****

**D5.3**

**Purchase of equipment**

|  |  |
| --- | --- |
| Project Acronym: | PT&SCHE  |
| Project full title: | The Introduction of part‐time and short cycle studies in Serbia |
| Project No: | 561868-EPP-1-2015-1-EE-EPPKA2-CBHE-SP |
| Funding Scheme: | ERASMUS+ |
| Coordinator: | Tallinn University, TLU |
| Project start date: | October 15, 2015 |
| Project duration: | 36 months |

|  |  |
| --- | --- |
| Abstract | VISER conducted three public procurement procedures in order to acquire the equipment necessary to achieve the objectives of the project. The procurement process consisted of the preparation of documentation and the implementation of the procedures. |

*"The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsi­ble for any use which may be made of the information contained therein."*

DOCUMENT CONTROL SHEET

|  |  |
| --- | --- |
| Title of Document:  | Purchase of equipment |
| Work Package: | WP5 Pilot implementation of online PT&SCHE programs |
| Last version date: | 26/03/2019 |
| Status : | Final |
| Document Version:  | 1.0 |
| File Name  | WP5.3.-VISER-Purchase of equipment |
| Number of Pages  | 16 |
| Dissemination Level  | Institutional  |

VERSIONING AND CONTRIBUTION HISTORY

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Revision Description | Responsible Partner |
| 1.0 | 29.03.2019. | Final version | Svetlana Štrbac-Savić, VISERVera Petrović, VISER Dalibor Vukić, VISER |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

TABLE OF CONTENTS:

[DOCUMENT CONTROL SHEET 2](#_Toc4860453)

[VERSIONING AND CONTRIBUTION HISTORY 2](#_Toc4860454)

[1. Introduction 4](#_Toc4860455)

[2. Changes to the equipment specifications 5](#_Toc4860456)

[3. Preparation of documentation 5](#_Toc4860457)

[4. First procurement 7](#_Toc4860458)

[5. Changes to the equipment specifications and additional equipment 8](#_Toc4860459)

[6. Second procurement 8](#_Toc4860460)

[7. Additional equipment 9](#_Toc4860461)

[8. Third procurement 9](#_Toc4860462)

[9. Installation of equipment 10](#_Toc4860463)

# Introduction

The estimated value of the contract to be awarded has exceeded EUR 134.000 thus the national legislation needed to be applied and the public procurement needed to be conducted. The national public procurement law defines the time frame for the tendering procedure so that the bids are submitted within 30 days of publication of invitation and the contract may be concluded at the earliest 10 days after the bid opening and consequent contract award declaration. The subject of procurement was divided by type of goods into seven lots, namely:

• Personal computers, peripherals and accessories,

• Audio & video equipment,

• Computer servers and server parts,

• Printing equipment,

• Software,

• Networking equipment and

• Automotive diagnostics equipment.

The public procurements were conducted by VISER acting on behalf of all other HEI members of consortium instead of BMU since there are some impediments to conducting public procurement by privately funded HEIs. The breakdown into lots was done in such a manner that similar goods are purchased in one lot for all the HEIs together.

Personal computers, peripherals and accessories, audio & video equipment, software and automotive diagnostic equipment were necessary for implementation of PT&SCHE programs. This part of equipment was planned to be used by teachers and students for both face-to-face and online courses. In particular, personal computers and software were to be used in the classrooms for programming courses, the audio & video equipment for preparation of multimedia learning materials and automotive diagnostic equipment for use in short cycle training center. Computer servers and server parts and networking equipment were needed in order to build-up IT capacities for implementation of online courses and the printing equipment to be used for dissemination. The pilot programs were planned for 120 students to enroll and it was expected that as high number of students would enroll in future generations. The potential number of simultaneous users of online learning platform is even greater and measures in hundreds of students at the same time.

The equipment was planned to be installed in the HEIs facilities. These are the classrooms, computing centers and a training center that was built for this purpose by VISER.

