



УНИВЕРЗИТЕТ У ПРИШТИНИ

КОСОВСКА МИТРОВИЦА

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process of education through the development of e-learning multimedia platform and smart classrooms - SMARTEL“, . 618534-EPP-1-2020-1-XX-EPPKA2-CBHE-JP, 11 1 2 2 („ . SMARTEL“, . 91/2019, :), + SMARTEL 22-576/1-1 04.07.2022. , -

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education through the development of e-learning multimedia platform and smart classrooms –
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<https://pr.ac.rs/univerzitet/uvid-javnosti/javne-nabavke/>

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1.	<p>Aver PTC310N</p> <p>:</p> <ul style="list-style-type: none"> • type: PTZ (pan - tilt - zoom) • sensor: 1/2,8" or larger • aperture: F = 2.8 or larger through the entire lens • optical zoom: 12x or larger • output AV connections: at least USB and HDMI and NDIHX or NDIHX2 or NDI (version 4 or higher) • AV input connection: at least microphone (3.5 mm stereo jack) • output resolution: 1920x1080 or higher on all AV outputs • output frame rate: 25 fps or higher on all AV outputs • possibility of auto and manual control for gain, shutter speed, exposure and white balance • pan angle: +/-170° or larger • tilt angle: +90° / -30° or larger • preset positions: 10 or more • possibility to control camera via IP (should use wired ethernet connection), availability of API document for IP camera control • possibility to power camera via network interface • tracking: physical (not digital), built-in in camera, possibility to track presenter, predefined zones or both at once • possibility to mount camera on wall, ceiling or tripod stand 	2
2.	<p>Aver DL30</p> <p>:</p> <ul style="list-style-type: none"> • type: PTZ (pan - tilt - zoom) • sensor: 1/2,8" or larger • aperture: F = 2.8 or larger through the entire lens • optical zoom: 12x or larger • output AV connection: at least USB • AV input connection: at least microphone (3.5 mm stereo jack) • output resolution: 1920x1080 or higher on all AV outputs • output frame rate: 25 fps or higher on all AV outputs • possibility of auto and manual control for gain, shutter speed, exposure and white balance • pan angle: +/-170° or larger • tilt angle: +90° / -30° or larger • preset positions: 10 or more • possibility to control camera via IP (should use wired ethernet connection), availability of API document for IP camera control • possibility to power camera via network interface • tracking: physical (not digital), built-in in camera, possibility to track 	2



	<p>presenter, predefined zones or both at once</p> <ul style="list-style-type: none"> • possibility to mount camera on wall, ceiling or tripod stand 	
3.	<p>Aver CAM130</p> <p>:</p> <ul style="list-style-type: none"> • type: fixed with support for ePTZ (electronic pan - tilt - zoom) • output AV connection: at least USB • sensor resolution: 3840x2160 or higher • output resolution: 1920x1080 or higher on all AV outputs • output frame rate: 25 fps or higher on all AV outputs • possibility of auto and manual control for white balance • preset positions: 10 or more • possibility to control camera via USB interface, availability of API document for USB camera control • tracking: electronic (ePTZ), built-in in camera, possibility to track presenter or predefined zones • possibility to mount camera on display or tripod stand 	2
4.	<p>: Aver FONE540</p> <p>:</p> <ul style="list-style-type: none"> • speaker and microphone in one device • basic audio controls with buttons on device • optimal radius for voice capture should be at least 2,5 m • input and output audio connections: at least USB and 3,5 mm stereo jacks • possibility to control speakerphone via IP (should use wired ethernet connection), availability of API document for IP speakerphone control • possibility to change settings of noise suppression, automatic gain control and echo cancellation • speaker max SPL at 0,5 m: 90 dB or more • microphone for spoken word application, should have omnidirectional polar pattern 	2

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1.	<p>Panasonic PT-VMZ40</p> <p>:</p> <ul style="list-style-type: none"> • native resolution: 1920x1080 or higher • native refresh rate: 50 Hz or higher • light source: laser • light output: 4500 lm or better • time until light output declines to 50%: 20000 hours or longer • max screen size: at least 5 m • AV input connections: at least 2x HDMI • AV output connections: audio out (3,5 mm stereo jack) • installation options: ceiling/floor, front/rear • possibility to control projector via IP (should use wired ethernet connection), availability of API document for IP projector control • keystone correction: +/-25% or more (vertical and horizontal) • optical axis shift: at least +/-20% (horizontal) and +40% (vertical) 	4



