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MODERNIZATION AND
HARMONIZATION OF TOURISM
STUDY PROGRAMMES IN SERBIA

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WORK PACKAG	3
WP Type	3.5

University of Kragujevac

Faculty of Hotel Management and Tourism in Vrnjačka Banja

REPORT FROM THE PURCHASING OF EQUIPMENT FOR IMPROVING INFRASTRUCTURE TO SUPPORT INNOVATION IN TEACHING PRACTICE (ICT AND LABORATORY EQUIPMENT)

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Vrnjačka Banja

2016.

Project task:

3.5. Purchasing of equipment for improving infrastructure to support innovation in teaching practice (ICT and laboratory equipment)

Description of project task:

Purchasing of equipment for improving infrastructure to support innovation in teaching practice (ICT and laboratory equipment) is conducted through public offering process. A special team for equipment purchasing process was formed – Commission for the purchase of equipment, who made specifications of the necessary equipment and attended public offering process. The report contains information about all purchased equipment.

Description of outcomes:

This report is the result of joint work of staff at the Faculty of Hotel Management and Tourism in Vrnjačka Banja University of Kragujevac.

Within the TEMPUS project „**Modernization and Harmonization of Tourism study programmes in Serbia**" **544543-TEMPUS-1-2013-1-RS-TEMPUS-JPCR**, every institution independently formed a informal team for equipment purchase, which was later officialy formed. Although all teams were formed independently, they interacted with each other and exchanged ideas and information. At the University of Kragujevac, Commission for the purchase of equipment was officially formed on 14.01.2015. Members of the Commission for the purchase of equipment are: Danko Milašinović, Phd, associate professor at the Faculty of hotel management and tourism in Vrnjačka Banja - participant in the project, Biljana Gužvić - head of the legal department at University of Kragujevac, and Miloš Čomić - systems analyst in the computer center at University of Kragujevac. Main points about the equipment were that it should be used for education purposes and teaching process only, and made in EU.
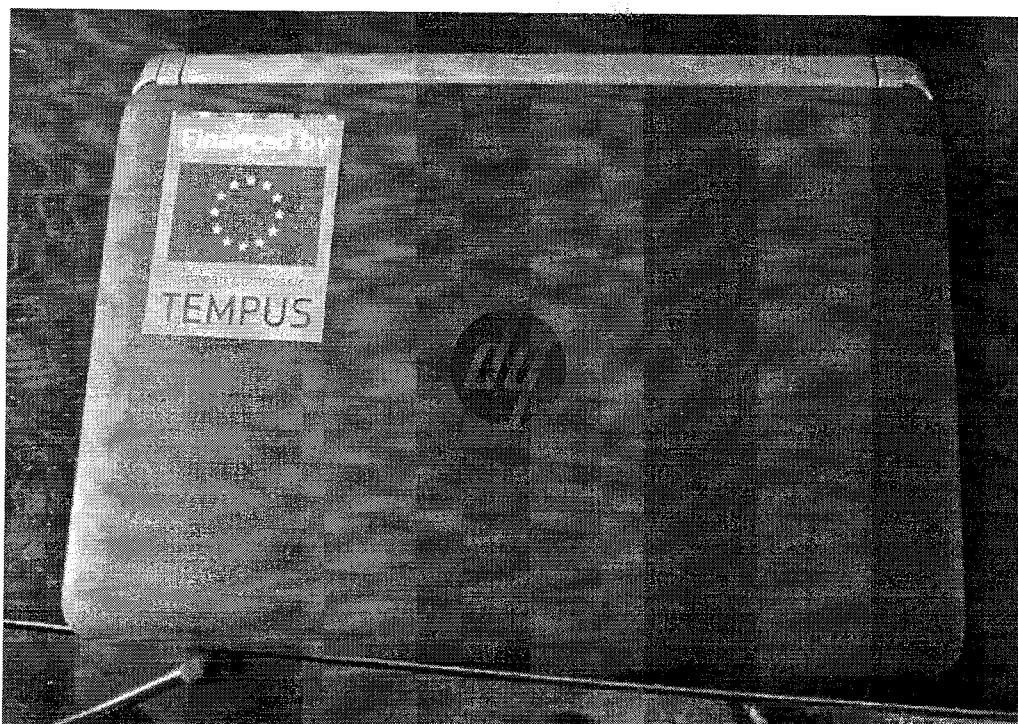
During the project, three tenders were carried out for the purchase of equipment. Due to the insufficient number of bids for the implementation of the procurement procedure, two meetings were organized for the purposes of the firs buy of equipment – on 31.03.2015. and 09.04.2015. Below is a list of equipment that we have purchased within the firs tender (with explanations):

1. **Fidelio software** will be used in Faculty's Computer Classroom where all of our students will have access to it, and one part of their practical work will involve this software.