# Changes to the equipment specifications

In compare to the proposal, changes have been made mainly in terms of technical characteristics of equipment though some equipment was completely excluded because it was already purchased from own sources or through other projects. The technical characteristics changes have been made in order to achieve better integration with the existing equipment, because of possibilities for future improvement and expansion and also some manufacturers ceased to produce particular equipment that was planned to be acquired.

The changes to the specifications of the equipment were made and approved by EACEA in December 2016.

# Preparation of documentation

At the 3rd Consortium meeting in Novi Sad held on 19th of January 2017 there was a discussion about equipment purchase. Partners came to a conclusion that according to Guidelines for Use of the Grant (For grants awarded in 2015 under Call EAC/A04/2014), national legislation should be applied.

At the local coordination meeting held at Metropolitan University in February 2017 it was agreed that due to inability of Metropolitan University to conduct a public procurement VISER should take over these activities (since Metropolitan is privately funded institution it doesn’t have access to Public Procurement Portal).

On 17th of February 2017 VISER prepared following documents: Joint Public Procurement Agreement № 290/1, The Decision to Initiate the Public Procurement № 290/2 and Formation of Procurement Committee № 290/3.

Joint Public Procurement Agreement is a mandatory document when several contracting authorities intend to carry out a joint procurement. The document contains basic information about the contracting authorities, the value of the contract awarded by each of the contracting authorities, the value of each lot, the appointment of the procuring entity, the determination of which step is taken by a particular contracting authority and the division of the costs of the public procurement procedure. The document is signed and certified by the legal representatives of all contracting authorities.

The Decision to Initiate the Public Procurement includes the names of the contracting entities, the subject of the procurement with the code from the Common Procurement Vocabulary, the value per lot, the indicative deadlines for the execution of certain stages of the public procurement procedure and information on the source of financing with the account numbers from the financial plans of the contracting authorities.

The Public Procurement Committee prepares the Procurement Documentation, makes changes and updates the Procurement Documentation, answers the bidders questions, conducts the bids opening, reviews and evaluates the bids, prepares the Proposal for Award of the Contract, decides on handling of possible submitted Requests for Protection of Rights etc.

The public procurement documentation in accordance with the laws of Serbia contains the following elements:

* General information about contracting authorities and the subject of public procurement,
* All important dates and deadlines,
* Technical characteristics of equipment with quantities and requirements in terms of quality, warranty, deadline and place of delivery of equipment,
* Mandatory conditions for bidders for participation in the public procurement procedure,
* Additional conditions for bidders for participation in the public procurement procedure,
* Award criteria,
* The form for entering general information about the bidder and whether the bid is submitted independently, with the subcontractor or in the group of bidders,
* Form with the offered price,
* Form with the cost of preparing the bid,
* Form of the Declaration of Independent Bid,
* Form of the Declaration of fulfillment of mandatory and additional conditions for participation in the procedure,
* Form of technical description of the equipment offered,
* Contract templates,
* Instructions to tenderers how to fill out an offer, how to submit a bid, and which supporting documentation is necessary.

On 20th of February 2017 VISER prepared Declaration of Absence of Conflict of Interest № 294/1 which was later signed by all members of the Procurement Committee.

# First procurement

All of the publicly available documents can be found on the following link that leads to the Public Procurement Portal:

<http://portal.ujn.gov.rs/Dokumenti/JavnaNabavka.aspx?idd=1408182>

Other documents important for the first public procurement can be found on the following link:

<https://drive.google.com/drive/folders/0B_tsIcwnTZaBWVpwX2JkdW1wMWM>

During February and March 2017 partners defined the List of the Equipment and subsequently Procurement Committee prepared Procurement Documentation which was announced on 15th of March 2017 on The Public Procurement Portal by VISER along with Invitation to Tender.

Four questions from bidders were received and answered on 16th of March, 31st of March 6th of April 2017 and 10th of April 2017.

The Bid opening was held at VISER on 19th of April when Bid Opening Report was prepared and signed by Procurement Committee members.

