

Progress Report WP4 – Activity 4.1

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1 Introduction

Jordan and Syria face serious problems pertaining to available water resources, climate change and environmental quality. These problems require innovative engineering approaches that take into consideration the uniqueness of local situations where projects are to be implemented. Moreover, under conditions of scarcity it is important to manage physical resources in ways that achieve the optimal outcome for all stakeholders.

The EGREEN project aims to ensure that the universities in Jordan and Syria can offer a high quality education compatible with European standards and meets the market needs of the emerging knowledge-based society by strengthening environmental teaching. Also, EGREEN aims to introduce the concept of climate change in order to graduate professional leaders who can meet market needs of the country as well as it will Develop and integrate a bachelor degree program with an appropriate laboratory component in environment jointly taught by universities in Jordan and Syria and brought into line with the Bologna requirements.

This project will engage faculty in the development of interactive instruction techniques for lectures and laboratory courses and sharing experiences with EU partner universities and it will develop and implement course content for undergraduate students.

Project direct aim is to enhance the capacity and enable Jordanian and Syrian partner universities to develop courses to environmental component for undergraduate programs with state of the-art educational technologies. EGREEN will thus contribute to a sustainable outcome that will promote curriculum reform in engineering education and leave a longer-term legacy for Jordanian and Syrian universities.

All project's partners have rich experience and successful track record and active participation in Tempus projects which will ensure that the consortium will achieve EGREEN objectives. It is envisaged that these specific objectives will contribute to a sustainable outcome that will promote curriculum reform in environmental engineering education and leave a longer-term legacy for both Jordanian and Syrian universities.

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1.1 EGREEN Objectives

1. Develop, integrate, accredit and evaluate environment related modules with an appropriate laboratory component to be integrated in existing courses jointly taught by universities in Jordan and Syria and brought into line with the Bologna requirements.
2. Engage faculty in the development of interactive instruction techniques for lectures, laboratory courses, and sharing experiences with EU partner universities.
3. Develop and implement course content using e-learning.
4. Introduce a climate change into selected course.

1.2 Organization of WP4

The Team of the Universidade Católica Portuguesa was defined as leader for the whole work package 4.

In WP4 the main assumption is that Universities will remain interested in training and adaptation of courses eLearning technologies. There is the risk that internet connectivity and bandwidth are not sufficient for use with VLE and that professors and students lose interest.

The tasks of the WP4 are: select , construct and operate a suitable VLE, lead its personalization process, design content of two courses on environment and deliver in eLearning format, and their develop assessment and evaluation strategies .

To achieve this, 2 courses in e- Learning Environment will be developed as means of an eLearning delivery mechanism of the proposed new and other courses. Staff from Jordan and Syria will visit EU partners to attend workshops on e-learning platforms and alternative delivery mechanisms such as Blackboard, Moodle and other Web-based mechanisms, to eventually adopt the most suitable platform. The preparation of e-learning will be carried out in parallel with selecting a variety of suitable, advanced and updated educational and teaching material. This will include software and multimedia tools, audio-videos, and CDs.

The content and range of information of the educational material will be determined in such a way in order to support different educational activities, training of academic staff, and short course training of engineers. The environmental labs, developed in WP3, in coordination with HS-OWL, will be integrated to this e-learning. After adopting environment, courses will be delivered by Jordanian and Syrian professors supported by EU colleagues.

Choice of pedagogy (teaching, learning and assessment) is a blended approach of traditional face-to-face contact as well as lectures by EU and local professors supported by full interactivity of the e-learning offering not only flexibility of content delivery but also the opportunity for shared social learning between partner institutions.

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Activities carried out to date to achieve this result:

Activity N°	Activity Title	Start date	End date	Place	Description of the activity carried out	Specific and measurable indicators of achievement
4.1	Development of e- Learning Environment.	1.12.2017	01.01.2018	Online	The Moodle platform was evaluated, selected and is being operated for the project. The e-learning platform was established, adapted to the project objectives, and linked to EGREEN official website: https://vle.ju.edu.jo/moodle/	EGREEN e-learning platform was created as a suitable VLE.
4.2	Adaptation of e-learning Courses into curricula	01.01.2018	14.04.2018	Online	The two e-learning courses were selected and created on the EGREEN platform. The course structure is established and the terms of references for design development were specified. The teaching material is being developed and uploaded on the website.	No.2 e-learning courses uploaded on the platform
4.3	Personalization of e-learning	01.01.2018	14.04.2018	Online	The learning tools and methodologies were identified. A blended learning approach will be followed in the two EGREEN courses. The strategy is to focus on active learning proposals including project-based learning.	Identified learning methodologies and tools

2 Development of e- Learning Environment. (Activity 4.1)

Summary

The Moodle platform was evaluated, selected and is being operated for the project. The e-learning platform was established, adapted to the project objectives, and linked to EGREEN official website: <https://vle.ju.edu.io/moodle/>

Tasks

- Specification of a VLE for EGREEN
- Evaluation of Technology and Experiences for VLE's
- Adoption of a VLE platform
- Development of a VLE for EGREEN

2.1 Presentation to the different Project Partners of technology solutions to support the EGREEN Virtual Learning Environment (VLE)

