



Erasmus+

Cooperation for innovation and the exchange of good practices sub-programme

INTERIM REPORT 1 form

Programme	Erasmus+
Sub-Programme	Cooperation for innovation and the exchange of good practices
Action	Capacity Building in higher education
Sub-Action	Joint Projects
Call for Proposal	EAC-A04-2014
Project number	561688-EPP-1-2015-1-XK-EPPKA2-CBHE-JP
Agreement/decision number	20153763
Project Title	Implementation of the study program - Digital Broadcasting and Broadband Technologies (Master studies)
Language used to complete the form	

Contractual Data

Dates and Beneficiaries

Dates

Project Start: 15/10/2015	Project End: 14/10/2018
Activities Start:	Activities End:
Project Duration(months): 36	

Beneficiary Data

Role	PIC	Name	Country
Co-Beneficiary / Partner	933318384	TV MREZA	Kosovo
Co-Beneficiary / Partner	934530302	HIGHER TECHNICAL PROFESSIONAL SCHOOL IN ZVECAN	Kosovo
Coordinating Organization / Beneficiary	951280553	UNIVERSITY OF MITROVICA	Kosovo
Management Contact Person	951280553	UNIVERSITY OF MITROVICA	Kosovo
Co-Beneficiary / Partner	932881302	JAVNO PREDUZECE EMISIONA TEHNIKA I VEZE BEOGRAD (CUKARIC)	Serbia
Co-Beneficiary / Partner	940285603	VISOKA SKOLA ELEKTROTEHNIKE I RACUNARSTVA STRUKOVNIH STUDIJA	Serbia
Co-Beneficiary / Partner	969428477	UNIVERZITET SINGIDUNUM	Serbia
Co-Beneficiary / Partner	999974844	UNIVERSIDAD POLITECNICA DE MADRID	Spain
Co-Beneficiary / Partner	999868144	VYSOKA SKOLA BANSKA - TECHNICKA UNIVERZITA OSTRAVA	Czech Republic
Co-Beneficiary / Partner	999923240	UNIVERZA V LJUBLJANI	Slovenia
Co-Beneficiary / Partner	999895013	TARTU ULIKOOL	Estonia
Co-Beneficiary / Partner	932625513	ALTERNATIVNA TELEVIZIJA D.O.O.	Bosnia and Herzegovina
Co-Beneficiary / Partner	948704427	UNIVERZITET U BIHACU	Bosnia and Herzegovina
Co-Beneficiary / Partner	995591705	UNIVERZITET U BANJOJ LUCI	Bosnia and Herzegovina

Legal Representative

Organisation Legal Address

Name:	UNIVERSITY OF MITROVICA		
Street:	FILIPA VISNJICA BB		
Post Code:	38220	City:	KOSOVSKA MITROVICA
Country:	Kosovo		

Department

Name:			
Street:	Filipa Visnjica B.B.		
Post Code:	38220	City:	Kosovska Mitrovica
Country:	Kosovo		
Local Address:			
Internet site:	www.pr.ac.rs		

Contact

Title:	Prof.	Function:	Recor
Name	Srecko	Last Name:	MILACIC
Phone Number 1:	+38128422340	Phone Number 2:	+38128422320
Fax Number:		Mobile Number:	
Email:	srecko.milacic@pr.ac.rs		

Contact Person

Organisation Legal Address

Name:	UNIVERSITY OF MITROVICA		
Street:	FILIPA VISNJICA BB		
Post Code:	38220	City:	KOSOVSKA MITROVICA
Country:	Kosovo		

Department

Name:	Faculty of Technical Sciences		
Street:	Filipa Visnjica B.B.		
Post Code:	38220	City:	Kosovska Mitrovica
Country:	Kosovo		
Local Address:			

Contact

Title: Prof.

Function: Teacher Staff

Name: Sinisa

Last Name: ILIC

Phone Number 1: +381641794980

Phone Number 2: +38128425325

Fax Number:

Mobile Number:

Email: sinisa.ilic@pr.ac.rs

Draft

Project Summary and Horizontal Issues

Project Description

English - 1	<p>International Telecommunication Union (ITU) at the Radio-Communication conference in Geneva (RRC-06) made a decision that all European countries (including countries of the former Yugoslavia) have obligation to change analogue TV and Radio broadcasting with digital no later than 17 June 2015.</p> <p>Trough digitisation of analogue terrestrial television, frequency spectrum become free for purpose of digital television and various digital services such as digital radio with supplement services, digital mobile TV and other mobile services with multimedia content.</p> <p>Nowadays, in many European countries digitisation of television and radio with many other digital services has completed. Southeast European countries: Serbia, Montenegro, Romania, Albania and Greece are in the process of digitisation, while Bosnia and Herzegovina and Kosovo (UN Resolution 1244) has not yet begun the process of digitising.</p> <p>Main reason why digitisation has not yet started is the lack of experience and insufficient number of experts and professionals in field of Digital Broadcasting and Broadband Technologies (DBBT). The project addresses the need for introducing master study programme for education of experts in the field of DBBT. The appropriate laboratory should be equipped with various software for calculation of digital signal coverage area and Digital Multimedia HDTV and Radio studio.</p> <p>The expected output is implementation of master study programme in the field of DBBT with courses defined and laboratory equipped. The curriculum created during the project will also include training of qualified specialists in the process of digitising, maintaining digital systems, and the introduction of new technologies and services of digital broadband and broadcasting like: IP and wireless networks, creation of interactive multimedia applications on smart phones and tablets, performing Network modelling, static and dynamic information encoding etc.</p>
-------------	--

