



RegAgri4 Europe

Upgrading the Agricultural Sector
with Skills in Regenerative Agriculture



**Promoting
the global transition
to regenerative food, farming
and land management**

www.regagri4europe.eu

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Executive Summary

This report defines the technical and contextual requirements for the RegAgri4Europe Virtual Learning Environment/VLE.

Contextual requirements concern the structure and type of information that will be available on the platform, including resources management, users' communication, evaluation and documentation.

Contextual requirements also concern the key features of the platform that will contain the training, including building blocks of the courses, architecture, course structure, assessment and certification, collaborative mechanisms, users' communication, accessibility, roles and enrolment.

Technical requirements concern the software specifications of the Platform, including IT architecture, software components, installation prerequisites, software prerequisites, course content format and specifications.

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1. Introduction

The objective of this report is to present the contextual and technical requirements for the design and development of the RegAgri4Europe VLE.

1.1. Design of the RegAgri4Europe VLE

The design of the RegAgri4Europe VLE takes into account the suggestions given in the EU Project Websites – Best Practice Guidelines (EC, 2010)

- The structure and the sections of the RegAgri4Europe VLE provide the required information;
- the EU co-funding is acknowledged, also by the inclusion of the relevant logo and disclaimer;
- The RegAgri4Europe VLE is user-friendly

Moreover, it contains monitoring and feedback tools: the website provides analytics to the users and their activity and engagement.

1.2. RegAgri4Europe VLE - Course Content License

The RegAgri4Europe VLE will host the RegAgri4Europe VOOC. With the aim of this course, apprentices will develop skills, knowledge and competencies in the field of Regenerative Agriculture. The course, including all material provided, will integrate the latest advancements in the field of regenerative agriculture that can be applied by apprentices.

The training material will be widely available as **Open Educational Resources**. The training and learning resources freely and openly for educators, students and self-learners for use, reuse, adaptation and sharing. Constraints imposed will be regarding commercial reuse of the material as well as giving appropriate credit and license when reusing the material. The resources will be released under the [Creative Commons Attribution-NonCommercial 4.0 International Licence](#) . That means that the user will have to :

- Give appropriate credit, provide a link to the license, and indicate if changes were made. The user may do so in any reasonable manner, but not in any way that suggests the licensor endorses the user or his use.
- distribute his contributions under the same license as the original given any remix, transformation, or build upon the material.

All resources will be made available in downloadable and editable formats so that the user can store them locally and access them when offline (such as text documents, presentations and videos).

The RegAgri4Europe VLE follows the latest technology in Online Training to allow for the collaborative interaction between its users through both learning and assessment activities.

The RegAgri4Europe VLE will be incorporated into the project website: <https://regagri4europe.eu/>.

The RegAgri4Europe VLE is based on the edX software, the Open edx¹. This software platform is designed to engage the participants and teachers in an interactive and modular manner. It promotes active learning by using video snippets, interactive components and game-like experiences. The Open edX software is open-source technology focusing on learning easier and faster. It was created by MIT and Harvard university and was quickly supported by universities such as UC Berkeley, Georgetown and Stanford and companies such as Google and Microsoft.

This software platform is designed to engage students and teachers in an interactive and modular manner. It promotes active learning by using video snippets, interactive components and game-like experiences.

Technically, the platform is supported by a collection of autonomous web services called independently deployed applications (IDAs), to address scaling and expandability needs. The vast majority of the back end or server side services are implemented in python, the front-end is based on the Django web application framework, while the browser-side code is written primarily in Javascript supported by SaaS², Backbone.js³ and Bourbon⁴ frameworks. At the centerpiece there are the two key components: the RegAgri4Europe Learning Management System (LMS) and the RegAgri4Europe Content Management System (CMS). The CMS or Studio, is the authoring tool where the Course team creates, updates and manages the course.

It will be designed and deployed following the visual identity of the RegAgri4Europe project ensuring responsiveness.

