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(Strategic Partnerships for  
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DELTA: Digital Excavation through  
Learning and Training in Archaeology

2019-1-EL01-KA203-062875

<http://www.project-delta.eu/>



**DELTA**  
Digital Excavation through  
Learning and Training in Archaeology

## **IO2 DIGITAL EXCAVATION TRAINING PLATFORM**

### **A2. Development of online course Hellenic Open University**



Co-funded by the  
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of the European Union

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Intellectual Output:	I02 Digital excavation training Platform
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Abstract:	<p>The Hellenic Open University brings its experience with the know-how of how to develop training content in online form.</p> <p>This document provides information on 4 Modules created for DELTA course. HOU has designed and developed the structure of the e-learning platform and functionalities for the online part of the course.</p>
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## Table of Contents

1. Abstract .....	4
2. The development of DELTA course .....	4
3. DELTA Course .....	11
4. DELTA Open Badges and Certificates.....	12



## 1. Abstract

For the design and development of DELTA course, the consortium took into consideration the skills needed for new archaeologists and the syllabus of the training offered in Archaeological departments at EU level. It contained the design of the learning outcomes, the development of training content and modules, the specification of hands-on practice and the evaluation of the online course.

## 2. The development of DELTA course

The training content of the DELTA blended course on “Digital Excavation” contained four main Modules:

Module 1. Digital Tools for Archaeological Practice/Excavation developed by Masaryk University; Module 2. Documentation in situ and after excavation developed by NKUA.

Module 3. Digital Preservation of cultural heritage monuments and artifacts (3d representation and reconstruction) developed by UNIBAS; Module 4. Open-Air Museums and Experimental Archaeology developed by HOU.

The training content included presentations, self-produced videos by Tutors/partners as lectures, student handbooks, additional material and quizzes. The videos had downloadable transcripts which were available in all four languages (English, Greek, Italian, Czech).

The DELTA online course was synthesized from the training content that was developed in IO1. The DELTA course contained 80 videos with subtitles in four languages, 80 transcripts in four languages, 53 presentations, 19 student handbooks, 85 learning outcomes, 420 questions and more than 100 learning objects as extra material for further reading/ study. The course was piloted twice during the lifetime of the project. The blended course was of total 200 hrs/8 ECTS, combining online, and sessions with the tutors. During the Intensive Study Program (ISP), a joint excavation was held at the NKUA excavation, in Plasi Marathon, Greece, with the participation of 20 people in total, students and professors, from the 3 countries.

A total of 54 learners successfully finished the course.

The blended course run from May to July 2021, for students of Archaeology from the 3 participating countries/ Universities. A total of 118 learners successfully finished this course. Through the platform, were provided 340 Open Badges for all course modules. The online course was of 100 hours/ 4 ECTS, open to all and run from March to May 2022 (only the online part in the DELTA platform).

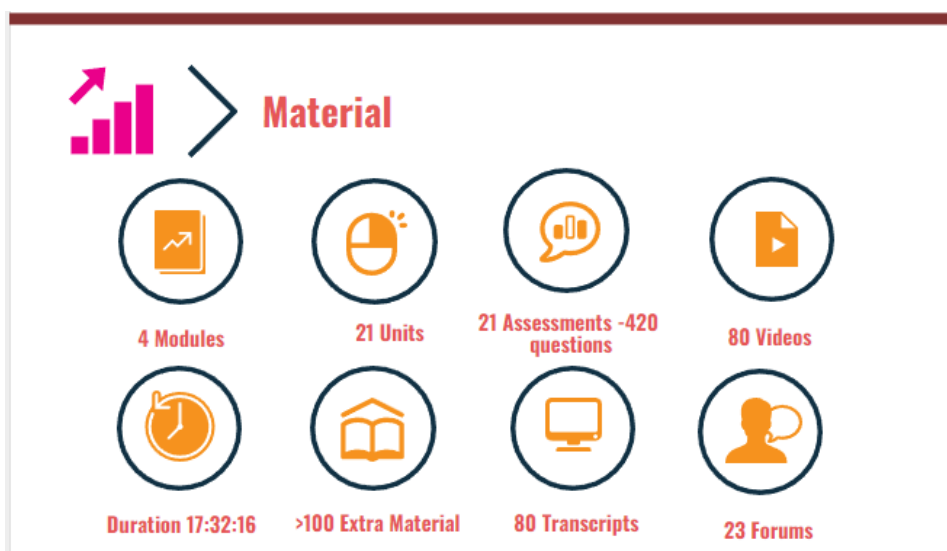
**Module 1** developed by Masaryk University (MUNI), addressed the needs of professionals in the field of archaeology that would like to exploit the potential of contemporary technologies in order to accomplish their current and future work duties concerning field work. In this regard, trainees will be able to plan a fieldwork using available digital tools and online data sources; operate measuring devices, acquire and produce digital spatial data; transfer digital data between measuring device and computer; manage, analyze and visualise measured data digitally.

