KU LEUVEN

CYBPHYS

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

University of Cyprus

Joan Peuteman

Workshop and Management meeting: September 19-21 (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

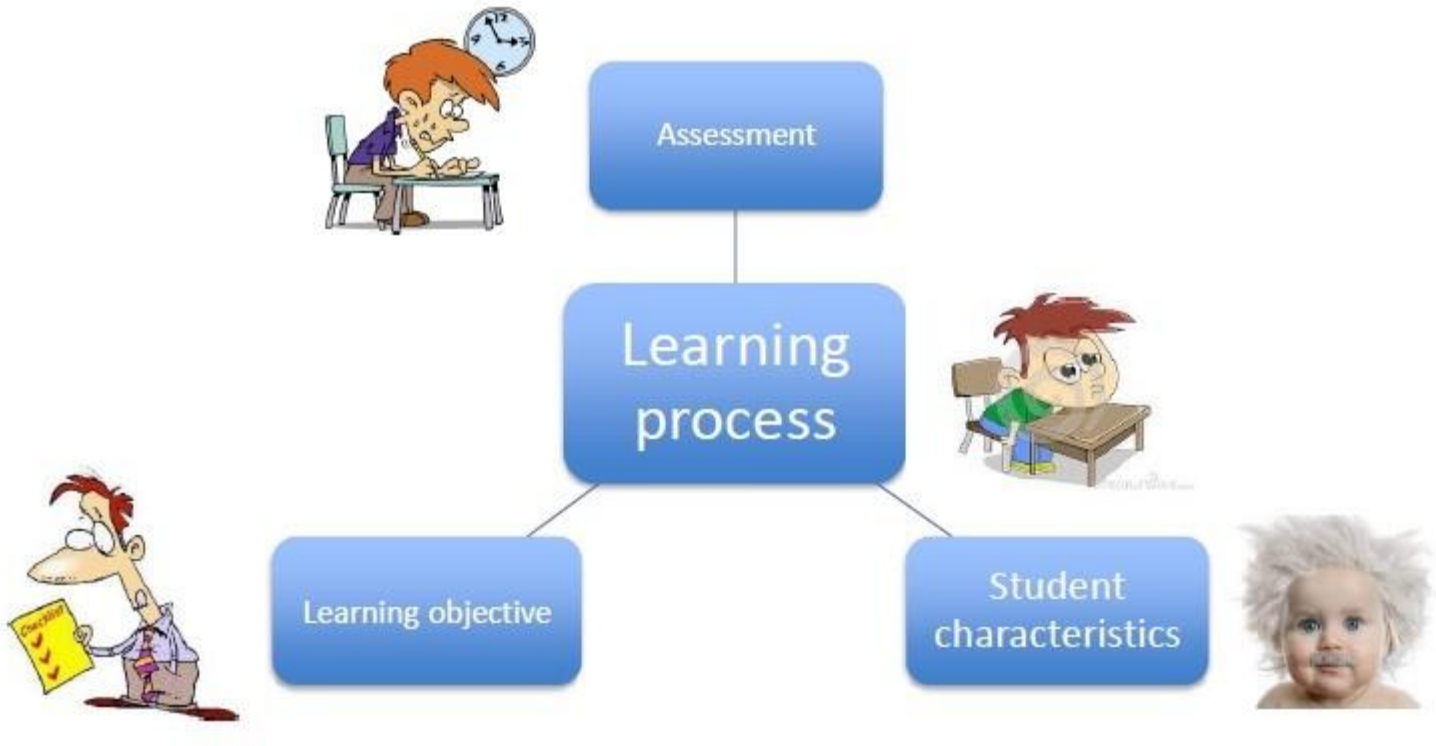
Teaching and preparing students:

