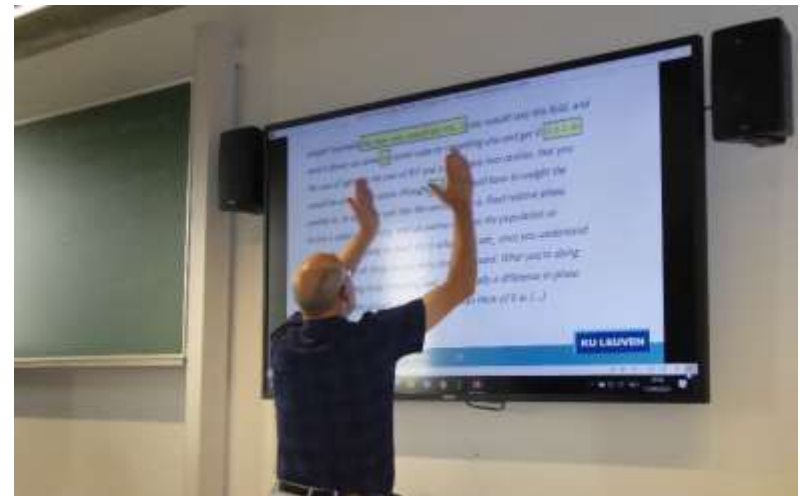


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Student trainings

For the Ukrainian students,

- an international experience,
- obtaining familiarity with the English language,
- gaining theoretical and practical experiences (science and technical education)

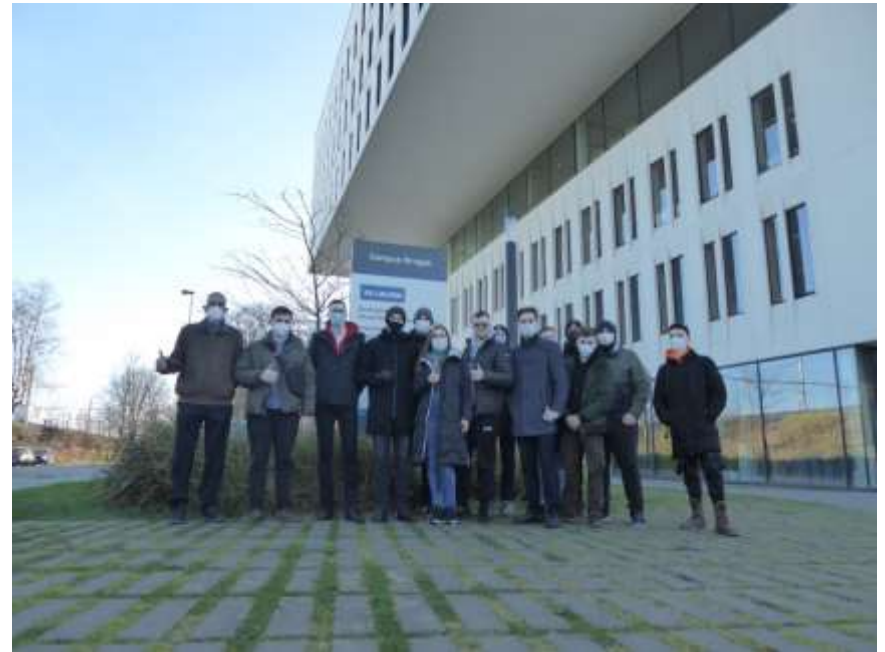
is important.

On January 17-28th (2022) students participated at a student training in Riga (Latvia).



Student trainings

On February 7-18th (2022) students participated at a student training in Bruges (Belgium).



Are there possibilities to organise a student training in Nicosia (Cyprus)?

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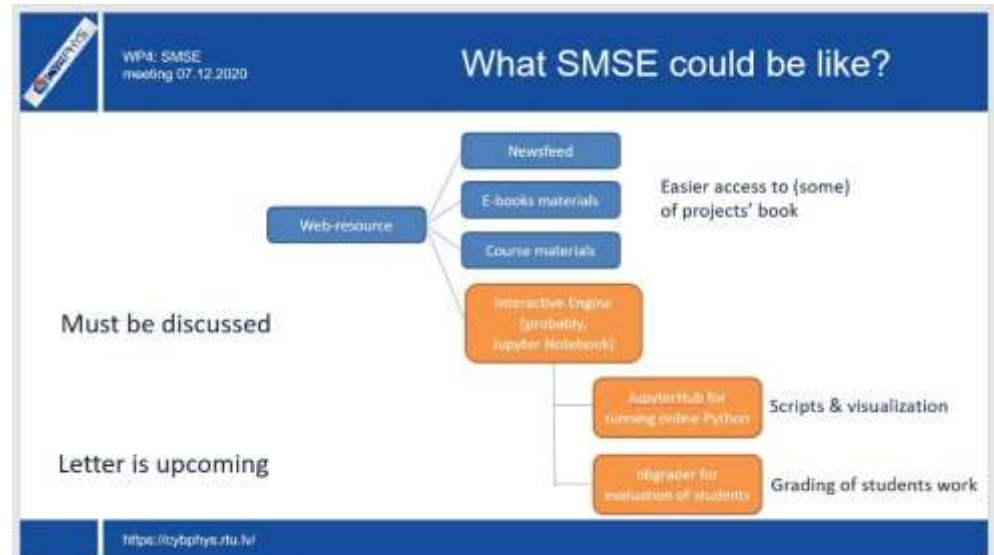


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Connecting WP3 and WP4

We already discussed WP4:

Developing the Sharing Modelling and Simulation Environment Platform: SMSE



Are there opportunities to connect WP3 and WP4?

Thank you for your attention!

Questions?



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