1.3. Target of the training

- ✓ farmers
- ✓ other interested persons with an agricultural background

1.4. Prerequisites

Specific admission requirements: will be defined by all partners.

¹ <https://www.edx.org/>.

² <https://sass-lang.com/>

³ <https://backbonejs.org/>

⁴ <https://www.bourbon.io/>

2. Learning Management System

2.1. Comparative Analysis of Moodle & Open edX

The author of this Report believe that it is essential to present a comparative analysis of the main characteristics of the most used open access learning platforms, namely the Moodle & Open edX.

The main differences were found and are being presented in the following points:

- Open edX is specifically designed for the VOOO world of online and self-paced learning and caters nicely to larger-scale audiences. The platform can address a few learners to a very high number of learners. On the other side, Moodle is built for a more traditional online classroom model.
- According to some researchers⁵ students in the Open edX environment in comparison with Moodle LMS are more active. **Open edX technology allows instructors to create engaging learning sequences, which promote active participation** as the learners alternate between learning concepts and solving simple exercises to check their understanding. The course content is presented through learning sequences: a set of interwoven videos, readings, discussions, wikis, collaborative and social media tools, exercises and materials with automatic assessments and instant feedback.
- Generally, both platforms are rich in multimedia features, but Open edX is superior because it offers more options for the video content and gives greater importance to interactive learning tools. The Open edX video player, which is based around YouTube's embeddable video player, is excellent, as: custom extensions to this player allow students to follow click-on transcripts to move along the video, adjust video speeds, download both the video and the transcripts, and even view transcripts in other languages.
- Open EdX is also superior in terms of evaluation techniques because of the **automatic grading system for grading**. It develops new methods of giving feedback to learners and tracking their performance.
- Both Moodle and Open edX offer decent communication tools such as discussion forums.

Thus, we believe that the most appropriate LMS to be used for the purposes of the RegAgri4Europe training is Open edX.

⁵ Zagorskis, V. and Kapenieks, A. Impact of LMS Selection on Students' Activity - Students' Activity Evaluation Problems in Moodle and Open edX Learning Management Systems. In Proceedings of the 10th International Conference on Computer Supported Education (CSEDU 2018) - Volume 1, pages 505-512 ISBN: 978-989-758-291-2.

2.2. Contextual Requirements of the VLE

It will take advantage of the Open edX platform capabilities. Since Open edX is an open-source LMS, it will be modified to meet any specifications necessary.

2.3. Microlearning Concept

The user interface of the RegAgri4Europe will offer a brief course outline that help learners see the full scope of the course contents and facilitates the learners to return to the last content area they were viewing.

With microlearning, the content was broken down into bite-sized pieces of learning material, in order for students to study at their convenience.

To improve the microlearning impact, the RegAgri4Europe Staff team is coupling visuals and audio. Combining visuals with audio, not only helps in better retention of the information or recalling it in the future but they are also powerful tools to engage learners and make learning a lot more comprehensive.

2.4. Landing Page

The landing page will provide an initial set of information to the user including:

- A Welcome message
- A course information page
- Footer links describing the Terms of Use, the Privacy Policy and the Honor Code governing the use of the platform
- Footer links to external content such the project website and the RegAgri4Europe consortium
- The EU emblem with the accompanying text « *This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein*» being in line with the Erasmus+ visual identity and logos.
- Search functionality for finding the courses provided by the RegAgri4Europe platform. The search functionality will be enhanced with language filtering, for the delivery in the partner country languages.

2.5. Registration

- The user **needs to create or register an account.**

Upon registering, the user has the possibility to access/enrol in all available courses.

The registration functionality is a two-steps process.

The user creates the account by filling in Email, Full Name, Public Username, Password and Country of Residence.

The second step is to activate his/her account through an activation link sent to his/her registration email. The registration process is performed only once. Having the account activated, the user can login/log out or change the password.

- Having the account activated, the user can login/log out or change the password.

Upon registration the user has access to information related to his profile and account, can search and enrol in all available courses.

In the upper right corner, a button links to the platform online user manual. The online user manual will act as a guide helps users.