- 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

Paper based or ICT based studying

Paper based or ICT based assessments

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

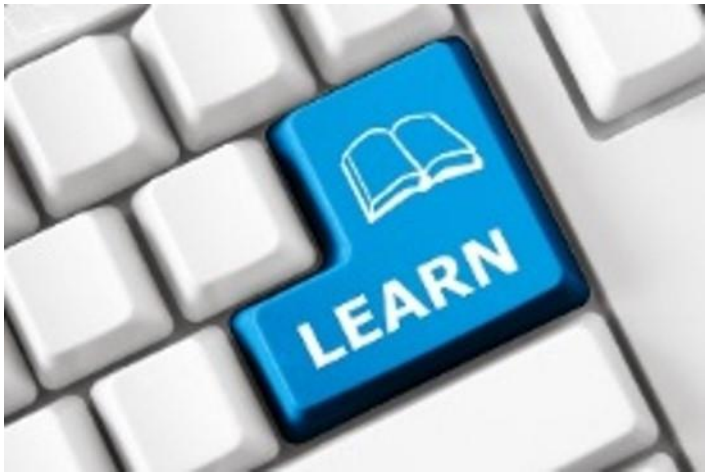
- provide students with study material of different types (for example e-books),
- interact with the students in real-time,
- follow the evolution of the learning process,
- know the performance of each student in specific tasks,
- …

Virtual Learning Environments

A **Virtual Learning Environment** is known to be especialy 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:

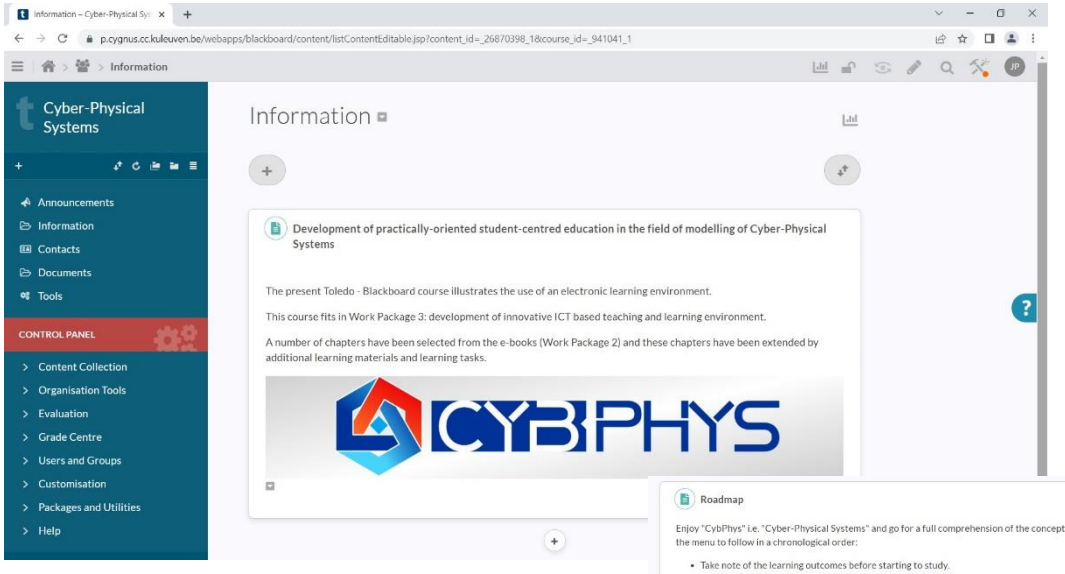
- The KU Leuven has shown the possibilities of the use of a **Virtual Learning Environment** based on these course materials
    - This information has been useful during our **meetings**.
    - This information has been useful during the **teacher training organized in September 2021**.

