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OLIY TA'LIM TARAQQIYOTI ISTIQBOLLARI

PERSPECTIVES OF HIGHER EDUCATION DEVELOPMENT

ПЕРСПЕКТИВЫ РАЗВИТИЯ ВЫСШЕГО ОБРАЗОВАНИЯ

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OLIY TA’LIM TARAQQIYOTI ISTIQBOLLARI

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ПЕРСПЕКТИВЫ РАЗВИТИЯ ВЫСШЕГО ОБРАЗОВАНИЯ

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РЕДАКЦИОННАЯ КОЛЛЕГИЯ

Абдурахманова Азиза Каримовна, координатор Национального офиса Erasmus+ в Узбекистане, кандидат филологических наук, PhD

Баходирова Гулноз Камаловна, декан факультета “Химическая технология неорганических веществ” Янгиерского филиала Ташкентского химико технологического института, PhD, доцент

Вихров Игорь Петрович, начальник отдела внедрения передовых технологий в Центре передовых технологий и стратегических инициатив Ташкентского педиатрического медицинского института, член Национальной команды экспертов Erasmus+ в области высшего образования, Узбекистан

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Ташкенбаев Улугбек Негматович, начальник Государственной инспекции по надзору за качеством образования при Кабинете Министров Республики Узбекистан, доктор физико-математических наук, профессор

Усманов Ботир Шукуриллаевич, ректор Ташкентского государственного химико-технологического института, доцент, кандидат технических наук

Усманова Наргиза Бахтиёрбековна, профессор Ташкентского университета информационных технологий, доктор технических наук, член Национальной команды экспертов Erasmus+ в области высшего образования, Узбекистан

Эшкабилов Сулаймон, доцент университета Джеймстаун, США

КИРИШ

Бугунги кунда мамлакат тараққиётининг ҳал этувчи кучи салоҳиятли кадрлар эканлигидан келиб чиқиб олий таълим тизимини ҳар томонлама модернизация қилишга катта эътибор қаратилмоқда. Олий таълим муассасаларининг фаолиятини замонавий талаблар асосида йўлга қўйиш, ислоҳ қилишда илғор хорижий тажрибаларни олиб кириш, ёш педагог ва олимларнинг янгича дунёқарашини шакллантириш энг муҳим масала эканлиги ҳам аён. Ушбу масалаларни ҳал этиш, ташаббус ва ғояларни амалиётга татбиқ этишда қонуний асос ва фармойиш ҳужжатларининг мавжудлиги бу тизимда ишлаётган мутасаддилар ва профессор-ўқитувчилар жамоасининг ишига ижодий ёндашувини шакллантиришда муҳим ўринга эга. Жумладан, Ўзбекистон Республикаси Президентининг 2019 йил 8 октябрдаги ПФ-5847-сон Фармони билан тасдиқланган Ўзбекистон Республикаси олий таълим тизимини 2030 йилгача ривожлантириш концепцияси, 2021 йил 24 декабрдаги “Давлат олий таълим муассасаларининг академик ва ташкилий-бошқарув мустақиллигини таъминлаш бўйича қўшимча чора-тадбирлар тўғрисида”ги ПҚ-60-сонли ҳамда “Давлат олий таълим муассасаларига молиявий мустақиллик бериш чора-тадбирлари тўғрисида”ги ПҚ-61-сонли қарорлари тизимдаги янги қарашлар асосидаги фаолият учун ҳуқуқий асос вазифасини ўтамоқда.

Олий таълимда ўқув жараёнларининг кредит-модуль тизимига босқичма-босқич ўтилаётганлиги, илмий тадқиқотлар натижаларининг нашрлар ва иқтибослик асосида халқаро даражада тан олиниши томон ҳаракатлар, битирувчиларнинг иш билан таъминланиши ва юқори сифатда баҳоланиши кабилар барчаси олий таълимнинг халқаролашуви билан алоқадор бўлмоқда.

Бу босқичда амалга оширилаётган ишларнинг барчасини тизимли ташкил этаётган олий таълим муассасалари орасида халқаро тан олинган THE ва QS каби рейтинг тизимларига кириш сари қадам қўйганларининг борлиги қувонарли ҳол. Хусусан, бу йилги натижаларга кўра Ўзбекистон олий таълим муассасаларидан 30 таси THE халқаро импакт рейтингида репортер мақомига эга бўлганлиги ёки 8 та олий таълим муассасасининг QS халқаро рейтингида Осиё минтақаси бўйича кўрсаткичлар тизимида 100 дан 700 гача бўлган ўринга муносиб деб баҳолангани ҳам айнан ўша олий таълим даргоҳларида фаолиятнинг концепциясига мувофиқ тизимли ташкил этилгани билан бевосита боғлиқ.

Шуни алоҳида таъкидлаш жоизки, таълим жараёнини сифат жиҳатидан янги босқичга кўтариш ҳамда ўқитишнинг илғор шакллари, ахборот-коммуникация технологияларини жорий этиш орқали янги босқичга олиб чиқиш ҳам энг муҳим масалалардан бири. Бу эса олий таълимда бутун тизимини – бошқарув, ўқув ва илмий фаолиятларни рақамлаштириш билан боғлиқ бўлиб турибди. Мазкур вазифалар ижроси, ўз навбатида, олий таълимда трансформация жараёнларини амалга оширишда энг катта омил.

Ушбу мураккаб, кўп тармоқли янгиланиш жараёнларида Европа таълим муҳити элементларининг жорий этилиши, ҳамкор университетларнинг яхши тажрибаларини олиб киришда Эразмус+ дастурларининг аҳамиятини таъкидлаш жоиз. Хусусан, миллий офис ва экспертлар ташаббуси билан чоп этилаётган "Олий таълим тараққиёти истиқболлари" илмий-методик журналнинг мунтазам чоп этилаётганлиги, унда ёритилаётган мақолаларнинг қамрови ва масалалари кенгайиб бораётганлиги олий таълим муассасалари фаолиятида тизимли ёндашув талаб этилишини кўрсатиб турибди.

