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D4.3 DIGITIZED EDUCATIONAL MATERIAL

WP4. STEPS DEVELOPMENT



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Deliverable 4.3

Digitized Educational Material

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP 4 – Steps Development
WP Leader:	UNSA
Task:	4.3 – Digitized educational material
Task Leader:	UNSA
Last Version date:	09. 01. 2023.
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Status:	Draft
Dissemination Level:	Public

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Document Revisions Table

Version	Date	Author(s)	Organization	Comments
1.1	05. 01. 2023.	Milenko Blesić, Sabahudin Bajramović Emir Bećirović	UNSA	First version
1.2	09. 01. 2023.	Milenko Blesić, Sabahudin Bajramović Emir Bećirović	UNSA	Version updated with new data received from partner HEIs

Approved on behalf of STEPS

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Executive summary

One of the tasks in the development of STEPS courses articulated through WP 4 was the creation and uploading of digitized educational materials on the STEPS LMS platform planned by the project. At the proposal of the Greek HEI program and with the consent of all STEPS partner HEIs, the Open edX platform was chosen as the LMS for the implementation and/or assistance in the implementation of the STEPS course. Customization and administrative maintenance of the STEPS Open edX LMS platform (<https://mooc.steps-project.eu/>) on a commercial basis is done in Tirana, Albania. During a significant part of the implementation of the project, STEPS partner HEIs and their staff were prepared for the obligation to produce and upload digitized teaching and other instructional and auxiliary materials to the STEPS LMS platform. Instructional workshops were also organized, and UNSA, as the HEI responsible for the coordination of activities within the framework of WP 4, offered a series of useful instructions for creating course content and especially for their digitization through auxiliary deliverables. However, STEPS course instructors showed significant activities in the creation and (naturally) uploading of digitized materials only after the establishment of a fully operational STEPS LMS platform. To prepare this deliverable document, UNSA used the data provided by STEPS partner HEIs through the questionnaire delivered to UNSA at the end of 2022 and the beginning of 2023. In summary, according to the detailed data presented on the following pages, course instructors from STEPS partner HEIs have prepared and uploaded digitized educational, instructional, and other auxiliary materials for 66 STEPS courses, with an average of about 18 uploaded digitized materials per course. According to the reports submitted by the STEPS partner HEIs, 1214 digitized materials of various types have been uploaded to the STEPS LMS platform. The most frequently produced and uploaded digitized materials uploaded to the STEPS LMS platform were PowerPoint™ presentations (369), course instructor's written materials (95), external written materials (274), external video materials (192), and problems and/or calculation tasks (208).

1 Introduction

Work package 4 of the STEPS project is titled simply as "STEPS development". Its related assumptions include the following:

- 1) Clear descriptions of the educational approach and content have been provided by the design (task 2.2);
- 2) Academics and scientific staff of partner countries HEIs are familiar to the concepts of ECTS and the learning-outcomes approach, which will be used for the development of every chapter/section of the educational content;
- 3) Scientific staff of partner countries HEIs will not face significant difficulties in becoming familiar with the use of ICT-based educational tools; and
- 4) Simultaneous development of courses and training seminars facilitate the exchange of ideas between scientific staff, revisions and improvement of the educational material and teaching/learning methods.

The general objective of WP 4 is "The objective of WP is to develop and harmonize the content of STEPS courses". The goal or goals of this work package, according to the project proposal, should be achieved by implementing the following three tasks:

- 4.1 Development of LMS platform;
- 4.2 Development and harmonization of STEPS courses; and
- 4.3 Conversion and digitization of educational material.

Some confusion is introduced by the mere naming of project tasks and, in connection with them, the corresponding outputs, i.e., deliverables of this work package. Namely, the above-mentioned naming of tasks in the tabular elaboration of the work package received somewhat simplified and not completely clear titles:

- 4.1 LMS Platform;
- 4.2 STEPS program courses; and
- 4.3 Digitized educational material.

Deliverable 4.1 promoted the development of the STEPS LMS platform based on Open edX resources. This was accepted by all project partner HEIs based on the elaborated ReadLab proposal. In the process, the University of Sarajevo (UNSA) as an institution responsible for the implementation of activities under WP 4 prepared and distributed to project partners some auxiliary deliverables that were supposed to be helpful to the academic staff of STEPS partner HEIs in preparation of teaching and training materials for their STEPS courses that should be implemented via the LMS platform. These were deliverables 4.2a, 4.2b, and (temporary) 4.3. Deliverable 4.2a referred to an overview of the situation about initially created/uncreated STEPS courses planned by the HEIs partner through their STEPS curricula. In addition to reviewing the situation regarding the initial design of STEPS courses, that document also highlights the proposals for the project required harmonization of STEPS study program courses or mutual harmonization of STEPS study programs. In addition, Del. 4.2a in its final part gives some general instructions for the development of STEPS courses according to the so-called VLE Storyboard principles. Following the basic work requirements of WP 4 – STEPS development, i.e., initially set Del. 4.2 – Development and harmonization of STEPS courses, UNSA prepared and delivered Del. 4.2b as an input for the development of STEPS courses in a new – digital – dimension. That document (Del. 4.2b) presented the elements of the development of STEPS courses that will be made available to students and project partner HEIs through the Open edX STEPS LMS platform. The document offered a set of instructions and recommendations for the development of STEPS courses in the context of their intended e-learning implementation. The document also stressed importance of the guidelines given in the publication "Building and Running an edX Course" which can be found (and downloaded) at: <https://edx.readthedocs.io/projects/edx-partner-course-staff/en/latest/>. After that, through (temporary) Deliverable 4.3 STEPS project partner HEIs received additional instructions and insistence on the

development of structures and segments of STEPS courses adapted to implementation through the STEPS LMS platform.

This deliverable document (final Deliverable 4.3) refers to the review of digitized educational, instructional, and auxiliary materials produced by STEPS partner HEIs and uploaded to the STEPS LMS platform. Data on digitized materials produced and uploaded to the STEPS LMS platform were collected through a questionnaire with tables sent to all six STEPS partner HEIs. Therefore, the reliability of the data presented on the following pages is the sole responsibility of the persons at the partner HEIs who submitted the completed questionnaires.

The task of all STEPS partner HEIs was to prepare digitized materials for the STEPS LMS platform for the implementation of all STEPS courses both in English and in the local (Albanian, Bosnian) language. The review in this document assumed that the instructors of STEPS courses at partner HEIs prepared versions of all courses in the local and English languages according to the "mirror" principle, that is, that the structure and number of digitized materials for both language versions of the course are equal or at least approximately equal. In this regard, the overview on the following pages treats both language variants of the course as one course.

An overview of the materials produced and uploaded to the STEPS LMS platform will be given by the partner HEIs that submitted the data requested by the questionnaire. In addition, a short final chapter offers a summary of the digitized materials produced and uploaded to the STEPS LMS platform.

2 Overview of digitized materials produced and uploaded to the STEPS LMS platform by partner HEIs

2.1 Agricultural University of Tirana

The Agricultural University of Tirana (AUT) implements the STEPS study program "Master of Science in Sustainability in Food Production" as a joint master with the European University of Tirana (EUT) in two profiles of study program: "Engineering, Quality and Food Safety" and "Management of Food Production Systems". It is a two-year study, with three semesters of teaching/instructional activities and the last semester for the preparation of a master thesis. Teachers from these two universities have developed 6 core (compulsory) and 15 elective courses¹. In the first semester, students take six compulsory courses (3 engineering and 3 managerial), while in each second and third semesters they choose six courses from the list of elective courses.