Horizontal Issues

Previous recommendations/follow-up

The recommendations from the Field Monitoring visits were:

- 1) The delays incurred due to the late signature of the GA are being overcome, although the consortium is lacking a revised work plan that reflects the current project state of implementation;
- 2) ... some proposals for the new curriculum were already put forward prior to the finalization of these first reports. We advise the consortium to fine-tune the final curriculum models based on consolidated reports for the WB and the EU and on broader consultations with the business partners.
- 3) A plan for Quality Control and Monitoring was drafted in March 2016 (according to the document published in the website) but apparently not yet adopted by the summer or not yet shared with the partners
- 4) We would like to insist on the importance of developing a concrete marketing strategy for potential students to be put in place immediately after the finalization of the accreditation process
- 5) Long-term cooperation agreements should be signed between each participating HEIs and industry partners in the partner countries.

The FM report has been communicated to partners and comments have been discussed at the project meetings.

Results are:

- 1) The revised work plan has been discussed, approved and published on https://dbbt.pr.ac.rs/project_tasks_with_due_dates/
- 2) There was a bit of misunderstanding regarding the flow of our documents. Namely, due to the delayed start of the project, the internal communication related to the new curricula was ongoing even prior to the release of the draft document »Report on the Comparative Analysis of Study programmes in the Field of DBBT from EU and ICT from WB« in order to catch up on lost time. Furthermore, the draft of the same document was published on the internal part of the project website. The WB HEIs started to prepare their initial proposals based on the internal communication and made their proposals based on recommendations from the internally published draft documents. Because of the time needed for formal approval (according to the QA measures this document is approved by QB) WB HEIs started to work on proposals prior to the finalisation and official approval of this report. Related to consultations with business partners, the meetings with partners from business were held on time and recommendations were also taken into account, but minutes were not formally prepared and approved by QA criteria on time. Currently all documents are published on the project website internal part: <https://dbbt.pr.ac.rs/work-package-1-documents-internal/> (please use eacea/eacea to login)
- 3) The plan for Quality Control and Monitoring is formally approved and published on: <https://dbbt.pr.ac.rs/work-package-6-documents-deliverables/>
- 4) The marketing strategy for DBBT is under development and it is a part of sustainability strategy. Currently all WB HEIs have marketing strategies for potential students: they organise visits to secondary schools, present study programmes, distribute leaflets, organise marketing audio and video clips on regional TV and radio stations, newspapers, advertise on their laboratory equipment. The survey for research the labour market on potential employers (TV and radio stations) is prepared for the need of DBBT experts and sent to some companies. When received back and processed, it will be presented to potential students. Some of the WB partners have also made internal surveys among graduate students and the feedback is very encouraging as a high number of students have expressed interest in enrollment to such 2nd level study programmes.
- 5) Long-term cooperation agreements are signed between each HEI and industry partners in the partner countries(<https://dbbt.pr.ac.rs/work-package-8-documents-internal/>)

Transversal issues

Not applicable in a direct way.

Implicitly, the new introduced applied master study programme contributes to increasing educational offer in WB countries and therefore increase freedom of choice when it comes to selecting the educational path. Regarding graduate employability, the aim of the project was to increase employability through increase of relevance and quality of courses and introduction of specialized degrees. The specialized degrees, especially at the second level of higher education, generally increase employability and facilitate career advancement. As the multimedia and digital TV topics include a significant amount of soft skills in addition to engineering skills it is to be expected that a higher share of female students will enroll in these study programmed, which is also the case in EU partner countries (ex. Slovenia). Thus the gender balance should be improved when compared to standard engineering study programmes such as electrical engineering, machine engineering, etc.

Award Criteria

Typology

Horizontal priorities

Fostering the assessment of transversal skills	<input checked="" type="checkbox"/>
Promoting the take-up of practical entrepreneurial experiences in education, training and youth work	<input type="checkbox"/>
Promoting the professional development of staff and youth workers in ICT methodologies	<input checked="" type="checkbox"/>
Supporting the production and adoption of Open Educational Resources in diverse European languages	<input type="checkbox"/>
Facilitating the validation of non-formal and informal learning and its permeability with formal education pathways	<input type="checkbox"/>

Linkages

School education	<input type="checkbox"/>
Higher education	<input type="checkbox"/>
Adult education	<input type="checkbox"/>
Vocational training	<input type="checkbox"/>
Youth sector	<input type="checkbox"/>
Cross-sector	<input checked="" type="checkbox"/>

If cross sector is selected

School education	<input type="checkbox"/>
Higher education	<input checked="" type="checkbox"/>
Adult education	<input type="checkbox"/>
Vocational training	<input type="checkbox"/>
Youth sector	<input type="checkbox"/>

CBHE Aims

Support the modernisation, accessibility and internationalisation of the higher education field in the eligible Partner Countries.	<input checked="" type="checkbox"/>
Promote people to people contacts, intercultural awareness and understanding.	<input type="checkbox"/>
Promote voluntary convergence with EU developments in higher education.	<input type="checkbox"/>
Contribute to the cooperation between the EU and the eligible Partner Countries (and amongst the eligible Partner Countries).	<input checked="" type="checkbox"/>
Support eligible Partner Countries to address the challenges facing their higher education institutions and systems, including those of quality, relevance, equity of access, planning, delivery, management, governance.	<input type="checkbox"/>

