



BIM-based EU -wide Standardized Qualification Framework for achieving Energy Efficiency Training

D6.8 – Final Seminar

WP 6

Leader: VTT

Task 6.8

Leader: VTT

Prepared by

Donia Marzougui, Sylvain Kubicki

Date

February 2020

Partners involved

INES, LIST



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 753994.

Contents

Abbreviations	3
1 Executive Summary	4
2 Final Seminar	5
2.1 First day – February 20 th , 2020	5
2.2 Second day – February 21 st , 2020	7
2.2.1 BIM for energy efficiency training	9
2.2.2 BIM for Energy Performance Certificate	10

List of Figures

Figure 1: Participants to the BIMEET workshop in INES	5
Figure 2: Practical session during the workshop	6
Figure 3: Introduction of the tangible collaborative device	6
Figure 4: BIMEET partners during the last seminar	8
Figure 5: BIMEET trainings on INES numerical platform	9
Figure 6: BIM for Energy Efficiency training scheme	10
Figure 7: BIM for Energy Performance Certificate training scheme	11

List of tables

Table 1: List of partners present at the final seminar	7
--	---

Abbreviations

AEC	Architecture, Engineering and Construction
ALO	Achieved Learning Outcomes
BEM	Building Energy Model
BIM	Building Information Modelling
CA	Consortium Agreement
DoA	Description of the Action
EE	Energy Efficiency
EPBD	Energy Performance Buildings Directive
EPC	Energy Performance Certificate
EQF	European Qualification Framework
GA	Grant Agreement
HOTS	High Level Thinking Skills
ICT	Information and Communication Technologies
ILO	Intended Learning Outcomes
KSC	Knowledge – Skills – Competencies
LAU	Local Administrative Unit
LO	Learning Outcomes
LOTS	Low Level Thinking Skills
Mx	Milestone date designating the start of a given task
My	Milestone date designating the end of a given document delivery deadline
NUTS	Nomenclature for Territorial Units for Statistics
PC	Project Coordinator
PSC	Project Steering Committee
QA	Quality Assurance
RIBA	Royal Institute of British Architects
RTO	Research and Technology Organisation
TAM	Technology Acceptance Model
TF-IDF	Term Frequency - Inverse Document Frequency
ToC	Table of Content
TUI	Tangible User Interface
UAS	Universities of Applied Sciences
WP	Work Package
WPL	Work Package Leader

1 Executive Summary

This report summarizes the two-day final seminar organised at the very end of BIMEET project period (February 20-21, 2020).

It highlights 1) the dissemination of BIMEET results towards its External Expert Advisory Board (some were invited), broader Community of Interest (mainly professionals from France for this specific event), and 2) the final wrapping up of BIMEET action, through the sharing of last updates on BIMEET outcomes amongst the partners.

2 Final Seminar

The final seminar of BIMEET project was organised in the premises of *INES formation & Evaluation* in Le Bourget du Lac, France. It consisted of two days of rich discussions around BIM and energy efficiency thematic and focused on final dissemination of the project outcomes.

2.1 First day – February 20th, 2020

On February, 20th, was the first day of the seminar. It consisted on a full day workshop where we invited some experts to share their experience in the BIM and energy efficiency projects. About 35 professionals with different profiles participated to this workshop: trainers, engineers, architects, researchers,...



Figure 1: Participants to the BIMEET workshop in INES

The workshop was organised with the support of BIMplement project and industry partners.

It aimed to spread, first, the European Experience in the Field of BIM and energy efficiency through some European projects namely BIMEET and BIMplement, and also to exchange through the diverse experiences of our invited experts from Italy, UK and France. The question of upskilling the different construction stakeholders was deeply addressed. The need of collaboration on-site as well as off-site was considerably discussed for delivering energy efficient constructions.

This moment was really interesting as it was reviewed the national and international experience of the use of BIM in the numerical and environmental transition of the construction industry.