**Module 2** developed by National & Kapodistrian University (NKUA), proposed that excavation, as an irreversible and destructive process, requires consistent, accurate and detailed documentation and recording. These are an essential part of any archaeological project because they allow the reconstruction of the excavation process and the archaeological interpretation afterwards. Therefore, trainees were able to familiarize with the basic principles and methods of documentation applied in situ and after excavation, learn the use and operate tools for digital recording, namely tablets and the relevant software for filling digital notebooks and/or recording sheets; integrate varied types of digital information (texts, drawings, images, orthophotos) into a single digital archive and manage, analyze and visualize the digital data, which is kept in the form of databases, for the purposes of archaeological interpretation.

**Module 3** developed by University of Basilicata (UNIBAS), focused on those techniques, which effectively enable archaeologists to produce, manage and visualize digital data for the preservation and presentation of cultural heritage, from the largest scale of entire buildings or archaeological sites and their surrounding landscape,

down to the smallest scale of artifacts and ecofacts. The learners were able to produce and store digital documentation for the formal presentation of archaeological heritage (CAD software, digital tools for artifacts drawings, DB, GIS, GPS); practice a powerful combination of photogrammetric and measurement techniques in connection with 3D imaging and drone; select effective case studies for virtual restoration and conservation of ornamental surfaces of monuments and artifacts (3D restoration and 3D printing) and design a project of virtual restoration with practical application and be familiar with VR and immersive VR, AR Augmented Reality.

**Module 4** developed by Hellenic Open University (HOU), introduced the students of Archaeology to the value of archaeological open-air museums, their management and their visitors. DELTA learners would understand how the practice of experimental archaeology is strongly connected growing craft experience, comprehend how to acquire 21<sup>st</sup> century skills related to audience engagement and storytelling techniques. Effective interpretation would allow them to make each visitor personally connect with a resource or place and to care about the sites. The public archaeology helped young researchers to better understand archaeological processes and allow audience to interact with archaeological knowledge.



**Image 1. An infographic on the amount on the training material developed in DELTA course**



In the following Tables has been recorded the amount of training material developed per Module:

## DELTA ONLINE COURSE

### Module 1: Digital Tools for Archaeological Practice/Excavation

	Unit 1	Unit 2	Unit 3	Unit 4
Handbook chapters	1	1	1	1
Learning objects	6	4	6	5
Introductory video [self - produced]	1	1	1	1
Learning outcomes	8	4	6	5
Additional study materials	17	23	45	15
Self – evaluation questions	20	20	20	20
Workload (hours)	10	10	10	10
Face-to-face activities (hours)	0	0	0	0

**Table 1. An infographic on the amount on the training material developed in DELTA course – Module 1**

## DELTA ONLINE COURSE

### Module 2: Documentation in situ and after excavation

	Unit 1	Unit 2	Unit 3	Unit 4
Handbook chapters	1	1	1	1
Introductory video [self-produced]	1	1	1	1
Learning objects	3	4	4	4
Learning outcomes	4	6	5	3
Self – evaluation questions	20	20	20	20
Additional study materials	12	16	35	39
Workload (hours)	10	10	10	10
Face-to-face activities (hours)	0	0	0	0

**Table 2. An infographic on the amount on the training material developed in DELTA course – Module 2**

## DELTA ONLINE COURSE

### Module 3: Digital preservation and presentation of cultural heritage monuments and artefacts

	Unit 1	Unit 2	Unit 3	Unit 4
Handbook chapters	1	1	1	1
Introductory video [self - produced]	1	1	1	1
Learning objects	4	1	2	1
Learning outcomes	7	6	8	6
Self – evaluation questions	20	20	20	20
Additional study materials	25	12	9	20
Workload (hours)	10	10	10	10
Face-to-face activities (hours)	0	0	0	0