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1.	<p>Supermicro server 2024S-TR with Supermicro H12DSi-N6, CSE-LA26TS-R920LPP1</p> <p>:</p> <ul style="list-style-type: none"> • type: 19" 2U rack server • CPU: 2x AMD EPYC 7502 or better • RAM: 128 GB (quad channel - 4x32 GB) DDR4 3200 MHz ECC REG or better • hard drives: at least 2x 1,92 TB NVMe U.2 1,3 DWPD SSD and 8x 10 TB 7200 RPM SAS3 • network card: Intel X520 (2x SFP+ 10 GB) or better • controller: at least with support for SAS3 RAID5 & SUPERCAP • power supply: redundant 	1

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1.	<p>Magewell Pro Convert HDMI Plus</p> <p>:</p> <ul style="list-style-type: none"> • input AV connection: HDMI • loop-through of input AV connection should be built-in in encoder • output AV connections: at least NDIHX or NDIHX2 or NDI (version 4 or higher) • max input and output resolution: 1920x1080 or higher • max input and output frame rate: 50 fps or higher • loop-through of input AV connection and output AV connection should include at least 2-channel HDMI-embedded audio from input AV connection • possibility to control encoder via IP (should use wired ethernet connection), availability of API document for IP encoder control • possibility to power encoder via network interface 	2
2.	<p>Magewell USB Capture HDMI Plus</p> <p>:</p> <ul style="list-style-type: none"> • input AV connection: HDMI • loop-through of input AV connection should be built-in in capture device • output AV connections: at least USB • max input and output resolution: 1920x1080 or higher • max input and output frame rate: 50 fps or higher • loop-through of input AV connection and output AV connection should include at least 2-channel HDMI-embedded audio from input AV connection • possibility to control capture card via USB interface • possibility to power capture card via USB interface 	4
3.	<p>: Shure SRH 240A</p> <p>:</p> <ul style="list-style-type: none"> • should be over ear and closed back • driver size: 40 mm or larger 	2



	<ul style="list-style-type: none"> • frequency range: 20 Hz to 20000 Hz or better • 3.5 mm stereo jack connector for audio input 	
4.	<p>: Biamp Apart OVO5P-BL</p> <p>:</p> <ul style="list-style-type: none"> • two speakers, should be connected with cable, audio source is provided only to one speaker (one active and one passive loudspeaker pair) • system: 2-way or more • dispersion angle (vertical and horizontal): 180° • frequency response: 50 Hz – 20000 Hz or better • max SPL at 1 m: 100 dB or more • output power: 2 x 20 W or higher • audio input connections: at least 3.5 mm stereo jack and stereo RCA/chinch • wall mount should be included 	4
5.	<p>, , : Shure</p> <p>BLX1288/CVL</p> <p>:</p> <ul style="list-style-type: none"> • frequency range: needs to be checked locally that it is not in use by mobile network (for example LTE) or for TV broadcasting (for example DVB-T) or for Wi-Fi or for other common services • receiver <ul style="list-style-type: none"> should include 2 separate outputs at least 10 systems per frequency band function for automatic selection of frequency should be included audio output connections: 6,3 mm jack and 3-pin XLR • transmitter <ul style="list-style-type: none"> should allow adjustable gain setting should include battery status indicator operating range: at least 50 meters • microphones <ul style="list-style-type: none"> for spoken word application should have cardioid polar pattern frequency range: 60 Hz to 12000 Hz or better 	2
6.	<p>ie microphone for pocket microphone transmitter: Shure CVL</p> <p>:</p> <ul style="list-style-type: none"> • additional tie microphone compatible with system selected in »dual channel microphone receiver, pocket transmitter with tie microphone, handheld microphone with transmitter« 	4
7.	<p>, , : Shure BLX14/CVL</p> <p>:</p> <ul style="list-style-type: none"> • frequency range: needs to be checked locally that it is not in use by mobile network (for example LTE) or for TV broadcasting (for example DVB-T) or for Wi-Fi or for other common services • receiver <ul style="list-style-type: none"> at least 10 systems per frequency band function for automatic selection of frequency should be included audio output connections: 6,3 mm jack and 3-pin XLR • transmitter <ul style="list-style-type: none"> should allow adjustable gain setting 	2