Журналнинг мазкур сонида ўқув жараёнлари, илмий тадқиқот йўналишидаги ишлар самаралари, олий таълимда рақамлаштириш, ахборот ресурслари билан ишлаш, кутубхона фаолиятини такомиллаштириш, таълим ва фан интеграцияси, фанларнинг йўналишларига оид тадқиқотлар ва олий таълимда сифат масалалари, халқаролашувнинг кўп қиррали жиҳатларига оид масалалар қамраб олинган мақолаларнинг танлангани билан аҳамиятга молик. Айниқса, Эразмус+ лойиҳалари бўйича Ўзбекистондаги бугунги янгиликлар, танлов натижалари ва келгуси имкониятларимиз акс этган мақолаларнинг ҳам киритилганлиги қилинадиган ишларимиз қамрови ниҳоятда кенглигидан далолат беради.

Гулчеҳра Шавкатовна Рихсиева,

Тошкент давлат шарқшунослик

университети ректори, Erasmus+

миллий экспертлар гуруҳи аъзоси

INTRODUCTION

Since current trends show that the prominent factor in the development of the country is nurturing promising personnel, comprehensive modernization of the higher education system is highlighted. Undeniably, matters such as running the activities of higher education institutions in compliance with modern requirements and introducing reforms based on the foremost international experiences are of high importance in the formation of young pedagogues and scientists with a new outlook.

The availability of relevant legal basis and regulations for implementing initiatives and ideas has an important role in enabling officials and faculty members to form a creative approach in the system. The Presidential decree of the Republic of Uzbekistan “On approval of the Concept of development of the higher education system of the Republic of Uzbekistan until 2030” dated October 8, 2019 PF-5847, the Presidential Decree of the Republic of Uzbekistan dated January 28, 2022 “On the Development Strategy of New Uzbekistan for 2022-2026” PF-60, “On measures to provide financial autonomy to state higher education institutions” PF-61 serve as a legal basis for activities based on modern approaches in the system.

The gradual transfer to the credit-modular system in higher education, efforts towards international recognition of the results of scientific research based on publications and citations, employment and recognition of highly qualified graduates are all related to the internationalization of higher education.

It is rejoicing that among the higher education institutions that are systematically organizing all the work being carried out at this stage, there are those that have taken steps towards entering the list of internationally recognized ranking systems such as THE and QS. In particular, according to the results of this year, 30 of Uzbekistan's higher education institutions have the status of *reporter* in the international impact ranking of THE, and 8 higher education institutions are ranked as worthy of the place from 100 to 700 in the index system for the Asian region in the QS international ranking– this is directly related to the systematic organization of the activities in higher education institutions according to the Concept.

It is worth noting that eenhancing quality of education and bringing it to a new level through the introduction of advanced forms of teaching and information and communication technologies is of high importance. This is closely related to digitization of the entire system of higher education - management, educational and scientific activities. The implementation of these tasks, in turn, is the crucial factor in the implementation of transformation processes in higher education.

It is worth stating the importance of the Erasmus+ programme in introducing elements of the European educational environment and bringing good practices of partner universities into these complex, multidisciplinary renewal processes. In particular, the regular publication of the scientific-methodical journal "Perspectives of Higher Education Development" published by the initiative of the National office and experts, the scope of the the issues covered by articles demonstrates that a systematic approach is required in the activities of higher education institutions.

This issue of the journal is essential since it covers articles on educational processes, scientific research results, digitalization in higher education, working with information resources, improving library activities, integration of education and science, research on the directions of science and quality issues in higher education, and multifaceted aspects of internationalization.

Gulchehra Rikhsieva,

Rector of Tashkent State University of Oriental Studies,

Member of Erasmus+ team of Higher Education Reform Experts

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CULTURAL HERITAGE ASSETS IN CENTRAL ASIA – INTERDISCIPLINARY APPROACH TO THE COMPLEX PROBLEM OF ENVIRONMENTAL RISK ASSESSMENT

Lars Abrahamczyk, Kemmar Webber, Fulvio Rinaudo, Davorin Penava, Saidislomkhon Usmanov, Gulnora Anvarova, Mukhsin Hidirov, Jafar Niyazov, Shuhrat Usmonov

Abstract: Uzbekistan owns more than 7,500 Cultural Heritage (CH) assets and the Republic of Tajikistan has registered a total of 2020 historical and cultural monuments including more than 300 architectural and more than 1000 archaeological sites. Several CH assets have been destroyed from constant negative influence of natural and man-made hazards. The governments have made considerable efforts to comply with its obligations under the UNESCO 1972 Convention. Both territories have a number of concepts for the preservation of architectural heritage. Whereas there is a lack of qualified engineers as well as review and consideration of international developments as well as international practice adoptable to Central Asia CH. This paper presents the findings of the partner's investigations as well as the concept and objectives for the development of a master's course in Cultural Heritage Conservation in Central Asia within Erasmus+CBHE project with focus on environmental risk assessment and mitigation (hydrogeology, climate changes, seismic action, etc.) on structures and natural places, documentation and monitoring strategies of structures and landscapes, restoration and conservation strategies and others.

Key words: Cultural Heritage, Central Asia, Erasmus+ Capacity Building, Higher Education, Preservation, Environmental Risk, Master's Course.

