



WP 4.4: Proposal for the equipment to be procured

Proposal by WP 4 Lead Danube University Krems

In this proposal we have created a list of different **hardware and software** products, which can enrich the teaching and learning processes at Moldovan universities. We have selected products, which are both of high-quality as well as affordable.

The survey of the study visit from 6th to 10th May 2019 in Krems showed that several partners named the promotion of digitisation such as digital programmes and distance e-learning as very important topics for them. Danube University Krems has created an online survey to find out what equipment Moldovan universities already use and what equipment they need for their planned compass activities. The survey on the use of equipment and software at Moldovan universities showed that some universities already use different software and equipment that we will recommend. However, there is still a demand to offer more activities that require digital tools. The equipment list is based on the needs of the participants of the online survey. We will go into this in more detail below. The equipment will be purchased for each PCU in order to support the implementation of the LLL reform with focus on the development of flexible educational programmes (eLearning, equipment for online courses) and languages LLL studies (eg. language labs).

The **due date** for purchase is **14th of November 2021**. For questions, please turn to **ASEM**, who has the lead for WP 4.4.



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Hardware

1. Server (1x):

Product details:

Hewlett Packard HPE DL360 Gen10 5118 1P 8SFF SMB Svr

(Art# MSZYNWL), HPE ProLiant DL360 Gen10 Performance - Server - Rack-Montage - 1U – two ways - 1 x Xeon Gold 5118 / 2.3 GHz - RAM 32 GB - SAS - Hot-Swap 6.4 cm (2.5") - none HDD - GigE - Monitor: none

Link to the manufacturer: <https://www.hpe.com/uk/en/product-catalog/servers/proliant-servers/pip.specifications.hpe-proliant-dl360-gen10-server.1010849197.html>

Why do we recommend this product?

- We have had good experiences with HP servers and their quality.
- With this product you can achieve a lot in your university, from hosting websites (like Moodle) to other things like shared documents.
- This product has a good price/performance ratio.

1.1. 2TB Harddisk for the Server (2x):

Why do we recommend this product?

- The server has no SAS (HDD)
- The second is for the Mirror (RAID 1)
- 2 TB is a lot to work with

Attention: This server is only useful if you have a server-room and a rack.

It is also possible to take this Server with another CPU.

2. Projector (1x):

Product details:



WiFi Projector, POYANK Wireless Projector support 1080P Full HD, 3600 Lumen Video projector supports Airplay Miracast DLNA Function, Wireless signal transmission from TV, USB-Stick, PC, Smartphone, Whiteboard possible

Why do we recommend this product?

- The Projector has WIFI
- This product has a good price/performance ratio.

2.1. addition to the Projector (1x):

Product details:

IE F-35 Basic 3.1 Mobile interactive digital Whiteboard-System with Infrared pencil for the projector.

Link: <https://www.youtube.com/watch?v=iCsD61OGvCs>

Why do we recommend this product?

An interactive whiteboard (IWB) also commonly known as interactive board or smart whiteboard is a large, interactive display in the format of a whiteboard. With this system it is possible to use the projector as a touchscreen. This makes it possible to write and share notes, show interactive learning content and much more. This can make the teaching and learning experience more diverse and interactive.

3. Notebooks (5x)

Product details:

Hewlett Packard HP ENVY x360 13-ar0004ng FHD IPS Touch, AMD Ryzen 5 Quad-Core, 8GB RAM, 512GB SSD, Win10

(Art# MUFYCQL), AMD Ryzen 5 3500 / 8 GB RAM / 512 GB SSD Hard Disk / Radeon Vega 8 Mobile GDDR5 / 33 cm (13,3) 1920 x 1080 Pixel (Full HD) Touchscreen / Intel 802.11b/g/n/ac / Bluetooth 4.2 / HD Infrared-Camera / up to 11 hr. battery runtime / 1.3 kg / HP Sure View / Damascus steel look / Windows 10 Home 64 Bit

Link to the manufacturer: <https://store.hp.com/us/en/mdp/envy-x360-238003--1#!&tab=features>

Why do we recommend this product?

- This product has a good price/performance ratio.
- It has a touch screen and can be converted into a tablet PC.
- It is lightweight and has a long battery life.



The notebooks can be used by the teachers to prepare the lessons.