Procurement Committee also did the analysis and evaluation of the bids and prepared Evaluation of Bids № 755/1 on 25th of April 2017.

On 12th of May VISER prepared and announced Decision to Award the Contracts № 828/1 that was based on Evaluation of Bids.

After the expiration of the deadline for submitting the appeals the contracts for the successful lots were signed by each of the HEIs.

The bidders delivered equipment before the expiration of the delivery date, which was then installed in the premises of the HEIs.

For the 4th Consortium meeting VISER prepared and presented the Equipment Acquisition Progress Report. It was agreed that the procurement for the remaining equipment should be conducted as soon as possible.

# Changes to the equipment specifications and additional equipment

The changes to the specifications of the equipment were made and approved by EACEA in June 2017 and the second procurement was conducted in July 2017.

The changes needed to be made because it turned out that some equipment was more expensive than it was estimated, some of the equipment was difficult to acquire so no bids were submitted, and also it was concluded that the software was better to be purchased together with personal computers, peripherals and accessories, so that the bidders would be motivated to offer software (the value of the software was considerably lower than the value of personal computers, peripherals and accessories).

Also, VISER spent less funds then expected for the purchase of computer servers and server parts, and requested permission to purchase more of the Automotive diagnostics equipment.

# Second procurement

All of the publicly available documents can be found on the following link that leads to the Public Procurement Portal:

<http://portal.ujn.gov.rs/Dokumenti/JavnaNabavka.aspx?idd=1541970>

Other documents important for the second public procurement can be found on the following link:

<https://drive.google.com/drive/folders/0B_tsIcwnTZaBVUVmU2xZaTNBOGs>

After receiving the approval for the equipment changes and additional equipment a new List of Equipment was prepared by partners on 30th of June along with Decision to Announce Procurement Documentation № 1074/1 and Formation of Procurement Committee № 1074/2 both prepared by VISER.

The Procurement Documentation and Invitation to Tender for the repeated procurement were prepared by VISER and announced on 1st of July 2017. Bid opening was scheduled for 1st of August 2017.

Two questions from bidders were received and answered on 22th of July and 29th of July.

The Bid opening was held at VISER on 1st of August when Bid Opening Report was prepared and signed by Procurement Committee members.

Procurement Committee did the analysis and evaluation of the bids and prepared Evaluation of Bids № 1231/1 on 16th of August 2017.

On 23rd of August VISER prepared and announced Decision to Award the Contracts № 1246/1 that was based on Evaluation of Bids.

After the expiration of the deadline for submitting the appeals the contracts for the successful lots were signed by each of the HEIs.

The bidders delivered equipment before the expiration of the delivery date, which was then installed in the premises of the HEIs.

# Additional equipment

After the second procurement most of the equipment was purchased and another request for additional equipment was made since some partners purchased all of the planned equipment without spending all of the funds.

The request for additional equipment was approved by EACEA and the third procurement was initiated in September 2017. With the completion of the third procurement in October 2017 the purchase of all of the planned and additional equipment was successfully concluded.

# Third procurement

All of the publicly available documents can be found on the following link that leads to the Public Procurement Portal:

<http://portal.ujn.gov.rs/Dokumenti/JavnaNabavka.aspx?idd=1609289>

Other documents important for the second public procurement can be found on the following link:

<https://drive.google.com/drive/folders/190jtZPjlrG_eCZJf8gnLczd2IO_3zF9->

New List of Equipment for the third procurement was prepared by partners on 6th of September 2017. along with Decision to Announce Procurement Documentation № 1324/1 and Formation of Procurement Committee № 1324/2 both prepared by VISER.

The Procurement Documentation and Invitation to Tender for the third procurement were prepared by VISER and announced on 7th of September 2017. Bid opening was scheduled for 1st of August 2017.

The Bid opening was held at VISER on 9th of October when Bid Opening Report was prepared and signed by Procurement Committee members.