ОБЪЕКТЫ КУЛЬТУРНОГО НАСЛЕДИЯ В ЦЕНТРАЛЬНОЙ АЗИИ – МЕЖДИСЦИПЛИНАРНЫЙ ПОДХОД К КОМПЛЕКСНОЙ ПРОБЛЕМЕ ОЦЕНКИ ЭКОЛОГИЧЕСКОГО РИСКА

Ларс Абрахамчик, Кеммар Веббер, Фулвио Ринаудо, Даворин Пенава, Саидисломҳон Усманов, Гулнора Анварова, Муҳсин Ҳидиров, Жафар Ниязов, Шуҳрат Усмонов

Аннотация: Узбекистану принадлежит более 7500 объектов культурного наследия (КН), а в Республике Таджикистан зарегистрировано в общей сложности 2020 памятников истории и культуры, в том числе более 300 архитектурных и более 1000 археологических памятников. Несколько

объектов КН разрушены от постоянного негативного воздействия природных и техногенных опасностей. Правительства предприняли значительные усилия для выполнения своих обязательств по Конвенции ЮНЕСКО 1972 года. Обе территории имеют ряд концепций по сохранению архитектурного наследия. Целесообразно принять во внимание нехватку квалифицированных инженеров,обзор и рассмотрение международных разработок, а также международной практики, применимой к КН Центральной Азии. В этой статье представлены результаты партнерских исследований, а также концепция и цели разработки магистерского курса по сохранению культурного наследия в Центральной Азии в рамках проекта Erasmus+CBHE с упором на оценку и смягчение экологических рисков (гидрогеология, изменение климата, сейсмические действия и др.) по сооружениям и природным местам, документация и стратегии мониторинга сооружений и ландшафтов, стратегии реставрации и сохранения и другим.

Ключевые слова: Культурное наследие, Центральная Азия, наращивание потенциала Erasmus+, высшее образование, сохранение, экологический риск, магистерская программа.

Project Erasmus+ ERAMCA

The Erasmus+ ERAMCA project [3–5] aims to integrate the knowledge of environmental and civil engineers, and architects in an interdisciplinary process aimed at providing practical solutions to complex problems related to management of environmental risks on cultural heritage in compliance with international policies related to conservation and restoration promoted by UNESCO [11] and from international charters on restoration promoted by ICOMOS. The wider ERAMCA objective is to build capacity in environmental risk assessment and mitigation on Cultural Heritage Assets in Central Asia by designing and developing an innovative educational platform based on new interdisciplinary courses, e-learning methods and digital tools to promote an effective conservation strategy of Cultural Heritage assets at different interest level.

The ERAMCA project aims to consider the environmental action on CH assets: climatic changes, hydrogeological phenomena, seismic phenomena and pollution. The correct knowledge and interpretation of these phenomena could help the simulation of the effects of foreseen environmental actions and therefore give significant information about the degradation of CH assets (buildings, historical centers, urban and natural landscapes, etc.) as well as a correct design of mitigation actions and a preventive design of possible intervention in case of catastrophic events (e.g. earthquakes, landslides, floods, etc.). CH in Central Asia is prone to those problematics therefore ERAMCA would like to give to the involved Countries (Uzbekistan and Tajikistan) effective solutions by acting and enhancing

local potentialities represented by young generations of teachers and students and by inviting local stakeholders (mainly public authorities and agencies such as Local UNESCO offices and Ministries of Education and Culture) to give specific objectives to be reached. ERAMCA join three European universities where updated research and teaching activities are developed on environmental risk assessment and reduction on CH assets by using an interdisciplinary approach.

The main strategies of Cultural Heritage conservation were pointed out in a Decree of the Cabinet of Ministers of the Republic of Uzbekistan on "Preservation and Utilization of Culture Heritage Properties" (N: 265 in March 30, 2019) [8] and law of republic of Tajikistan on "Protection and Utilization of historical and cultural heritages" (N:377 in May 17, 2017) [7]. According to these documents, some of the main strategies are: strengthening the capacity of young teachers to develop conservation and restoration projects by using advanced technologies considering internationally accepted concepts of conservation; prepare electronic and cadastral documents for all CH assets using modern techniques; systematic monitoring of urban transformation of traditional urban fabrics of world heritage sites; assessing the condition of cultural heritage monuments which are not in heritage list of government and establishing the conservation and restoration schools.

Background

The historic cities of Uzbekistan and Tajikistan with their famous and traditional architectural ensembles, archaeological sites, and traditional urban fabric are considered as a unique world heritage property. The traditional urban fabric and monuments have suffered largely due to rapid urban transformation and environmental impacts. Most of the monuments are located within urban areas and are considered as an integral part of the urban fabric. The authenticity and integrity of historic urban fabrics are well preserved in Sughd, Khatlon, Gorno-Badakhshan Regions in Tajikistan. The same, Bukhara, Samarkand and Khiva are some of the most famous world heritage sites in Uzbekistan. Rapid development has damaged traditional elements of the historic urban fabric as well as traditional houses. These changes have been mainly caused by owners and local authorities looking for better comfort and quality of life without considering traditional urban fabric rules [2].

The traditional urban fabric is an essential part of the significance of the historic city. This means that the demolition of traditional housing areas should be avoided or limited, or faced with a different perspective; measures should be taken to encourage their sustainable development and rehabilitation. Another issue is that most of the traditional houses with high heritage value were not documented and consequently they were not included into the national protected heritage list. Some stakeholders did not know about the existence of these traditional houses since the existence of these cultural heritages were documented during the Soviet Union

period and they were on paper document format. Most of these documents have been unfortunately irretrievably lost.

In Uzbekistan and Tajikistan, the threats of physical loss of CH sites are associated with natural and anthropogenic wear processes caused by: adverse climatic conditions and structural instability of buildings; humidity and natural disasters; geological and hydrological motions and earthquakes; inappropriate intervention on buildings; fires, vandalism and other aggressive actions. One of the main deficiency is practically an absence of complete documentation of each CH asset (both of international or national interests) and an appropriate monitoring of their real conditions.

The main environmental issue, in almost all historical cities, is salt attack to foundations or underground facilities of historic and residential buildings. Salt attack is a result of high groundwater tables. The groundwater table is high in almost all historic urban areas and this is mainly due to mismanagement and inappropriate functioning of sewage and water supply systems. Due to these environmental impacts, the historic urban fabric has lost many of its traditional houses and monuments. Moreover, many historic buildings, including the residential ones, are seismically unsafe. Most people live in traditional houses and the local authorities do not have the necessary knowledge and expertise to restore and retrofit them. In the 1990s, Tashkent Research Institute of Restoration was abolished and subsequently the number of masters graduates and specialists have diminished.

