

# COURSE DESIGNING AND CONTENT REUSING AND INTEGRATION

Eduardo Luís Cardoso<sup>1</sup>, Pedro Pimenta<sup>2</sup>, Filipe Lopes<sup>3</sup>

<sup>1</sup> CBQF, Universidade Católica Portuguesa (Pt)  
[elc@esb.ucp.pt](mailto:elc@esb.ucp.pt)

<sup>2</sup> Centro Algoritmi, Universidade do Minho (Pt)  
[pimenta@dsi.uminho.pt](mailto:pimenta@dsi.uminho.pt)

<sup>3</sup> FENALAC (Pt)  
[filipe.lopes@fenalac.pt](mailto:filipe.lopes@fenalac.pt)

## COMUNICAZIONE

*ARGOMENTO: Course design in multilanguage and multicultural context; how to improve (re)use and/or inclusion of didactic materials and multimedia elements.*

## Abstract

The EGreen project (EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP) 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 modernising their 'environment' curricula, developing and implementing a sustainable bachelor's degree programme. In this context, its foreseen the development of a set of e-learning based short courses in order to ease the access to selected materials and promote the scaffolding of a community of interest among teachers and students. This paper presents a set of guidelines for the structure of these courses, covering two main topics, viz - i) general course unit requirements; ii) reusing of contents ('resources') and structuring of contents and activities.

**Keywords** – Course design, reuse of didactic materials and multimedia components, multilanguage and multicultural context, ECTS, multi-source resources.

## 1 CONTEXT AND INTRODUCTION

The EGreen project (EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP) 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 modernising their 'environment' curricula, developing and implementing a sustainable bachelor's degree programme [1].

In this context, its foreseen the development of a set of e-learning based short courses in order to ease the access to selected materials and promote the scaffolding of a community of interest among course author's and participants. This paper presents some grounded work aiming to accelerate the setup of the courses, by, simultaneously, performing what can be described as an overall and first draft of the "Analysis", "Development" and "Implement" stages of the ADDIE model [2], as proposed in the LLAMA approach [3] - thus helping the authors' next effort to focus in a small and cohesive set of design choices, oriented to Moodle implementation.

Next sections detail three main aspects of course design & implementation: i) General Course Requirements, ii) Structuring resources and Activities and iii) Content reuse, and end by iv) presenting some proposed structuring aspects of the available prototype.

## 2 GENERAL COURSE REQUIREMENTS

This section covers the general course requirements, viz – i) Language, Duration, Overall structure and ii) Pedagogical model.

## 2.1 Language, Duration, Overall structure

Course materials ('resources', as referred in Moodle context) and activities will be prepared in English, and setup in the Moodle environment. After the setup and evaluation of the English version, translation to all Partner languages will follow (Moodle platform menus are already available in several user languages).

In this context, "Course" is considered to be a variable-length set of "course units", being the "course unit" the standard unit of studies, with an overall effort for a participant in the range from a couple of hours (2 ~ 6 hrs) to the standard 25 to 30 hours (1 ECTS unit, [4]).

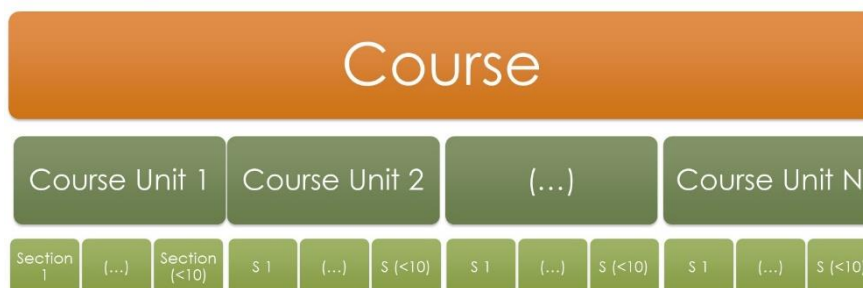


Figure 1. Overall structure of one course

This 'student time' includes studying the suggested 'resources' and performing the required activities like quizzes, collaboration activities, research activities, etc. In the sake of homogeneity, it is suggested that each "course unit" should have from 5 to 10 "sections", and each section should have approximately the same effort for following contents (text, video) and interaction activities (quizzes, discussion forums, etc...). According to these numbers, "section" duration ranges from 2.5 to 6 hrs.