CBHE Objectives

Improve the quality of higher education and enhance its relevance for the labour market and society.	<input checked="" type="checkbox"/>
Improve the level of competences and skills in HEIs by developing new and innovative education programmes.	<input checked="" type="checkbox"/>
Enhance the management, governance and innovation capacities, as well as the internationalisation of HEIs.	<input type="checkbox"/>
Increase the capacities of national authorities to modernise their higher education systems, by supporting to the definition, implementation and monitoring of reform policies.	<input type="checkbox"/>
Foster regional integration and cooperation across different regions of the world through joint initiatives, sharing of good practices and cooperation	<input type="checkbox"/>

Specific activities

Curriculum development	<input checked="" type="checkbox"/>
Modernisation of governance, management and functioning of HEIs	<input type="checkbox"/>
Strengthening of relations between HEIs and the wider economic and social environment	<input type="checkbox"/>

Special mobility strand

The project contains a Special Mobility Strand	<input type="checkbox"/>
The project does not contains a Special Mobility Strand	<input checked="" type="checkbox"/>

Involvement of people with fewer opportunities

YES/NO



Assessment Criteria

Quality of the project implementation

Description of the implemented activities

The project started with a delay because of administrative issues (related to the name and bank account of University) and late transfer of money. The initially proposed plan in the application is rescheduled on PMC meetings according to the realistic needs and published on the project website. The main milestones of the plan are: due dates for submitting study programme proposals for accreditation (DEC 2016 for HEIs in B&H and MAR 2017 for HEIs in Serbia and XK) and enrolment of students to the master studies (from NOV 2017 to FEB 2018). Performed and current activities are in line with the rescheduled plan.

Activities of preparation phase: Analysis and comparison of EU and WB study programmes are finished, Study visits and Teacher's trainings are performing on the project meetings at HEI's institutions, the meetings with the partners from business are also performed; the list of equipment is created and approved, tenders for equipment are launched in every WB HEI institution, some of them are closed, and some cancelled due to incorrect or insufficient bids, setting up of laboratories and training of staff to use equipment is ongoing activity, the teaching material will be designed before the beginning of lecturing.

Current - development phase: The principles and model for academic and vocational post-graduate studies in the field of DBBT and teachers' competencies and learning outcomes of courses are defined, curricula are prepared with detailed syllabi per each course, the internal project QC is performed and material is sent to national accreditation body for approval. After approval the enrolment of students will be performed and new studies will be implemented.

Quality strategy plan was created on the beginning of the project and QC has been performed for each deliverable. Prepared curricula from each WB HEI have passed the institutional internal and project internal QC.

The project dissemination has started with promotion of the project on national TVs, and continued through national and international conferences and in partners' HEIs. The sustainability plan is drafted, but it is certain that approved accreditation means sustainability of accredited study programme. Almost all WB HEI's have signed a long term cooperation agreement with partners from the business.

The project management is successful. Meetings of PMC and SC are held according to the project plan. The experiences of partners involved in other project were very fruitful. The tasks assigned are respected between the partners. So far partners' share of responsibilities are in line with those presented in the application.

The added value of the partner countries is significant from the two aspects: 1) partners from EU countries (where DBBT is implemented several years ago) already have experience in teaching and cooperation with partners from business, hence their advices and guidelines in preparing study programs contributed to the quality of prepared curricula proposals of WB HEIs, and 2) partners from the business from WB countries pointed to deficiencies in current study programmes where some areas were not covered enough, but are very needed in business.

Applicability of activities is foreseen in second half of the project run when students will start acquiring knowledge from courses defined. During the tendering process several tenders were cancelled due to insufficient bids. Partners from other countries advised tenders to be split in several lots and also informed potential suppliers from own countries to submit bids. Because the vocational master studies will be introduced in Serbia for the first time and nobody knows the criteria for successful accreditation, the curricula of post-graduated specialised studies are also prepared for accreditation.

Quality assurance

On the Kick-Off meeting the Quality Board (QB) is established. It consists of 13 members – one representative of each partner. On the same meeting the head of QB and responsible partner is elected who guide the whole process of quality control and monitoring. The head of QB is not coordinator, but he reports to PMC and project coordinator on actions and measures of QB. The initial task of QB was to create Quality Control (QC) and Monitoring strategy and plan. This Quality plan has been approved by PMC and QB. The document is published on the project web page https://dbbt.pr.ac.rs/wp-content/uploads/2016/10/00_DBBT_QB-strategy-eng-v-2.3-1.pdf. Also, the updated QC plan with the schedule of activities is published on https://dbbt.pr.ac.rs/project_tasks_with_due_dates/. The strategy describes quality expectations in terms of project management and implementation and consists of several annexes: project templates of Word Documents, Power Point Presentations, Attendance List, Event Evaluation Form, List of deliverables with due dates, Check list for the review of deliverables; Risk monitoring sheet; and others.

Establishing of QC&M strategy and plan is one of the internal measures that secures methodological approach to quality control. The second one is continuous monitoring of the project deliverables and activities by the QB members in order to control if QC&M plan is respected and holding QB meetings where progress and potential issues related to quality control are to be discussed. So far two of six (two a year) QB meetings are held. According to the QC&M strategy, the self-evaluation is to be carried out by all partners, including the filling and processing of survey results from the meeting held. The surveys from the meetings are performed and result processed and published on the project web site. For every (tangible or intangible) project result, at least one indicator of progress is defined. The QA strategy of DBBT is built on the Plan-Do-Check-Act [Adjust] cycle.