The integrated webcams are useful for participating in online conferences or exchanging information with students. The notebooks can also be used in learning and teaching for research, study, presenting, connecting video projectors and much more.

4. PC (4x)

Product details:

Lenovo All-in-One PC Ideacentre 520-27ICB, silver (F0DE007TGE)

(Art# 1693024) 1 x AIO PC, 1 x power supply, 1 x mouse, 1 x keyboard

Link to the manufacturer: <https://www.lenovo.com/us/en/desktops-and-all-in-ones/ideacentre/aio-500-series/AIO-520-27/p/FFICF520276>

Why do we recommend this product?

- Beautiful design
- It has a good performance and has all things that you need (webcam, touchpad, DVD drive, large storage capacity)

Software

When it comes to software, we rely strongly on open source or affordable software that is easy to use and robust. Here are some suggestions of software we use ourselves and can recommend for the teaching and learning process.

1. Pinboards and tools for digital collections

The online survey showed that 3 participants already use online virtual "bulletin" board to promote remembering and understanding of content, 5 want to use it in the future. We give here 3 suggestions of software we use for this purpose.

1.1. Padlet

Digital pinboard where students and teachers can collect ideas, comment and rate them. It can also be used for brainstorming in groups.

Link: <https://padlet.com/>

<https://www.youtube.com/watch?v=UkBnwPqaljA>



1.2. Groupboard (Open Source)

is a shared pinboard for multiple users that you can place on your website by simply copying a few lines of HTML code. You can also run Groupboard alone on your Server.

Link: <https://www.groupboard.com/products/>
<https://www.youtube.com/watch?v=UCokXd26A8Q>

1.3. Wakelet

Save anything – videos, articles, Tweets, Instagram posts, Spotify songs and more. Organize the content you save into collections and share them with others.

Link: <https://wakelet.com/>
https://www.youtube.com/watch?v=C5vm_Zs3dl4

2. Quizzes

4 participants of the online survey already use quizzes for knowledge verification, 7 want to use it in the future. Therefore, here are 3 suggestions for software that can be used for this purpose.

2.1. Kahoot!

Kahoot! is a game-based learning platform. Its learning games, "Kahoots", are multiple-choice quizzes that allow users to generate their own quizzes and can be accessed via a web browser, phone, or the app itself.

Link: <https://kahoot.com/>
<https://www.youtube.com/watch?v=pAfnia7-rMk>

2.2. Quizizz

Free self-paced quizzes to review, assess, and engage - in class and at home.

Link: <https://quizizz.com/>
<https://www.youtube.com/watch?v=bz0fB4u9uF8>



2.3. Plickers

Plickers allows you to carry out surveys or short knowledge checks in a class. Students do not need to own their own equipment to do this, but give feedback using printed barcodes. The answers are captured via the camera of a smartphone or tablet.

Lecturers can use these quizzes to check the students' prior learning experiences (at the start of the class) or what students can remember at the end of the class. It can be a nice, loosening up review of knowledge. Plickers has a free and a paid option.

Link: <https://get.plickers.com/>

<https://www.youtube.com/watch?v=Qpx56rjCVjQ>

3. Content Management System

ePortfolio or learning journal have so far been used by 2 of those who took part in the survey. In the future 6 more want to use it. Therefore, we give here 2 suggestions of software which can be used for this purpose.

3.1. WordPress

WordPress (WordPress.org) is a content management system. WordPress can be used as a learning diary, to prepare and share content. Students can document their work in an ePortfolio on Wordpress. They share their documentation with peers and tutors to receive feedback.

Link: <https://de.wordpress.com/>

3.2. Mahara

Mahara is a content management platform with a focus on ePortfolios.

An e-portfolio is a collection of electronic evidence assembled and managed by a user, usually on the web. Such electronic evidence may include input text, electronic files, images, multimedia, blog entries, and hyperlinks. E-portfolios are both demonstrations of the user's abilities and platforms for self-expression. If they are online, users can maintain them dynamically over time.

Link: <https://mahara.org/>

<https://www.youtube.com/watch?v=NXwkDtJ8z4c>



4. Learning Management System

11 of the respondents said they did not use a learning management system. 5 participants have said that they use one. All 5 use Moodle and one participant also uses edX.org. We think that a Learning Management System is an important building block for the development of eLearning offers at universities. Moodle is open source and the most widespread learning management system at higher education institutions, which is why we recommend that universities that don't have it yet also acquire it. For this reason, we recommend a server, where you can host Moodle.