## 2.2 Pedagogical model

Moodle supports and promotes a rich learning environment, taking full advantage of up to date technologies and methodologies for eLearning delivery [5].

The proposed general model aligns three main activities and purposes; viz:

1. access to selected 'resources' - allowing the participant to access information, through selected 'resources' (both made up by the course teacher or reused from public domain resources);
2. self-monitoring & assessment - giving participants the opportunity to answer closed answers quizzes and receiving immediate feedback about their learning progress.
3. collaboration (forum, glossary, etc..) and peer assessment (workshop) - giving participants the opportunity to peer contact and collaboration, and fostering the development of a specialized learning community on the Course subject.

## 3 STRUCTURING RESOURCES AND ACTIVITIES

In order to ease and motivate the participant progress throughout the course, a serie of aspects are considered and detailed in the following paragraphs.

### 3.1 Section structuring

It is suggested that each "Section" be structured accordingly the following framework (time duration might be indicative, but the item is necessary, in order to help, guide and feedback the student throughout his/her study effort):

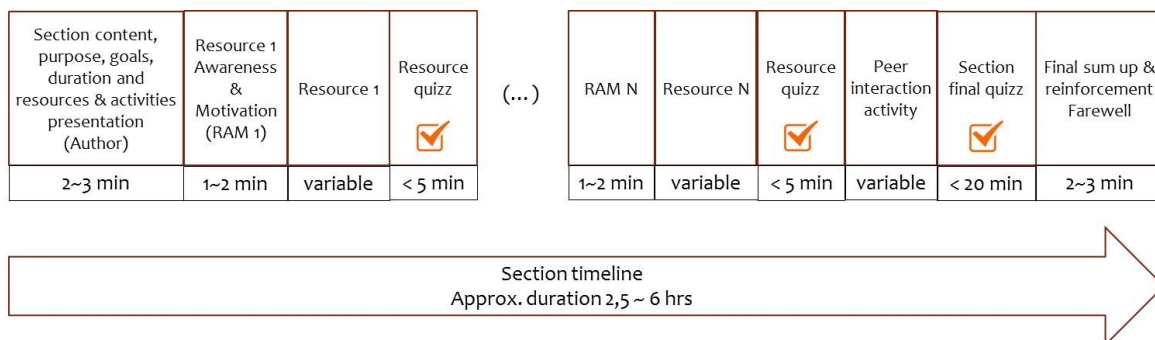


Figure 2. Section structuring

This structure has the following rationale:

**A. Section content, purpose, goals, duration, resources & activities (2~3 min)**

This is a short item (2~3min, 1~3 PowerPoint slides) clarifying what are the contents of the “Section”, what is the Section’s purpose - why the following contents are important for the students; which are the Section goals - the Student’s learning objectives; what is the expected duration of this “Section”, and what are the tasks to be performed. A task might be the interaction with a “Resource” - ‘study a document’ or ‘assist to a video’ (with a given purpose), or the execution of an “Activity” (taking a quiz, participating in a forum, doing and publishing some homework, etc...)

In order to promote an emotional bound of the Student with the Course and induce a “sense of community”, it is advised that this item includes a picture or short video (2~3 min) of the Section Author(s) and an email/phone contact to be addressed in the case of any difficulties or doubts.

**B. Resource Awareness and motivation (1~2 min)**

Just before having access to a new ‘task’, it is advised to rise the awareness of the Student for ‘why is this ‘task’ good for’, what it is supposed the Student ‘to learn’ or ‘to practice’ - what are the expected ‘learning objectives’ and what is the expected duration till completion - this will help the Student to focus on these aspects and better align his/her studying effort with the assessment activities foreseen to the end of the Section.

**C. Resource (variable duration)**

The ‘Resource’ concept might be anything with information to be accessed by the Student - it can be a written document, a video, an infograph, an audio recorded file, an interview, a case study, a tale, an animation movie, a song, solved exercises, etc. - the Student should read / assist / ear / follow the content attentively and paying particular attention to the topics / aspects mentioned in the afore mentioned “B. Resource Awareness and Motivation” (more detail about this in following “Content Reuse”).

A closed answers quiz might be made available by the end of each “Resource” - in a standard ECTS (25 ~ 30 hrs) “Course Unit” a “Resource” might have a duration from 2,5 hrs to 6 hrs - it is a nice and efficient approach to provide the Students with a tool to check if they are on the right track and should progress to the next “Resource” or if they need to go back to the just finished “Resource” and perform a deeper acquisition of the necessary competences before progressing to the next “Resource”.