2. **Desktop computer** (Pentium G3240 2-Core, 4GB RAM, 500GB HDD, 18-19 Screen, Keyboard, mouse) - 30 pieces. These computers will be used as only computers available for our students in Faculty's Computer Classroom.

3. **Two server computers** (T320 Xeon E5-2407 4-Core 2.2GHz, 64GB RAM, 2 x 3TB HDD SATA, 2 x 500 GB SSD disk, 22" Screen, Keyboard, mouse). These two servers will be used as a server computers that all of our client-computers (via computer network) shall use. One will host linux-based software, and the other windows-based software. Also, as a gift from the company that created it, we have ProSoft hotel management system (famous hotel IS). One of these computers will be server for this software too. Both of these computers will be available for our students.

4. **Five Laptop computers** (Intel Pentium 2020M 2.4 GHz, 4GB RAM, 500GB HDD, 15.6 Screen). These computers will be available for teachers and students and will be used in education as host's for video beams on educational classes as well as on various workshops that we organize (some of them outside our faculty building).

5. **Three Netbook-Laptop computer** (Intel i5, 8GB RAM, 500GB HDD , 12.0-13.5 Screen). These computers will be used for the same purposes as the item 4., but these are more portable and can be used for long distance traveling.

6. **Tablet computer** – 30 pieces (Android, 1GB RAM, 16GB Storage). These tablets will be used in our practical classes within the subject Business Informatics and will be available in Faculty's Computer Classroom during practical lectures and for all of our students.

In cooperation with companies that sold us these computers, our IT service will do maintenance. All purchased equipment was made in the EU.
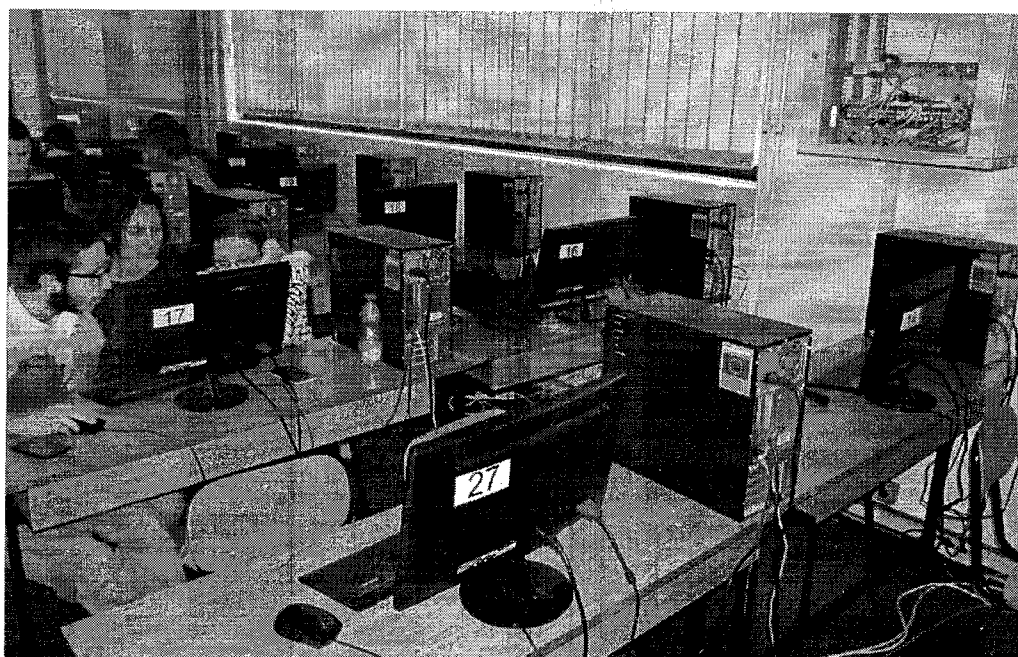
Within the second tender, some equipment was planned but not purchased. List of all equipment (purchased and not) is given below (with explanations):
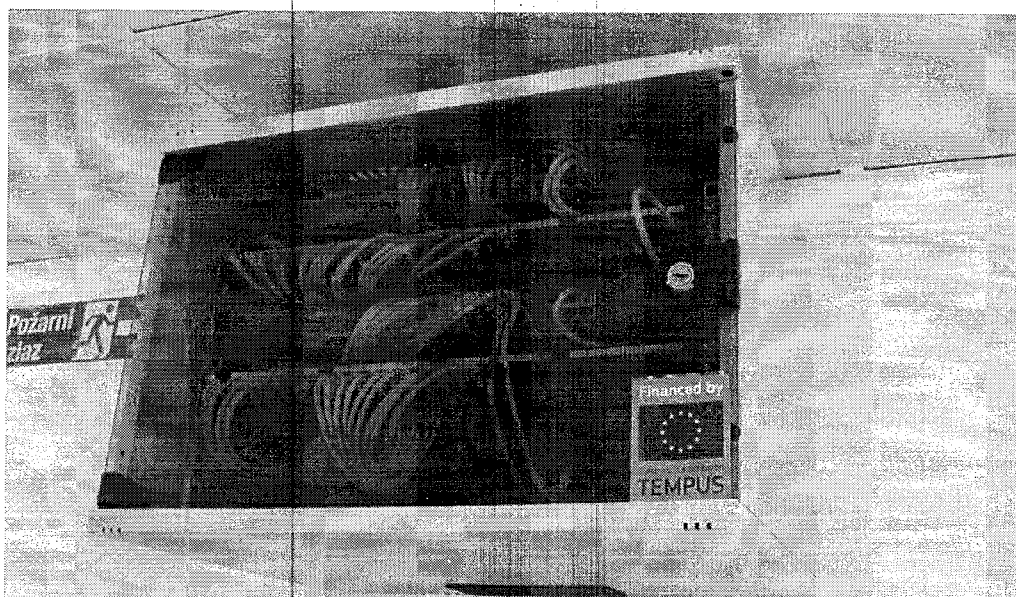
1. **Video projector – mobile** – three pieces **/planned but not purchased/** (resolution of 1280x800, min brightness 400 ANSI lumens, 2000:1 contrast min, max mass 500 g). These devices will enable us to easily organize workshops and presentations outside our institution, because they are lightweight and small in size, thus easy to carry. We shall use these devices when our teachers and students have presentations that are not on our institution.