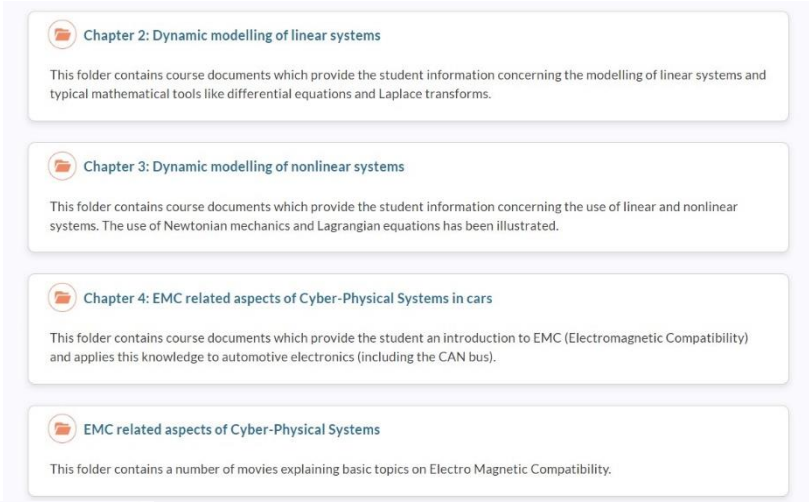
    = development and use of “good practices”.