2.6. Account features

Each registered user has access to specific course contents, profile, and account settings.

- **Dashboard:** The dashboard provides information of the status courses where the user is enrolled. It includes, Start/End date, email settings and acquired certificates. The user has also access to the content of archived courses with limited functionalities e.g. no certifications are generated after course completion.
- **Account settings.** Includes registration information and additional optional fields such as Education Completed, Gender, Year of Birth, and preferred language. Finally, through this feature the user can link or unlink his/her social media accounts to the RegAgri4Europe platform.
- **Profile Page.** The profile page allows to share information with the RegAgri4Europe community by defining a full profile. The learners' profile can be displayed through the discussion page upon selection of its username.
- Each registered user has access to course contents upon enrolment and since the course is released.

All RegAgri4Europe courses will be open to registered users (Educators, students, professionals, self-learners).

3. Course architecture

Learning modules can be organised so that learning material, either they are reading material/PowerPoint presentations or videos, are followed by knowledge check, through different types of exercises.

The training courses architecture includes the following elements:

1. The **course outline** is the container for all the course content. The outline contains one or more sections.
2. **Course sections (Modules/Weeks)** are at the top level of the course and typically represent a time period. A section contains one or more subsections.
 - 2.1. **Course subsections (Lessons)** are parts of a section, and usually represent a topic or other organizing principle. Subsections are sometimes called “lessons” or “learning sequences”. A subsection contains one or more units.
 - 2.2. **Course units** are lessons in a subsection that students view as single pages. A unit contains one or more components.
 - 2.3. **Course components** are objects within units that contain the actual course content: Videos, reading material, problems/quizzes and discussion forums.

The template for developing the RegAgri4Europe building blocks is presented in [Appendix 1](#).

3.1. Learning sequence

The training content includes a variety of material, from RegAgri4Europe syllabus and schedule to RegAgri4Europe course handouts. The Handouts will include the User's

Guidelines, which provide a description on how to use the platform. The Handouts can also include any other document that our Consortium will find useful for the users.

The training material will include teaching and assessment material developed throughout the project. These can take the form of text, PDFs, PPTs, video and audio material, quizzes/tests and case studies.

This content will be placed in the Course tab of the RegAgri4Europe VLE.

Courseware will be organized in sections. When a learner selects a section, he/she will be able to drill down further into subsections. When a learner selects a subsection, he/she will see a learning sequence, a sequential list of course units across the top of the screen in the Course ribbon. Learners will engage with content as they move through the units in the learning sequence. The learning sequence will be designed to engage the learner and it will promote an active engagement, as students alternate between learning concepts and solving simple exercises to check their understanding.

A typical learning sequence has a video lecture with accompanying reading material followed by a quick exercise, then another video lecture with accompanying reading material, and another exercise, and so on.

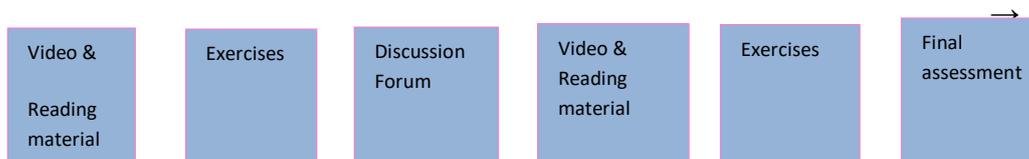


Figure 1 RegAgri Training learning sequence

From a User eXperience (UX) perspective, the learner is constantly aware of his web path through an horizontal navigation toolbar. In addition, the learners are always informed that they have already visited a respective unit, through an automated green check box. The linear navigation form is clean, effective, engaging and results in a great learning experience since the learner is focused on a specific learning objective.

The videos proposed duration is from 5 minute- to 10 minute- long, so as to keep our learners active and engaged in watching them. The videos are required to include timed text captions in [SubRip \(SRT\) format](#). The edX media player displays caption files in an interactive sidebar that benefits a variety of learners, including learners who are hard of hearing or whose native language differs from the primary language of the media. This built-in universal design mechanism enhances course's accessibility.