2. **Five video projectors** (resolution of 1920x1080, min brightness 2500 ANSI lumens, 2000:1 contrast min, holder for ceiling and Presenter). These devices will be used for presenting teaching materials, as well as material on our workshops on our Faculty.

3. **One TV 47" LED /planned but not purchased/** (47" Screen, resolution of 1920x1080, DVD player, Wall Mount and with HDMI cable). The plan was to use this large TV in student hall for information about teaching courses, student practical education, as well as for teaching timetable and other student informations.

4. **One smartboard** (48" Diagonal Work Surface, Touch-Sensitive Surface, SMART Pen Tray, Wall-Mount Bracket). Smartboard will be put in our presentation room and will be used for specific teaching courses (that require that device - such as mathematics, informatics) as well as for our student workshops.

5. **One Sheet-feed Scanner** (Enterprise Sheet-feed Scanner, up to 600 dpi; grayscale 256; OMR (Optical mark recognition) software). We shall use this devices for student workshops, as well as for student exam evaluation. In combination with OMR software this device can auto-evaluate large number of exam-sheets in short time.

6. **Two Sound Systems** (Active Sound system 200 W with Presentation Microphone) that will be used on our Faculty for student presentations on our student workshops.

7. **Three Uninterrupted Power Supply /planned but not purchased/** (800 VA / 480 W). The idea was to use these devices to help us keep the adequate electrical current for our classroom computers, as well as for our servers, because our Faculty building has no stable electrical current, from time to time we encounter electrical problems.

8. **Two Uninterrupted Power Supply /planned but not purchased/** (1000 VA / 600 W). The idea was to use these devices to help us keep the adequate electrical current for our classroom computers, as well as for our servers, because our Faculty building has no stable electrical current, from time to time we encounter electrical problems.

9. **Two Uninterrupted Power Supply /planned but not purchased/** (1500 VA / 900 W). The idea was to use these devices to help us keep the adequate electrical current for our classroom computers, as well as for our servers, because our Faculty building has no stable electrical current, from time to time we encounter electrical problems.