QB constitutes from 13 members, one representative from each partner institutions. The main task for the internal quality assurance control is evaluation of the curricula of master study programs in the field of DBBT. This activity has been performed, and report has been written by Quality Board members (<https://dbbt.pr.ac.rs/wp-content/uploads/2016/03/Quality-Control-of-proposed-programmes.doc>). Additionally, each institution has self-evaluation methods and boards that approve and control quality of the prepared documents for the curriculum of the master studies. This is performed before the further control that is done by the national accreditation body. The internal project evaluation of produced learning materials, learning outcomes and courses' content is performed by EU partners not directly involved in management of or analysis of the flaws in proposed content of study courses in post-graduate studies in DEC 2016. The comments submitted are already implemented. The evaluation of new study programmes (at institutional and national level) by students who will attend them is scheduled in the beginning of 2018 (at the end of first semester) and in the middle of 2018 (at the end of the second semester); evaluation of the quality of other by date produced project deliverables is scheduled for the beginning of 2017.

The national accreditation of developed curricula in all Partner Countries HEIs represents one of the most important external quality assurance measures, because the national accreditation committee is certified to be in line with Bologna standards. This measure is also mandatory pre-condition for official approval of study programmes in WB HEIs. The developed curricula are submitted for accreditation in DEC 2016 in B&H and in MAR 2017 in Serbia and XK*. External project financial control is scheduled for OCT 2018, at the end of the project.

Visibility

The project website (<https://dbbt.pr.ac.rs>) is created and maintained regularly. The web-site contains two parts: the public part and internal (for the project members and EACEA) part. All drafted and internal documents are kept in the internal part that can be accessed only by user name and password of project members. The public part consists of the following headings: about project (goals, aims and objectives, activities and methodology); consortium members; activities (with initial and rescheduled work-plans for each year of the project); events (announcing and documenting meetings held with PP presentations from all partners, meeting minutes, provided documents, pictures from the meetings, etc.); deliverables (the documents divided by WPs), promotions; project contact person details; and log in area, accessible to consortium members, divided by WPs.

The access to the project website is enabled also through the links from all partners' institutions websites. Every visitor to a partner's institution website can notice a short description and link to the project website on a home page. After each meeting, after every deliverable is created or any action performed, the updated content is shown on the project website.

For the visibility and promotion purposes, there is main project promotion page (<https://dbbt.pr.ac.rs/promotions/>) where TV promotions are held, but there are also links from partners' institutions:

Facebook, Twitter and YouTube links from VISER: <http://www.viser.edu.rs/index.php?page=static&id=1811>
<http://www.viser.edu.rs/parlament/>
<https://youtu.be/OmkakQqRmOw?t=3m26s>
<https://youtu.be/okcG5YSp13Q?t=3m34s>
https://youtu.be/f2_Rzu-jxsA
<https://www.facebook.com/Visoka.Skola.Elektrotehnike.Racunarstva/>
<https://twitter.com/VISERBgd>
<https://goo.gl/uLj0nQ>,
 web-page from SINGI: <http://projects.singidunum.ac.rs/projects/european-union-projects/>
 web-page from HTPSZ: http://vts-zvecan.edu.rs/en/projects/dbbt_561688/about_project
 web-pages from UBL: <https://etf.unibl.org/index.php/sr-RS/aktivnosti/projekti/medjunarodni-projekti/dbb>,
<http://www.unibl.rs/sr/saradnja/medjunarodni-obrazovni-projekti/lista-erasmus-projekata>, https://youtu.be/n0_670he8Us,
<https://youtu.be/VTO7Pd1RKgc>
 web-pages from UNBI: <http://www.rtvusk.ba/video/dnevnik-i-sport-1122017/1481>
 web-pages from ATV: www.atvbl.com, www.agencijaspektar.com
 web-pages from UPKM: <http://www.pr.ac.rs/>, <http://ftnkm.rs/erasmus-2/dbbt/>

The project fulfils its publicity obligations in accordance with the Grant Agreement Article I.10.9. EU logo is placed on the project website along with the phrase "co-funded by the Erasmus+ programme of the European Union". The logo presented on EACEA web page ([eu_flag_co_funded_pos_\[rgb\]_left.jpg](#)) is also placed on every project deliverable. Any purchased piece of equipment has the sticker with aforementioned logo

Equipment

The equipment for the project is generally divided into the following categories: Laboratory, TV Studio and Teaching equipment, Software and Literature. SINGI purchased all types of equipment needed. VISER purchased all needed equipment except DVB measurement and Video equipment that is in currently running tender procedure. UPKM finished the tender for some video equipment, but the bids for remaining equipment were not correct and tender is currently repeated. HTPSZ launched tenders and evaluation of bids is in process now. UNBI and UBL didn't have success with first tender, because of insufficient bids, and tenders are re-launched.

Because all of equipment is not fully installed the use of it is not started yet. The purpose of all purchased equipment is to offer to students to gain theoretical and practical knowledge that can be applied immediately after the graduation. The number of students foreseen to attend studies and hence to work with equipment is 5-15 annually, but the exact number will be known after the study program implementation starts. The lab equipment will be used also for research.

Depending on institutions, equipment is/will be installed in specially adapted rooms (UPKM, HTPSZ) or in existing laboratories (UBI, SINGI, UBL, VISER).

The detailed list of equipment (devices/brands/models) were not defined in the application, but thanks to EU partners the modern and not expensive models were selected.

The project includes activities relating to curriculum development

.

Yes

HIGHER EDUCATION: Promoting internationalisation, recognition and mobility, supporting changes in line with Bologna principles and tools.