Figure 1: Renovated Bibi-Khanym mosque [9]

The fundamental issues with the conservation of traditional architectural ensembles and unique monuments are inappropriate restoration and planning activities. Moreover, the seismic safety of these architectural ensembles and unique monuments has not been assessed. This is in part due to lack of the appropriate assessment models and strategy. The structural assessment of these unique architectural monuments is very important since they are at risk from several environmental hazards. As a result of changing climatic conditions, an increase in the mean precipitation rate and wind speed are forecasted. Archeologically excavated remains are also being destroyed because of precipitation, wind erosion and landslides.

It is noted that several restoration projects have been undertaken in the 1900s with mixed success. One of the more ambitious restoration projects was that of the Bibi-Khanym mosque which was one of the largest mosques in the Islamic world in the 15th century (Figure 1). Moreover, the renovation between 1991-1996 is believed to alter the original design concept since additional octagonal segments were placed on the meagre remains of the two framing towers (guldasta) and a band of inscriptions was added to the main sanctuary which elongated the overall proportions of the iwan and obstructed the view of the rebuilt turquoise dome [6]. The designed master's course will provide a forum for training and academic debate.

Concept and Objectives

ERAMCA is a joint effort between EU Higher Education Institutions (HEIs) and the Uzbekistan and Tajikistan HEIs, which aims to introduce an interdisciplinary approach into the teaching activities of local Universities with a voluntary acceptance of the EU policies and experiences in higher education systems. The focus will be on environmental risk assessment and mitigation (hydrogeology, climate changes, seismic action, etc.) on structures and natural places, documentation and monitoring strategies of structures and landscapes, restoration and conservation strategies and others. In particular, the following results were achieved in the project:

- Design of a Master in "Environmental Risk Assessment and Mitigation on Cultural Heritage Assets" following a multi-level approach in capacity building;
- Design and developing of teaching modules that follows the ERAMCA Strategic Education Agenda;
- Composition and harmonization of education and training packages and integration of existing curricula and material;
- Design a basic equipment for the laboratories which support the practical courses and the final project.

The objectives of the master's degree are set considering the different background and skills that Partner Countries experts have i.e. in the field of: geomatics, seismic engineering, hydrogeology, restoration and geotechnics. In addition, the general structure of the Master is defined considering the overall number of 120 ECTS, share of mandatory and elective ECTS. The overall pedagogical approach is set up with an outline of innovative learning schemes including e-learning, participate learning and learning by doing.

A general project overview is shown in Figure, where it is shown that the documentation of theoretical content and training of participants are the major milestones before the implementation of the master's program.

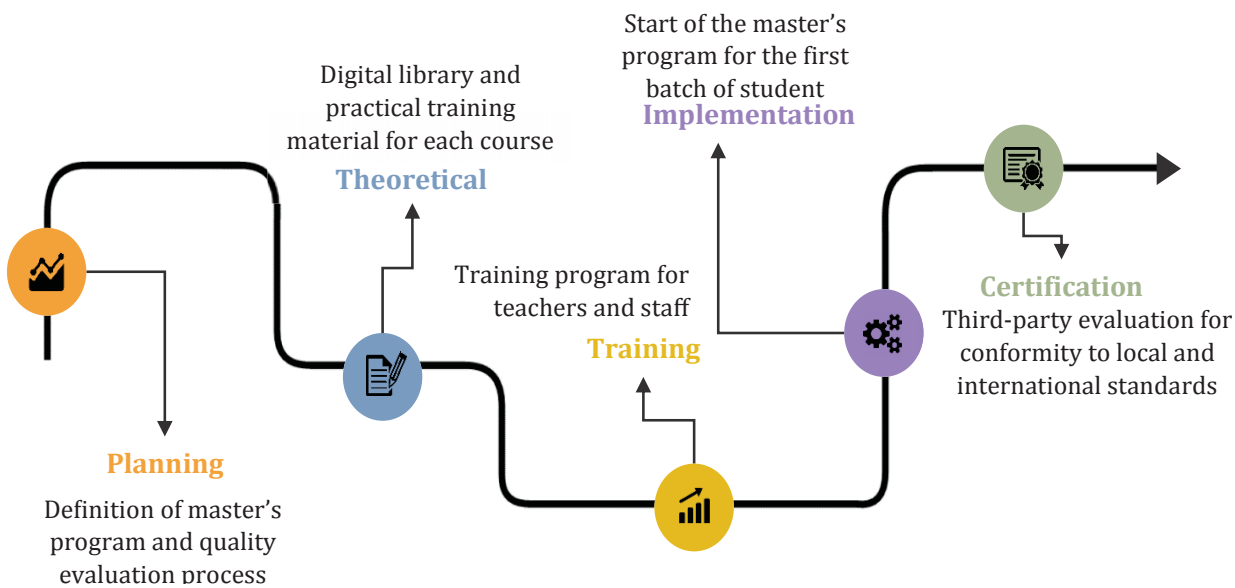

Figure 2. Overview of Project

The theoretical content is documented via online digital libraries with lecture notes and tutorial content for each course. The training program for the local teachers was conducted in the form of a workshop which facilitated the transfer of skills and content through collaboration to ensure that there is adequate preparation for the next phase of the project. From October 2022 the ERAMCA Master is activated in all the four Central Asia universities that participate the project.

Findings and Outcomes

Basic knowledge of potential students

A survey was conducted among members of the state examination commission on the degree of readiness of graduates over the last three years. They were evaluated on a five-point scale (1 - low level of development; 5 - high level of development) the level of mastering by graduates of professional competencies according to state educational standards of specialties. The basic knowledge of graduates in the specialty of Civil Engineering and Architecture of Khujand Polytechnic Institute of Tajik Technical University (KPITTU), Tajik Technical University (TTU), Turin Polytechnic University in Tashkent (TTPU) and Samarkand State Architectural and Civil Engineering Institute (SamSACII) were analyzed.