Procurement Committee did the analysis and evaluation of the bids and prepared Evaluation of Bids № 1779/1 on 13th of October 2017.

On 20th of October VISER prepared and announced Decision to Award the Contracts № 1880/1 that was based on Evaluation of Bids.

After the expiration of the deadline for submitting the appeals the contracts for the successful lots were signed by each of the HEIs.

The bidders delivered equipment before the expiration of the delivery date, which was then installed in the premises of the HEIs.

# Installation of equipment

Purchased equipment was installed and put to use by the end of 2017 and early 2018, before the beginning of pilot programs. Below are the descriptions of the installation and application of equipment for all partners.

**Belgrade Metropolitan University:** Equipment have been installed at the end of 2017 in computer laboratories in Belgrade and Niš (three computer classrooms in total). Three IMB HDD have been inserted into already existing storage server so mDita software can be used for creating teaching materials for part time and short cycle pilot programmes. Computers are used by students enrolled to abovementioned programmes.

Sound & video recording and processing items are part of equipment that is used for preparation of online learning materials to be offered to online students and learners of our Continuous Education Centre. Camera is used for video recording and streaming of some lectures and is added to the existing cameras at BMU that are used for video production of e-learning materials.

This equipment will be used by BMU's new Continuous Education Centre after the end of this project.

The equipment purchased by Belgrade Metropolitan University is listed in Table 9.1.

|  |
| --- |
| **Belgrade Metropolitan University** |
| **Personal computers, peripherals and accessories** | **Qty** |
|  | Desktop PC based on i3-7100 processor with 8GB of RAM, 1TB HDD and 120GB SSD | 92 |
|  | Desktop PC based on i5-7400 processor with 16GB of RAM, 1TB HDD, 120GB SSD and GTX1050 2GB VGA | 27 |
|  | PC mouse and keyboard wired set | 119 |
|  | 21.5ʺ Full HD LED PC display | 119 |
|  | Notebook with 15.6ʺ display based on i3 2.0GHz processor with 4GB of RAM, 256GB SSD and Intel HD VGA | 2 |
|  | Solid-State Drive 240GB | 40 |
|  | 4TB external HDD | 2 |
| **Audio & video equipment** | **Qty** |
|  | Steinberg UR824Audio interface with Cubase PRO 8.5 music creation software | 1 |
|  | Neumann TLM 102 Large-diaphragm Condenser Microphone | 1 |
|  | TC Voice Live3 Multi-effect vocal processor | 1 |
|  | Fostex TR-80 professional dynamic headphones | 1 |
|  | sE Electronics Reflection Filter X vocal booth | 1 |
|  | Nektar Panorama P4 keyboard controller instrument | 1 |
|  | K&M Pop Killer Double Layer Pop Filter | 2 |
|  | K&M 210/30 universal microphone stand | 2 |
|  | Cordial 5m XLR microphone cable | 2 |
|  | Cordial 5m X TRS speaker cable | 2 |
|  | 700VA/405W low noise UPS device | 1 |
|  | DJI Osmo 4K Action Camera | 1 |
|  | DJI Osmo Extension Rod | 1 |
|  | LOGITECH Web camera C920 HD PRO | 1 |
| **Computer servers and server parts** | **Qty** |
|  | IBM SAS 3TB 7.2k NL SAS 6gb FRU 85Y6187 Storage Capacity Hard Drive | 2 |
|  | IBM 200GB SATA SSD Solid State Drive 1.8" SG9XCS1F 40K6897 | 1 |

Table 9.1. The equipment purchased by Belgrade Metropolitan University

**University of Belgrade:** All purchased equipment has been deployed in the Rectorate of the University of Belgrade and at the Computer Center of the University of Belgrade. Specifically, desktop and laptop computers, UPS and one of two servers are used in the Rectorate and the other server, brand name desktops and SSD drives are used at the Computer Center.

For the duration of the project, the equipment was used to maintain and improve the UB's information system and within that to maintain electronic records related to study programs and students, in accordance with the Law on Higher Education and the Statute of the UB. One part of the equipment was used in the International Relations Office for the daily activities of associates in the Office.

