Industrial Engineering and Management of European Higher Education
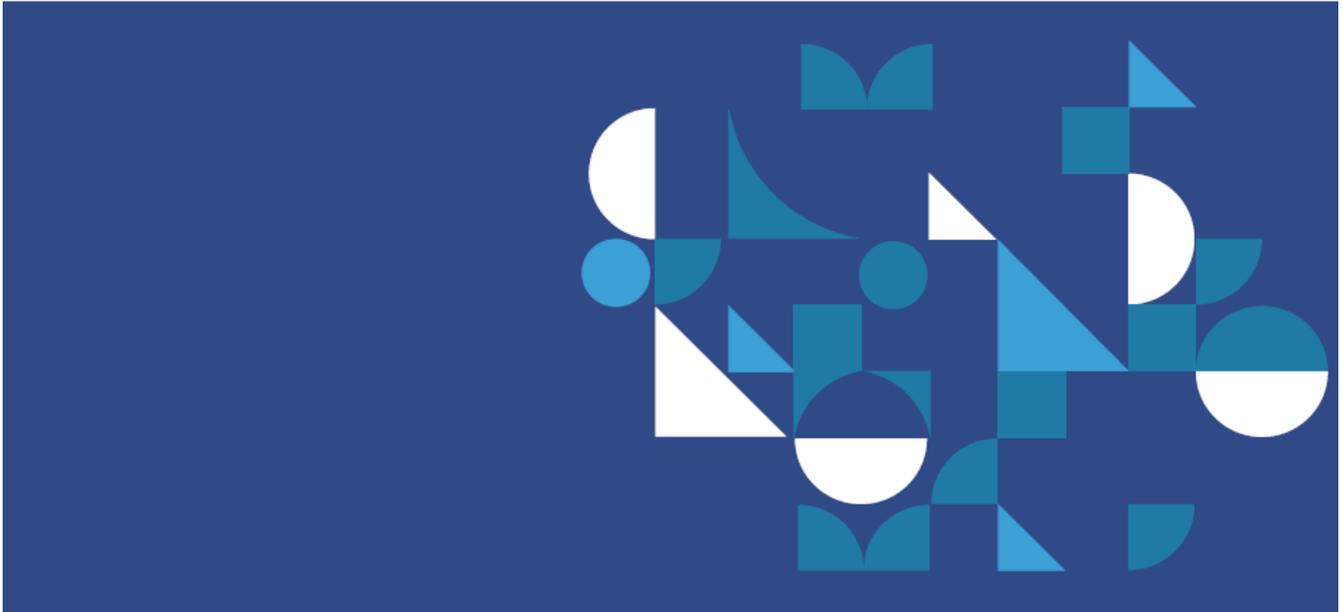
Deliverable: **E-LEARNING MODULES IMPLEMENTATION ACTION PLAN**

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OUTLINE

Introduction

The purpose of this report is to present the adopted Action plan addressing the elaboration of the elearning material by each partner in a coherent way, including to describe how the testing phase of the e-learning modules should be implemented in the 4 partner countries. The Plan contains the following topics:

- Specific tasks: what will be done and by whom;
- Delivery procedures;
- Definition of the country leader and detailed workflows, information exchange methods and procedures: in order to enhance a lean individual work and cooperation among the national partners;
- Time horizon: specific intermediate deadlines within the Task time scale

and as Annexes:

- Tables for the collection of attendees' results
- Questionnaires to collect the attendees' feedbacks concerning the learning methods;
- Questionnaire to collect the attendees' feedback in terms of tackled topics.

Context

The modules have been selected by the different academic and industrial partners based on the previous experiences for course renovation carried out in WP3 and they have been already introduced in D4.3.

Since in this WP there are mainly four academic partners involved, which are located in four different countries with learning environments that are, following academic traditions, very differentiated, the local legislation, local culture and local restrictions need to be considered. Because of this it is not possible to launch an action plan that is meant to be followed by each partner in the exactly same way. This aspect, that could be understood as a constraint, is in fact a strong opportunity when dissemination and exploitation is foreseen, because potential users with completely different cultures are most than welcome to the paradigm, because diversity was taken into consideration from the very beginning.

By respecting the local culture and way of providing value for each revised course module, the goal is to decide how they will be configured as asynchronous based learning objects. Therefore, there are a set of preliminary decisions impacting on digital platform which is worth to make clear before initiating further actions.