- ✓ Supported Video Formats: mp4, .mpeg, .webm, and .ogg format. We propose the **mp4**, in order to make sure all standard browsers can play the videos.
- ✓ All course videos should be posted to YouTube. By default, the edX video player accesses the course YouTube videos.

The recommended specifications for the videos, which will be hosted to the RegAgri4Europe Courses are the following:

Output	Publish to YouTube	Publish downloadable file to AWS S3
Codec	H.264 .mp4	H.264 .mp4
Resolution & Frame Rate (see note)	1920x1080, progressive, 29.97 fps	1280x720, progressive, 29.97 fps
Aspect	1.0	1.0
Bit Rate	VBR, 2 pass	VBR, 2 pass
Target VBR	5 mbps	1 mbps
Max VBR	7.5 mbps	1.5 mbps
Audio	AAC 44.1 / 192 kbps	AAC 44.1 / 192 kbps

A discussion topic will be inserted after each Module/Week (so that learners/trainees can discuss the material with the others. This discussion topic will appear in the **course discussion forum**.

- Optionally, each user can take advantage of the notifications subscription functionality and receive an email digest once a day listing new and unread forum posts.

3.2. Type of Questions and Assessment

Open edx Platform can provide many different types of questions, exercises and feedback options that can be used when designing the exercises for the RegAgri4Europe courses:

- Multiple choice/Checkbox/Dropdown questions: They have a limited number of possible answers and can allow learners to quickly check their understanding in the middle of a learning sequence.
- Image mapped input/Drag and drop problems: Assessments with graphical components can link learners more closely to the material while still allowing them to choose from a finite set of possible answers. Image mapped input (pointing on a picture) and drag and drop problem types allow learners to interact directly with a graph or picture.
- Open Response Assessment (ORA): problems allow instructors to assign questions that may not have definite answers or may be too lengthy for instructors to grade at scale. ORA's can be designed in three ways: as a Peer Assessment, Self-Assessment, or for Staff Assessment. Learners submit a response to the driving question, and then that learner and the learner's peers compare the response to a rubric that you create. Learners can submit text responses, or you can allow them to upload an image to accompany the text.

As regards the assessment of the acquired knowledge, the learners will be able to get the results of the assessment automatically, since the exercises (the multiple-choice/Checkbox/Dropdown questions questions) can be automatically graded and can also be accompanied by specific features, such as feedback and provision of hints.

Moreover, the RegAgri4Europe partners can set a threshold for the completion of a Course, define which exercises count to the final grade, so as the users can get a Certificate on these criteria. The learners, based on partners' agreement, can be allowed to have multiple attempts before they submit their responses or will be shown the answer, or a hint, after several attempts.

Concerning the grading policy, the instructors will have considerable control over the exact nature of the grading policy. When setting the grading policy, it is important to consider where to set the bar for receiving a Certificate.

3.3. Discussion forums

Through course discussions, learners will share their opinions, engage in conversations with other learners, ask questions the course staff.

During the lifetime of the project, discussion components will be added directly after a Module, allowing learners to respond to the content introduced. Learners will be able to view and access all of the course discussions in the "Discussion" tab in the navigation bar.

Discussions will be moderated by the RegAgri4Europe consortium, during the life-time of the project. Each partner should appoint one person as discussion moderator, who will be responsible for the active upkeep, for example keeping an eye on discussions to alert the trainers of particularly interesting conversations.

When using course discussions, learners will be able to:

- create new discussion posts, reply to existing posts, comment on existing responses, and upvote posts and responses;
- filter and sort posts by various criteria, including posts with the most votes or with the greatest level of activity;
- search on discussion forums by keyword;
- receive an email message each day that summarizes discussion activity for the posts they are following.

Discussion moderators can perform the same tasks as learners, but in addition they can:

- edit, delete or close posts;
- pin posts so they appear at the top of the discussion;
- add more discussion moderators to the course team.