According to the AUT response, the AUT has fully completed the digitalization of educational materials but not yet uploaded that in the STEPS LMS platform because the STEPS study program in Albania has started one or two years later than in the other partner countries/HEIs.

2.1.1 Digitized materials for STEPS courses of AUT uploaded to the STEPS LMS platform

Until the time of writing this report, STEP course instructors from AUT have uploaded part of the produced digitized materials to the STEPS LMS platform **for 5 out of a total of 11 STEPS courses developed at AUT.**

¹ It should be noted that for the AUT & EUT STEPS study program, since the creation of Deliverable 4.2, another – 21st STEPS course has been developed. Namely, the former course "Management of Sustainable Food Supply and Value Chain" was apparently separated into two courses: "Sustainable Management of Supply Chains" and "Sustainable management of Food Value Chain". In this way, from the original 20 courses on the joint AUT & EUT STEPS study program, there are now 21 courses, i.e. a total of 88 courses developed by all STEPS partner HEIs instead of a total of 87 courses as reported in Deliverable 4.2.

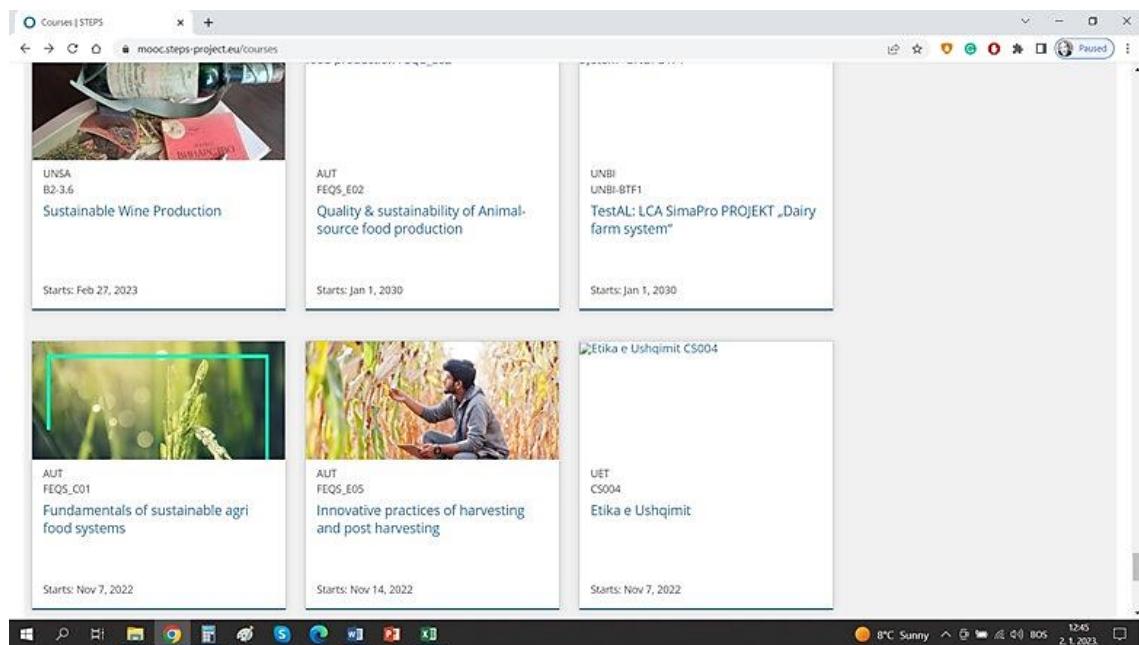


Figure 1 Some STEPS courses developed at AUT and uploaded on the STEPS LMS platform ([STEPS LMS - Dashboard](#))

The screenshot shows the home page of the 'Fundamentals of sustainable agri food systems' course. The page includes the course title, a message indicating enrollment, a 'View Course' button, a large image of a plant, and a summary of the course's focus on sustainable agri-food systems. Below this, there is a detailed description of the course content, mentioning skills like critical analysis and data transformation, and a section on particular emphasis given to sustainable approaches. To the right, there is a sidebar with course details such as the course number (FEQS_C01), start date (Nov 7, 2022), end date (Mar 3, 2023), and estimated effort (4).

Figure 2 Example of the home page of the AUT STEPS course uploaded to the STEPS LMS platform ([AUT course - homepage](#))

The screenshot shows a web browser window with the URL moocsteps-project.eu/courses/course-v1:AUT+FEQS_C01+2021_01/course/. The page title is 'Course | FEQS_C01 | STEPS'. The main content area displays the course title 'Fundamentals of sustainable agri food systems'. Below the title is a list of nine topics: 1. Conceptualizing and creating sustainable food systems; 2. Building the food sustainability paradigm : research needs, complexities, opportunities; 3. Strategies for minimization of food waste and losses from farm to fork; 4. Sustainable food production; 5. Sustainable food processing; 6. Principles and application of innovative technology for food preservation; 7. Value added products with sustainable plant sources.; 8. Value added products with sustainable animal sources.; 9. Pharmaceutical and functional food processing technology. To the right of the list are 'Course Tools' (Bookmarks) and 'Important Course Dates' (Today is Jan 2, 2023 12:49 CET, Course End in 2 months - Mar 3, 2023). A note states 'After this date, course content will be archived.' The bottom of the screen shows a Windows taskbar with various icons.

Figure 3 Example of AUT STEPS course layout/content uploaded to the STEPS LMS platform ([AUT course - Layout](#))

Table 1 offers data on digitized teaching, instructional and auxiliary materials that the creators of STEPS courses from the UAT, according to the report of responsible persons from AUT, uploaded to the STEPS LMS platform at the end of December 2022.

Table 1 Digitized materials of AUT STEPS courses uploaded to the STEPS LMS platform

Course #	Type of digitized educational material		Total per course
	PowerPoint™ presentation	External written material	
1	4	4	8
2	4	4	8
3	4	4	8
4	4	4	8
5	0	0	0
6	0	0	0
7	15	15	30
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
Total	31	31	62
Average per course	6.2	6.2	12.4

As can be seen from Table 1, at the time of submitting the data for writing this report, the instructors of 5 STEPS courses from AUT had uploaded 31 PowerPoint™ presentations and 31 external written materials to the STEPS LMS platform. In the written explanation from their report, the AUT responsible persons state that the delay in uploading digitized material to the STEPS LMS platform was largely due to the much later launch of the joint STEPS study program (AUT & EUT) in Albania.

2.2 European University of Tirana

The European University of Tirana (EUT) participates in the implementation of the joint STEPS study program with AUT. These two HEIs jointly developed a total of 21 STEPS courses (11 AUT + 10 EUT), with most engineering courses developed by AUT and most management courses by EUT. For the reasons already mentioned in the examination for AUT (postponed starting of the STESP study program in Albania), EUT instructors, according to the report of responsible persons from this HEI, prepared a certain number of digitized materials, but until the moment of writing this report, none of the prepared digitized materials had been uploaded on the STEPS LMS platform. As at AUT, it is expected that during the 2022/23 academic year, digitized educational and other materials will be successively uploaded to the STEPS LMS platform, especially for the core/compulsory and elective courses that students choose during the second semester.

