Deliverable 2.3
Learning Modules

**Supporting the Digital Transformation of Museums.
The DCBox approach**

DC BOX
DIGITAL CURATOR
TRAINING TOOL BOX

Supporting the Digital Transformation of Museums. The DCBox approach

D2.3 Learning Modules

General information	
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Version	4

Summary

Learning Modules

Introduction

Learning Modules (LM) play a crucial role within the context of the DCbox project, as collaborative educational modules developed by project partners. These modules aim to provide students with a fundamental understanding of topics related to the sustainable digitization of cultural heritage. This document will explore the structure, content, and production process of these Learning Modules, focusing on creating an engaging learning environment based on the structure and methodologies outlined in previous deliverables.

The Learning Modules

Learning Modules, representing Deliverable 2.3 here discussed, are instructional units designed in compliance with the methodologies and the syllabus previously formalized in Deliverable 2.1 (Methodology for the learning modules and LAB) and Deliverable 2.2 (Digital Curation Curriculum). Each module follows a sequential logic to facilitate gradual student comprehension, offering a comprehensive overview of the covered topics. The structure of each module is carefully designed to ensure a cohesive and engaging learning experience for students with diverse backgrounds in both digital and non-digital fields. This allows for broader accessibility without the need for prerequisite digital skills.

The course is divided into four thematic areas:

>   *Area A - DIGITAL TRANSFORMATION OF CULTURAL HERITAGE;*

>   *Area B - ADVANCED 3D DIGITIZATION;*

>   *Area C - POLICIES AND DIGITAL DATA PRESERVATION;*

>   *Area D - DIGITAL ACCESS: UNIVERSAL DESIGN AND VIRTUAL EXPERIENCES;*

The areas are divided into eight modules that delve into subtopics with a more targeted approach throughout the course, giving a complete overview of the skills required for a digital curator. Each module consists of multiple lessons, 42 in total, structured according to Deliverable 2.2 and enriched with the specialized contributions of each partner.

Content creation involved a clear division of expertise among project partners, ensuring task distribution aligns with specific educational expertise. In detail, teaching materials on skills with a particular focus on cutting-edge & sustainable digitization for CH have been supervised by UNIVPM, CYI, UCO, UNI; while materials on storytelling methods, pedagogical & learning tools, marketing & communication skills have been supervised by LUSO; UNIVPM, UNIMED;

The final structure of the learning material subdivided into Areas, Modules and Lessons, with the corresponding responsible persons and teachers, can be found as an annex at the end of this document (ANNEX I - Learning Modules Grid).

The content production process includes various stages, such as script writing, revision to eliminate overlaps, preparation of supporting material, and video content recording. This detailed approach ensures the coherence and quality of educational materials, crucial for effective learning.

After validating the Learning Modules' grid (ANNEX 1), partners initiated the writing of lecture scripts, specifying slide organization, lecture text (ANNEX 2) (to be recorded and embedded as subtitles), bibliography, booklets for activities, and quizzes. The next step involved validating these scripts to avoid redundancies and inconsistencies. Following this crucial phase, each partner proceeded to record the assigned lectures, uploading all produced material, including videos, final scripts, and supporting educational material, to the cloud platform used for project document collection.

The produced content was then organized in folders according to the course hierarchy, containing lessons, quizzes, and activities, ready to be uploaded to the final teaching platform.

To ensure a user-friendly experience, video content was uploaded to YouTube for integration with other platforms, as well as for subtitle creation, including multilingual subtitles created on the base of the initially uploaded scripts.

Activities

Five practical activities were structured to provide basic practical skills for a digital curator within certain modules (modules 2-5-6-7-8). Activity subdivision was aligned with the structure of theoretical lessons, tailoring content for students participating in the piloting phase known as "Qualified students". This involved a practical exploration of some topics to ensure adequate initial training for internships at associated institutions, and the development of prototypes assigned to each partner and their respective students.

As educational material for activities, a highly detailed PDF tutorial was provided to students along with additional support material for task completion. For example, activities such as 2.3 and 7.6, were provided with point clouds and image targets used in the tutorial, to facilitate task execution and prevent comprehension issues among students.

The supervision of planned activities was assigned to a series of "Tutors," responsible for producing educational material and tasked with reviewing and correcting activities once integrated into the learning platform, providing support and feedback to students where necessary.