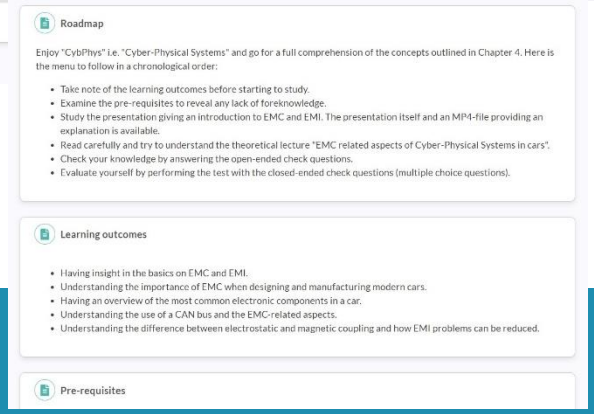
Practical realisations

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

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





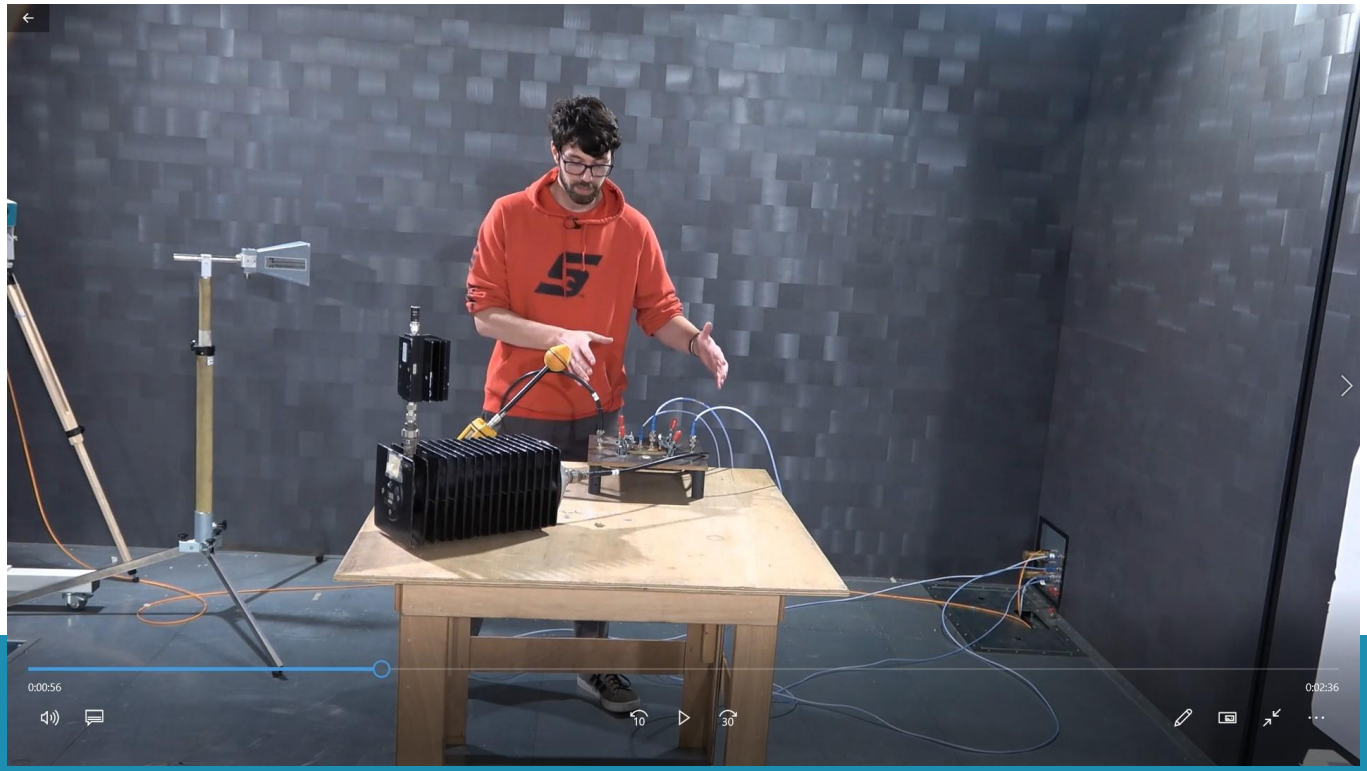


Practical realisations

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

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

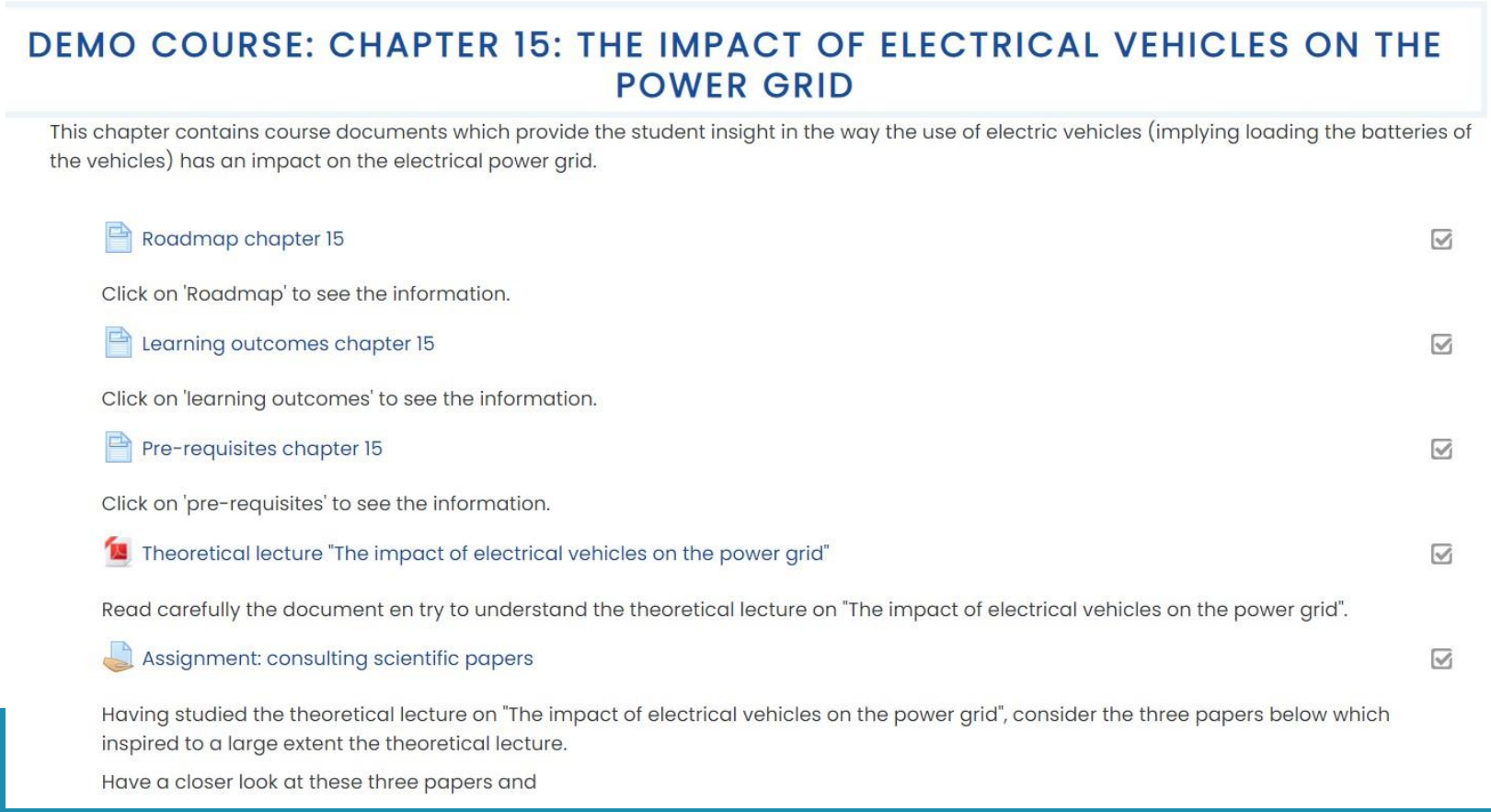
Integrating pedagogical movies (multimedia materials).