10. **Active and passive network equipment for computer labs** (UTP cable CAT 5e-600 m, Cable UTP Patch 5e 2m – 31 pieces, RJ-45 Inline Coupler - 31 pieces, Rack cabinet 6U/19" Wall-mount – 1 piece, Patch panel 19"/1U with 24 RJ-45 – 2 pieces, Cable UTP Patch 5e 0.5m - 31 pieces, 24-port 100Mbps switch rack mount 19"- 2 pieces) + installation. Our Faculty acquired this technical equipment for our informatics laboratory as network equipment.

In cooperation with companies that sold to us these computers, our IT service will do maintenance.

All the equipment that was purchased during the implementation of TEMPUS project „Modernization and Harmonization of Tourism study programmes in Serbia" 544543-TEMPUS-1-2013-1-RS-TEMPUS-JPCR was chosen wisely in order to achieve as much as possible savings within our project budget. In the meantime, during the project, our Faculty has adopted two new programmes of tourism study (Health Tourism – Academic program, and Health Tourism – Master program). Thus number of students in first semester increased from 100 to 150, and in master program from 60 to 85.

These two factors - savings in project budget and increased number of students, gave us opportunity to think about adaptation of new laboratory for informatics in our faculty. We have idea to transfer our computer laboratory to a larger classroom. For this purpose we need to acquire more computers and network equipment. We will try to acquire most of these new computers using our finances and other projects. However the list of equipment that we plan to acquire using savings from this TEMPUS project are:

1. **Active and passive network equipment for computer labs** (UTP cable CAT 5e -1220 m, Cable UTP Patch 5e 2m – 60 pieces, RJ-45 Inline Coupler - 60 pieces, Rack cabinet 6U/19" Wall-mount – 2 piece, Patch panel 19"/1U with 24 RJ-45 – 4 pieces, Cable UTP Patch 5e 0.5m - 60 pieces, 24-port 100Mbps switch rack mount 19"- 3 pcs) + installation (est. sum 4000 eur)

2. **All-in-one PC**, 21" screen, 500 GB HDD, keyboard, mouse, Windows – 6 pieces. (est. sum 3000 eur)

With this new equipment we would be able to adapt informatics lab for 50 students. Maintenance will be done by our IT service in cooperation with companies that sold to us these computers. The equipment which was planned to be purchased wia third tender, only 6 computers were purchased. Active and passive network equipment for computer labs was not purchased because there was no bidder for this equipment.

All purchased equipment is listed in table 1.

Table 1. List of purchased equipment

No	TITLE (eg. Dropper, computer, TV, Projector, microphone, Accelerator, Reflector, Controller etc)	Manufacturer and model (eg. DELL Optiplex 450, Samsung U3243, JVC GY-HM790, BRILLIANT SP-2400, etc)	Quantity	Type of the equipment (choose from the drop-down menu)	Date of purchase	Inventory number at your institution	Place where the equipment is installed (office, classroom, laboratory etc)	If the equipment is granted for personal use, specify the name of the person
1	Desktop computer with monitor	ASUSK30AD-WB 003 VS 197De	30	IT equipment - desktop computer		3052÷3081	Classroom, reading room	
2	Computer server	DELL T320	2	IT equipment – server		3082, 3083	Server room, office	Danko Milašinović
3	Notebook computer	Fujitsu Siemens Lifebook LB A512	5	IT equipment - notebook computer		3084÷3088	Office	Dejan Sekulić, Vesna Milovanović, Snežana Milićević, Dragana Gnjatović
4	Tablet	Tesla Tablet H7	30	IT equipment - tablet computer		3089÷3118	Office	Saša Đurović, Marija Mandarić, Drago Cvijanović, Dušan Milićević, Jelena Petrović, Snežana Milićević
5	Notebook computer	HP Probook 430	3	IT equipment - notebook computer		3119÷3121	Office	Marija Mandarić, Danko Milašinović
6	Projector	EPSON EB 1751	5	Audio, Video and Communication		3228÷3232	Classroom	

				equipment – projector and TV			
7	Sound equipment	Behringer B207/XM 8500	2	Audio, Video and Communication equipment – other		3233, 3234	Classroom
8	Scanner	Avision AV176U	1	IT equipment – printers, scanners, multifunctional devices		3237	Office
9	Smart board	Vision 78"	1	IT equipment – smart board		3227	Computer laboratory
10	Desktop computer with monitor	ASUSV220iBUK-WC002 21.5 Aio FHD Pentium	6	IT equipment – desktop computer		3399÷3404	Computer laboratory