Second, some French software vendors highlighted their BIM solutions in relation with energy simulation and life cycle assessment. Discussions about the integration of BIM workflows and the interoperability issues were performed.

These presentations were finally followed by a practical session on how to include energy and environmental computing in a BIM workflow. Participants were able to practice the different BIM solutions and to deal with the various functionalities of the different software.

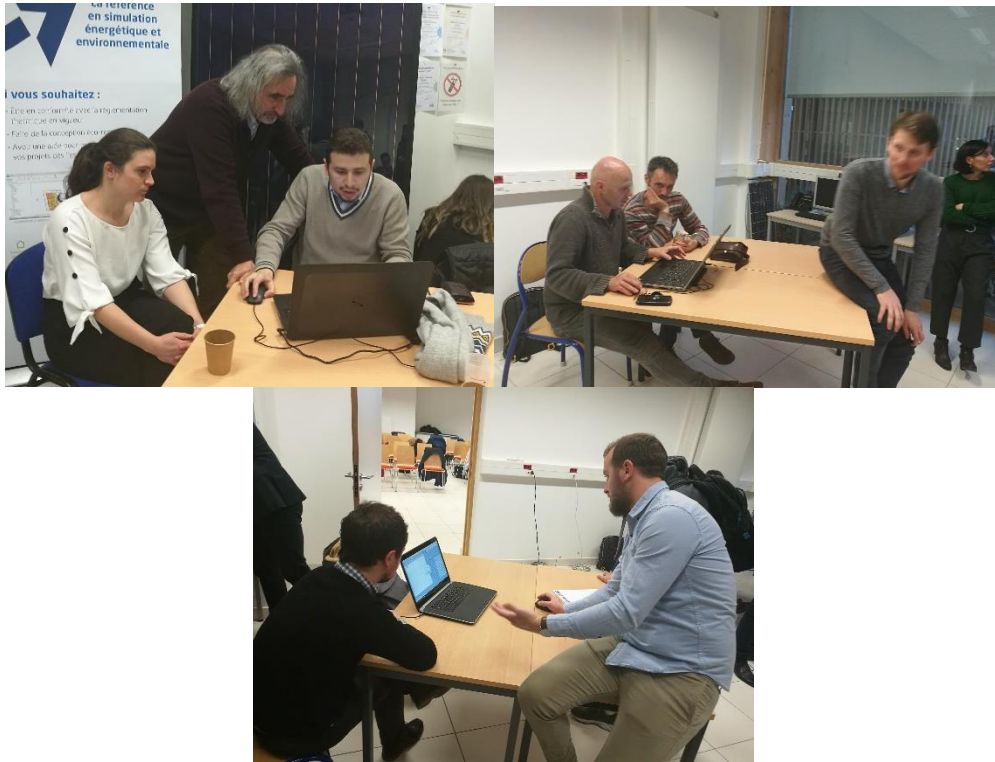


Figure 2: Practical session during the workshop

The BIMEET platform, and specifically the *tangible collaborative device*, developed by LIST, CU and CEA, was then presented. This tool supports training organisation aiming at designing new training modules complying with BIMEET qualification framework (Figure 3).



Figure 3: Introduction of the tangible collaborative device

A short video was performed to explain the main functionalities of this collaborative application. It is accessible by following this link: <https://vimeo.com/396915894>

2.2 Second day – February 21st, 2020

On February, 21th, the last consortium meeting of the BIMEET project was held. This date brought together all the partners in INES to discuss the last project's deliverables. The list of partners who attended at this meeting is in shown in Table 1.