**D. Peer interaction activity(ies)**

Beside the Student interaction with the “Resources”, it is foreseen that EGreen Courses will need the “Collaboration” component, in order both to minimize the Student isolation and solitude, and to provide a context to peer support, confrontation and validation of the acquired knowledge and competences and to provide some initiators for community building.

Moodle provides some formal and informal ways to promote peer interaction and collaboration - from ‘Present Yourself’ fora (ice breakers) to collaborative FAQ or Glossary edition, to more formally peer assessed “workshop”, there are several alternative “activities” that promote peer interaction.

As a ‘rule of thumb’, it is advised to include one “Collaborative” activity per “Course Section”, in order to improve peer recognition and community build-up.

### E. Section final quiz

It is suggested that each Section has a final “section sum-up” quiz of closed answers - as soon as the Student completes the quiz, he/she will be granted access to his/her quiz grade and, eventually, pre-programmed comments about his/her overall section performance.

Based on the obtained grade, Student might be allowed to progress to next ‘resources’ or ‘activities’ or - if the mark is not good enough - Student is encouraged and motivated to repeat previous activities and repeat the quiz until getting the necessary mark to be allowed to progress in the “Section”.

It is thus suggested that a base set of 30 ~ 50 questions be prepared for each “Section”, and a quiz of 10 questions be randomly selected, each time a Student requires the “Section” quiz.

### F. Final sum-up and reinforcement closing

If the “Course Unit” is designed in order to allow the Student to focus in one “Resource” at a time, the final Sum-up and reinforcement might play an important pedagogical role - Made available upon the completion of previous ‘Resources’ & ‘Activities’, and when the student has already got a passing grade on the “Section Final Quiz”, this final message can i) Congratulate and Cheer up the Student for his / her success in the previous Activities; ii) remember the topics of the current Section, iii) summarize the knowledge / competences / accomplishments / work done in the current Sections, and iv) briefly introduce / tease the Student about the next Section.

### G. Final notes

Moodle environment provides a large and diversified set of tools for supporting eLearning activities - In the previous pages we presented and discussed a structure made up of a small set of options for “Resources” & “Activities” that we believe are aligned with the context and purpose of EGreen Project, in order to optimize the learning experience of the Participants. Considering the actual - initial - stage of the project ([2], [3]), this proposal will be further examined and experienced (“Design” and “Evaluate” of ADDIE model [2]) and, eventually, this structure will be rebuild accordingly the findings of such activities.

## 4 CONTENT REUSE

When setting up a Course, Authors must consider what “resources” to include, how to sequence them together with “Activities” and how to make this in order to create the “best possible learning experience” for the Participants - The pedagogical framework structure has been described above, in 3. Structuring Resources and Activities - we will focus now on practical aspects of ‘content’s reuse.

Sometimes Authors want to use their own textbooks, or slides, or notes - ‘Resources’ -, and sometimes Authors would like to reuse some other person contents like a video available at YouTube (or Vimeo), or a textbook available at Scribd, infographics from Pinterest, etc...

There are a couple of social web digital repositories (docs, slides, videos) whose contents might be easily reused and integrated in Moodle environment – As a general guideline You can integrate contents from several sources in Moodle courses in two different ways, viz – i) through a PowerPoint ‘container’, ii) - directly into a ‘Page’ (or ‘Lesson’) item.

### 4.1 PowerPoint as a general wrapper for (external) video ‘Resources’

PowerPoint slides might be used as a ‘general wrapper’ for YouTube videos - in fact, PowerPoint slides uploaded to SlideShare might be interweaved with YouTube videos as pictured bellow:

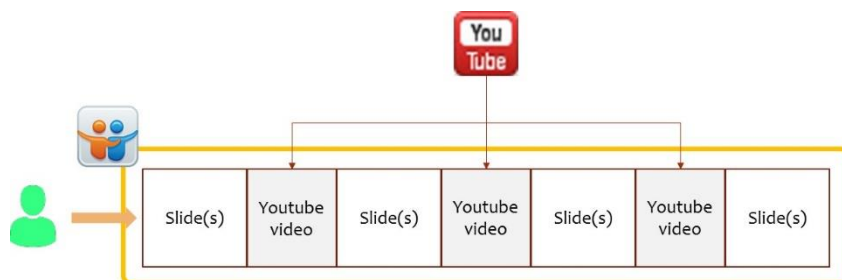


Figure 3. Powerpoint @ Slideshare as a general wrapper for YouTube videos

The videos will not be 'embedded' in Your slides - they are interseed by SlideShare at the slide transitions specified by the Author - but the User Experience is "as if the videos were embedded" in Your slides, since they are effortless and transparently presented to the Participant in the order You specified, as if they were part of the presentation (this approach can be checked at <https://goo.gl/yVbg6Q>, <https://goo.gl/kxBhN7> or in the Course Prototype available at <https://goo.gl/C6cVxL>, sections 1 & 2).