Another focus of the questionnaire was the definition of expected learning outcomes to the specialization in civil engineering and architecture.

By the type of professional activity in the direction of "Civil Engineering", the specific types of activity of the graduate are determined to be: 1) exploration and design activities; 2) production-technological and production-management activities; 3) experimental research. In the direction of "Architecture": 1) design activities; 2) research activities; 3) communication activities; 4) organizational and management activities; 5) critical and expert activities.

In an integrated form, the requirements for a modern engineer and architect for the results of his professional activity can be formulated as follows: the ability and readiness to creatively solve professional problems, the ability to navigate in non-standard conditions, possession of the system of necessary fundamental and special knowledge and practical skills necessary for the creation and implementation of competitive projects; methodological training; striving for continuous personal and professional improvement; high communication readiness, including in an inter-professional team; professional responsibility and ethics. The conducted survey allows to conclude that the training of future civil engineers and architects of KPITTU, TTU, TTPU and SamSACII and their readiness to solve professional problems as a prerequisite to enter the master’s course is at a good level.

Review of International Courses

A review of international CH courses was done from which 8 with a similar profile were evaluated (Figure). International master's programs for CH generally covers *restoration, research methods, projects and historical information.* In the

proposed Master's program 56% of the courses covers civil engineering disciplines, 12.5% for restoration and the remaining for other required courses.

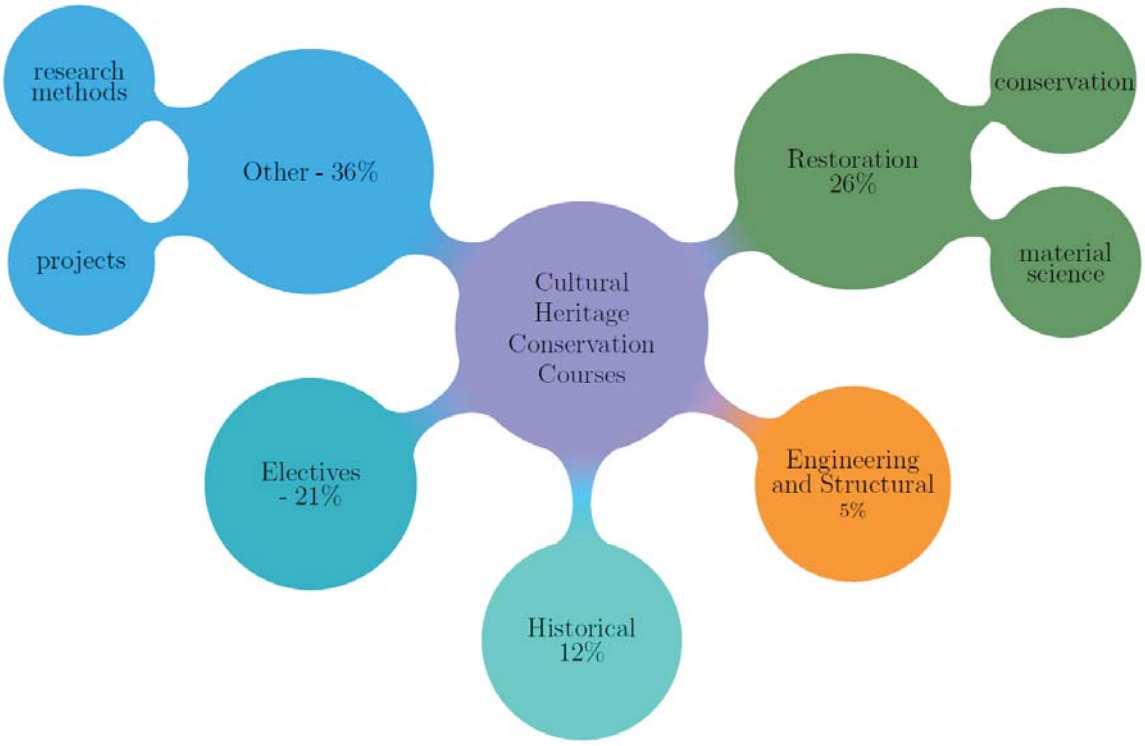

Figure 3. Review of International Master's Degrees on Cultural Heritage

Overall Pedagogical Approach

A blended learning approach which combines online educational interaction with traditional classroom methods will be used and encouraged for the M.Sc. Course. This approach will provide a robust and reliable platform that can safeguard against obstacles that may occur as a result of COVID-19 or other circumstances. The participants will be encouraged to make use of peripatetic teaching and distant learning platforms in order to adapt to the best practices in academia and meet the changing needs of students. This will present a chance for further support by current partner universities.

The volume of open educational resources (OER) has expanded over the past two decades and transformed the teaching and learning environment and has contributed to the development of major revolutionary technology. Figure shows the eight main attributes of open pedagogy which represents a new culture of learning that has occurred.