2.3. Universum College Pristina

Universum College Pristina (UC) implements the joint STEPS study program Sustainable food production systems in Kosovo with the University of Haxhi Zeka Peja (UHZ). According to the agreement of the two partner HEIs, UC prepares and implements a small number (7) of courses in the domain of managerial disciplines, while practically all engineering and part of managerial courses are prepared and implemented by instructors from UHZ. The Joint STEPS study program in Kosovo (UHZ & UC) is a two-year study program, with teaching/instructional activities in the first three semesters and the production of a student master's thesis in the last (fourth) semester. For the STEPS study program in Kosovo, instructors from UC and UHZ have, in addition to 6 core/compulsory STEPS courses in the first semester of study, developed 19 elective courses that students choose during the second and third semester of their study.

2.3.1 Digitized materials for STEPS courses of UC uploaded to the STEPS LMS platform

According to the report of responsible persons from UC, STEPS course instructors from UC have uploaded the digitized materials for **all seven STEPS courses** developed at UC to the STEPS LMS platform. A little confusion can be the fact that on the STEPS LMS platform (<https://mooc.steps-project.eu>) courses developed at UC (with their digitized materials) are labelled as UHZ courses. Having, however, in view the fact that UHZ and UC implement a joint study program, this has no special consequences for students attending the joint STEPS study program in Kosovo.

The screenshot shows a web browser window with the URL moocsteps-project.eu/courses/course-v1:UHZ+CS006+2022-2023_S3/about. The title of the page is "Consumer science and sustainable consumption". A message box says "You are enrolled in this course." A blue button labeled "View Course" is visible. Below the title, there is a section titled "About This Course" containing academic details: Academic Unit: Faculty of Agribusiness' - Department: Food Technology; Name of subject: Consumer science and sustainable consumption; Level: Master; Subject status: Elective; Study year: Second year, 3d semester; Number of hours per week: 2+2; Number of ECTS: 5; Time/location: //; Lecturer: Prof. Ass. Dr. Agim Ryska; Contact details: agim.rysha@unhz.eu. To the right, there are social sharing icons (Twitter, Facebook, Email) and course metadata: Course Number CS006, Classes Start Nov 1, 2022. The bottom of the page has a "COURSE DESCRIPTION AND LEARNING OUTCOMES" section and a Windows taskbar at the bottom.

Figure 4 Example of the home page of the UC STEPS course uploaded to the STEPS LMS platform ([UC course - homepage](#))

The screenshot shows a web browser window with the URL moocsteps-project.eu/courses/course-v1:UHZ+CS006+2022-2023_S3/course/. The title is "Course | CS006 | STEPS". The main content area is titled "Consumer science and sustainable consumption". On the left, there is a navigation menu with "Course", "Discussion", "Progress", and "Syllabus and More Information". Below this is a list of course modules: 1. Consumer and social influence, 2. History and theories of consumer influence, 3. Values, Attitudes, Opinions, Goals and Motivation, 4. Consumption, 5. Consumer economics, 6. Consumer protection and Sustainability, 7. Consumer power, 8. Evaluation (first examination), and 9. Consumer education. On the right, there are "Course Tools" (Bookmarks) and "Important Course Dates" (Today is Jan 2, 2023 13:56 CET). The bottom of the page has a Windows taskbar at the bottom.

Figure 5 Example of UC STEPS course content uploaded to the STEPS LMS platform ([UC course - outline](#))

Table 2 provides data on digitized teaching, instructional and auxiliary materials that the creators of STEPS courses from UC, according to the report of responsible persons from UC, uploaded to the STEPS LMS platform at the end of December 2022.

Table 2 Digitized materials of UC STEPS courses uploaded to the STEPS LMS platform

Course #	Type of digitized educational material						Total per course
	PowerPoint™ presentation	Course instructor's written material	External written material	External video material	Tests / quizzes	Software	
1	8	3	8	1	0	1	21
2	0	3	10	1	3	2	19
3	8	4	5	2	0	1	20
4	9	10	5	3	0	0	27
5	8	2	5	2	0	0	17
6	7	3	4	1	0	0	15
7	0	0	3	0	0	0	3
Total	40	25	40	10	3	4	122
Average per course	5.7	3.6	5.7	1.4	0.4	0.6	17.4

According to the data from Table 2, for all seven UC courses, a total of 122 items from 6 categories of digitized materials were produced and uploaded to the STEPS LMS platform. The number of uploaded materials per UC course ranged from a minimum of 3 to a maximum of 27. In the structure of digitized teaching and/or instructional materials uploaded to the STEPS platform, PowerPoint™ presentations and external written materials predominate with about 33% each of all uploaded digitized teaching/instructional materials.

2.4 Haxhi Zeka University of Peja

Haxhi Zeka University of Peja (UHZ) implements the joint STEPS study program Sustainable food production systems with Universum College Pristina (UC). According to the agreement of the two partner HEIs, UHZ prepares and implements all courses in engineering disciplines and a small number of courses in managerial disciplines, while UC prepares and implements courses exclusively in managerial disciplines. The Joint STEPS study program in Kosovo (UHZ & UC) is a two-year study program, with teaching/instructional activities in the first three semesters and the creation of a student master thesis in the fourth semester. For the STEPS study program in Kosovo, instructors from UC and UHZ have, in addition to 6 core (compulsory) STEPS courses in the first semester of study, developed 19 elective courses that students choose during the second and third semester of their studies. UHZ developed 18 out of a total of 25 courses of the joint STEPS study program that is implemented in Kosovo.

2.4.1 Digitized materials for STEPS courses of UHZ uploaded to the STEPS LMS platform

According to the data provided by UHZ, digitized teaching and instructional contents were produced for **all compulsory and elective courses** that this HEI implements within the joint STEPS study program in Kosovo.