3.4. About Page

It can include texts and short videos (no longer than 3-5 minutes) describing the course content, introducing the course staff and stating the learning objectives of the Courses. There are the set of introductory materials that learners view before they enroll to a course. They can include:

- General information about the course.
 - ✓ Estimated effort, course type (self-paced or instructor-led)
 - ✓ Social media links
 - ✓ Prerequisites
 - ✓ Learning objectives
- A Syllabus.

A syllabus is an outline and summary of topics to be covered in a course. A syllabus may include:

 - ✓ Topics covered by the course.
 - ✓ Names of instructors and teaching assistants for the course.
 - ✓ A grading rubric.
 - ✓ Textbook information.
 - ✓ Assignments that the learners can expect.
 - ✓ Deadlines and important dates.
 - ✓ quizzes/tests.
 - ✓ Any additional information, such as information about course discussion sessions.
- Staff biographies.

Staff biographies for the course About page must include the following information.

 - ✓ Name
 - ✓ Title
 - ✓ Email address
 - ✓ Biography (1-2 paragraphs)
 - ✓ Image

Note: The instructor's image must meet the following requirements.

 - Resolution of 110 x 110 pixels
 - Under 256 KB in size
 - .gif, .jpg, or .png file type

Additionally, biographies can optionally include the following information.

 - ✓ Facebook, Twitter, and blog URLs
 - ✓ List of major works
- Frequently Asked Questions (FAQ).
 - ✓ Weblink to Open edX Learner's Guide FAQ that will help learners' transition to online learning. The guide answers common questions about topics like getting started in an online course, earning certificates, participating in course discussions, and completing some of the exercises you may see in your course.

- ✓ Contact details of the technical support team

3.5. Accessible Content

The accessibility refers to the degree to which information and activities are available to all learners equally regardless of physical or other disabilities.

The RegAgri4Europe training will be available as accessible digital learning content, which conforms to level AA of the World Wide Web Consortium's Web Content Accessibility Guidelines (WCAG) 2.0.

The following best practices will be taken into account to make the content accessible:

- ✓ Use of descriptive titles for the course content and employment of HTML elements when applicable
- ✓ When using images, icons, charts or diagrams a descriptive text should be used (e.g. <alt> element). For availability in screen readers, additional HTML elements are used (e.g. class="sr").
- ✓ In case of videos, accessible transcripts are going to be present and displayed in the interactive side bar of each video.

3.6. Textbooks and PDF Accessibility guidelines

Portable Document Format (PDF) is a common format for course materials, including textbooks. However, converting materials to PDF documents can create accessibility barriers, particularly for learners with visual impairments

Adobe Acrobat Pro has tools (for example, "Accessibility Checker") that can be used to evaluate PDF files for accessibility. Adobe Acrobat Pro also includes tools (for example, "Make Accessible") for fixing most common accessibility issues.

4. Learning Analytics

The RegAgri4Europe VLE will offer the following analytics to the learners and the Course staff:

4.1. Progress Page

Each learner can view his/her problem scores, the percentage completed and the current grade and the passing threshold, if defined. This page provides information very useful to learners, in order to gain knowledge about their progress towards passing a course or obtain a certificate of completion and provides a rough detection of resources where students face greater challenges. Learners receive a **certificate** once they have achieved the passing score. They will be able to download it from the Progress page.

4.2. Instructor Tab

- The **Instructor Dashboard** is the course staff's tool for managing and viewing grades. The following reports can be downloaded in the form of csv files through a dedicated data download page accessible only to staff members:

- Profile of users including full name, email, preferred language, country, year of birth, gender, etc
- List of answers to a given problem or assessment
- List of certificates issued (if applicable)
- Grade report listing all scores of users for the different quizzes/problems listed in the course
- Open Response Assessment report (if applicable)

These reports are available for download through a web link generated in the platform.

Important note. To keep student data secure, these web links cannot be saved or emailed. Copies of links expire within 5 minutes.