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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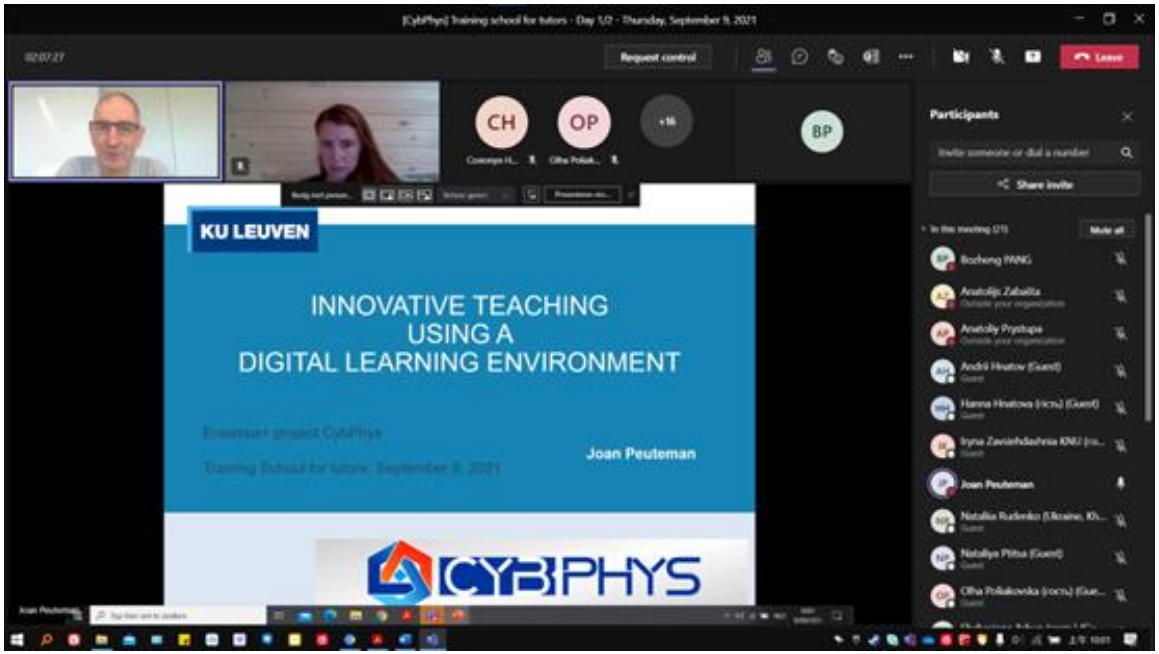
Pedagogical compentences