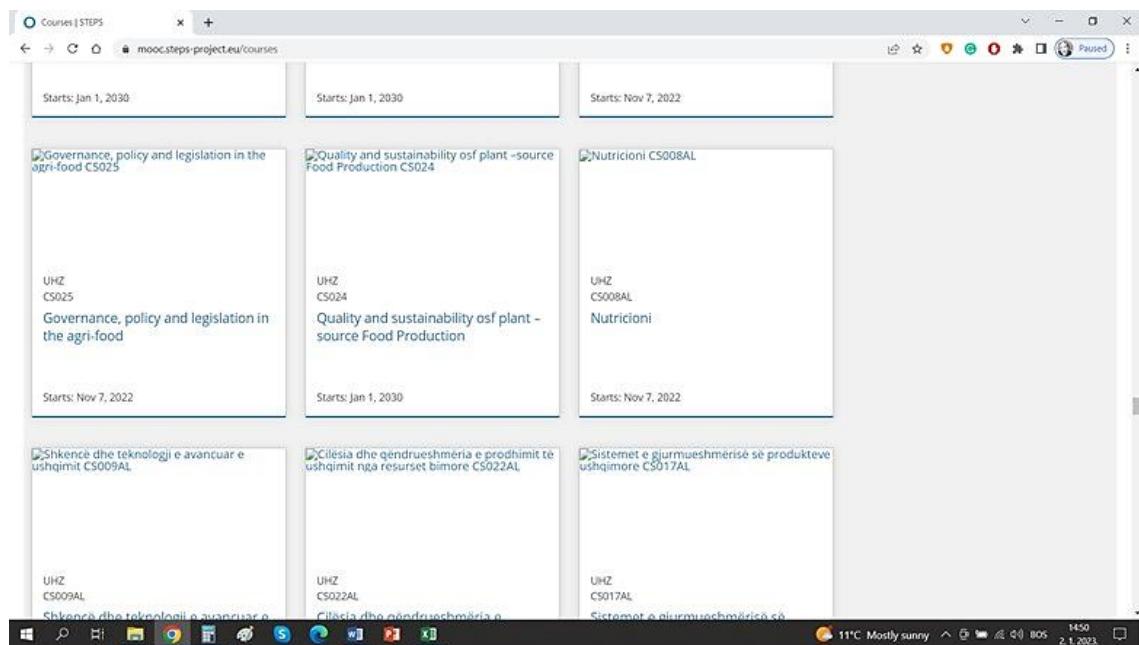


Figure 6 Some STEPS courses developed at UHZ and uploaded on the STEPS LMS platform ([UHZ - Dashboard](#))

The screenshot shows the home page of the "Sustainable technology of dairy products" course (CS010) on the STEPS LMS platform. The page includes:

- Sustainable technology of dairy products** (UHZ)
- A large blue button labeled **Enroll in CS010**.
- About This Course** section with the following details:
 - Academic Unit:** Faculty of Agrobusiness
 - Name of subject:** Sustainable technology of dairy products
 - Level:** Master
 - Subject status:** Elective
 - Study year:** II
 - Number of hours per week:** 2+2
 - Number of ECTS:** 5
 - Time/location:** Department FT
 - Lecturers:** Prof.Ass.Dr. Arsim ELSHANI
 - Contact details:** arsim.elshani@unhz.eu
- Course Number:** CS010
- Classes Start:** Nov 7, 2022

Figure 7 Example of the home page of the UHZ STEPS course uploaded to the STEPS LMS platform ([UHZ course - homepage](#))

The screenshot shows a web browser window with multiple tabs open. The active tab is titled 'Course | CS010 | STEPS'. The main content area displays the course outline for 'Sustainable technology of dairy products'. The outline consists of a numbered list from 1 to 13, each preceded by a grey triangle icon. The list includes topics such as sustainability challenges, greenhouse gas emissions, mitigation measures, dairy economics, unit operations, possibilities for optimisation, packaging perspectives, waste management, innovative uses in nutrition, future relevance, business opportunities, by-products of processing, and the EU dairy sector. At the top of the page, there are navigation links for 'Course', 'Discussion', 'Progress', and 'Syllabus and More Information'. On the right side, there are 'Course Tools' (Bookmarks) and 'Important Course Dates' (Today is Jan 18, 2023 11:46 CET). A 'Start Course' button is also visible. The bottom of the screen shows a Windows taskbar with various icons.

Figure 8 Example of UHZ STEPS course content uploaded to the STEPS LMS platform
[\(UHZ course - outline\)](#)

Table 3 provides data on digitized teaching, instructional and auxiliary materials that the instructors of STEPS courses from UHZ, according to the report of responsible persons from UHZ, uploaded to the STEPS LMS platform at the end of 2022.

Table 3 Digitized materials from UHZ uploaded to at the STEPS LMS platform

Course #	Type of digitized educational material						Total
	PowerPoint™ presentation	Course instructor's written material	External written material	External video material	Problem and/or calculation tasks	Software	
1	2	2	4	2	0	0	10
2	10	2	0	2	1	1	16
3	3	0	2	3	18	0	26
4	3	0	2	2	0	0	7
5	0	1	3	0	0	0	4
6	10	1	0	3	0	0	14
7	1	1	0	4	11	0	17
8	4	1	4	3	15	3	30
9	11	2	3	2	2	1	21
10	2	1	4	3	0	0	10
11	0	1	0	0	15	0	16
12	0	0	0	3	2	0	5
13	4	4	14	3	0	3	28
14	2	2	0	0	0	0	4
15	2	3	2	4	14	1	26
16	2	1	3	0	1	0	7
17	1	1	0	4	1	0	7
18	1	1	0	4	1	0	7
Total	58	24	41	42	81	9	255
Average per course	3.2	1.3	2.3	2.3	4.5	0.5	14.1

Table 3 shows that UHZ instructors by the time of writing this report have uploaded 241 digitized items to the STEPS LMS platform. Problem and/or calculation tasks (34%), PowerPoint™ presentations (24%), external written material (17%) and external video material (17%) predominate among uploaded digitized materials. The number of uploaded digital materials per course ranges from a minimum of four to a maximum of 30, with an average of around 15 digitized materials per course.

2.5 University of Bihać

At the University of Bihać (UNBI), a one-year master's study program "Sustainable food production systems" was developed and is being implemented. Instructors from this university developed a total of 16 courses according to the agreed STEPS methodology. Among them are 6 STEPS core courses that are implemented as compulsory courses in the 1st semester of the first (in Bihać also only) year of the study program. In addition, 10 elective courses have been developed at UNBI, which students can choose from the open list of elective courses in the 2nd semester of their one-year study program.

2.5.1 Digitized materials for STEPS courses of UNBI uploaded to the STEPS LMS platform

According to the data provided by UNBI, digitized materials have been produced for all core/compulsory courses and for 9 out of 10 elective courses (all together, for **15 out of a total of 16 courses**). Until the time of writing this report, UNBI instructors have not uploaded digitized materials to the STEPS LMS platform for only one course (Marketing of Sustainable Agri-Food Products).

The screenshot shows a dashboard with a grid of course cards. Each card displays the course title, code, and start date. To the right of the grid, there are filters for 'modes' (audit) and 'language' (sq, en). Below the grid, there is a search bar and a taskbar.

Course Title	Code	Start Date
FUNDAMENTALS OF AGRI-FOOD PRODUCTION SYSTEMS	UNBI OSPH101	Nov 14, 2022
LOW INPUT AGRICULTURE	UNBI OSPH108	Nov 7, 2022
FOOD ETHICS	UNBI OSPH105	Nov 7, 2022
ANIMAL FOOD TECHNOLOGY SCIENCE	UHZ CS010	Nov 15, 2022
Sustainable technology of dairy products	CS010	Nov 7, 2022
Environmental Chemistry towards Food Processing	CS023	Nov 7, 2022

Figure 9 Some STEPS courses developed at UNBI and uploaded on the STEPS LMS platform
[\(UNBI - Dashboard\)](#)

FUNDAMENTALS OF AGRI-FOOD PRODUCTION SYSTEMS
UNBI

You are enrolled in this course [View Course](#)

Course Aims

Main aim of the course is to:

- Acquire knowledge and skills in the field of sustainable food production systems with the focus on efficient and rational use of resources in every aspect of production – from primary agricultural production, processing, to distribution and consumption;
- Understand current food production systems and challenges they face (sustainable production and consumption);
- Make predictions in order to maximise sustainability;
- Understand new approaches in food production and be able to critically analyse them (retrieve, apprehend, apply).