The main priority, at both regional and individual national levels, addressed by this project is modernisation of curricula in academic disciplines identified as priorities by the Partner Countries, using the European Credit Transfer System (ECTS), the three cycle system and the recognition of degrees. The proposed study programmes are therefore compatible with the Bologna process and represent the 2nd cycle study programmes (master and specialist studies) and are as such a continuation of 1st cycle (graduate/Bachelor) study programmes at respective Universities. The number of ECTS credit points is compatible with national and European standards and allow for student mobility and continuation of study at EU Bologna Compliant Universities. Also, the number of elective and mandatory courses, the workload for each course, learning objectives and outcomes, teaching and learning topics, teaching methods, textbooks and reference books are specified according to national accreditation standards.

The focus of this project is on the innovation and modernisation of the curricula, design and introduction of new curricula, revision and improvement of teaching methods, development of new teaching materials and establishment or further enhancement of links with industry in the field applied multimedia technologies and digital television.

The European Standards and Guidelines for quality assurance are taken into account through implementation of quality assurance policies at individual Universities and their national accreditation agencies. Consequently, the qualifications are clearly specified and refer to the correct level of national qualifications framework for HE. The representatives from the business are involved to ensure appropriateness of the study programmes for later employment. The teaching staff is qualified and has attended a number of teacher's trainings and study visits, where best teaching practises from EU partner countries are demonstrated. The proposed study programmes will be monitored and periodically reviewed, according to the national accreditation body regulations and procedures. In the final phase of the project the new study programmes will be monitored by partner experts from EU in terms of study process implementation, laboratory equipment and practical work procedures, and student centred learning approaches.

New/updated courses

All 6 WB HEIs have submitted post-graduated study programme proposals for accreditation. The responses from accreditation bodies are expected by June 2017.

The detailed report on academic master studies is put on: https://dbbt.pr.ac.rs/wp-content/uploads/2016/03/DBBT_Report_WP3.3_MV_rev7.doc.

The courses (in the format: name, type: (E)lective/(M)andatory, number of ECTS points) are the following:

UPKM:

Audio-Video Technologies, E, 6;
Audio-Video Production, E, 6;
Data Compression, E, 6;
Digital TV Broadcasting, E, 6;
IP Technologies, E, 6;
Cable and Wireless Broadband Communications, E, 6;
Sound Engineering, E, 6;
Interactive Multimedia Applications, E, 6;
Security in Multimedia Systems, E, 6;
Human and Multimedia, E, 6;
Interdisciplinary (Research) Project, M, 8;
Master Thesis Work, M, 16;

UBL:

Digital broadcasting systems and technologies, M, 6;
DTV receivers and software support in the DVB framework, M, 6;
Studio Audio and Video production, E, 6;
Digital broadband access technologies, E, 6;
Advanced DTV-Middleware, Interactive TV, IPTV, E, 6;
Modern application frameworks for digital TV receivers, E, 6;
Graphics and animation, E, 6;
Multimedia Content on the Web, E, 6;
Multimedia Content Search, E, 6;
Security, E, 6;
Regulation, standards and radio monitoring, E, 6;

UNBI:

Signal Processing and Acoustics, M, 5;
HD and 3D TV, M, 5;
Wireless and satellite communications systems, M, 5;
Multimedia TV systems, M, 5;
Digital Image Processing, E, 5;
Broadcasting Engineering, E, 5;
Internet telephony and television, E, 5;
DVB-X Systems, E, 5;
Audio-Video Production, M, 5;
Publishing research paper, M, 5;
Master thesis, M, 20;

SINGI:

Principles of Digital Broadcasting, M, 10;
Scientific Research Methodology, M, 6;
Research Paper 1, M, 8;
Principles of Modern Communications, E, 6;
Digital Image Processing, E, 6;
Design of digital TV, M, 6;
Research Paper 2, M, 6;
Master's thesis, M, 20;
Broadband Access Networks, E, 6;
Communication Networks and Systems Design, E, 6;

The detailed report on vocational post-graduated studies is put on: https://dbbt.pr.ac.rs/wp-content/uploads/2016/03/DBBT_Report_WP4.3_MV_rev5.doc.

The courses are the following:

VISER:

Research Methods, M, 6;
Audio and video compression, E, 8;
Digital communication systems, E, 8;
Audio devices and systems, E, 8;
Video devices and systems, E, 8;
Interactive multimedia, E, 8;
Digital radio and TV technologies, E, 8;
Wireless systems technologies and protocols, E, 8;
Signal processing, E, 8;
Audio and video production systems, E, 8;
Multimedia postproduction, E, 8;
Student internship 1, M, 6;
Broadcasting systems and technologies, E, 8;
Multimedia internet transmission, E, 8;
Communications standards and technologies, E, 8;
Studio design, E, 8;
Telecommunication measurements, E, 8;
Student internship 2, M, 6;
Entrepreneurship and Incentives in Electrical and Computer Engineering, E, 6;
Electronic communication regulation, E, 6;
Applied research work, M, 8;
Master thesis work, M, 16;

HTPSZ:

Multimedia systems, M, 6;
Measuring in telecommunications, M, 6;
Computer animation, E, 6;
WEB programming, E, 6;

Electric lighting design, E, 6;
RTV engineering, E, 6;
Human-computer interaction, M, 6;
Image and sound digital processing, M, 5;
Audio and video production, E, 5;
Internet and wireless sensor networks, E, 5;
Entrepreneurship and innovations, E, 5;
Research marketing, E, 5;
Professional practice, M, 5;
Final thesis, M, 10;

All national accreditation bodies are licensed for Bologna principles accreditation.