The online survey showed that in the area of student administration many online learning and teaching activities are already offered by universities. At the same time, many participants indicated that they would like to offer more in this area.

The activities:

- create and manage online courses
- online evaluation of homework
- evaluate students and their work
- giving grades online
- online exam
- online submission of assignments
- provide students with learning materials online
- survey

can be implemented into the teaching and learning process with the help of Moodle. Many of the participants want to establish these online activities at their universities.

4.1. Moodle

Moodle is a free and open-source learning management system (LMS). Developed on pedagogical principles, Moodle is used for blended learning, distance education, flipped classroom and other e-learning projects in schools, universities, workplaces and other sectors. With customizable management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals. Moodle allows for extending and tailoring learning environments using community-sourced plugins.

It can be used for handling administrative tasks in the university, to share documents, communicate with students, discuss topics, make tests, grading and much more.

Link: <https://moodle.org/>



https://www.youtube.com/watch?v=-0H9HLv41vY&list=PLxcO_MFWQBDehWp4JRrMqUkC-60RBGTs0

5. Communication

The communication with the students and among each of them is an important concern for many participants of the online survey. Some already use different tools for this (WhatsApp (3), Facebook Messenger (3), Telegram (2)), others want to use it in the future. Here is a suggestion for software that we think works well and is great for communication and collaboration.

5.1. [rocket.chat](#) (Open Source)

Use [rocket.chat](#) as a free communication tool for project groups. It is open-source and helps teams to control and centralize their communications.

Link: <https://rocket.chat/>

<https://www.youtube.com/watch?v=nXdE6b868Jg>

6. Presentation

The online survey among Moldovan universities has shown that 3 out of 6 who use presentation software already use Prezi. This shows that this program is already quite popular at Moldovan universities. We also recommend other universities to use this software.

6.1. [Prezi](#)

Prezi is a visual storytelling software alternative to traditional slide-based presentation formats. Prezi presentations feature a map-like overview that lets users pan between topics, zoom in on details, and pull back to reveal context.

Link: <https://prezi.com/>

<https://www.youtube.com/watch?v=WWZF66OqDs>

7. Web conferencing tools

5 respondents indicated that they would like to offer webinars at their university in the future. 3 already use webinar software, which is Adobe Connect. The software can be used for web conferencing, for online events and meetings, virtual classrooms or webinars for large as well as small groups. Both programs are very similar. We can recommend the following two providers:

7.1. [Adobe Connect](#)

Link: <https://www.adobe.com/de/products/adobeconnect.html>



<https://www.youtube.com/watch?v=pFGW7t5czyI>

7.2. Zoom

Link: <https://zoom.us/>

<https://www.youtube.com/watch?v=onP9J6ruqM8>

8. Screencast-Software

One of the respondents of the online survey is already using Screencast-o-matic, the one we recommend ourselves. 2 want to use such a tool in the future. Here is our recommendation:

8.1. Screencast-o-matic

Create screencast videos with the screen recorder.

Screencasts can be used in the learning and teaching process, for example, to record presentations for students, to give them tasks online or to explain something to them better on screen. This created content can be used as homework or preparation for the students.

Link: <https://screencast-o-matic.com/>

<https://www.youtube.com/watch?v=s1jIPo1bWCo>

9. Wiki

The online survey showed us that no Moldovan university currently uses Wiki. We think that it can be helpful for certain applications. Therefore we recommend the following program.

9.1. MediaWiki (Open Source)

The MediaWiki software helps you collect and organize knowledge and make it available to people. It's multilingual, free and open, extensible, customizable, reliable, and free of charge.

Link: <https://www.mediawiki.org/wiki/MediaWiki>

<https://www.youtube.com/watch?v=DiZYiBf9ECM>



10. Annex

10.1. Moldova Online Survey Results

Participants: 31

The following questions show you the answers and how many participants have chosen them. The answers don't add up to 31 because some participants didn't answer or didn't see the question.

What university are you from?

Academy of Economic Studies of Moldova [ASEM]	1
Academy of Music, Theatre and Plastic Arts [AMTAP]	6
University of Physical Education and Sport [USEFS]	4
State Pedagogical University "Ion Creanga" [UPSC]	2
Trade Cooperative University of Moldova [TCUM]	1
Comrat State University [KDU]	2

Do you use a learning management system?