In the following period, the equipment will be used in a similar manner, predominantly for keeping records of part time and short cycle programs and students enrolled in these study programs.

The equipment purchased by University of Belgrade is listed in Table 9.2.

|  |
| --- |
| **University of Belgrade** |
| **Personal computers, peripherals and accessories** | **Qty** |
|  | Desktop PC based on i5-7400 processor with 8GB of RAM, 1TB HDD, GT730 2GB VGA, DVD-RW drive, 21.5ʺ display, Mouse and Keyboard wired set, Windows 10 OS, Antivirus softvare and Office 2016 | 14 |
|  | Brand name desktop PC based on i7-6700 processor with 16GB of RAM, 1TB HDD, 23.8ʺ display, mouse and keyboard wired set, Windows 10 OS, Antivirus softvare and Office 2016 | 9 |
|  | Ultrabook with 15.6ʺ display based on i7-6700HQ processor with 8GB of RAM, 1TB HDD, GTX 960 4GB VGA and Windows 10 OS | 3 |
|  | Solid-State Drive 120GB | 3 |
| **Computer servers and server parts** | **Qty** |
|  | Fujitsu PRIMERGY RX2540 M2 Server 2U based on Intel Xeon E5-2620v4 8C/16T 2.10GHz processors with 96GB of RAM and 8x HDD SAS 12G 1.2TB 10K 2.5” EP hot plug | 2 |
|  | 5000VA/4.0kW APC SRT RM230V+ Management Card, Rackmount/Tower UPS device  | 1 |
| **Networking equipment** | **Qty** |
|  | Cisco SG 300-52 52 port Gigabit Managed Switch  | 5 |
|  | Cisco SG 330-28 28 port Gigabit Managed Switch  | 2 |

Table 9.2. The equipment purchased by University of Belgrade

**University of Novi Sad:** Purchased equipment has been set up and started being used in the beginning of the January 2018. The equipment is mainly intended to help in organizing a proposed part time master study program in Applied Statistics at University of Novi Sad.

Desktop computers, several laptops, printers, graphical tablets and tablets have been distributed and installed in offices at Faculty of economics, Faculty of sciences and University center of applied statistics. These equipment items are being used by the teaching staff which are project team members as well as teachers at master program of Applied statistics that has been adopted for part time organization and employed students. The rest of equipment: laptops and projector are installed in the classroom of the University center of applied statistics and being used by the students of the proposed part time master program during face to face classes.

The purchased equipment will be used in teaching purposes at the University center of applied statistics in the future.

The equipment purchased by University of Novi Sad is listed in Table 9.3.