	<p>should include battery status indicator operating range: at least 50 meters</p> <ul style="list-style-type: none"> • microphone for spoken word application should have cardioid polar pattern frequency range: 60 Hz to 12000 Hz or better 	
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1.	<p>: Elgato Stream Deck XL</p> <p>:</p> <ul style="list-style-type: none"> • controller with at least 30 customizable keys • support for usage with Bitfocus Companion software • power and communication interface: USB • table stand should be included 	2
2.	<p>: Elgato Stream Deck MK.2</p> <p>:</p> <ul style="list-style-type: none"> • controller with at least 15 customizable keys • support for usage with Bitfocus Companion software • power and communication interface: USB • table stand should be included 	4
3.	<p>: AirServer Connect 4K UHD for Windows 10 Desktop Edition - Education License</p> <p>:</p> <ul style="list-style-type: none"> • supported screen mirroring protocols: AirPlay, Chromecast, Miracast • supported computer OS for software installation: at least Microsoft Windows 10 • max input resolution: 1920x1080 or higher • max input refresh rate: 50 Hz or higher • support for screen mirroring of multiple clients at the same time with different layouts • support for display orientation detection • support for password protection of screen mirroring 	6
4.	<p>: Dell P2422H</p> <p>:</p> <ul style="list-style-type: none"> • display diagonal: 23,5" – 27" • display aspect ratio: 16:9 • panel type: IPS • coating: anti-glare • native resolution: 1920x1080 or higher • native refresh rate: 50 Hz or higher • brightness: at least 250 cd/m² • USB 3.2 hub built-in in display • AV input connections: at least HDMI and DisplayPort 	6



	<ul style="list-style-type: none"> • possibility to adjust elevation, pivot, tilt and swivel 	
5.	<p>: HP Z2 G5 Mini</p> <p>:</p> <ul style="list-style-type: none"> • type: desktop or nettop • CPU: Intel Core i7-10700 or better • GPU: discrete, support for NVENC, support for connecting at least 4 displays simultaneously, at least 4 GB of GDDR5 RAM included, for example NVIDIA Quadro P620 or better • RAM: 16 GB (dual channel - 2x8 GB) DDR4 3200 MHz or better • hard drive: 512 GB NVMe SSD or better • I/O connections: at least headphone and microphone connector (can be combined), 4x USB 3.2 ports or better (can be type A or C), RJ-45 ethernet port (10/100/1000 Mbps duplex) • OS: Windows 10 Pro, 64-bit or better • wired mouse and wired keyboard should be included 	2
6.	<p>: NUC11TNKv5 with Logitech MK120</p> <p>:</p> <ul style="list-style-type: none"> • type: desktop or nettop • CPU: Intel Core i5-1145G7 or better • GPU: Intel Iris Xe or better, support for connecting at least 3 displays simultaneously RAM: 8 GB (dual channel - 2x4 GB) DDR4 3200 MHz or better • hard drive: 512 GB NVMe SSD or better • I/O connections: at least headphone and microphone connector (can be combined), 4x USB 3.2 ports or better (can be type A or C), RJ-45 ethernet port (10/100/1000 Mbps duplex) • OS: Windows 10 Pro, 64-bit or better • wired mouse and wired keyboard should be included 	4
7.	<p>: Apple 14" MacBook Pro M1 Pro, 8-core CPU, 16 GB RAM, 512 GB SSD</p> <p>:</p> <ul style="list-style-type: none"> • type: laptop • CPU/GPU: Apple M1 Pro (8 core CPU and 14 core GPU, support for connecting at least 2 additional displays) or better • RAM: 16 GB or better • hard drive: 512 GB SSD or better • I/O connections: at least headphone and microphone connector (can be combined), 2x USB 3.2 ports or better (can be type A or C), HDMI port • wireless connectivity: at least support for Wi-Fi 6 (IEEE 802.11ax) standard or better and for older standards (IEEE 802.11a/b/g/n/ac) • OS: macOS Monterey or better • display diagonal: 13"-15" • display aspect ratio: 16:9 • display native resolution: 1920x1080 or higher • display brightness: at least 500 cd/m² 	1
8.	<p>: HP ProOne 440 G6</p> <p>:</p> <ul style="list-style-type: none"> • type: all-in-one (AIO) • CPU: Intel Core i5-10500T or better • GPU: Intel UHD Graphics 630 or better, support for connecting at least 1 additional display 	1