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)

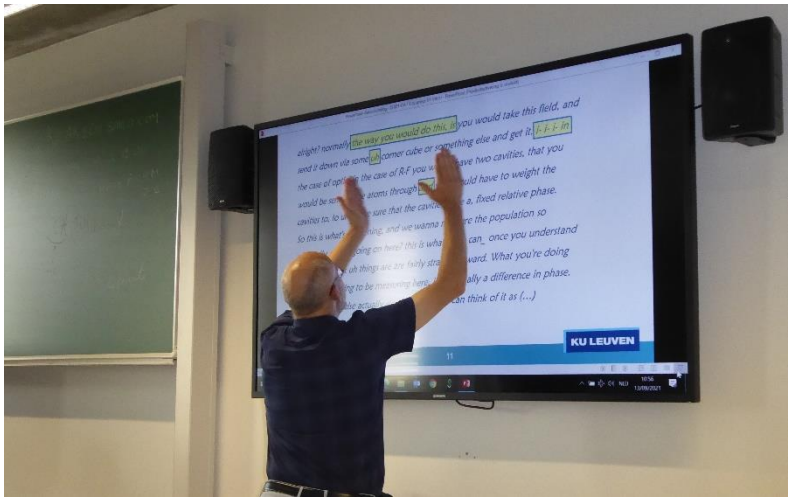


Pedagogical compentences

European and Ukrainian partners learn from each other.

Exchanging knowledge and experience

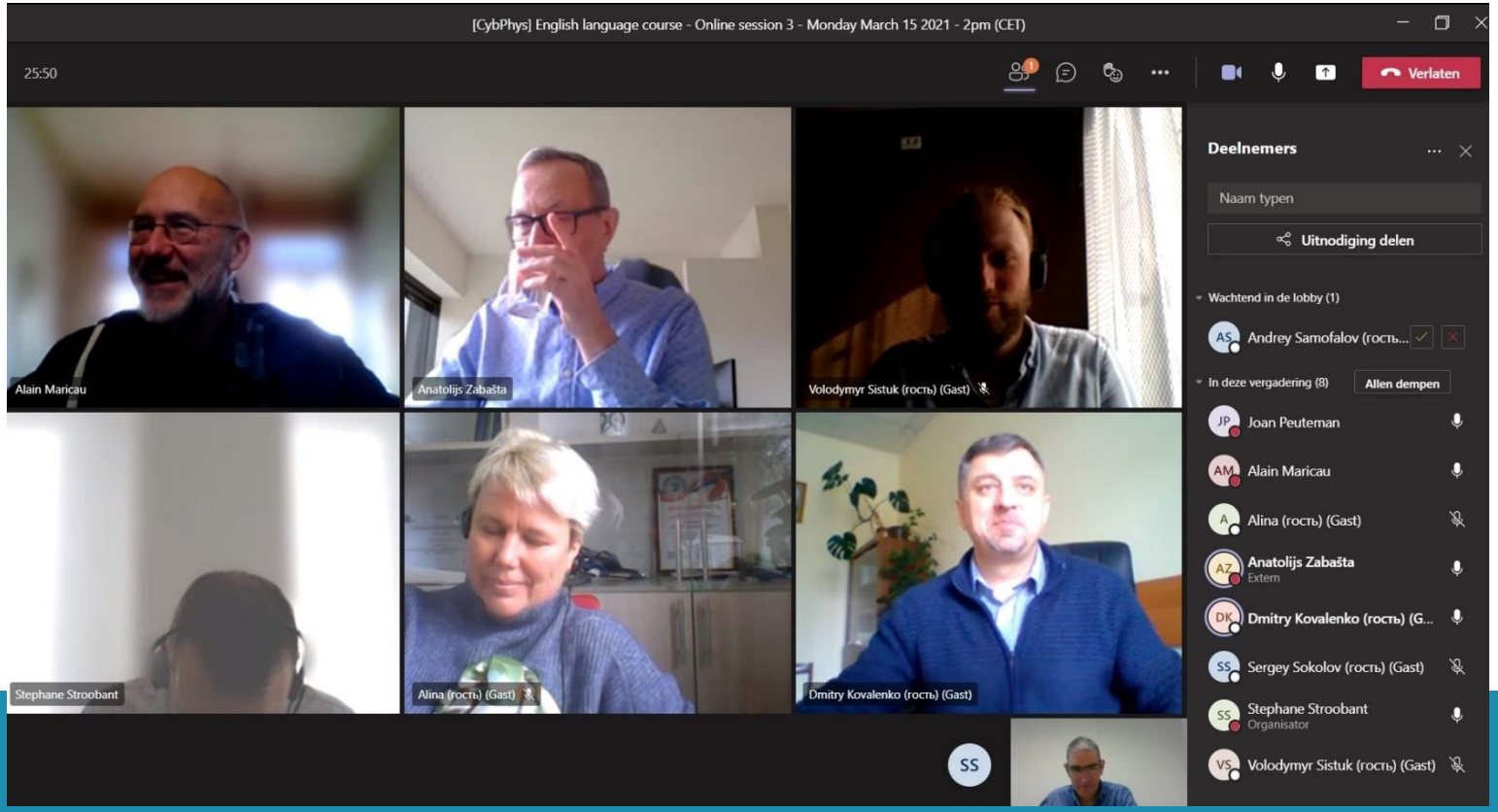
Live English language training training
on September 13-17th (2021)
(WP2)