The leadership for the WP4, as planned was taken by the UPM partner, who elaborate an action plan, inviting each partner to contribute with their vision and configuration effort to build the set of modules, while the technical assistance was provided by the UPM team. Specific deadlines according to the defined tasks were setup and frequent on-line meetings were scheduled and attended to guide the appropriate elaboration of the components. Specific partners used Erasmus+ staff mobility schemas to visit Madrid and run face to face meetings in order to address different issues.

In all the cases component delivery was carried out electronically, either in the adopted learning management system (LMS), or by email.

Detailed Workflow of activities

During the WP kick-off meeting it was agreed to adopt Moodle™ as LMS, as all the partners were in favor of it. Such decision will be established as background for the coming steps and it was considered the first relevant step in the roadmap.

Then, For each of the course modules to be migrated into the e-learning platform it was required from authors to define few parameters such as,

- The Full Name of the course,
- The wished Acronym,
- The course start date and duration,
- Type of foreseen presentation (Weeks, themes, other …),
- The Names and Surnames of the teachers involved,
- The email of the teachers involved.

This step helped in doing the platform configuration and to make appropriate room space for each of the modules.

In addition to the previous steps, higher level of definition was requested to the module responsible people, in order to identify the potentially different expectations each module was intended to cover. Therefore, each module designer provided a short description of the pedagogical model the module wants to use for the asynchronous implementation. This should not be a literature review, although references are welcome to justify the choice(s). In addition, a short description of the intended methodology to be used for course delivery was also under consideration to better provide background information to learners responsible and course facilitators. As potentially different functionalities could be accommodated in a single module, a short description was also requested in order to enable better integration between them. The adopted approach was to communicate to the partner responsible for the platform the individual contributions in documents by email using an asynchronous approach within an agreed deadline.

Having all these aspects defined, the next step was the effective implementation of the content into the LMS platform, and the initial unitary tests as well as the integrated ones.

After the elaboration and initial internal tests, the next step was the presentation of the e-modules, looking to maximize the brought value. This particular information was also useful for Task 4.4, by easing the way other partners can use the created e-learning modules for local teaching, or adopt totally or partially those created inside IE3.

Then, the test phase started, and the industrial partners were exposed to the modules and requested to deliver comments against an agreed questionnaire. Immediately after, the step for exposing the modules to the regular students and requesting a similar assessment was started.

Based on the comments each module creator recovered from the agreed survey a reflective analysis step was started and conclusions as well as proposals for improvement were suggested and discussed in the Madrid physical meeting (the first after the pandemic era).

To this end, it is relevant to emphasize the full commitment of the partners with the agreed approach for collecting comments in an integrated way, easing the analysis phase. The questions to be obtained were implemented in the LMS itself, avoiding useage of external links and additional software tools. Once it was implemented in a single course (IE3PMM by UPM partner), it was presented, discussed, and finally exported as component, in a way that the other courses can import

it and place at the same level in the course, as a mandatory activity to de developed by learners after finishing the learning and practicing parts in the module.

A second round for improvements started then and it drives to the final versions of the modules that can be found as D4.6 of the project.

Just to illustrate the different perspectives accommodated under the adapted paradigm, for some project partners the E-learning implementation was one of the aspects of the course revision, focused on technical aspect of providing classes and, the main reason for revision was the need to update the content provided and minimize the gap between theory and business/industrial practice. Including examples and business problems in the scope of the course will result in increased understanding of manufacturing systems and processes, while for other partner, according to the declared needs the e-learning approach was the perfect way to address different type of learners with different needs but also having different ways of learning preferences. To this end, as intrinsic part of this work, different analysis and reflective work were produced, looking to better understood the learning characteristics of the Z generation learners (see Figure 1). The outcome of this reflective analysis was central part of the adopted methodology of specific partner (short videos, alternative visual content to the lectures), frequent quiz tests to catch up the attention and improve gamification components as well.
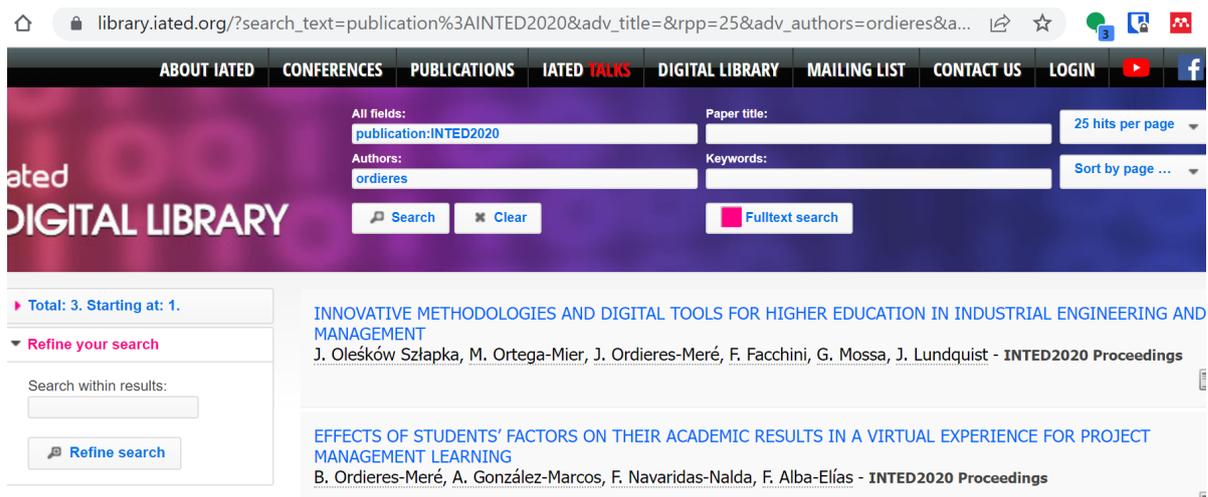