	<ul style="list-style-type: none"> • RAM: 8 GB DDR4 2666 MHz or better • hard drive: 256 GB NVMe SSD or better • I/O connections: at least headphone and microphone connector (can be combined), 2x USB 3.2 ports or better (can be type A or C), RJ-45 ethernet port (10/100/1000 Mbps duplex) • OS: Windows 10, 64-bit or better • wired mouse and wired keyboard should be included • display diagonal: 23,5" – 27" • display aspect ratio: 16:9 • display panel type: IPS • display coating: anti-glare • display native resolution: 1920x1080 or higher • display brightness: at least 250 cd/m² 	
9.	<p style="text-align: center;">: Apple iPad Pro 12,9" Wi-Fi 128 GB with Apple Pencil 2</p> <p style="text-align: center;">:</p> <ul style="list-style-type: none"> • CPU/GPU: Apple M1 or better • RAM: 8 GB or better • wireless connectivity: at least support for Wi-Fi 6 (IEEE 802.11ax) standard or better and for older standards (IEEE 802.11a/b/g/n/ac) • I/O connections: at least 1x USB 3.2 or newer, type C port • storage capacity: 128 GB or more • OS: iPadOS 15 or better • display diagonal: 12,5" – 14" • display panel type: IPS • multi-point touch control should be built-in in display • display coating: anti-glare • display brightness: at least 500 cd/m² • control pencil with support for wireless pairing and charging, magnetic attachment and tilt, pressure sensitivity should be included 	2
10.	<p style="text-align: center;">: Ubiquiti Access Point WiFi 6 Long-Range</p> <p style="text-align: center;">:</p> <ul style="list-style-type: none"> • support for Wi-Fi 6 (IEEE 802.11ax) standard or better and for older standards (IEEE 802.11a/b/g/n/ac) • support for MIMO 4x4 at 2.4 GHz and 5 GHz • max throughput rate at 2.4 GHz: at least 500 Mbps • max throughput rate at 5 GHz: at least 2000 Mbps • support for at least 100 concurrent clients • possibility to power wireless access point via network interface • support for usage of software controller 	6
11.	<p style="text-align: center;">: Ubiquiti Switch PRO 24 PoE e</p> <p style="text-align: center;">:</p> <ul style="list-style-type: none"> • should be fully managed, layer 3 • at least IGMP v2 should be supported • network interfaces: at least 24x 10/100/1000 RJ45 ports and 1x 1/10G SFP+ ethernet port, all with full switching capacity • support for PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) on all RJ45 network interfaces with total available PoE budget of at least 200 W, support 	2



	<ul style="list-style-type: none"> for 60 W PoE++ (IEEE 802.3bt) on at least 2 RJ45 interfaces support for usage of software controller should have built-in power supply support for 19" rack mounting 	
12.	<p>: Ubiquiti Switch Lite 16 PoE</p> <ul style="list-style-type: none"> should be fully managed, layer 2 network interfaces: at least 16x 10/100/1000 RJ45 ports, all with full switching capacity support for PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) on at least 4 RJ45 network interfaces with total available PoE budget of at least 45 W support for usage of software controller should have built-in power supply should be fanless 	4
13.	<p>UPS : Socomec Netys PR RT 3300 VA</p> <ul style="list-style-type: none"> type: 19" rack single-phase UPS (meant only for the server above, if usage for other server room equipment is also planned, a more powerful UPS is needed) apparent power: at least 3000 VA real power: at least 2500 W connections: at least 4x IEC320 (10 A) back-up time: at least 5 min at 75% load possibility to add battery extensions for back-up time of at least 30 min at 75% load should be available possibility to monitor and control UPS via USB should be built-in in UPS, option to add ethernet adapter to monitor and control UPS via IP should be also available 	1

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1.	<p>Vega EL W 300</p> <ul style="list-style-type: none"> screen aspect ratio: 16:9 screen width (projection area): 290 – 300 cm possibility of ceiling or wall installation control of lifting and lowering via electric motor 	4

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1.	<p>Samsung UE75AU7172U Philips 4K 75PUS7906</p>	6



	<p>:</p> <ul style="list-style-type: none"> • display diagonal: 75" • display aspect ratio: 16:9 • native resolution: 3840x2160 or higher • native refresh rate: 50 Hz or higher • brightness: at least 250 cd/m² • dynamic range: HDR10 or better • AV input connections: at least 2x HDMI • installation option: at least VESA • possibility to control TV via IP (should use wired ethernet connection), availability of API document for IP TV control 	
2.	<p>Samsung UE50AU7172U Philips 50PUS7906</p> <p>:</p> <ul style="list-style-type: none"> • display diagonal: 50" • display aspect ratio: 16:9 • native resolution: 3840x2160 or higher • native refresh rate: 50 Hz or higher • brightness: at least 250 cd/m² • dynamic range: HDR10 or better • AV input connections: at least 2x HDMI • installation option: at least VESA • possibility to control TV via IP (should use wired ethernet connection), availability of API document for IP TV control 	2