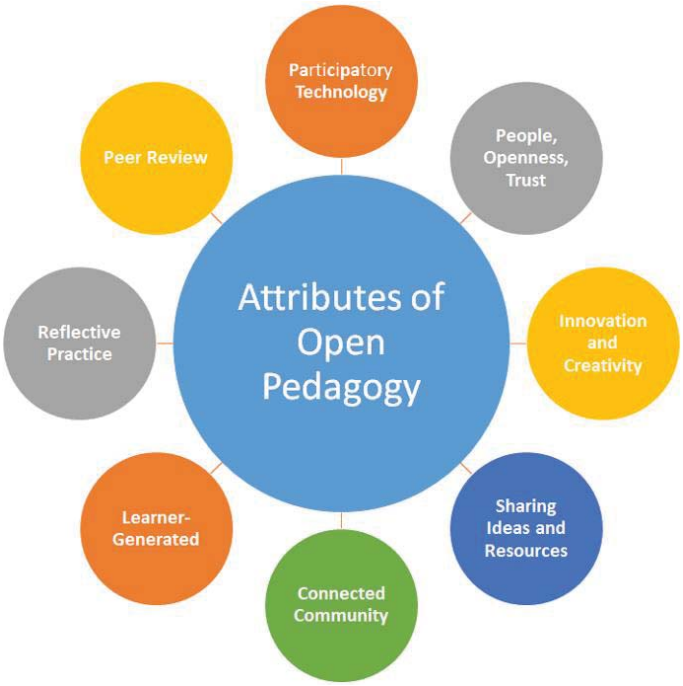

Figure 4. Eight attributes of Open Pedagogy [1]

This has been brought about by connected communities through the internet and digital technologies. Participants will be encouraged to be adaptive to stimulate innovation and creativity using these features.

The training will include the use of reinforcement techniques to supplement lectures that present new concepts, terms and processes by using media didactics or demonstrations. There will also be presentations on student-centered project-based learning to address real world problems. The project also aims to inspire the development of an international classroom environment to overcome language barriers and academic cultural differences in order to prepare students for the global labor market. The training program additionally provides a suitable foundation for future cooperation between partner institutions.

General Structure of Required Master's Course

The general structure of the master's course relies on the foundation given by undergraduate study programs in engineering and architecture taught in Uzbekistan and Tajikistan. Additionally, it reflects the need and high demand of courses covering the topics of: geomatics, seismic engineering, structural engineering hydrogeology, restoration and geotechnics.

After the first investigations, some of the most important stake-holders in Uzbekistan and Tajikistan were invited to a Workshop to illustrate which are the requirements for a future generation of civil engineers and architect able to work in a team to face the complex and multidisciplinary problem of the safeguards of Cultural heritage assets in Central Asia.

At the end of this Workshop. A strategic agenda has been prepared and used to define the detailed contents of the ERAMCA Master.

The two-year master's course is divided in four semesters (two years). The overall number of 120 ECTS credits assign for the master's course is divided on 30 ECTS per semester (60 ECTS per year). It includes electives (E) and compulsory modules (C), professional practice and master's thesis. In the first two semesters elective modules are included in order to facilitate different educational bachelor programme backgrounds of architectural and civil engineering students.

In the 1st year the students are provided with theoretical backgrounds on different disciplines with basic training and examples to learn the use of software and instruments. In the 2nd year the course focuses on the analysis and data collection from specific case studies where students can elaborate the idea for the final thesis.

The master's course is comprised of four compulsory modules (C) in the 1st, 2nd and 3rd semesters. The courses in the winter semesters, are be mainly taught by a combination of in-class and teaching methods, while the summer semester is open for field-work or in-situ teaching. The number of 6 ECTS (or 12 ECTS) credits are assigned per module. The project-based learning (PBL) in the 3rd semester will be coordinated by senior lecturers.

The 4th semester is comprised of research (laboratory or field work) oriented master's (M. Sc.) thesis writing and submission (research-based learning) of total 20 ECTS, and prior to that, the compulsory training period e.g. professional practice (stakeholders) as a work-based learning pedagogical approach of total 10 ECTS. Each discipline introduces a more detailed information by considering the selected case study. The remaining credits are devoted to develop the analysis and solution proposals on the specific case study.

Learning Outcomes

With respect to the nature and purpose of the proposed master's course, where students are bringing different background from their undergraduate education i.e. architectural or civil engineering, the category of the master's course becomes truly multi-disciplinary. The master's course will also provide an opportunity to integrate the technical and non-technical skills of engineering and to develop a commitment to professional and social responsibility and ethical codes. Graduates from an accredited master's course must comprehend the learning outcomes described below, including the acquisition of knowledge, with respect to i.e. build on their, entry (relevant) engineering discipline (architecture or civil engineering).

The learning outcomes stated are at enhanced and extended levels, the balance of which will vary according to the content and aims of each module. Crucially, master's students will have the ability to integrate their prior knowledge

and understanding of the discipline and engineering practice with the development of advanced level knowledge and understanding, to continue their education at postgraduate level, or to solve a substantial range of environmental engineering problems, that may be complex or novel. They will have acquired much of this ability through individual and/or group projects. Ideally, some of these projects would have industrial involvement or be practice-based. In general, the recognition of the learning outcomes will be arranged by the use of ECTS credit points. The learning outcomes are summarized as follows:

Science and Mathematics

Civil engineering and architectural education are necessarily relying on science and mathematics. With the main science and mathematical knowledge developed in an undergraduate programme, Masters graduates will therefore need additionally:

- A comprehensive understanding of the relevant scientific principles of the specialisation;
- A critical awareness of current problems and/or new insights most of which is at, or informed by, the forefront of the specialisation;
- Understanding of concepts relevant to the discipline, some from outside engineering, and the ability to evaluate them critically and to apply them effectively, including in engineering projects.

Engineering Analysis

Engineering analysis involves the application of engineering concepts and tools to the solution of engineering problems. The main engineering analysis abilities are developed within an undergraduate programme; therefore, Masters graduates will additionally need:

- Ability both to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations;
- Ability to use fundamental knowledge to investigate new and emerging technologies;
- Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.

Architectural and Engineering Design

Design at this level is the creation and development of an economically viable solution to meet a defined need. It involves significant technical and intellectual challenges and can be used to integrate all engineering understanding, knowledge and skills to the solution of real and complex problems. The main

design abilities will have been developed in an undergraduate programme; therefore, Masters graduates will additionally need:

- Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies;
- Knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations;
- Ability to generate an innovative design for products, systems, components or processes to fulfil new needs.