No

Teaching / Training Activities

Yes

Mobility for Teaching, Training and/or project research activities

In the project application is scheduled training of a number of teachers from each WB HEI. Because at least two teachers per WB HEI are regular members of the project, at least 12 (6 x 2) teachers will be trained by EU partners. Teachers in HEI are Doctors of Philosophy and they have a lot of knowledge and they are updating their knowledge in their areas by themselves. So, here we don't speak about classical training, but the training on standards in DBBT that are applied in EU countries and methodology of teaching the students in order to be ready for the business and constantly improving the knowledge and the skills.

So far three (out of four) teachers' training sessions were held. First teacher training was held in Madrid, at Universidad Politécnica de Madrid (UPM), second teachers' training was held in Ljubljana, at the University of Ljubljana (UL) and third was held in VSB-TUO in Ostrava. All trainings included lectures and technical tours on subjects related to the project. The topic of the first training was on general trends in multimedia field related to the broadcasting, such as: interactive TV, multimedia user interfaces for general population, older adults, or people with disabilities. Also, topics were related to broadcasting of ultra-high definition TV content that UPM develops together with Corporación de Radio y Televisión Española (RTVE). The topic of the second training was on trends in VR industry, and its use in entertainment, education, healthcare, media, telecommunication and scientific visualization. Also, training included the engagement of UL in development of multimedia technologies for Slovenian National TV. Third training was related to two topics: 1) preparation and format of video materials for broadcast on DVB-T regional television and 2) Digital Broadcasting Services – Speech Recognition.

No

Section 2 IMPACT AND SUSTAINABILITY

Awareness raising, dissemination, sustainability and exploitation of the project results

Sustainability plan is initially defined in the project application. The creation of two plans: Academic sustainability plan and Financial sustainability plan is included in the project deliverables: WP 8.2 and 8.3 and scheduled for the third year of the project. Those plans are however already drafted (https://dbbt.pr.ac.rs/wp-content/uploads/2017/03/01_DBBT_Sustainability-Plan_v2.doc). Dissemination and exploitation strategy is initially defined in the project application. There are defined two aspects of dissemination and exploitation: internal and external. Internal dissemination activities primarily target internal project resources, teachers and students working for the project member organisations with the aim to transfer knowledge among partners. The project website, Info days, workshops, meetings and visits are the main tools used in these activities. External dissemination activities are the standard dissemination activities targeting wider community, local companies and general public with the aim to promote project, its results, and project participants. The main tools of external dissemination are presentations, lectures and demos at workshops, exhibitions and different media channels like Web (the project website and websites of the partners HEIs), TV (national and in business partners) and newspapers. VISER is actively taking roll in project dissemination and awareness raising, dissemination. Each project meeting (in K. Mitrovica, Belgrade, Madrid and Ljubljana) was recorded and later published via VISER's video podcast, called "10k" that uses YouTube platform. Singidunum University's marketing team makes promotion of study programs of Singidunum University in many high schools in Belgrade and nearby. As an integral part of 2016 INDEL Conference, sponsored by IEEE Industry Applications Society and IEEE Power Electronics Society and organized by the Faculty of Electrical Engineering, University of Banja Luka, a round table meeting dedicated to DBBT master program was organized by the Faculty of EE in Banja Luka.

The most important task - accreditation - guarantee sustainability, because the accredited studies will be financially supported in total or partially by the government. In some HEIs study programmes will be financed by "own source" resources because students will have to pay the scholarship by themselves or through government or private business scholarships for the best students. The task of the institution (after obtaining accreditation) is to make this programme attractive enough for interested students. It is foreseen in the project application that after the completion of the project, developed study programmes has to be constantly monitored and improved and to be attractive to the students by financing them through scholarship.

The deliverables foreseen in the project application are: promotion on internal meetings in partner institutions, promotion on Website & social networks, production of promotional material, promotion in WB HEIs, the most important one: accreditation of new academic master study programmes, signing the long-term cooperation agreements between HEIs and all relevant stakeholders and Ensuring the support of the relevant government bodies. The project is promoted on the project website, on internal meetings, almost all WB HEIs have signed the long-term cooperation agreements with institutions from business. The accreditation process is currently running. All WB HEIs have submitted curricula for approval.

SECTION 3: QUALITY OF COOPERATION

Project management

From the beginning of the project the following management bodies are established from representatives of all (13) partner institutions: Project Management Committee (PMC); it is body in charge for managing daily activities and it is familiar with the progress of each task. The main objective of the PMC is to keep the project always closely aligned with the project plan and reduce the risks associated with project activities.

The main topic on PMC meetings is the review of progress of scheduled tasks, plan for realization next tasks and obtaining measures for solving and finishing pending tasks. So far five of twelve PMC meetings are held. Quality Board (QB); it is body responsible for the Quality Assurance of all project deliverables. So far one of six QB meetings is held; Steering Committee (SC); it is the major decision-making body of the project who guarantees that project members of each partner institution will have to fulfil the tasks set by this body. So far three of six SC meetings are held; Guidelines on the project management and reporting are developed and approved.

The Partnership Agreement is created based on EACEA instructions and multilateral agreement is signed by all partner institutions.

No special management tools are used – the table of tasks with registration of its fulfilment is created in MS Word and MS Excel.

The performance indicators are mostly qualitative – if the project tasks are finished or not. The most important ones are: study programme developed, equipment purchased, equipment installed, students enrolled, GPA of students per semester.