- The Instructors will be able to email every enrolled learner.

4.3. Instructor Analytics Tab

Each time a learner interacts with the RegAgri4Europe platform, relevant data records are created in the RegAgri4Europe data storage system. A custom solution was developed for processing and visualizing these interactions going beyond the native installation. The data API is able to read and process data coming from different databases (MongoDB, MySQL) and feed the embedded visualization interface.

The RegAgri4Europe Instructor Analytics Tab will include the following dedicated pages/reports:

- Enrolment chart, where enrolments, unenrollments and total number of learners are displayed over predefined or custom periods of time.
- Activities graph, counting the total number of different types of activities (video views, discussion posts, page visits) per course.
- Problem/assessments stats helping to identify the most challenging problems for learners (Average attempts count, Average success level %)
- Student's Info, providing detailed progress per learner and activity in the course.
- Clusters view, grouping the learners into clusters: from low performing to high performing. In addition, the instructor may communicate through email to a specific cluster fast and easy.
- Progress funnel, where the stages of the course preventing the learners from moving forward are depicted.
- Demographic data, including country of origin, gender, year of birth and level of education.

4.4. Other useful information

Description of the service and relevant information and rules governing the usage and functionality of the RegAgri4Europe platform are described in separated documents. These can be accessed by any user through the appropriate links in the footer page. More specifically, the user is informed about:

- **Privacy Policy.** This page informs the user about the description of the service and provides detailed information related to personal data storage and processing. More specifically, it lists the data stored during the registration process and the data

processed during the interaction with the platform. The latter is used for assessing user participation, engagement, and performance.

- **Terms of Use.** Users are informed of the Terms of Service that govern the RegAgri4Europe learning platform and are owned and operated by the members of the RegAgri4Europe consortium. It consists, among others, of information related to platform accessibility, security rules, License agreements, use of personal information, etc.
- **Honor Code.** Users are informed about user posting rules and their responsibilities regarding the proper use of the RegAgri4Europe platform. A list of strictly prohibited items is included at the end of the document.

4.5. Roles in the REGAGRI4EUROPE Virtual Learning Environment/VLE

- **Staff (Instructor)** can:
 - ✓ View the course before the Course Start Date.
 - ✓ Enroll and unenroll students.
 - ✓ Access student grades.
 - ✓ Reset student attempts to answer a question correctly.
 - ✓ See course HTML errors.
 - ✓ Send email messages to course participants.
- **Admin** have access to the same options as team members with the Staff role. They can also complete the following tasks:
 - ✓ Add and remove Staff.
 - ✓ Add and remove other Admins.
 - ✓ Add and remove Beta Testers.
 - ✓ Add and remove Discussion Admins and Discussion Moderators.
- **Discussion moderator**
 - ✓ can edit or remove offensive or inappropriate content, ensuring that the discussions provide a positive and respectful environment for learner interaction.
 - ✓ They answer questions posed by students regarding course content or structure and reply to suggestions or complaints about the course. No issues should go completely unaddressed—even a simple acknowledgement that an issue can only be fixed the next time the course is offered is better than no reply. Learners want to be heard and to understand why things are done the way they are; they always appreciate when the course staff is responsive to their needs and suggestions.
 - ✓ can help foster vibrant and active discussions by replying to interesting posts, thanking or congratulating particularly active or insightful discussion participants, posing thought-provoking questions, and pinning or highlighting insightful discussion threads.

- **Beta Tester**

Beta testers have early access to the course. Beta testers are not members of the course team. They interact with the course as learners will to find, and make, mistakes.

However, beta testers are not the same as other learners in the course, either. They have privileged access to the course and have more time to review and complete the course materials than the enrolled learners do. **Course discussions are not open before the course start date, so beta testers cannot participate in conversations.** As a result of these differences, beta testers do not receive certificates when they complete a course.

5. Technical aspects of the Learning System

Learners take courses using the LMS. The LMS provides the instructor dashboard that users who have the Admin or Staff role can access by selecting Instructor.