Learning outcomes:

Upon successful completion of the course, the student will be able to:

- Identify and analyse factors that affect the production and consumption of food locally and globally, today and in the future;
- Know and classify the prerequisites for food production and supply chain, within primary production processing and distribution;
- Compare aspects of conventional and organic farming and know the value of agricultural products within them;
- Evaluate and solve problems in primary agriculture production and food industry related to sustainable

Figure 10 Example of the home page of the UNBI STEPS course uploaded to the STEPS LMS platform ([UNBI - course homepage](#))

Course | B1-1.3 | STEPS

UNBI: B1-1.3 FUNDAMENTALS OF AGRI-FOOD PRODUCTION SYSTEMS Discover New

Help Mile_Blesic

Course Discussion Progress Syllabus and More Information

FUNDAMENTALS OF AGRI-FOOD PRODUCTION SYSTEMS

Search the course [Search](#) [Start Course](#)

[Collapse All](#)

[Course Tools](#)
[Bookmarks](#)

Important Course Dates
Today is Dec 19, 2022 10:33 CET

- Anketa - Održivi sistemi proizvodnje hrane
 - Anketa - Održivi sistemi proizvodnje hrane
 - Anketa - Održivi sistemi proizvodnje hrane
- Introduction to SimaPro LCA software
 - Introduction to SimaPro LCA software
 - Webinar | Introducing SimaPro Explore
 - Webinar | Introducing SimaPro Explore

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Figure 11 Example of UNBI STEPS course content uploaded to the STEPS LMS platform ([UNBI - course outline](#))

All produced digitized teaching materials for STEPS courses developed at UNBI have not been uploaded to the STEPS LMS platform. Some of these materials (mainly external written materials – books or book chapters) are not uploaded to the STEPS LMS platform due to copyrights, although they can be found at UNBI (library) and are available to UNBI students.

According to the report submitted by UNBI, digitized materials as presented in Table 4 were uploaded to the STEPS LMS platform.

Table 4 Digitized materials from UNBI uploaded to at the STEPS LMS platform

Course #	Type of digitized material						Total
	PowerPoint™ presentation	Course instructor's written material	External written material	External video material	Problem and/or calculation tasks	Software	
1	8	3	11	2	0	3	27
2	10	2	0	2	29	0	43
3	3	0	3	3	18	0	27
4	3	0	2	2	0	0	7
5	2	0	0	2	0	0	4
6	10	1	0	3	0	0	14
7	1	1	0	4	11	0	17
8	0	1	0	0	15	0	16
9	11	4	3	4	0	3	25
10	2	3	0	5	0	3	13
11	0	1	0	0	15	0	16
12	0	0	0	0	20	0	20
13	4	4	14	3	0	3	28
14	1	3	2	4	14	1	25
15	1	1	0	4	1	0	7
Total	56	24	35	38	123	13	289
Average per course	3.7	1.6	2.3	2.5	8.2	0.9	19,3

According to the data from Table 4, the instructors of the STEPS courses that are implemented at UNBI have uploaded 289 digitized materials to the STEPS LMS platform for 15 out of a total of 16 UNBI STEPS courses. Observed according to the type of digitized material uploaded to the STEPS LMS platform, the most common form is problem and/or calculation tasks (total 123 for all 15 courses, 43%), followed by PowerPoint™ presentations (total 56 for all 15 courses, 19%). On average, over 19 digitized materials were uploaded per course. The number of uploaded digitized materials per course ranged from a minimum of 4 to a maximum of 43.

2.6 University of Sarajevo

At the University of Sarajevo - Faculty of Agriculture and Food Sciences (UNSA), the STEPS master study program "Sustainable food production systems" was developed and is in its third year of implementation. It is a two-year course, with three semesters of teaching/instructional activities and the last (fourth) semester intended for the preparation of the student's final master's thesis. UNSA instructors, according to the established STEPS methodology, have developed a total of 26 STEPS courses - 6 core (compulsory) and 20 elective courses that students choose during the second and third semester of study.

2.6.1 Digitized materials for STEPS courses of UNBI uploaded to the STEPS LMS platform

According to the report of the responsible persons, UNSA instructors produced and uploaded to the STEPS LMS platform digitized materials for **19 out of a total of 26 STEPS courses** developed at UNSA. Courses for which digitized materials have not been uploaded to the STEPS LMS platform are mainly courses in managerial disciplines. However, digitized educational and various additional materials produced by those instructors are available from the university websites. Some digitized materials (mainly external written materials such as books or book chapters) could not be uploaded to the STEPS LMS platform due to copyright. According to the instructors of STEPS courses at UNSA, these external written materials are available to students of STEPS study program through the UNSA libraries.

The screenshot shows a browser window displaying a dashboard of courses from different institutions. The courses listed are:

- Menaxhimimi total i cilësisë në sektorin agrorushqimor UET008** (UET, UET008, Starts: Jan 1, 2023)
- UNSA CS304 Održivo vinarstvo** (UNSA, CS304, Starts: Feb 27, 2023)
- UNSA B2.3.6 Sustainable Wine Production** (UNSA, B2.3.6, Starts: Feb 27, 2023)
- Zakonodavstvo o hrani** (UNSA, CS104)
- Quality & sustainability of Animal-source food production FEQS_E02** (AUT, FEQS_E02, Quality & sustainability of Animal-source food production)
- TestAL: LCA SimaPro PROJEKT „Dairy farm system“ UNBI-BTF1** (UNBI, UNBI-BTF1, TestAL: LCA SimaPro PROJEKT „Dairy farm system“)

Figure 12 Some STEPS courses developed at UNSA and uploaded to the STEPS LMS platform ([UNSA - Dashboard](#))

The screenshot shows the home page of the 'Food Legislation' course at UNSA. The page includes:

- Food Legislation** (UNSA)
- A message: **You are enrolled in this course**
- A blue button: **View Course**
- A photograph of a desk with books and papers.
- About This Course** section with the following details:
 - Academic Unit:** University of Sarajevo, Faculty of Agriculture and Food Sciences / Department of Food Technology
 - Course Title:** Food Legislation
 - Study Level:** Postgraduate (II cycle)
 - Course Type:** Compulsory
 - Semester:** I
 - Course Duration (weeks):** 15
 - Weekly Teaching Hours:** 3
 - Credits/ECTS:** 5
 - Lecturer:** Milenko Blesić, PhD, Full professor
 - Contact details:** m.blesic@ppf.unsa.ba
- LEARNING OUTCOMES:** The aim of the course is to provide students with knowledge and skills in the field of food legislation in the

Figure 13 Example of the home page of the UNSA STEPS course uploaded to the STEPS LMS platform ([UNSA - course homepage](#))

The screenshot shows a web browser window displaying the course outline for 'Course | B2-15 | STEPS'. The outline is organized into sections:

- 8. The EU food hygiene legislation.**
 - Week 8 - Learning, information and support materials**
 - PPT - EU legislation on food hygiene
 - Videos
 - PDFs
 - [Links to the EU informative portals](#)
 - Student's SA test
- 9. EU food labelling and consumer information regulation.**
 - Week 9 - Learning, information and support materials**
 - PPT - EU regulation - Food information to consumers
 - Videos
 - PDF
 - [Links to the EU informative portals](#)
 - Student's SA test
- 10. Official controls on import, export and inland transport of food.**
 - Week 10 - Learning, information and support materials**

The browser status bar at the bottom shows the URL: https://moocsteps-project.eu/courses/course-v1:UNSA+B2-15+2022-2023+run_1+block-v1:UNSA+B2-15+2022-2023+type@vertical+block@0b2f6355930e4e579320f4299b17eff6, and the system status: SMC Mostly sunny, 14:30, 3.1.2023.