|  |
| --- |
| **University of Novi Sad** |
| **Personal computers, peripherals and accessories** | **Qty** |
|  | All in one desktop PC with 27ʺ display based on i5-7400T processor with 8GB of RAM, 1TB HDD, GTX950M 4GB VGA, wireless mouse and keyboard set and Windows 10 OS | 2 |
|  | All in one desktop PC with 21.5ʺ display based on i5 3.0GHz processor with 8GB of RAM, 1TB HDD, Radeon Pro 2GB VGA, wireless mouse and keyboard set and macOS | 2 |
|  | Notebook with 15.6ʺ display based on i3 2.3GHz processor with 4GB of RAM, 500GB HDD and Intel HD520 VGA | 14 |
|  | Notebook with 15.6ʺ display based on i7 7500U processor with 8GB of RAM, 256GB SSD, Intel HD620 VGA and Windows 10 OS | 5 |
|  | Ultrabook with 13.3ʺ display based on i5 3.1GHz processor with 8GB of RAM, 256GB SSD, Intel Iris Plus VGA and macOS | 4 |
|  | Ultrabook with 12.5ʺ display based on i7 7500U processor with 8GB of RAM, 512GB SSD, Intel HD620 VGA and Windows 10 OS | 2 |
|  | Ultrabook backpack | 2 |
|  | PC 2.1 44W RMS speaker system | 2 |
|  | Tablet with 9,7ʺ display based on 4 core processor with 4GB of RAM, 32GB flash memory, 2 cameras and Android OS | 4 |
|  | Tablet with 7,9ʺ display based on 2 core processor with 2GB of RAM, 128GB flash memory and iOS | 2 |
|  | Tablet with 12,9ʺ display based on 2 core processor with 4GB of RAM, 128GB flash memory and iOS | 2 |
|  | High-resolution Pen Tablet | 5 |
|  | 500GB portable HDD | 8 |
|  | MedCalc biomedicine statistical software | 3 |
|  | Design-Expert statistical software for use in experimentation planing | 1 |
|  | Adobe Acrobat Pro DC professional pdf editor | 3 |
|  | Minitab machine learning software | 1 |
|  | Matlab programming platform for engineers and scientists | 1 |
|  | Video projector with XGA resolution and 3600Lm lamp | 1 |
| **Audio & video equipment** | **Qty** |
|  | Photography set with CANON EOS 700D DSLR, Canon EF-S 18-55mm III lens, DSLR carrying bag , 16GB Class 10 SD memory card, replacement battery for DSLR and Manfrotto Compact Advanced Aluminum Tripod | 1 |
| **Printing equipment** | **Qty** |
|  | Kyocera TASKalfa 3252ci Laser multifunctional colour printing, photocopying and ADF scanning A3/A4 device | 1 |
|  | HP OfficeJet 7612 inkjet multifunctional colour printing, photocopying and scanning A3/A4 device | 3 |
|  | HP 125A Black Original LaserJet Toner Cartridge | 8 |

Table 9.3. The equipment purchased by University of Novi Sad

**University of Kragujevac:** Part of the purchased equipment is located and is used in the Rectorate of the University of Kragujevac and in the server room of the University Computer Center. These are brand name desktop computers, laptops, two UPS units and document scanner that are used by employees in the Rectorate and at the University Computer Center. The rest of the equipment, computers and audio-video equipment is installed at the Faculty of Technical Sciences Čačak. This equipment is used currently and will be used in the future for preparation of teaching materials and implementation of following short cycle programs: Java programming, Development of web applications and Program of development of teaching competences (psychological-pedagogical-methodical education of teachers).

The equipment purchased by University of Kragujevac is listed in Table 9.4.

|  |
| --- |
| **University of Kragujevac** |
| **Personal computers, peripherals and accessories** | **Qty** |
|  | All in one desktop PC with 21.5ʺ display based on Pentium G4560T processor with 4GB of RAM, 1TB HDD, GTX950M 4GB VGA, wired mouse and keyboard set antivirus software and Windows 10 OS | 50 |
|  | Ultrabook with 13.3ʺ display based on i5 2.9GHz processor with 8GB of RAM, 128GB SSD, Intel HD VGA and macOS | 4 |
|  | Workstation based on i7-6700K processor with 64GB of RAM, 2TB HDD, 480GBSSD GTX1080 8GB VGA, DVD-RW dirve and Windows 10 OS | 1 |
|  | 4K Ultra HD 28ʺ LED display | 1 |
|  | SDXC 64GB UHS-I U3 64GB memory card | 2 |
|  | 2TB external HDD | 4 |
|  | Ultrabook with 14.0ʺ display based on i7 7500U processor with 8GB of RAM, 1TB HDD and 930MX 2GB VGA | 2 |
|  | 1500VA/1350W PC UPS device | 2 |
|  | ADF A4 scanner | 1 |
| **Audio & video equipment** | **Qty** |
|  | Canon EOS 80D professional DSLR with microphone | 1 |
|  | Canon EF 16–35mm f/2.8L III USM Lens for DSLR | 1 |
|  | Beats Studio2 Wireless Over‑Ear Headphones | 1 |
|  | 58" Full HD Smart functions TV | 3 |
|  | Short throw video projector ACER P1502 | 3 |
|  | VEGA 240x240cm projection screen | 2 |
|  | VEGA 240x240cm electric projection screen | 2 |
| **Computer servers and server parts** | **Qty** |
|  | HP ProLiant DL360 Gen9 1 unit rackmount server based on Intel E5-2630 v3 Xeon Six-Core Processors 2.40GHz with 32GB of RAM | 2 |
|  | HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC HDD | 8 |
| **Printing equipment** | **Qty** |
|  | Godex G300 barcode and lable printer | 1 |
|  | HP LaserJet Pro M102w monochome A4 printer | 1 |
| **Networking equipment** | **Qty** |
|  | Mikrotik RB2011UiAS-RM 10 ports router | 2 |
|  | TP-Link TL-SG1024D | 24-Port Gigabit Desktop/Rackmount Switch | 2 |