The LMS uses a number of data stores. Courses are stored in MongoDB, with videos served from YouTube or Amazon S3. Per-learner data is stored in MySQL.

The Django server-side code in the LMS and elsewhere uses Mako for front-end template generation. The browser-side code is written primarily in JavaScript with some CoffeeScript as well (edX is working to replace that code with JavaScript). Parts of the client-side code use the Backbone.js framework, and edX is moving more of the code base to use that framework. The REGAGRI4EUROPE VLE uses Sass and the Bourbon framework for CSS code.

Studio is the course authoring environment. Course teams use it to create and update courses. Studio writes its courses to the same Mongo database that the LMS uses.

Course discussions are managed by an IDA called comments (also called forums). Comments is one of the few non-Python components, written in Ruby using the Sinatra framework. The LMS uses an API provided by the comments service to integrate discussions into the learners' course experience.

The comments service includes a notifier process that sends learners notifications about updates in topics of interest.

There are two development environment installation options for the REGAGRI4EUROPE VLE, which install the Open edX software using Docker:

Install the Open edX developer stack (Devstack): Devstack is a set of Docker containers designed for local development.

Install the Open edX analytics developer stack (Analytics Devstack). Analytics Devstack is a modified version of the Devstack installation that allows to run Open edX Analytics.

Software Components

A Devstack installation includes the following Open edX components:

The Learning Management System (LMS)

Open edX Studio

Discussion Forums

Open Response Assessments (ORA)

E-Commerce

Credentials

Notes

Course Discovery

XQueue

Open edX Search

A demonstration Open edX course

Analytics Devstack also includes the following Open edX components:

Open edX Analytics Data API

Open edX Insights

The components needed to run the Open edX Analytics Pipeline. This is the primary extract, transform, and load (ETL) tool that extracts and analyzes data from the other Open edX services

5.1 HTML Components

HTML, or HyperText Markup Language, is the standard markup language used to create web pages. Web browsers present HTML code in a more readable format.

HTML components are the basic building blocks of the RegAgri4Europe course content. RegAgri4Europe team will use HTML components to add and format text, links, images, and more.

6. Conclusions

Through the RegAgri4Europe VLE, the instructors can create engaging learning sequences which promote active participation and learners have the possibility to alternate between learning concepts and solving simple exercises to check their understanding and knowledge.

Learners can move at their own pace following a self-regulating learning process while they receive instant feedback upon completion of different types of assessments providing superior pedagogy.



7. Annexes

Appendix 1 RegAgri4Europe Courses Architecture

RegAgri4Europe VOOC building blocks	Title	Description
Section/Module 1		Is the top level of the course and typically represent a time period (week).
Subsection/Lesson 1		it represents a topic or other organizing principle and is also called “lesson”
Unit 1		A unit contains one or more components, which represent the actual course content.: Videos, problems/quizzes, reading material, discussion forums.
Unit 2		A unit contains one or more components, which represent the actual course content.: Videos, problems/quizzes, reading material, discussion forums.
Unit ...		A unit contains one or more components, which represent the actual course content.: Videos, problems/quizzes, reading material, discussion forums.
Subsection/Lesson 2		
Unit 1		
Unit 2		
Unit ...		
Subsection/Lesson ...		
Unit 1		
Unit 2		
Unit ...		
Section/Module 2		
Subsection/Lesson 1		
Unit 1		
Unit 2		
Unit ...		
Subsection/Lesson 2		
Unit 1		
Unit 2		
Unit ...		
Subsection/Lesson ...		
Unit 1		

Unit 2		
Unit ...		
Section/Module ...		
Subsection/Lesson 1		
Unit 1		
Unit 2		
Unit ...		
Subsection/Lesson 2		
Unit 1		
Unit 2		
Unit ...		
Subsection/Lesson ...		
Unit 1		
Unit 2		
Unit ...		