Economic, Legal, Social, Ethical and Environmental Context

Engineering activity can have impacts on the environment, on commerce, on society and on individuals. Master Graduates therefore need the skills to manage their activities and to be aware of the various legal and ethical constraints under which they are expected to operate, including:

- Awareness of the need for a high level of professional and ethical conduct in engineering;
- Awareness that engineers need to take account of the commercial and social contexts in which they operate;
- Knowledge and understanding of management and business practices, their limitations, and how these may be applied in the context of the particular specialisation;
- Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate;
- Awareness of relevant regulatory requirements governing engineering activities in the context of the particular specialisation;
- Awareness of and ability to make general evaluations of risk issues in the context of the particular specialisation, including health & safety, environmental and commercial risk.

Professional Practice

The main engineering practice abilities will have been developed in an accredited engineering undergraduate programme. Master's graduates will need to demonstrate application of these abilities where appropriate and additional engineering skills which can include:

- Advanced level knowledge and understanding of a wide range of engineering materials and components;
- A thorough understanding of current practice and its limitations, and some appreciation of likely new developments;
- Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints;

- Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader.

Additional General Skills

Graduates must have developed transferable skills, additional to those set out in the other learning outcomes, that will be of value in a wide range of situations, including the ability to:

- Apply their skills in problem solving, communication, information retrieval, working with others, and the effective use of general IT facilities;
- Plan self-learning and improve performance, as the foundation for lifelong learning/CPD;
- Monitor and adjust a personal programme of work on an on-going basis;
- Exercise initiative and personal responsibility, which may be as a team member or leader.

Discussion and Conclusion

The definition of the Master Course is based on the experience of European partners and collaboration with local institutions. The master's course facilitates the adaption to recognized needs in Central Asian partners which is reflected through the course structure i.e. modules, and the corresponding learning outcomes, arranged with the use of ECTS credit points. The project meetings were used to discuss the recognition of the learning outcomes at all project partner institutions according to commonly agreed and unique performance equivalents.

In preparation of the recognition of the Master Course curriculum, the courses have to be accredited at some of the partner universities. The corresponding accreditation procedure will be one of the first tasks of the Master Course initialization. The designed master's program is more engineering based than others to facilitate the project objectives and assessed needs. The Master's course will provide a good forum for training and academic debate in Central Asia. The concepts and methods used for this project were successfully implemented to achieve the project's objectives.

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MOTIVATION ISSUES OF ARTISTIC STUDENTS TO ENTREPRISE IN THE CREATIVE AND CULTURAL INDUSTRIES (Erasmus + MUSAE CBHE project)

M. Abdullayeva, U.G. Zunnunova, S. A. Zakirova

Abstract: One of the aims of Erasmus+ MUSAE project is to train enterprise mentors in art education. Teachers trainings gave opportunities to get new knowledge and best experience of European partner universities. Enterprise educator should know the deep mechanisms that keep individual entrepreneurs in the creative and cultural industries motivated in this insecure and fast-paced

СВЕДЕНИЯ ОБ АВТОРАХ

Abdullayeva Munavara
Head of the department "Foreign languages and social sciences", State Conservatory of Uzbekistan, Tashkent, Uzbekistan
E-mail: abdullaeva_15@hotmail.com

Абдурахманова Азиза Каримовна
Координатор Национального офиса Erasmus+ в Узбекистане г., кандидат филологических наук, Ташкент, Узбекистан
E-mail: coordinator@erasmusplus.uz

Abrahamczyk Lars
Bauhaus-Universität Weimar, Faculty of Civil Engineering, Weimar, Germany
E-mail: lars.abrahamczyk@uni-weimar.de

Anvarova Gulnora
Tajik Technical University, Dushanbe, Tajikistan
E-mail: anvarova.gulnora@mail.ru

Аракелов Сергей Рубенович
Старший преподаватель кафедры «Информационно-библиотечные системы», Ташкентский университет информационных технологий имени Мухаммада аль-Хорезми, Ташкент, Узбекистан
Специалист в области библиотечно-информационного образования
E-mail: araks2003@rambler.ru

Delane Maria
General Education Instructor at British Management University in Tashkent.
Tashkent, Uzbekistan
M.A. Political Science
Innovation Methods and Tools in Higher Education
E-mail: m.delane@bmu-edu.uz

Hidirov Mukhsin
Samarkand State Architectural and Civil Engineering Institute,
Samarkand, Uzbekistan
E-mail: mhihdirov@gmail.com

Ismailov Tokhir Khushnudbek ugli
Tashkent State Pedagogical University, 2nd year master's degree
Music education and art , Tashkent, Uzbekistan
E-mail: ismailovtohir4349@gmail.com

Irgasheva Umida Raimjanovna
Senior teacher, University of Tashkent for Applied Science
Tashkent, Uzbekistan
Methods of teaching English
E-mail: umidairgasheva1978@gmail.com

Khusanov Kasim
Professor of Turin Polytechnic University in Tashkent, Uzbekistan
Computer Sciences, e-learning, applied mathematics
E-mail: k.khusanov@gmail.com

Losada David
Professor of the University of Santiago De Compostela, Spain
Computer Sciences
E-mail: david.losada@usc.es

Мусаева Жамила Кароматовна
Старший преподаватель кафедры «Менеджмент» Бухарского инженерно технологического института,
Бухара, Узбекистан
E-mail: jmk1973@mail.ru

Musabaev Emilbek
Senior lecturer of Kyrgyz State Technical University, Bishkek, Kyrgyzstan
Computer Sciences
E-mail: musabaev@gmail.com

Niyazgulova Aigul
Professor, Head of Department Media Communication and Kazakhstan History of International ITUuniversity, Ph.D , Almaty, Kazakhstan
http://www.iitu.kz

Niyazov Jafar
Institute of Water Problems, Hydropower and Ecology, National Academy of Sciences of Tajikistan, Dushanbe, Tajikistan
E-Mail: niyazovjafar@mail.ru

Nozimov Habibullo
Head of the Department of International Relations, Kulob Institute of Technology and Innovation Management, Tajikistan,
E-mail: habibullo-n@yandex.ru