Table 9.4. The equipment purchased by University of Kragujevac

**School of Electrical and Computer Engineering of Applied Studies:** The networking and server equipment was installed in September 2017 in server room and various computer laboratories in VISER. This equipment enabled the use of mDita software and Odoo online learning platform needed to prepare teaching materials and set up online courses for the following four short cycle programs: Web Application Programmer, Computer Programmer Analyst, Proffesional Development of Professors and Teachers and Vehicle Diagnosis and one Information Systems part time program.

The automotive equipment was installed in December 2017 in the newly opened Training Centre for Automotive Diagnostics that was purposely built from own funds for the needs of implementing the objectives of PT&SCHE project.

After the completion of the project, the equipment will be used for teaching on and improving of existing study programmes, some of which already have a second generation of students enrolled. The equipment will also be used for the development of new short cycle and part time programs.

The equipment purchased by School of Electrical and Computer Engineering of Applied Studies is listed in Table 9.5.

|  |
| --- |
| **School of Electrical and Computer Engineering of Applied Studies in Belgrade** |
| **Personal computers, peripherals and accessories** | **Qty** |
|  | Ultrabook with 14.0ʺ display based on i7 7500U processor with 8GB of RAM, 512GB SSD 940MX 2GB VGA and Windows 10 OS | 2 |
| **Computer servers and server parts** | **Qty** |
|  | HP ProLiant DL380 Gen9 rackmount server based on Intel E5-2620 v3 Xeon Six-Core Processors 2.40GHz with 32GB of RAM and 4x300GB SAS HDD and DVD-RW drive | 2 |
|  | HP LCD8500 1U INTL 18,5" display Rackmount Console | 1 |
|  | 5000VA APC Smart-UPS SRT rackmount device | 1 |
|  | HP 48 unit 600mm x 1075mm Advanced Pallet Rack | 1 |
| **Networking equipment** | **Qty** |
|  | Cisco Catalyst 2960 Plus 24 10/100 + 2T/SFP LAN Base 24 ports managed switch | 2 |
|  | Cisco Catalyst 2960 Plus 48 10/100 + 2T/SFP LAN Base 48 ports managed switch | 1 |
|  | Cisco 2911 SRE Bundle - router | 1 |
|  | Cisco ASA 5512-X Adaptive Security Appliance | 1 |
| **Automotive diagnostics equipment** | **Qty** |
|  | Bosch KTS 560 vehicle control unit diagnosis module | 1 |
|  | Bosch FSA 050 multimeter for electric & hybrid vehicle testing | 1 |
|  | Bosch BAT 131 car battery testing device | 1 |
|  | Bosch TPA 200 diagnostic device for tire pressure monitoring system | 1 |
|  | Werther Saturnus EV40 ATLT 4 tons scissor lift with 4 tons lifting table and front recesses for wheel alignment | 1 |
|  | Werther Seros 9000 3D technology wheels alignment gauge | 1 |
|  | Bosch BSA4311 Roller Brake Tester | 1 |

Table 9.5. The equipment purchased by School of Electrical and Computer Engineering of Applied Studies