The official language of the project is English, but because all institutions of WB HEIs speak the same language, internal communication is in Serbo-Croat. The project tasks are assigned on the regular project meetings, but task execution is usually performed through several iterations with PMC and coordinator by email. Urgent communication is performed through the Skype. All major decisions are performed on the PMC and SC meetings. Material for the meeting is shared by members of PMC and SC by email. Because the members of PMC are representatives of all partner institutions, the tasks and decisions obtained by this body are transferred through PMC members to individual institutions. The WP leaders are authorized to upload draft deliverables to internal part of the project web site. The project members can access to the drafts, read them and send comments to WP leaders. After approval of deliverables coordinator transfers them to the public part of deliverables.

There are no deficiencies in the project management approach as compared to the application.

Involvement of partners and stakeholders

The responsibilities are shared among all project partners. At the kick-off meeting all project partners have delegated representatives in the work-package groups and leaders of the groups have been chosen.

The tasks of partners and hence their responsibilities are divided in three groups:

- partners from EU countries have more theoretical experience in in broadcasting, multimedia creation and digital TV, availability and suitability for students' internship and future employers and their role is to come up with proposal for study programme study modernisation and improvement taking into account academic policies from EU countries,
- business partners from WB countries have more practical knowledge in this area, and their role is to come up with proposal for programme study modernisation from the expert point of view, and
- partners from WB countries whose task is to create curriculum in the area of DBBT for post-graduate studies.

The presence of partners from business for each WB partner country gives a great contribution to rich wider project goals – the companies from the labour market are taking part in design of curricula specifications according to the needs from business and thus they will have greater opportunity to offer job to the future graduated students.

All partners contribute to the project goals and each partner has different tasks according to the aforementioned partner type. WB HEIs have most tasks, because they have to create study programme proposals, perform accreditation, purchase equipment, set up laboratories, enrol students and implement studies, while other partner have more consultation role. Less experienced partners (if experience means involvement in EU educational projects) execute their tasks on time and in line with project goals.

Because the accreditation of Vocational Master studies is going to be performed for the first time in Serbia, and two project partners are Vocational HEIs, the mitigation action was to prepare proposals also for specialist post-graduate vocational studies that already exist in Serbia.

National accreditation bodies are aware of Erasmus+ projects and their tasks for modernisation of study programmes. When it comes to developing academic master studies in Serbia, public authorities have been involved in the form of consultations in respect with general standards for master of academic studies accreditation. This is important since the introduction of new master degree is new in the Republic of Serbia. The Government of Republic of Srpska will participate in providing the financial means of support for the teaching process and secure the funds for scholarships for the best students.

The Communications Regulatory Agency of BiH provides a list (<http://rak.ba/bos/index.php?uid=1280746078>) of telecommunications operators whose engineers could be interested for DBBT master studies.

Students were informed about the development of DBBT studies in WB HEIs. One of the project tasks was the survey of how students like idea for introduction of the new study programme with use of modern equipment and opportunity to easily find the job in labour market. The results of the surveys can be seen on <https://dbbt.pr.ac.rs/students-survey/> (internal part)

Management of the grant

All project members were duly and timely informed on the rules of the grant management. The management of the grant procedures have been discussed at PMC meetings. During the time concerns about specific procedures are discussed between members of PMC and the coordinator. Details that are not described in Grant are clarified with local Erasmus officers and EACEA coordinators. The deadlines of each task were discussed at PMC meetings. According to the Partnership Agreement, project partners are required to send financial reports periodically to the coordinator. The coordinator revises the documentation and send comments and recommendations to each project partner. Financial reports were shared during project meetings.

During the tendering procedures on some tenders (in Serbia and B&H) less than three bidders applied, because the equipment was too specific and a small number of suppliers could offer that type of equipment. According to the instructions from EACEA office, partner should document correctly the whole tendering procedure and that partner have carried out a transparent procedure in order to obtain three offers for each lot. But, if in spite of partner's best efforts, only one or two eligible offers are received for the equipment that the project needs to purchase, partner can go ahead with the purchase.

The project coordinator informed partners on how to use Grant on the first Kick-off meeting and on the following meeting in VISER. Majority of rules were clear then. Specific concerns are later discussed over the email in several iterations.

Because the consortium is composed of WB HEIs who have 5 budget lines (staff costs, travel & costs of stay, equipment and subcontracting) and other partners who have only 3 budget lines, the fulfillment of request for second installment (70% of total amount) depends on purchase of equipment in WB HEIs. Non WB HEIs have already spent even 100% of the first installment while some WB HEIs (because of unsuccessful tendering procedure) spent only 32%. The project might come to situation when non-WB HEIs cannot attend project meetings because of run-out of money.

Relevance

Relevance to the objectives

The project objectives are still very relevant since the development of the digital communication technologies is the main driver of innovations in almost all industries. The development of the master study programme will enable education of the specialists needed for the process of digitising, maintenance of the digital systems and implementation of new broadcast and broadband technologies.

The consortium didn't find any significant constraint during the project life time so far.

The goals of the project are in line with the strategy on development of electronic communication in the Republic of Serbia (what about B&H) for the period 2010-2020 where emphasis is put on transition to digital broadcasting, introduction of new multimedia services, development of broadband access, efficient spectrum management, and encouraging development and research in this field. Following the Regional Radio-communication Conference (RRC-06) in Geneva, Switzerland, 2006, with the aim of establishing a new international agreement and an associated frequency plan for digital broadcasting (T-DAB and DVB-T), Bosnia and Herzegovina adopted the final acts of the Conference which foresees the introduction of digital TV.