Figure 14 Example of an outline of the content of the UNSA STEPS course uploaded to the STEPS LMS platform
[\(UNSA - course outline\)](#)

The screenshot shows a web browser window displaying a PowerPoint presentation titled 'OIV* general principles of sustainable viticulture and winemaking'. The presentation has one slide visible, which contains the following text:

OIV* general principles of sustainable viticulture and winemaking

Environmental, social, economic and cultural aspects

RESOLUTION ON CST 818-2016

Print or Download
Download as: Microsoft Word
Document Actions

SLIDE 1 OF 29

The presentation is displayed in a Microsoft PowerPoint window, showing the same slide content. The browser status bar at the bottom shows the URL: https://moocsteps-project.eu/courses/course-v1:UNSA+B2-15+2022-2023+courseware/790/a001249eb00d0f5a336bd0fc2a04cf14d75324af9e71ae0d2671c7a4/1/activate_block_id=block-v1%3AU%3AUNSA2882-3-6%29202...

Figure 15 Example of an uploaded PowerPoint™ presentation of the UNSA STEPS course on the STEPS LMS platform
[\(UNSA - course content - ppt\)](#)

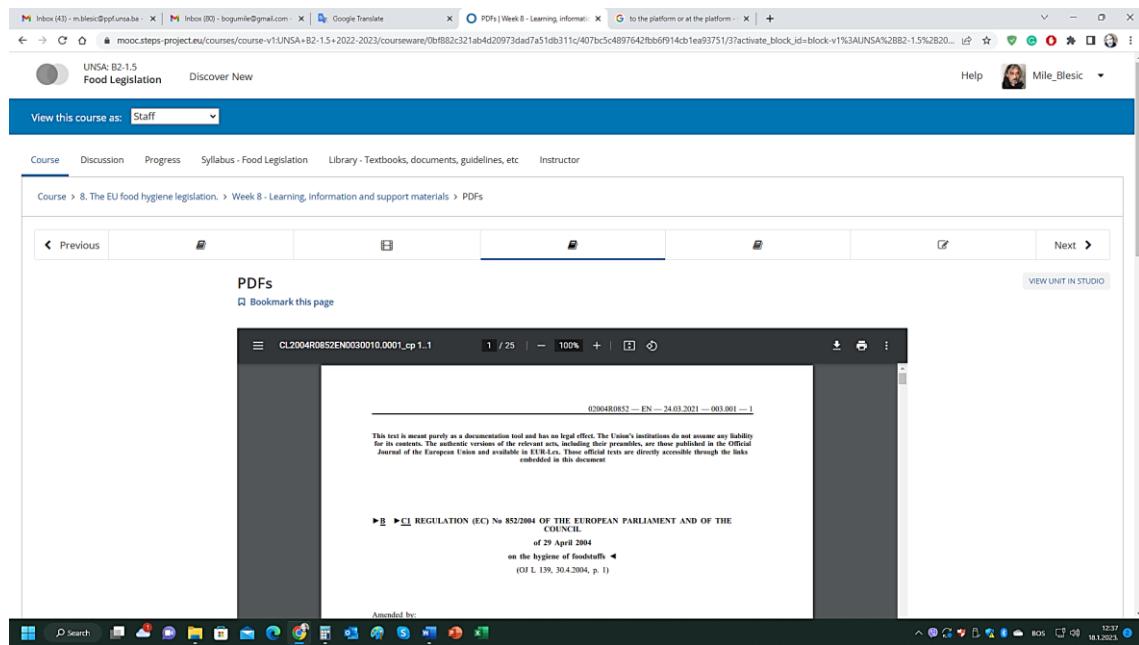


Figure 16 Example of an uploaded pdf document of the UNSA STEPS course on the STEPS LMS platform
[UNSA - course content - pdf](#)

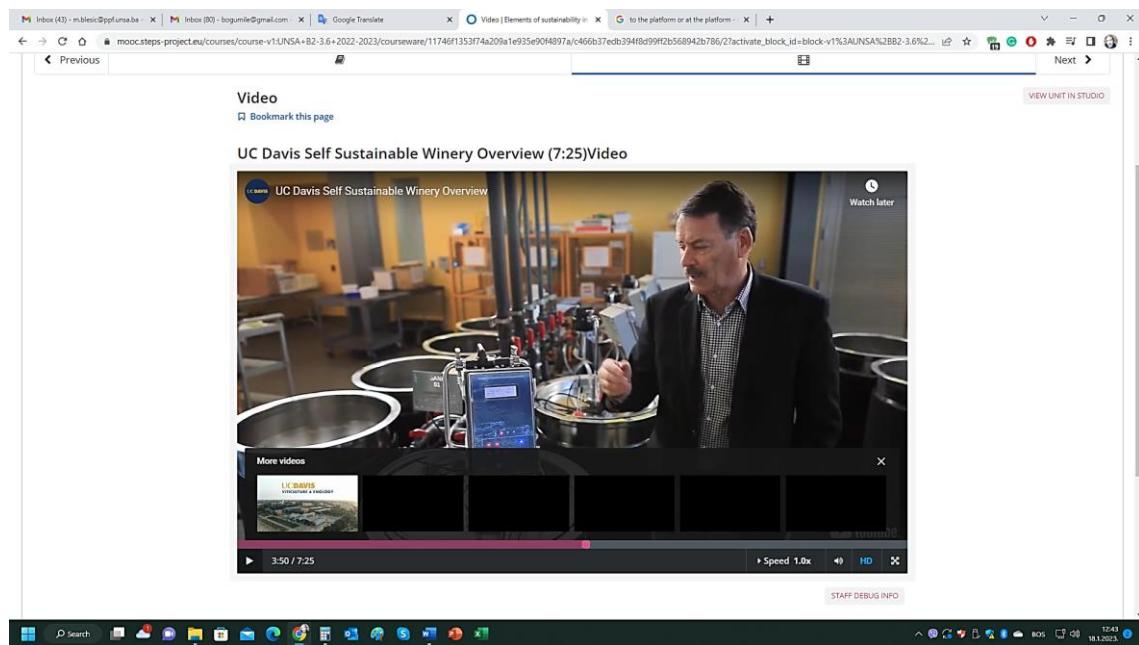


Figure 17 Example of the uploaded video material of the UNSA STEPS course on the STEPS LMS platform
[UNSA - course content - video](#)

The screenshot shows a web browser window with the URL moocsteps-project.eu/courses/course-v1:UNSA+B2-1.5+2022-2023/courseware/0hf82c321ab4d20973dad7a51db311c407bc5c4897642fbfb6914cb1ea93751/57/activate_block_id=block-v1%3AUNSA%2B2-1.5%2B20.... The page title is "Student's SA test | Week 8 - Learning". The main content area displays a "Student's SA test" titled "W8 Student's SA test" with 4/8 points (ungraded). It contains two questions: 1. The basis of the so-called "hygiene package" of food legislation in the EU consisted of three directives (852/2004; 853/2004, and 854/2004). The answer "No" is selected with a checkmark. 2. Regulation (EC) 852/2004 also lays down basic hygiene rules for certain segments of primary agricultural production. The answer "Yes" is selected with a checkmark. Navigation buttons like "Previous" and "Next" are visible at the top of the content area.