Quizzes

The division of students between qualified and self-enrolled is also considered in the structure of prepared quizzes. At the end of each module (8 in total), each "qualified" student must take a quiz related to the covered topics, while "self-enrolled" students have access to quizzes for each area (4 in total), containing the same questions related to the modules covered. In both cases, completing and passing the quiz is a mandatory requirement to progress to the subsequent course content.

Self-Assessment Questionnaires

Additionally, two questionnaires were prepared to be taken at the beginning and end of the course, after completing all four areas. These mandatory "self-assessment" questionnaires contain questions related to knowledge in the field of digital cultural heritage and associated skills, structured in a general manner before completion and more specifically after completing the course, to test the effectiveness of the entire course per each student.

Final Upload on the LMS

All content was organized and finally uploaded to the Learning Management System (LMS), accessible to qualified and self-enrolled users at https://moodle.dcbox.eu/.

ANNEX 1 - Learning Modules Grid

	Learning modules	Type	Responsible	#	Teacher	Contents
0	Introduction to the course					
Area A	**DIGITAL TRANSFORMATION OF CULTURAL HERITAGE**					**Responsible: UNIVPM**
Module 1	Digital transformation of CH			5		
Lesson 1.1	Digitization and digitalization	Video	UNIVPM		Ramona Quattrini	Theoretical/State of the Arts
Lesson 1.2	Digital Museology and Museography	Video	CYI		Antonia Agapiou	Theoretical/State of the Arts
Lesson 1.3	Digital Humanities	Video	UNI		Olivera Nikolic	Theoretical/State of the Arts
Lesson 1.4	Digital curator's role	Video	UCO		Carlos Márquez Moreno	Theoretical/State of the Arts
Lesson 1.5	Storytelling for CH	Video	LUSO		Carlos Smaniotto	Theoretical/State of the Arts
Quiz Module 1		Quiz	UNIVPM			
Σ				5		
Area B	**ADVANCED 3D DIGITIZATION**					**Responsible: CYI**
Module 2	Digitization			7		
Lesson 2.1	Range-based digitization	Video	CYI		Dante Abate	Theoretical/State of the Arts
Lesson 2.2	Range-based survey techniques and range maps alignment	Video	CYI		Dante Abate	Theoretical/State of the Arts
Activity 2.3	Point clouds alignment	Activity	UNIVPM		Dante Abate	Practical/Tutorial
Lesson 2.4	Image-based digitization	Video	UCO		Massimo Gasparini	Theoretical/State of the Arts
Lesson 2.5	Image-based survey techniques	Video	UCO		Massimo Gasparini	Case studies/Good practice
Lesson 2.6	Digital photogrammetry workflow	Video	UNIVPM		Romina Nespeca	Theoretical/State of the Arts
Lesson 2.7	High resolution images production	Video	UNIVPM		Renato Angeloni	Theoretical/State of the Arts
Lesson 2.8	Projects overview: HD paintings	Video	UNIVPM		Renato Angeloni	Case studies/Good practice
Quiz module 2		Quiz	CYI			
Module 3	3D modeling and data implementation			4		
Lesson 3.1	3d modelling and data optimisation	Video	UNIVPM		Mirco D'Alessio	Theoretical/State of the Arts
Lesson 3.2	Projects overview: direct modelling	Video	UNIVPM		Mirco D'Alessio	Case studies/Good practice
Lesson 3.3	Projects overview: reality-based modelling	Video	UNIVPM		Umberto Ferretti	Case studies/Good practice
Lesson 3.4	Virtual Reconstruction	Video	CYI		Dante Abate	Theoretical/State of the Arts
Quiz module 3		Quiz	UNIVPM			
Σ				11		
Area C	**POLICIES AND DIGITAL DATA PRESERVATION**					**Responsible: UCO**
Module 4	Policies rules and licensing			5		