**Table 3. An infographic on the amount on the training material developed in DELTA course – Module 3**

## DELTA ONLINE COURSE

### Module 4: Open-Air Museums and Experimental Archaeology

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Handbook chapters	1	1	1	1	1
Introductory video [self - produced]	1	1	1	1	1
Learning objects	2	2	1	2	2
Learning outcomes	7	2	3	3	2
Self – evaluation questions	20	20	20	20	20
Additional study materials	23	12	8	7	5
Workload (hours)	8	8	8	8	8
Face-to-face activities (hours)	0	0	0	0	0



**Table 4. An infographic on the amount on the training material developed in DELTA course – Module 4**



For the design and development of training content, Hellenic Open University had developed a Methodology for designing and developing educational material, with special emphasis to the online learning that will be developed and provided to the public by the DELTA project. This document aimed to provide the analysis of the five phases of the instructional design ADDIE (Analysis, Design, Development, Implementation and Evaluation). Subsequently, it detailed the methodology to write learning outcomes according to the Bloom Taxonomy, as it is the most critical part for the effectiveness of the course. Last, the reader could find in the Appendix a set of templates that must be filled in and sent to the appropriate roles, following the timetable indicated to the appropriate figures. Also, in the same document the partners followed the methodology and instructions on how to write learning outcomes for DELTA course based on key principles in educational theory and practice (like applying the ABCD and SMART approaches to create one learning outcome for each knowledge, skill or competence.). The methodology gives references and bibliography as well as examples and Tables with flowcharts on the best flow of the work among the roles of authors/ technical and scientific reviewers. In DELTA, all 3 roles were accomplished.

For the development of the course, HOU proposed the methodology by Spyropoulou, N., Pierrakeas, C. J., & Kameas, A. (2019). Experience Gained from Applying a Team-Based Approach for MOOC Development. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 14(2), 15-30.

This methodology is based on ADDIE and uses the Bloom taxonomy to create learning outcomes for the design of training modules and the description given in each Unit/ Module. This methodology adheres to EQAVET principles. EQAVET is an approach to quality assurance or a reference framework for educational training agreed by Member States. It offers a straightforward way to monitor and improve the quality of their provision. It is based on the four-stage cycle of planning, implementation, evaluation and review which is at the heart of many other quality assurance approaches.



The four stages of the quality assurance cycle are interrelated and need to be addressed together. The four stages are (a) Planning, (b) Implementation, (c) Evaluation, and (d) Review. This methodology includes various cycles assuring technical and scientific quality for the produced educational resources. Learning Outcomes were produced, for the educational material, per Unit.

The instructional methodology as well as other methodologies shared by HOU like:

- "Guidelines on how to select Open Educational Resources – OERS (based on CC license 4.0)"
- Technical guidelines on how to create educational self -produced videos
- Structural guidelines for online distance learning presentations
- Structural guidelines for online distance learning textual material.

All methodologies and structural guidelines described above have been successfully applied for the design and development of more than 10 online courses, in EU projects that HOU is coordinator or participates in.



### 3. DELTA Course

The course “Digital Excavation” offers an advanced training for the students of Archaeology as well as Archaeologists and Professionals in Culture Heritage in order to acquire essential knowledge, digital competences and 21st century skills. In this regard, the learners shall develop knowledge and skills in the following areas:

- Knowing and applying digital strategies and tools for archaeological work and excavation.
- Planning a fieldwork using available online data sources.
- Learning about digital documentation.
- Applying digital tools for documenting archaeological data;
- Adopting databases and GIS for the analysis and interpretation of archaeological data.
- Enabling themselves in visualizing digital data.
- Knowing about the virtual technologies applied in the preservation of sites and monuments.
- Being familiar with policies and best practices in the context of Cultural Heritage and Public Archaeology.
- Community building, participating and interacting with peers in an online environment.