**Figure 18 Example of the uploaded test for students' self-assessment of the UNSA STEPS course on the STEPS LMS platform
(UNSA - course content student's test)**

The screenshot shows a web browser window with the URL moocsteps-project.eu/courses/course-v1:UNSA+B2-3.6+2022-2023/courseware/9b1670c0d22e45dc639eaa6fb943d8/e3ec2f0ca997485bdcfb55c0a900a20d/37/activate_block_id=block-v1%3AUNSA%2B2-3.6%2B20.... The page title is "Links | Learning materials | B2-3.6 C". The main content area displays a "Links" section with three items: "Biodynamics - Tablas Creek Vineyard Blog", "Germany's organic vineyards hit by climate change", and "Into the Biodynamic Vineyard". Each item has a "STAFF DEBUG INFO" button to its right. Navigation buttons like "Previous" and "Next" are visible at the top of the content area.

**Figure 19 Example of the uploaded links to the external sources of the UNSA STEPS course on the STEPS LMS platform
(UNSA - course content - ext. link)**

Table 5 presents the structure and number of digitized materials that UNSA instructors uploaded to the STEPS LMS platform for their STEPS courses at the time of compiling this report.

Table 5 Digitized materials from UNSA uploaded to at the STEPS LMS platform

Course #	Type of digitized material								Total per course
	PowerPoint™ presentation	Course instructor's written material	External written material	Video material of own production	External video material	Tests / quizzes	Problem and/or calculation tasks	Others	
1	12	0	11	0	1	1	0	0	25
2	8	2	13	0	0	0	0	2	25
3	11	1	0	0	0	1	3	1	17
4	15	1	21	0	41	14	0	16	108
5	10	0	1	0	0	0	0	0	11
6	15	1	1	0	0	0	0	0	17
7	8	0	1	1	0	0	0	0	10
8	11	0	6	0	0	1	0	0	18
9	12	0	3	0	0	0	0	0	15
10	10	0	1	0	0	0	0	0	11
11	3	0	7	0	0	0	0	0	10
12	12	0	0	0	0	0	0	0	12
13	3	2	7	0	2	1	1	0	16
14	13	10	5	0	1	0	0	1	30
15	4	0	0	0	0	0	0	0	4
16	15	5	38	0	55	0	0	7	120
17	1	0	7	0	2	0	0	0	10
18	10	0	0	0	0	0	0	1	11
19	11	0	5	0	0	0	0	0	16
Total	184	22	127	1	102	18	4	28	486
Average per course	11,5	1,4	7,9	0,1	6,4	1,1	0,3	1,8	30,4

According to the data from Table 5, the UNSA course instructors uploaded 486 digitized materials produced for 19 STEPS UNSA courses. UNSA course instructors produced eight types of digitized materials (PowerPoint™ presentations, course instructor's written materials, external written materials, own video materials, external video materials, tests/quizzes for students, problems and/or calculation tasks, and others). In the "Others" category in Table 5, there are mostly links to various informative and educational websites. PowerPoint™ presentations (about 38%), external written materials (about 26%) and external video materials (about 21%) prevail. The number of digitized materials per STEPS UNSA course uploaded to the STEPS LMS platform ranged from a minimum of 4 to a maximum of 120, with an average of around 30 digitized materials per STEPS course that is implemented at UNSA.

3 Concluding observations

The six STEPS partner HEIs submitted data on the produced and uploaded digitized materials for the realization of STEPS courses through the STEPS LMS platform on the reformulated questionnaire and its tables. The partner HEIs submitted data on produced/unproduced digitized materials for a total of 88 STEPS courses (11 courses at AUT; 10 courses at EUT, 7 courses at UC; 18 courses at UHZ; 16 courses at UNBI; and 26 courses at UNSA). **It is very important to emphasize that the listed course numbers include both language versions of the courses – the English version and the local language version as one course.** On the STEP LMS platform, space is open and frameworks have been created according to which each developed STEPS course can be presented and implemented in both language variants (English and local language).

Figure 20 presents the number of STEPS courses by STEPS partner HEIs with digitized materials produced and uploaded to the STEPS LMS platform.

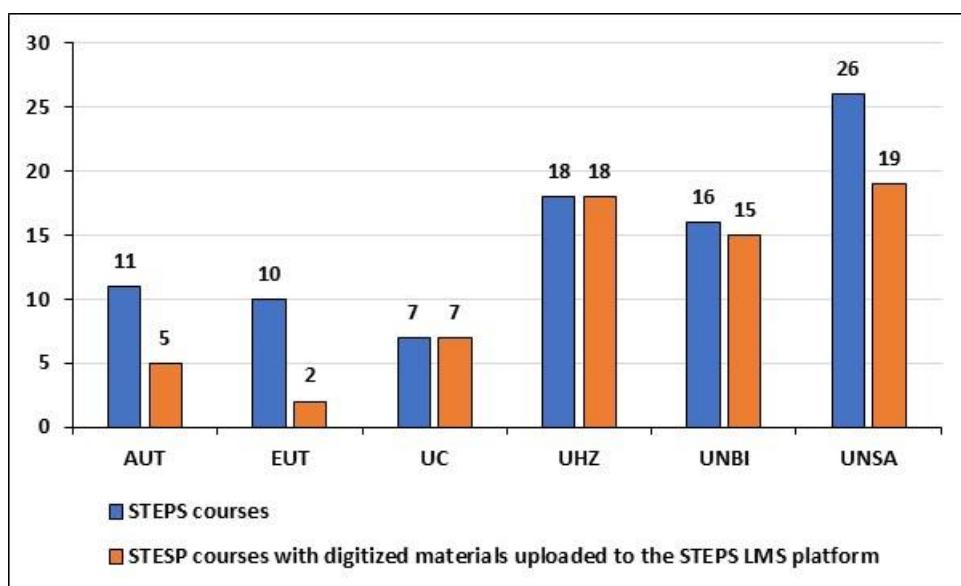


Figure 20 Number of STEPS courses by STEPS partner HEIs with digitized materials produced and uploaded to the STEPS LMS platform

As can be seen from Figure 20, UC and UHZ, according to their reports, produced and uploaded to the STEPS LMS platform digitized materials for all their STEPS courses. UNBI course instructors uploaded digitized materials for 15 out of 16 of their courses. At UNSA, digitized materials were not produced for seven out of a total of 26 STEPS courses that are implemented at this HEI. The AUT course instructors have uploaded digitized materials for 5 out of 11 STEPS courses belonging to this HEI, while EUT uploaded to the STEPS LMS platform digitized materials for two out of 10 of its STEPS courses. All in all, out of a total of 88 STEPS courses developed at STEPS partner HEIs, digitized educational, instructional, and other materials were produced and uploaded to the STEPS LMS platform for 66 courses. For now, the largest

number of courses (16) without uploaded digitized materials is on the STEPS study program, which is jointly implemented by AUT and EUT in Albania. The reasons for this have already been stated and relate primarily to the late launch of the STEPS study program in Albania. The UNSA STEPS study program also has a significant number (7) of courses without digitized materials uploaded to the STEPS LMS platform. The reason here is primarily the fact that a significant number of UNSA instructors (primarily on courses in managerial disciplines) run their courses on other types of LMS platforms such as Moodle. It should certainly be noted that according to information from all STEPS partner HEIs, work on the production and uploading of digitized materials to the STEPS LMS platform continues. This includes uploading the first digitized materials for courses where they have not yet been produced, as well as updating, supplementing, and modernizing digitized contents already uploaded to the STEPS LMS platform.