Figure 1.-   Reflective analysis disseminated throughout conferences but also part of the module design and implementation carried out.

From the methodological dimensions, indeed different perspectives were accommodated as well, including those traditional ones based on knowledge capture or some other looking to pay attention to the competencies perspective, while it was also matter of reflective parallel work (see Figure 2).
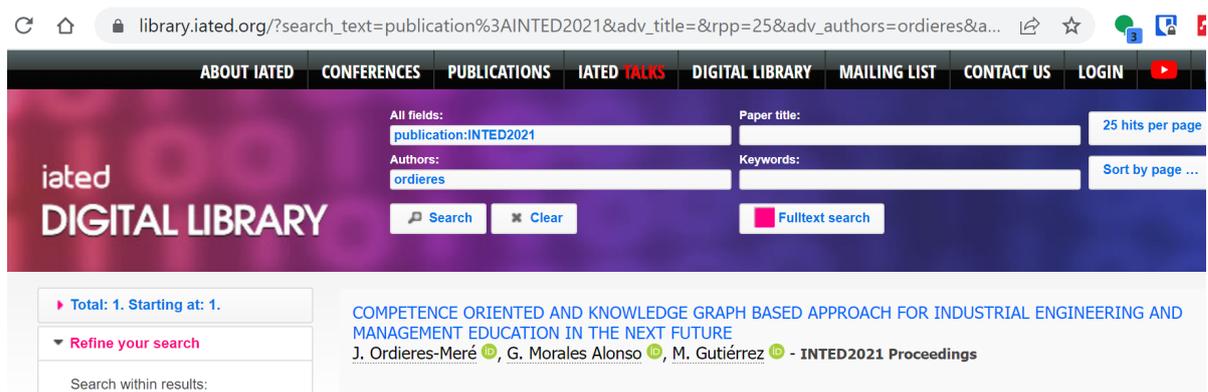
Figure 2.- Scientific work developed in the framework of the project.

Time horizon perspective

The adopted time framework was associated to the different tasks, listed below

- • T4.1 - Setup the technical environment for the e-learning system, including serious gaming and learning routes extensions. [3 Months]
- • T4.2 Defining pedagogical criteria for the e-learning courses and development of a Pilot Action Plan [2 Months]
- • T4.3 Preparation of e-learning modules starting from the training materials prepared [4 Months]
- • T4.4 Pilot test of the e-learning modules within the partner Universities [3 Months]
- • T4.5 Analyzing the feedback received by the users [1 Month]
- • T4.6 Development of the required improvements [3 Months]

Where the expected deliverables were also defined:

a) **Description of the modules transformed for e-learning**
b) **Pedagogical model beyond the e-learning implementation**
c) *Intended usage of the platform by learners*
d) **Which nonstandard elements must be required (*gamification, etc.*)**
e) **Added value (strengths) the e-learning module provides. This is relevant as other partners can decide cross use it because of your description. *To summarize the strengths in several bullet points is highly recommended*.**
f) **Content Creation**
g) **Behavioural tests**

Task 4.1 Required elements were a) and c)

Task 4.2 Required elements were b), d) and e)

Task 4.3 Required element was the f)

Task 4.4 Required element was the g)

Task 4.6 An overarching report regarding the implemented changes, to be added to the previous elements of information was prepared with the agreed aspects after the Madrid meeting.

References

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