## 4.2 Moodle 'Page' as a general container for (external) eLearning 'Resources'

The Moodle 'resource' item "Page" allows also the easy re-use / embedding of external contents (Resources) - As an example, we created an example of a 'Page' that is made up of contents publicly available in social repositories, namely - SlideShare, YouTube, Vimeo, Pinterest and Scribd.

As detailed previously (cf. Structuring Resources and Activities), the effort of the Participant / student must be directed and focused by clear instructions on micro items "Resource Awareness and Motivation" (RAM).

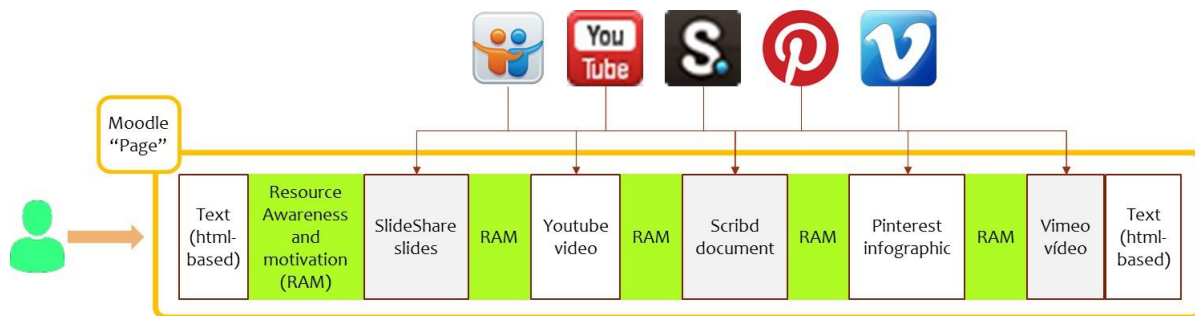


Figure 4. Moodle 'Page' as general wrapper for multi-source content.

A prototype of this page can be seen at Section 3 - Where is more information available? of the EGreen Course Unit Prototype (cf. <https://goo.gl/tRCAki>).

Similar integration result might be reached using the 'Lesson' Moodle resource – in this text we focused on 'Page' given the fact that 'Page' is a simpler resource.

## 5 MOODLE PROTOTYPE AND FINAL REMARKS

The concepts and choices presented in this document might be seen in action in a prototype 'Course Unit' set up on the subject of "Climate Change", available at <https://goo.gl/gzAxqX>.

### 5.1 Main guidelines exemplified in this prototype

Considering the EGreen project context and purpose, a set of recommendations have been identified and prototyped, in order to better communicate and illustrate their real meaning and value:

- Duration / number of items for "Course Unit" / "Section" (standard values are better to avoid Student complexity / information overload / confusion);
- Clear and explicit definition of the Learning Objectives (LOs), and continuous, reiterate explanation and tasks-oriented explanation how each "resource" / "activities" - including sum up quizzes - are aligned with and contribute to the LOs.
- "Resources" and "Activities" combined in number / complexity / duration as homogeneous and strictly aligned with the LOs;
- Explicit, simple and guided "learning paths" throughout the combination of "Resources" and "Activities"; Contents and activities made available on the Student's course progression;
- "Resource Awareness and Motivation" (RAM) and "Final Remarks";
- Two main options to easily reuse digital contents, viz, i) produced by the EGreen consortium or ii) already freely available on the internet

The final purpose of these recommendations is to help the Course Author to guide the students to reach the "Learning Objectives" by focusing on the proposed "resources" / "activities".