According to the reports submitted by the partner HEIs, Figure 21 presents the total numbers of various types of digitized materials produced and uploaded to the STEPS LMS platform by the STEPS partner HEIs.

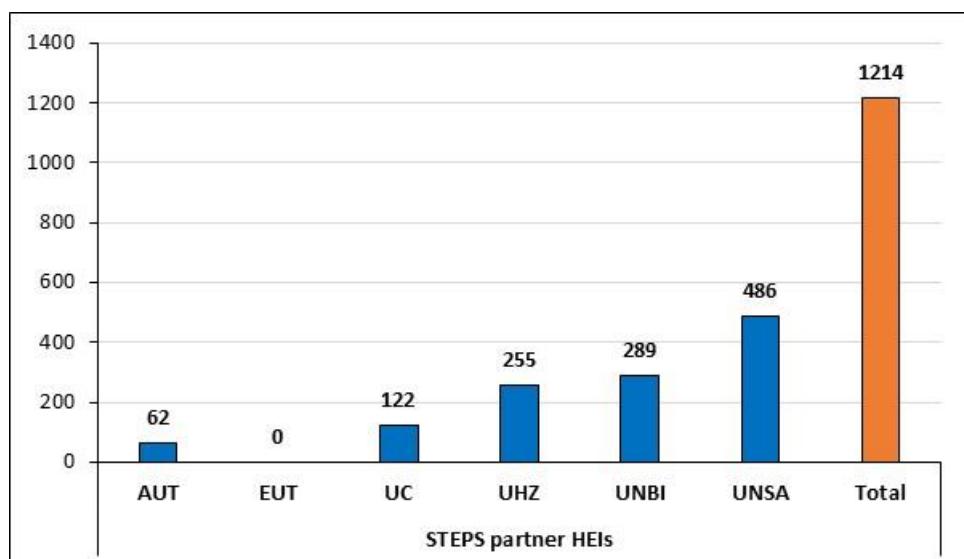


Figure 21 Number of various forms of digitized materials uploaded to the STEPS LMS platform by STEPS partner HEIs

As can be seen from Figure 21, 1214 digitized materials of various types were uploaded to the STEPS LMS platform, according to the reports submitted by the HEIs.

Comparing the number of STEPS courses for which digitized materials were uploaded to the STEPS platform and the total number of different uploaded digitized materials per partner HEIs, it follows that:

- at AUT there are around 12 digitized materials per course on average,
- at UC there are around 17 digitized materials per course on average,
- at UHZ there are around 14 digitized materials per course on average,
- at UNBI there are around 19 digitized materials per course on average, and
- at UNSA there are around 26 digitized materials per course on average.

In total, for all STEPS partner HEIs and for all courses (with uploaded digitized materials), the average number of uploaded digitized materials per course is around 18.

Figure 22 presents the structure of various forms of digitized materials produced at STEPS partner HEIs and uploaded to the STEPS LMS platform.

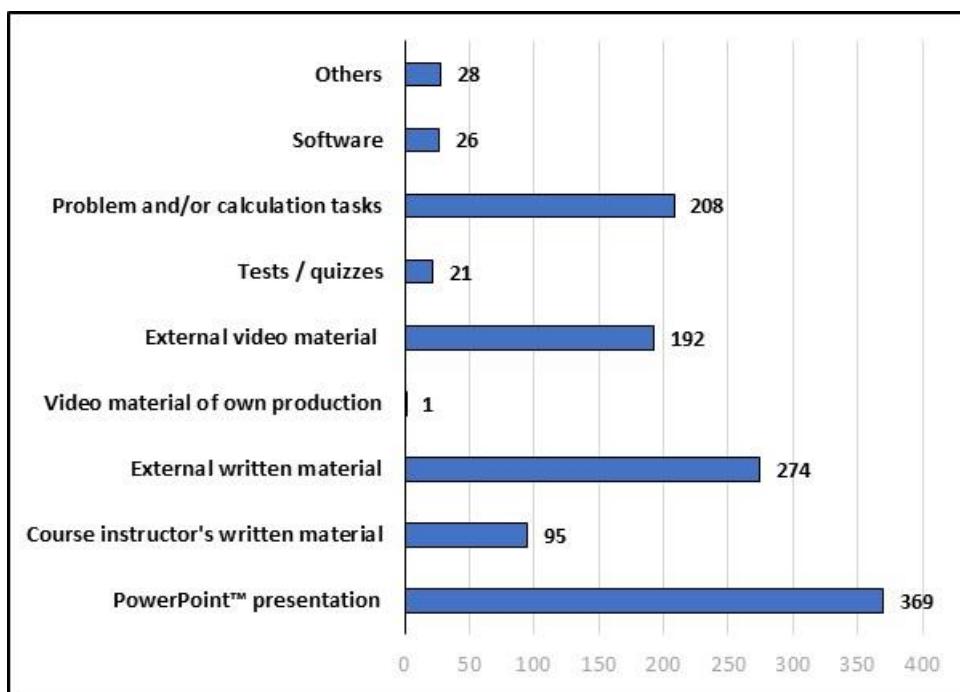


Figure 22 Structure and number of produced and uploaded digitized materials for STEPS courses at AUT, UC, UHZ, UNBI and UNSA

Figure 22 shows that the most common form of digitized materials was PowerPoint™ presentation. Instructors of STEPS courses at five partner HEIs produced a total of 369 of these digitized materials (around 30% of all uploaded digitized materials). A total of 274 external written materials were uploaded to the STEPS LMS platform (around 23% of all uploaded digitized materials). The ratio of video materials (truly external, mostly YouTube videos) in the structure of digitized materials uploaded to the STEPS LMS platform is commendable and significant. STEPS course instructors uploaded links to 192 external video materials which is around 16% of all uploaded digitized materials. A relatively small number of software simulations and/or models (26) and tests/quizzes for students (21) were produced and uploaded. There are practically no own video materials produced and uploaded to the STEPS LMS platform.

Due to a few objective and subjective circumstances, the project realization on establishment of the fully operational STEPS LMS platform was delayed. This was not particularly motivating for STEPS course instructors at STEPS partner HEIs. In addition, informal information from HEIs says that senior teaching staff have a hard time managing the production of digitized education, instructional and auxiliary materials, and especially with their demanding transformations necessary when uploading to the Open edX STEPS LMS platform. The production of digitized materials for courses that are implemented through the LMS platform is a constant process, and it can be expected that students and other users of the STEPS LMS platform will find their bigger number and better structure in the future (e.g., more interactive materials or more self-produced video materials). There is no doubt that the project tasks on the digitization of educational and instructional materials were useful to all STEPS course instructors at all partner HEIs. Some of them were facing these kinds of challenges for the first time in their careers. The first, difficult steps have been taken, and current and future STEPS course instructors are left with the tasks of updating of digitized materials that they prepare for their courses and make available to students from all STEPS partner HEIs through the common STEPS LMS platform.