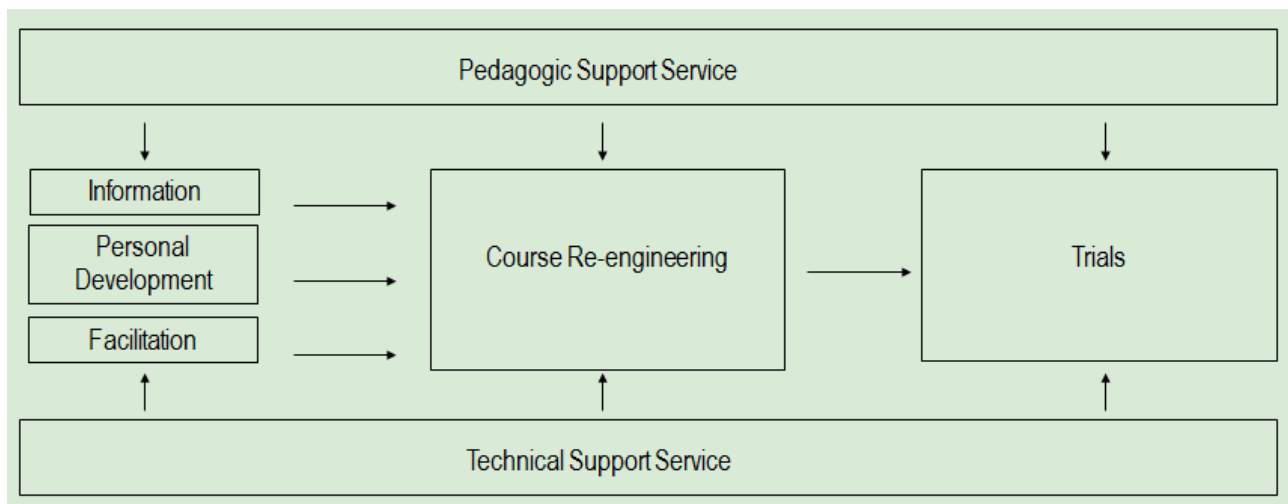
Discussions between partners took place around the technology-enhanced learning that is foreseen the design and development of a VLE, considering:

- a) Objectives
 - Integrate information and communication technologies in the activity of Learning.
 - Improve and develop the learning process.
 - Adopt e-Learning platforms with functionalities for: managing the learning process, integrate contents and activities, implement evaluation procedures, support synchronous and asynchronous communications in the course context,...
 - Promote the design and implementation of learning activities mediated and supported by technologies to facilitate collaborative approaches, communication in the learning group, allow new ways of evaluation, reinforce the learning context, contribute to a more active and participated learning process, and to the development of specialized communities of learning and practice.
- b) Structuring e-learning change
 - Distributed Learning Platforms (DLP), LMS, PLS, IDLE, CSS, DLS or e-Learning platforms (WebCT, BlackBoard, Moodle, Teletop, TWT, ...)

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- General application systems, integrating multiple functionalities
- Internet/www based with synchronous and asynchronous components
- Highly configured and adapted by end-users to specific applications
- Allowing the building of environments to support learning activities
- Information Systems, non-transactional, specially supporting communication, coordination and collaborative processes



c) Functionalities of a-learning platforms

- Context: supporting collaborative learning activities (forums, chat, mailing lists, publication, groupware, ...)
- Contents: access and exploitation of different resources (multimedia, text, hypertext, ...)
- “Experimentation”: exploitation of virtual laboratories, simulators of experiences and equipments, remote use of laboratories, ...
- Evaluation: use of tools for multiple answer quests, publication of portfolios, presentations of projects, ...
- Organisation and management: course curricula, informations, summaries, ...

d) Strategies

- Project based (Individual, Group)
- Structured Inquiry (Webquest, ..)
- Case Studies
- Simulations (Didactic games, Role playing, ...)
- Problem Solving

- Debates and Discussions
- Articles (Resumes, ...)
- Brainstorming
- Portfolios
- ...

e) Methodologies

- Knowledge is in the individuals and not outside...
- Words are not packages of concepts and their meaning needs to be negotiated...
- The learning strategy is usually problem-solving...
- Others are very importantes, causing perturbations that being solved lead to cooperative learning
- Experience is very important aiming at the partial fit with reality, as the senses are not channels through which truth is transmitted from outside...
- Science under a constructivist perspective is not so much the search for truth but the attempt to make sense of the world...
- Previous knowledge of the learners is very important...

Constructive PRACTICES

- It is opposed to having people attentive and passive...
- Learners need time to reflect in their experiences and to relate them with what they already know
- An important part of learning should be the negotiation of meaning, comparing with what they already know, with what the others say and solving the discrepancies...
- The learning process cannot stop at class level; it is important that students compare the knowledge built in the classroom with the knowledge built by the scientific community...
- Encouraged to speak, not only with the teacher but among them...
- The main task of the teacher is to establish and maintain a learning environment with certain characteristics we will mention later...
- CLEs (Constructive Learning Environments) are the main multimedia contribution to this perspective.

IMPLICATIONS TO EDUCATION and TRAINING (cf Graham Hills)

OLD

- Static
- Impassive
- Single medium
- Synchronous
- Passive
- Unidirectional
- Local
- Audience
- Real

NEW

- Dynamic
- Supportive
- Multimedia
- Asynchronous
- Active
- Interactive
- Network
- Person
- Virtual

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- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P. & Trow, M. (1994). The New Production of Knowledge – The Dynamics of Science and Research in Contemporary Societies. Londres: Sage Publishers.
- Hill, G. & Tedford, D. (2002). The Education of Engineers: The Uneasy Relationship Between Engineering, Science and Technology. Global Journal of Engineering Education, UICEE.

2.2 Presentation to the different Project Partner of the experience of exploiting different e-learning platforms and LMS (Learning Management Systems)

Final discussions around the Moodle system and the Blackboard system. Both systems were presented in detailed to Partners.

The final discussion was to adapt the Moodle system, an open source platform, widely used with very good match objectives were considered.

2.3 Development of the EGREEN VLE based on the Moodle system and implemented on the Jordan University servers and communication infrastructures available to the EGREEN Project Partners.



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