Table 1: List of partners present at the final seminar

	Name	Organisation	Member State
1	Dr Donia Marzougui	INES formation & Evaluation	France
2	Ms. Magali Roué	INES formation & Evaluation	France
3	Dr. Sylvain Kubicki	LIST	Luxembourg
4	Dr. Annie Guerriero	LIST	Luxembourg
5	M. Nico Mack	LIST	Luxembourg
6	Dr. Ioan Petri	Cardiff University	United Kingdom
7	M. About Traore	CSTB	France
8	M. Richard Hartless	BRE	United Kingdom
9	Ms. Tarja Makelainen	VTT	Finland
10	Ms. Elisabeth De Sousa	HoT	Luxembourg
11	M. Sunil Suwal	METRO	Finland
12	Ms. Efi Mavrou	CRES	Greece
13	M. Jean-Philippe Poli	CEA	France



Figure 4: BIMEET partners during the last seminar

During this meeting, the key results of the project were discussed. Partners presented the BIMEET qualification framework and the learning outcomes matrix. Details of this work are discussed in D3.2.

Evolutions on energy-bim.com platform were also introduced. A training repository is created and powered regularly by the new ones. This training platform contributes to widely promote BIM&EE trainings.

A final key result of BIMEET project was introduced during this last seminar: the delivery of two e-learning training modules, *BIM for building energy efficiency* and *BIM for Energy Performance Certificate*. These modules are hosted in the digital learning platform of INES (<https://e-learning.ines-solaire.org/course/index.php?categoryid=196>)

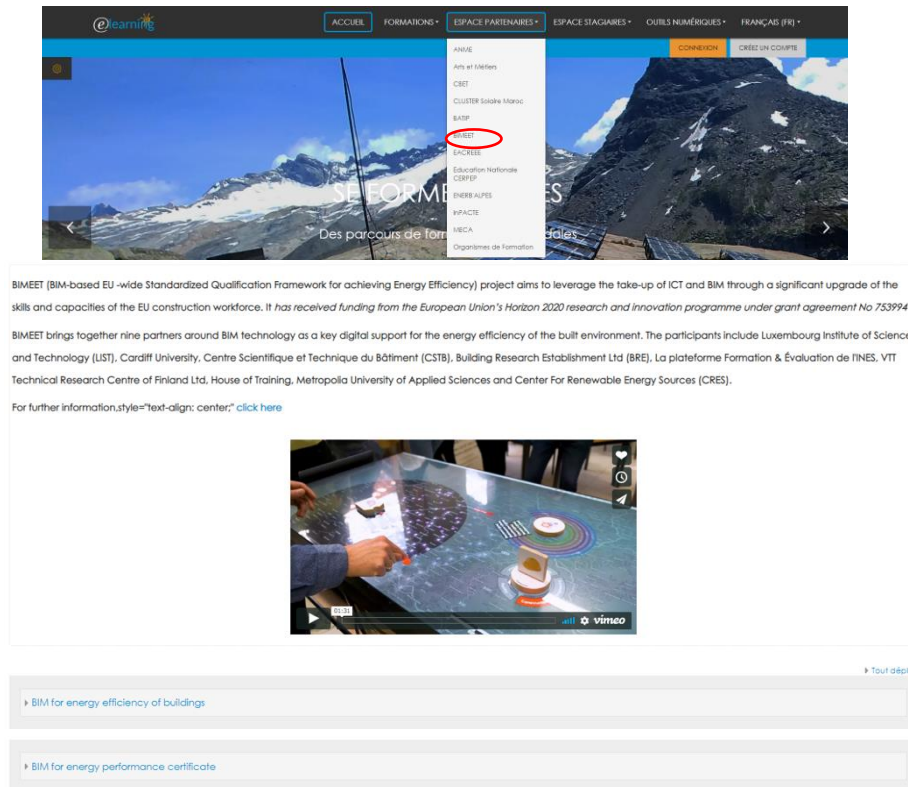


Figure 5: BIMEET trainings on INES numerical platform

Both modules are summarized in sections 2.2.1 and 2.2.2 below.