Pedagogical compentences

(WP2)

The live English language training training on September 13-17th (2021) has been prepared by online sessions in January, February and March 2021.



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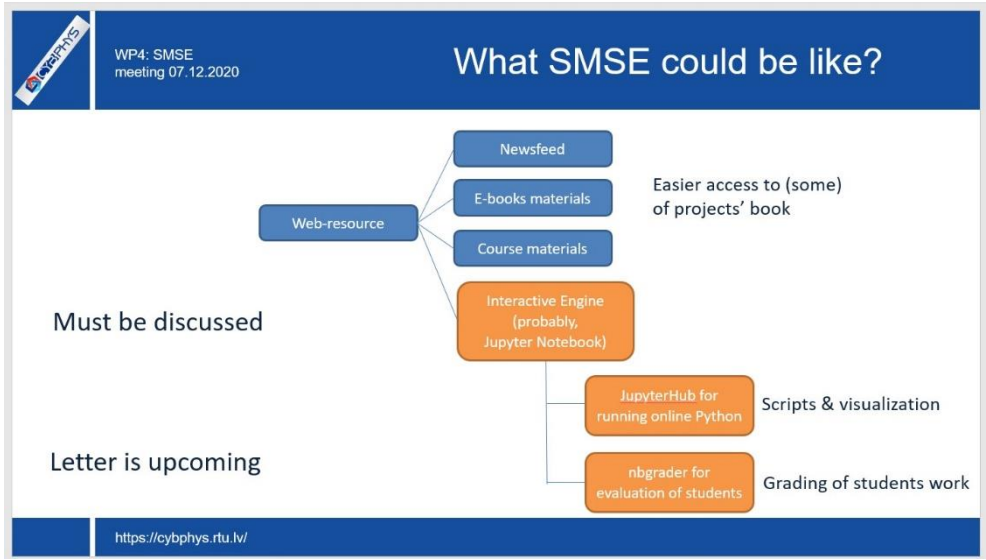
Connecting WP3 and WP4

We already discussed WP4:

Developing the Sharing Modelling and Simulation Environment Platform: SMSE



Are there opportunities to connect WP3 and WP4?

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Thank your for your attention!

Questions?

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