The development of the new academic master programme has raised quality of education to a higher standard at WB HEIs since it introduces higher level of study which requires more emphasised student centred approach, as well as, tighter cooperation with experts from industry. In developed proposals for study programme accreditations, new courses proposed by EU partners and partners from business are included, new – modern equipment is to be purchased, teachers are trained, so it will contribute to the education and teaching.

EU Education, Cooperation & Development policies

The project actively contributes to fulfilment of EU higher education objectives (Education & Training 2020) as the developed study programmes cover the professions, which are in shortage in WB countries and consequently represents high employment possibilities for the graduates.

Furthermore, due to well established relations between partner institutions, including EU partners, and Bologna compatible study programmes, a share of students enrolled in developed study programmes will be able to spend some time studying or training abroad.

This project has achieved broader objectives; in particular, it has increased institutions' capacity for creating international relations. It has made the participating institutions more visible on the national and international scene. This has facilitated cooperation with academic institutions both at national and international level, as well as, with non-academic sector.

Because the new study programme consists of courses that already exist in EU partner countries, students enrolled to DBBT master studies can count on ECTS points earned in WB countries. This programme is in line with other programmes used at the world's leading schools in the relevant fields of study and consistent with the Europe 2020 strategy, the Strategic Framework for European Cooperation in Education and Training and the Bologna process. The duration and structure of the programme is in line with national standards. The number of elective and mandatory courses, the workload and ECTS for each course, learning objectives and outcomes, teaching and learning topics, teaching methods, textbooks and reference books are specified according to national accreditation standards. The new programme is situated at the second level of higher education (second cycle) and leads to master academic studies degree. This degree is obtained after completion of study with 240 ECTS.

Statistics and Indicators

Statistics and Indicators

Links to EU HEI Policies

- Teacher training
- Vocational Education and Training
- 1st Cycle (e.g. Bachelor)
- 2nd Cycle (e.g. Master)
- 3rd Cycle (e.g. Doctoral)

Training and Mobilities

Event	Purpose	Type of participants	Gender	-	Country of Origin	Country of destination	Duration (in weeks)	%compared to objectives
1	Training	Academic staff – teaching	Number Male	2	Bosnia and Herzegovina	España	0,14	100
1	Training	Academic staff – teaching	Number Female	2	Bosnia and Herzegovina	España	0,14	100
1	Training	Academic staff – teaching	Number Male	2	Serbia	España	0,14	100
1	Training	Academic staff – teaching	Number Female	3	Serbia	España	0,14	100
1	Training	Academic staff – teaching	Number Male	4	Kosovo	España	0,14	100
1	Training	Academic staff – teaching	Number Female	1	Kosovo	España	0,14	100
2	Training	Academic staff – teaching	Number Male	2	Bosnia and Herzegovina	Slovenia	0,14	100

2	Training	Academic staff – teaching	Number Female	2	Bosnia and Herzegovina	Slovenia	0,14	100
2	Training	Academic staff – teaching	Number Male	2	Serbia	Slovenia	0,14	100
2	Training	Academic staff – teaching	Number Female	3	Serbia	Slovenia	0,14	100
2	Training	Academic staff – teaching	Number Male	4	Kosovo	Slovenia	0,14	100
2	Training	Academic staff – teaching	Number Female	1	Kosovo	Slovenia	0,14	100
3	Training	Academic staff – teaching	Number Male	2	Bosnia and Herzegovina	Czech Republic	0,14	100
3	Training	Academic staff – teaching	Number Female	1	Bosnia and Herzegovina	Czech Republic	0,14	100
3	Training	Academic staff – teaching	Number Male	2	Serbia	Czech Republic	0,14	100
3	Training	Academic staff – teaching	Number Female	2	Serbia	Czech Republic	0,14	100
3	Training	Academic staff – teaching	Number Male	3	Kosovo	Czech Republic	0,14	100
3	Training	Academic staff – teaching	Number Female	1	Kosovo	Czech Republic	0,14	100

Links to EU HEI Policies

Main Target

- Diploma supplement
- Adoption of a system based on three main cycles, undergraduate (Bachelor), postgraduate (Master) and Doctorate
- Introduction of double/multiple or joint degrees
- Establishment of an ECTS system
- Promotion of quality assurance procedures at institutional or national level
- Qualification frameworks
- Lifelong learning policies and approaches
- Modular curriculum structure

New learning and teaching methods or approaches

- Online education and training material (e-learning)
- University-enterprise cooperation, entrepreneurship and employability of graduates
- The project contributes to youth employment and the integration of young people in the labour market
- Links with other EU education programmes

Equipment

- books and pedagogic material
- audio-visual equipment
- Computers and software
- lab material
- Other

Consortium Meetings

Estimated dates of consortium meetings until the end of the projects

Venue country	Venue city	Date of Meeting
Serbia	Belgrade	23/05/2017
Estonia	Tartu	12/09/2017
Bosnia and Herzegovina	Banja Luka	18/12/2017
Bosnia and Herzegovina	Bihac	26/06/2018
Kosovo	Zvecan	18/09/2018

Attachments

Type of File	Name of the File
Budget Table	DBBT IMR Verzija3.xlsm
Declaration of Honour	declaration_of_honour.PDF
Table of achieved results	4-annex_c_table_of_achieved_planned_results.docx
Dissemination/Exploitation Plan	01_DBBT_Sustainability-Plan_v3.pdf
Quality Assurance Plan	00_DBBT_QB strategy eng v 2.3.1.pdf
Request for Payment	costs_incured_dbbt.pdf
Report Special Mobility Strand	