2.2.1 BIM for energy efficiency training

Computing heating needs, energy consumption, simulating the energy behaviour of the building more generally and conceiving the better energy efficient building can be costly and time consuming. BIM is an innovating process that is being used to make the construction industry more energy efficient and more economically sustainable. BIM for Building Energy efficiency training makes an overview of BIM, energy efficiency of buildings and how BIM can optimize energy efficiency of buildings. The learner understands what needs to be considered in the information modelling to unleash its potential as the data source for the analysis. An overview of some use cases helps the learner to understand the benefits and challenges of current tools. The course consists on design motion videos. The learner begins the training by a placement test in order to have an overview of his knowledge level and finishes the programme by a final test to validate the aimed learning outcomes.

This e-learning training can be completed by an in-class practical work. This one consists on understanding some BIM tools and dealing with interoperability issues. Modules of this training can be followed separately.

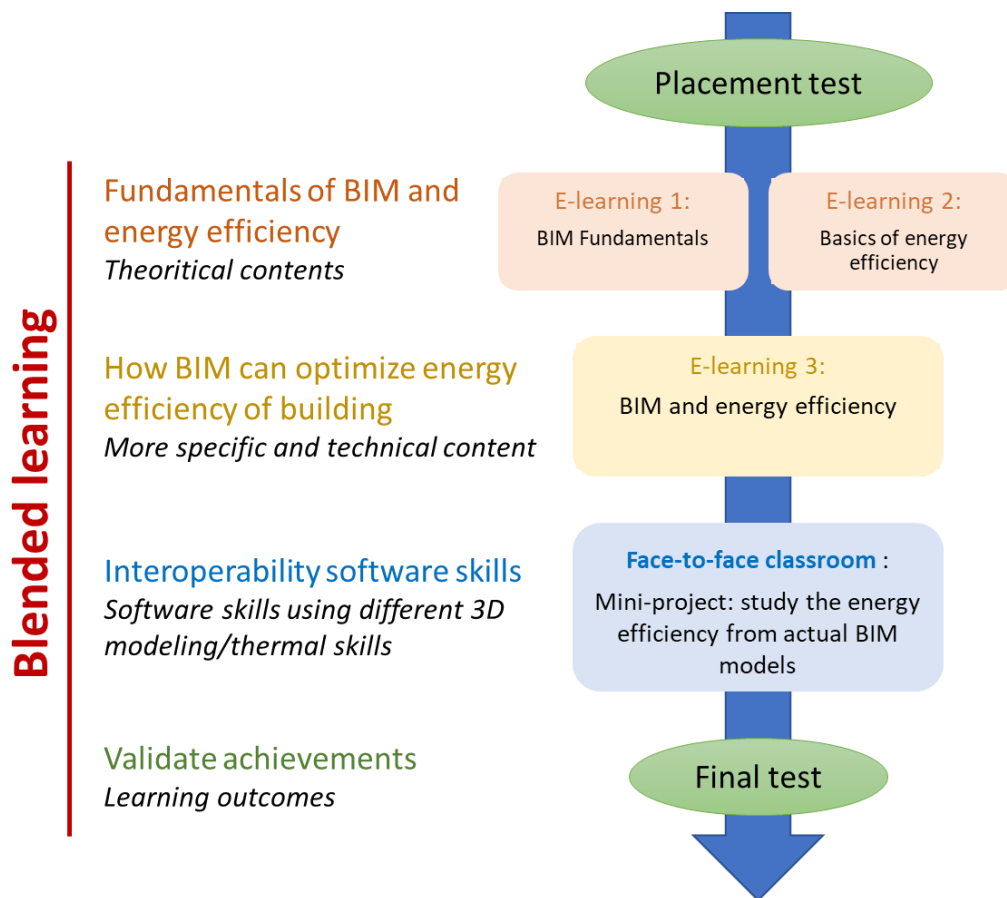


Figure 6: BIM for Energy Efficiency training scheme

2.2.2 BIM for Energy Performance Certificate

Assessing EPC (Energy Performance Certificate) is mandatory for most buildings in the EU. EPC has the potential to direct construction projects towards sustainable solutions. The traditional way of generating EPC can be time consuming. BIM (Building Information Modeling) is becoming a more popular information source during building projects and building life cycle. BIM is a virtual data-bank of the building and has the potential to excessively enhance the EPC process.