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1.	Aver PTC310N	2				
2.	Aver DL30	2				
3.	Aver CAM130	2				
4.	: Aver FONE540	2				

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1.	Panasonic PT-VMZ40	4				

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1.	Supermicro server 2024S-TR with Supermicro H12DSi-N6, CSE-LA26TS-R920LPP1	1				

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- 4:

.			()	()	()	
1.	Magewell Pro Convert HDMI Plus	2				
2.	Magewell USB Capture HDMI Plus	4				
3.	: Shure SRH 240A	2				
4.	: Biamp Apart OVO5P-BL	4				
5.	BLX1288/CVL : Shure	2				
6.	ie microphone for pocket microphone transmitter: Shure CVL	4				
7.	BLX14/CVL : Shure	2				

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.			()	()	()	
1.	XL : Elgato Stream Deck	2				
2.	MK.2 : Elgato Stream Deck	4				
3.	: AirServer Connect 4K UHD for Windows 10 Desktop Edition - Education License	6				
4.	: Dell P2422H	6				
5.	: HP Z2 G5 Mini	2				
6.	: NUC11TNKv5 with Logitech MK120	4				
7.	: Apple 14" MacBook Pro M1 Pro, 8-core CPU, 16 GB RAM, 512 GB SSD	1				
8.	: HP ProOne 440 G6	1				



9.	: Apple iPad Pro 12,9” Wi-Fi 128 GB with Apple Pencil 2	2				
10.	: Ubiquiti Access Point WiFi 6 Long-Range	6				
11.	: Ubiquiti Switch PRO 24 PoE e	2				
12.	: Ubiquiti Switch Lite 16 PoE	4				
13.	UPS VA : Socomec Netys PR RT 3300	1				

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1.	Vega EL W 300	4				

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1.	Samsung UE75AU7172U Philips 4K 75PUS7906	6				
2.	Samsung UE50AU7172U Philips 50PUS7906	2				

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EUROPEAN COMMISSION
Education, Audiovisual and Culture Executive Agency

Erasmus+, EU Solidarity Corps
International Capacity Building

Brussels, 1/02/21
EACEA.A.4

To whom it may concern

The Education, Audiovisual and Culture Executive Agency, acting under powers delegated by the Commission of the European Union, confirms that the EU project 618534-EPP-1-2020-1-XK-EPPKA2-CBHE-JP

Acronym: SMARTEL

Title of the Project: Improving the process of education through the development of e-learning multimedia platform and smart classrooms

having as partners the following consortium members:

Applicant	UNIVERSITY OF MITROVICA (XK)
Partner	CESIE (IT)
Partner	INTERNATIONAL BUSINESS COLLEGE MITROVICA (XK)
Partner	JAVNA USTANOVA UNIVERZITET CRNE GORE PODGORICA (ME)
Partner	UNIVERSIDAD POLITECNICA DE MADRID (ES)
Partner	UNIVERSITA TA MALTA (MT)
Partner	UNIVERSITY OF MOSTAR (BA)
Partner	UNIVERZA V LJUBLJANI (SI)
Partner	UNIVERZITET ADRIATIK BAR (ME)
Partner	UNIVERZITET U ISTOCNOM SARAJEVU (BA)


is awarded a grant in the framework of the Erasmus+ Capacity Building in the field of Higher Education Programme (Trans-European Cooperation Scheme for Higher Education).

Acquisition, delivery and installation of equipment and services provided for the above-mentioned consortium members in the Partner Countries are part of the EU Project.

Within the framework of an Erasmus+ Capacity Building project all equipment purchased and the provision of services in the Partner Countries can be exempt from taxes (including VAT), duties and charges, if a Common Framework agreement (Financing agreement in the case of the Partner Countries in the Western Balkans) has been signed between the European Commission and the Partner Country.



The present certificate cannot be used to purchase equipment or services exempt from taxes (including VAT) within the European Union. However, equipment purchased within the EU with a view to being immediately exported to Partner Countries in the framework of the Erasmus+ Capacity Building programme may be exempted from taxes (including VAT), duties and charges in accordance with the normal rules.



Ralf RAHNERT
Head of Unit