The DELTA Online course addressed:

- ✓ Students of the Department of History and Archaeology of the National and Kapodistrian University of Athens (Greece), the Department of European and Mediterranean Cultures: Architecture, Environment, Cultural Heritage (DiCEM) of the University of Basilicata (Italy), Department of Archaeology and Museology of the Masaryk University (Czech Republic).
- ✓ Students at other Universities.
- ✓ Graduates who wish to advance their knowledge and be competent in the field of Digital Excavation.
- ✓ Active professionals of the relevant fields of Archaeology and Cultural Heritage Management.



## 4. DELTA Open Badges and Certificates

Upon completion of the course and succeeding in at least the 80% of both learning material and of graded activities (quizzes and tests), learners were able to achieve the Certificate of Completion. The Course included self-assessment with quizzes (closed –end questions). Open badges were awarded to learners after the successful completion of each Module.

### DELTA Online Badges



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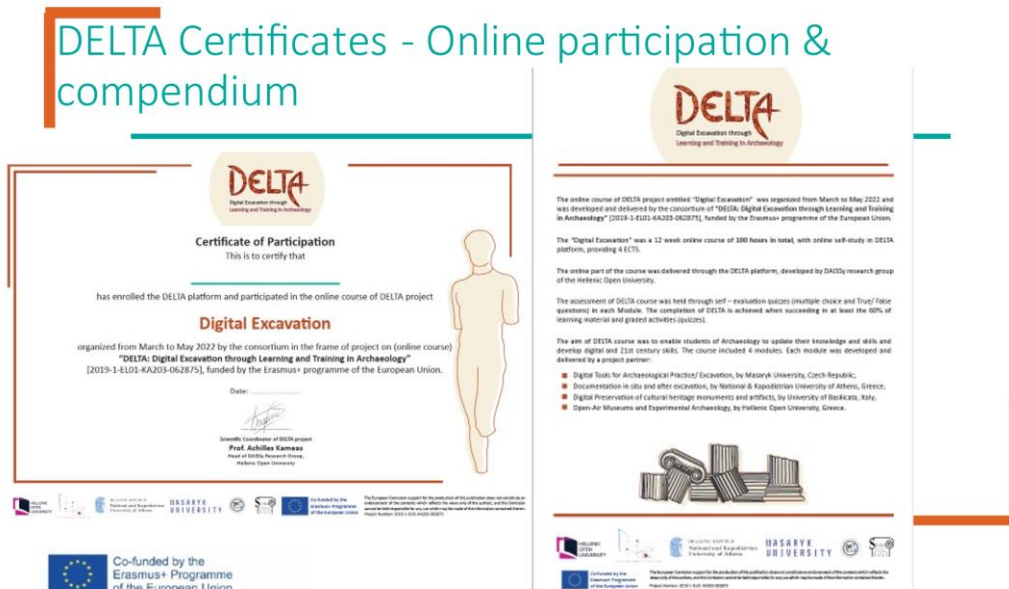
**Image 2. Open badges were awarded to learners after succeeding each Module. The Golden Badge was awarded to the successful learners of all 4 Modules**

### DELTA Certificates - Online Completion & compendium



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**Image 3. Certificate of Completion were awarded to learners after succeeding in all Modules**



**Image 4. Certificate of Online Participation was awarded to learners for participating online and after completing at least Module 1’s study and assessment**

The DELTA Blended course offered 8 ECTS while the Online course offers 4 ECTS.

The digital content already designed in IO1, it was developed in IO2 and then, was integrated by HOU in the eLearning tool of the platform. In specific, the platform included a subset of the courses already developed, specifically designed, and supported to be undertaken through e-learning.

When logging – in, it will be evident the description of the Course and the criteria for successfully completing the Course. Apart from the students at the Universities coming from the project countries, the DELTA course of 201, was open to other students of Archaeology and early professionals who want to up-skill their profile, by participating in the 4 MODULES of the DELTA platform:

Module 1. Digital Tools for Archaeological Practice/Excavation;

Module 2. Documentation in situ and after excavation;

Module 3. Digital Preservation of cultural heritage monuments and artifacts;

Module 4. Open-Air Museums and Experimental Archaeology.

The into page informed learners “Who is this course for in case of blended and only digital course, What will s/he achieve, the Structure of the course, How to earn the Certificate of DELTA course, how many ECTS credits, the Authors/ partners of this course.

The above information is analytically presented in the website of the MOOC: <https://mooc.cti.gr/delta.html>.