Each country in the EU has their own approach to EPC and BIM. During the course, learner is able to follow course materials from general perspective and a selection of different country perspectives (Finland, Luxembourg, United Kingdom). Course consists of slideshows, lecture videos, tutorials, extra-materials and final exam. An overview of different use cases helps the learner to understand the benefits and challenges of current tools and procedures.

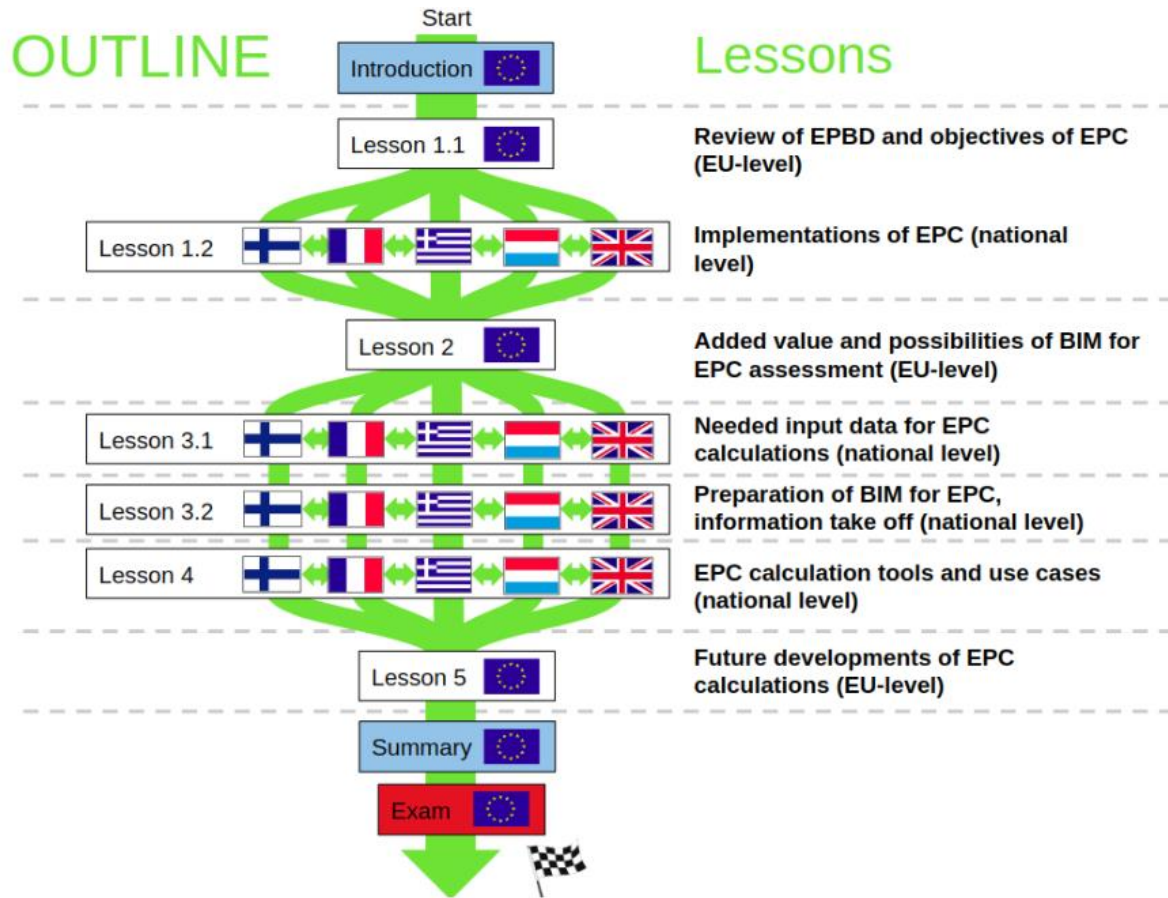


Figure 7: BIM for Energy Performance Certificate training scheme