Table 1 VOOC Architecture

Appendix 2. Preliminary course material

There are the set of introductory materials that learners view before they enroll to a course. Preliminary course material can include:

- General information about the course.
 - ✓ Estimated effort, language, course type (self-paced or instructor-led)
 - ✓ Social media links
 - ✓ Prerequisites
 - ✓ Learning objectives
- A Syllabus.

A syllabus is an outline and summary of topics to be covered in a course. As with an on-campus course, a syllabus may include:

 - ✓ Topics covered by the course.
 - ✓ Names of instructors and teaching assistants for the course.
 - ✓ A grading rubric.
 - ✓ Textbook information.
 - ✓ Assignments that the learners can expect.
 - ✓ Deadlines and important dates.
 - ✓ quizzes/tests and topic coverage for tests.
 - ✓ Any additional information, such as information about course discussion sessions.
- Staff biographies.

Staff biographies for the course About page must include the following information.

 - ✓ Name
 - ✓ Title
 - ✓ Email address
 - ✓ Biography (1-2 paragraphs)
 - ✓ Image

Note: The instructor's image must meet the following requirements.

 - Resolution of 110 x 110 pixels
 - Under 256 KB in size
 - .gif, .jpg, or .png file type

Additionally, biographies can optionally include the following information.

 - ✓ Facebook, Twitter, and blog URLs
 - ✓ List of major works
- Frequently Asked Questions (FAQ).
 - ✓ Weblink to Open edX Learner's Guide FAQ that will help learners' transition to online learning. The guide answers common questions about topics like getting started in an online course, earning certificates, participating in course discussions, and completing some of the exercises you may see in your course.
 - ✓ Contact details of the technical support team

Appendix 3. RegAgri4Europe VOOC Development Checklist

2		
3	Welcome message	Yes
4	Demo of the platform if required	Not Applicable
5	Detailed explanation of how the student can get help if needed	Yes
6	Course program	
7	PDF of the program	Yes
8	prerequisites of the course	No
9	duration of the course	No
10	course deadlines and dates	No
11	Clear qualification policy	No
12	Learning objectives, goals and results	No
13	Accademic policy	No
14	guidelines for discussion forums	No
15	Instructor roles	No
16	Course launch date	No
17	Any unexpected change to the published content will be clearly communicated to the students	No
18	Structure and design of the Course	
19	Course design intersperses instructional content, such as videos and text with exercises	No
20	Course design is clear and consistent from week to week	No
21	Evaluations	
22	The course includes tasks, for example, exercises / tasks / questionnaires "	No
23	The questions and guidelines on allocation problems are clearly articulated	No
24	the deadline for the tasks is clear	No
25	Course videos	
26	The course includes original videos	No
27	Video quality and consistent and adequate audio levels	No
28	Scheduled subtitles for all videos and audio content	No
29	Other Instructional Materials	
30	All the images used in the course are of constant and adequate quality "	No
31	All content from third-party sources is integrated into the course material instead of being linked to another site, if applicable.	No
32	The content outside the platform is optional and it is clear that the link will take the students to a site outside the course and the platform	No
33	Student's Commitment	
34	A welcome message will be sent to the students about the start date of the course.	No
35	The emails will be sent to the students to communicate the launch of new content, provide updates on the course events, and so on at regular intervals throughout the course (recommended once a week)	No
36	A closing email will be sent to the students with the final details of the course near the end date of the course.	No
37	Students are encouraged to use the discussion forum to present themselves "	No
38	Preparation of the certificate	
39	All the certificate information is correct and has been loaded	No
40	The certificate templates have been reviewed by the course team and are approved to activate "	No
41	Reuse	
42	All IP problems are deleted for the course and are clearly documented	No

Figure 2 VOOC Development Checklist

References

[1] Zagorskis, V. and Kapenieks, A. Impact of LMS Selection on Students' Activity - Students' Activity Evaluation Problems in Moodle and Open edX Learning Management Systems. In Proceedings of the 10th International Conference on Computer Supported Education (CSEDU 2018) - Volume 1, pages 505-512 ISBN: 978-989-758-291-2

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WEBLINKS

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