Following pictures depict the final layout of the prototype, stressing the implementation of some principles and options detailed above:

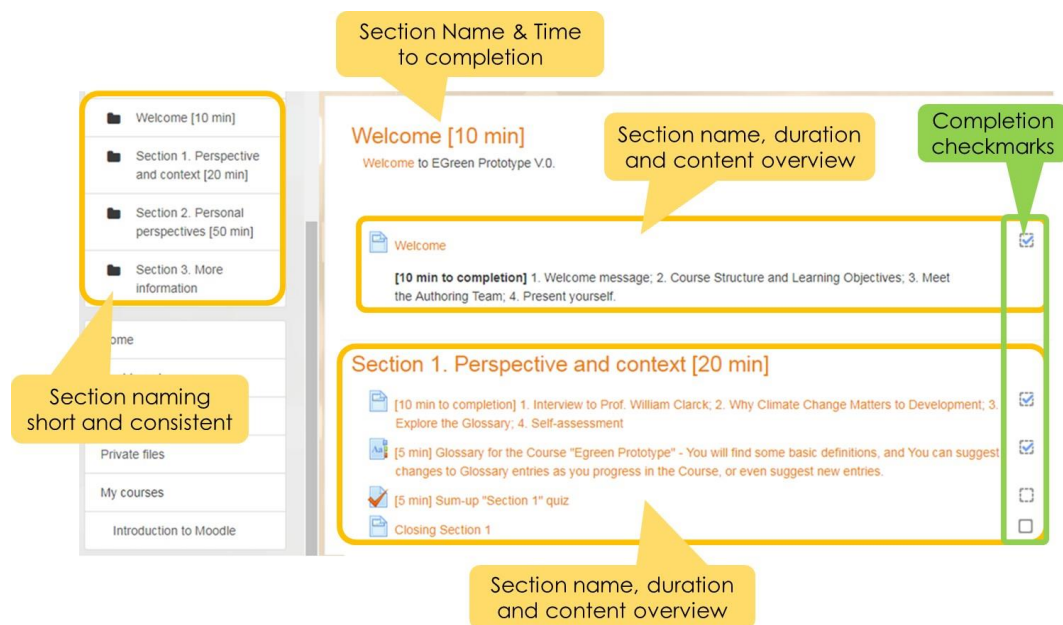


Figure 5. Tidy interface, with several different ‘content’ items packaged in one ‘Page’ (Prototype).

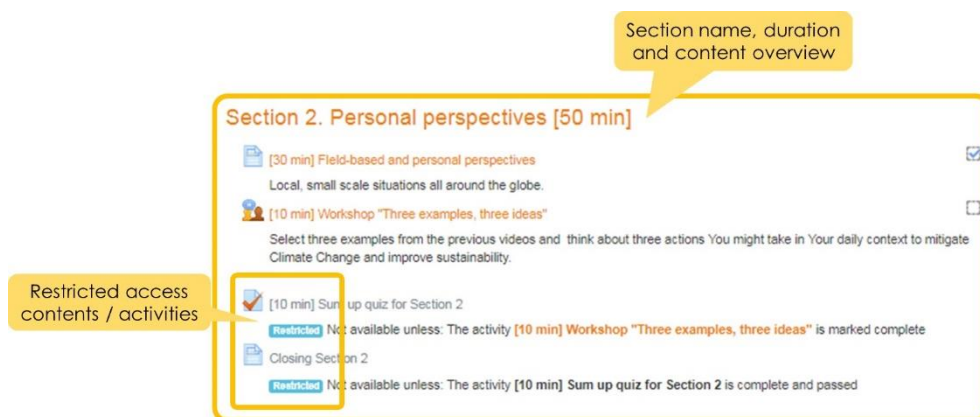


Figure 6. Few items / simple Section, with several packaged items in the ‘Page’ resource.

## 6 REFERENCES

- [1] “Welcome to EGreen website”, <http://sites.ju.edu.jo/en/egreen/Home.aspx> (retrieved July 13<sup>th</sup>, 2017)
- [2] Kruse, K. (2006). “Introduction to Instructional Design and the ADDIE Model”
- [3] Megan Torrance, “Agile and Ilima for ISD project management”, ATD Learning and Development, Vol. 31, Issue 1411, November 2014
- [4] “European Credit Transfer and Accumulation System (ECTS)”, [https://ec.europa.eu/education/resources/european-credit-transfer-accumulation-system\\_en](https://ec.europa.eu/education/resources/european-credit-transfer-accumulation-system_en) (retrieved July 13<sup>th</sup>, 2017)
- [5] “Pedagogy”, <https://docs.moodle.org/23/en/Pedagogy> (retrieved July 13<sup>th</sup>, 2017)