Yes	5
No	11

What learning management system do you use?

Moodle	5
edX.org	1

How is the learning management system hosted?

External Provider	1
The servers of the institute	4

Which version of the system do you use?

CentOS Linux 7	2
Ultima	1



What kind of digital tools do you currently use at your higher education institution?

quiz software	2
collaboration tools	3
video-sharing website	1
presentation software	6
software for video creation	0
webinar-software	3
screencast-software	1
instant messaging	3
mind map tool	0
audio editing tool	0
blogging/website	3

Which quiz software do you use?

Hot Potatoes	2
JQuiz	2

Which collaboration tools do you use?

Padlet	1
MediaWiki	0
Google Drive	3
OneDrive	2
Dropbox	3
Etherpad	0
Other	0

Which video sharing websites do you use?

YouTube	1
---------	---

Which presentation software do you use?

Microsoft PowerPoint	6
Prezi	3
Google Slides	2

Which webinar software do you use?

Adobe Connect	3
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Which screencast software do you use?

Screencast-o-matic	1
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Which instant messaging service are you using?

WhatsApp	3
Facebook Messenger	3
Telegram	2

Which blogging/website tool are you using?

WordPress	2
usefs.md	1

Which other digital tools are you using?

LibreOffice	2
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Which online learning and teaching activities do you already offer at your higher education institution in the area of student administration?

create and manage online courses	6
online evaluation of homework	5
evaluate students and their work	6
giving grades online	3
online exam	2
online submission of assignments	4
provide students with learning materials online	7
survey	8

Which online learning and teaching activities do you already offer at your higher education institution in the area of creative creation?

record a lecture so that students can view it later	3
students create videos for presenting their work	4
podcasts	3

Which online learning and teaching activities do you already offer at your higher education institution in order to promote remembering and understanding of content?

Glossary	3
peer assessment	4



quiz for knowledge verification	4
online virtual “bulletin” board (students and teachers can collaborate, reflect, share links and pictures, in a secure location)	3
flipped classroom scenarios (reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom)	2
MOOCs (massive open online course)	3

Which online learning and teaching activities do you already offer at your higher education institution in the area of collaboration?

Webinars	2
communication with students	9
give feedback online	5
collaboration between students and teachers	6
students work together on documents	1
students exchange views about presentations and learning material	4
ePortfolio or learning journal (to record learning progress)	2

And what is particularly important for you in these activities?

Communication with students and collaboration between students and teachers.	2
Webinars, chat, forum and instant messaging is important for these activities.	1

Which online learning and teaching activities do you want to offer at your higher education institution in the area of student administration?

create and manage online courses	7
online evaluation of homework	7
evaluate students and their work	5
giving grades online	6
online exam	8
Voting (e.g. on topics or teammates for a presentation)	5
online submission of assignments	5
provide students with learning materials online	5
survey	6



Which online learning and teaching activities do you want to offer at your higher education institution in the area of creative creation?

record a lecture so that students can view it later	6
create teaching videos for students	6
students create videos for presenting their work	6
podcasts	5
video-analysis of educational setting	4
screencast	2

Which online learning and teaching activities do you want to offer at your higher education institution in order to promote remembering and understanding of content?

glossary	4
peer assessment	5
online flashcards for learning	4
quiz for knowledge verification	7
online virtual "bulletin" board	5
flipped classroom scenarios	1
MOOCs (massive open online course)	7

Which online learning and teaching activities do you want to offer at your higher education institution in the area of collaboration?

webinars	5
communication with students	4
give feedback online	6
collaboration between students and teachers	5
students work together on documents	4
students exchange views about presentations and learning material	4
ePortfolio or learning journal	6
reflect on own work	4
share and prepare learning outcomes	3

And what is particularly important for you in these activities?

Webinars, chat, forum and instant messaging is important for these activities.
Communication with students and collaboration between students and teachers.

Do you have other comments or suggestions?



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Soft-urile permit instituției de învățământ superior să eficientizeze și să sporească calitatea procesului educațional.

In our higher education institution already our use certain free software and application from Internet but it does not run on older equipment or is not compatible. The software must offer the possibility of learning from any equipment.