Lesson 4.1	Excursus over the last decades	Video	LUSO		Catarina Patrìcio	Theoretical/State of the Arts
Lesson 4.2	CH laws	Video	LUSO		Ricardo Geraldes	Theoretical/State of the Arts
Lesson 4.3	DCH Laws between Public institutions and private businesses	Video	UCO		Antonio Monterroso Checa	Theoretical/State of the Arts
Lesson 4.4	ISO and EN standards	Video	UCO		Andrea de Aceijas	Theoretical/State of the Arts
Lesson 4.5	Open File Formats: images, videos, sounds, Point Clouds, Mesh	Video	UCO		Andrea de Aceijas	Theoretical/State of the Arts
Quiz module 4		Quiz	UCO			
Module 5	Digital data preservation			6		
Lesson 5.1	Digital Cataloguing strategies for CH	Video	UCO		Andrea de Aceijas	Theoretical/State of the Arts
Activity 5.2	Digital cataloguing tools and techniques	Activity	UCO		Andrea de Aceijas	Practical/Tutorial
Lesson 5.3	Database design	Video	UNI		Bata Vasic	Theoretical/State of the Arts
Lesson 5.4	Data models (ER, EER)	Video	UNI		Bata Vasic	Theoretical/State of the Arts
Lesson 5.5	Database development	Video	UNI		Bata Vasic	Theoretical/State of the Arts
Lesson 5.6	Information management methodologies	Video	UNI		Bata Vasic	Theoretical/State of the Arts
Lesson 5.7	Planning tools	Video	UNI		Bata Vasic	Theoretical/State of the Arts
Quiz module 5		Quiz	UNI			
Σ				11		
Area D	**DIGITAL ACCESS: UNIVERSAL DESIGN AND VIRTUAL EXPERIENCES**					**Responsible: UNIVPM**
Module 6	Communication			4		
Lesson 6.1	Managing of website	Video	LUSO		Catarina Patrìcio	Case studies/Good practice
Lesson 6.2	Virtual exhibitions	Video	LUSO		Ricardo Geraldes	Case studies/Good practice
Lesson 6.3	Video production and podcasting for museums	Video	LUSO		Ricardo Geraldes	Case studies/Good practice
Lesson 6.4	Digital accessibility and inclusion	Video	LUSO		Catarina Patrìcio	Theoretical/State of the Arts
Activity 6.5	Making of a Website	Activity	LUSO		Ricardo Geraldes	Practical/Tutorial
Quiz module 6		Quiz	LUSO			
Module 7	Virtualization			5		
Lesson 7.1	Virtual reality	Video	CYI		Antonia Agapiou	Theoretical/State of the Arts
Lesson 7.2	Augmented & Mixed Reality	Video	CYI		Antonia Agapiou	Theoretical/State of the Arts
Lesson 7.3	Applications on the web	Video	UNIVPM		Iva Vasic	Case studies/Good practice
Lesson 7.4	Mobile applications	Video	UNIVPM		Chiara Mariotti	Case studies/Good practice
Lesson 7.5	Wearable devices applications	Video	UNIVPM		Ramona Quattrini	Case studies/Good practice
Activity 7.6	Mobile App developing	Activity	UNIVPM		Umberto Ferretti	Practical/Tutorial
Quiz module 7		Quiz	UNIVPM			
Module 8	New frontiers in CH			6		
Lesson 8.1	Introduction to AI	Video	UNI		Stanisa Peric	Theoretical/State of the Arts
Lesson 8.2	Machine learning	Video	UNI		Stanisa Peric	Theoretical/State of the Arts
Lesson 8.3	Deep learning	Video	UNI		Stanisa Peric	Theoretical/State of the Arts
Lesson 8.4	The role of AI in the Heritage Sciences dimension	Video	UNIVPM		Roberto Pierdicca	Case studies/Good practice
Lesson 8.5	Evaluation questionnaires for museum experience	Video	UNI		Andjela Djordjevic	Theoretical/State of the Arts
Lesson 8.6	ICT for tracking behaviour	Video	UNI		Andjela Djordjevic	Case studies/Good practice
Activity 8.7	Evaluation Questionnaires Developing	Activity	UNI		Andjela Djordjevic	Practical/Tutorial
Quiz module 8		Quiz	UNI			
Σ				15		
TOT				**42**		

AREA (a)
Module (1)
Lesson (*1.1*)
Activity (*1.1*)
Quiz (Q.1)

STATISTICS	
Lessons per partner:	
UNIVPM	11
UNI	11
UCO	7
LUSO	7
CYI	6
Areas	4
Modules	8
Videos	42
Activities	5
Quizzes	8