Parigi Gian Battista
Rector's Delegate for International cooperation, University of Pavia; Erasmus+ ChildCA project coordinator, Pavia, Italy
Associate Professor in Pediatric Surgery, Fellow of the European Board of Pediatric surgery
International health cooperation, global health, pediatric surgery
E-mail: gbparigi@unipv.it

Penava Davorin
Josip Juraj Strossmayer University of Osijek, Faculty of Civil Engineering and Architecture, Osijek, Croatia
E-mail: davorin.penava@gmail.com

Rinaudo Fulvio
Professor of Politecnico Di Torino – DAD, Torino, Italy
E-mail: fulvio.rinaudo@polito.it

Турениязова Асия
Заведующая кафедрой информационных технологий, Нукусский филиал Ташкентского университета информационных технологий
Нукус, Узбекистан
Кандидат физико-математических наук, доцент
E-mail: asiya.tureniyazova@gmail.com

Umarova Zakhro Abdurakhim qizi
PhD, Associate Professor of the Department of "Mathematics and Information Technologies in Education" TSPU named after Nizami
Tashkent, Uzbekistan
E-mail: umarova.zakhro@gmail.com

Umarov Khusan Abdurakhimovich
PhD, Associate Professor of the TSPU named after Nizami
Tashkent, Uzbekistan
E-mail: umarov.khusan@gmail.com

Usmanov Saidislomkhon
Turin Politechnical University Tashkent, Uzbekistan
E-mail: saidislom.usmanov@polito.uz

Usmonov Shuhrat
Khujand Polytechnic Institute of Tajik Technical University, Khijand, Tajikistan
E-Mail: usmonov.shuhrat@gmail.com

Вихров Игорь Петрович
Центр передовых технологий и стратегических инициатив ТашПМИ,
Начальник отдела внедрения передовых технологий и член национальной команды Erasmus+ экспертов в области высшего образования (HEREs)
Ташкент, Узбекистан
Врач, магистр медицины
E-mail: igorvichrov@yandex.ru

Webber Kemmar
Bauhaus-Universität Weimar, Faculty of Civil Engineering, Weimar, Germany
E-mail: kemmar.theodore.webber@uni-weimar.de

Zakirova Sayyora Abdulhakovna
Associate professor of the department “Informatics and management”, National Institute of Fine Art and Design named after Kamoliddin Behzod, Tashkent, Uzbekistan
E-mail: sayera315@gmail.com

Zunnunova Umida Gulomovna
Head of the department “Informatics and management”, National Institute of Fine Art and Design named after Kamoliddin Behzod, Tashkent, Uzbekistan
E-mail: umida_zunnunova.mail.ru

ПЕРСПЕКТИВЫ РАЗВИТИЯ ВЫСШЕГО ОБРАЗОВАНИЯ

Научно-методический журнал

Цель журнала: повышение эффективности образовательного процесса путем анализа и информирования о прогрессивных методах, достижениях, тенденциях и проблемах в области высшего образования (ВО).

ТЕМАТИКА ЖУРНАЛА

- **Современные вызовы для системы высшего образования**
- **Инновационные методы и средства в ВО (**опыт зарубежных стран, вузов Узбекистана, прогрессивные методы обучения и преподавания, организации учебного процесса и управления вузами, использование ИКТ для инновационного развития ВО, образовательные платформы**);**
- **Программа Erasmus + (**задачи программы, опыт успешных проектов Erasmus + в Узбекистане и за рубежом, отчеты членов команды HEREs по итогам участия в международных семинарах, внедрение принципов Болонского процесса в Узбекистане и др.);
- **Кредитно-модульная система в ВО (**концепции, требования к переходу к кредитно-модульной системе, управление финансами в условиях КС, программы обучения, мобильность преподавателей и студентов, анализ зарубежного опыта, плюсы и минусы КС и др);
- **Автономия вузов** (экономические, организационные , технические аспекты, опыт ведущих стран, Узбекистана и др.);
- **Повышение квалификации, переподготовка кадров в ВО (**передовые учебные программы, опыт, методы и средства)
- **Научно-образовательная информация для вузов (**доступ к источникам информации для ВО, наукометрия, статистика использование ресурсов и публикационная активность);
- **Проблемы и перспективы инвестиций в высшее образование** (критерии инвестиций в ВО, опыт зарубежных стран, вузов Узбекистана, управление финансами, эффективность инвестиций, оптимизация использования материальных и кадровых ресурсов в вузах и др.);

ТРЕБОВАНИЯ К ОФОРМЛЕНИЮ СТАТЕЙ

Журнал претендует стать одним из ведущих международных научных журналов по темам развития высшего образования в республике, с последующим увеличением периодичности и тиража, а также включением его в список аналитических систем Scopus и Web of Science.

Соответственно требования к статьям журнала приведены к международным стандартам по оформлению научных статей.

Рецензирование выполняется высококвалифицированными учеными и специалистами, включая зарубежных рецензентов.

1. **Требования к содержанию.**

   По содержанию статьи должны раскрывать одну или несколько тем разделов выпуска и отвечать основной теме, быть нигде ранее неопубликованными, аналитическими, содержать элементы научной новизны, иметь полезную информацию для развития высшего образования. Рекомендуется придерживаться международной структуры написания статей - **IMRAD (I**ntroduction, **M**ethods, **R**esults, and **D**iscussion).
   http://science-insight.com/analitika/imrad

2. **Требования к оформлению статей:**

   1) **«Сведения об авторах»** (отдельным файлом на языке оригинала?**)**
      - ФИО (полностью)
      - Должность и место работы
      - Город, страна*;
      - Ученое звание, ученая степень,
      - Область научных исследований (не более 2-х строк)
      - Электронная почта

   2) **СТРУКТУРА СТАТЬИ:**

      На языке оригинала:
      - Название статьи ПЕЧАТНЫМИ буквами
      - ФИО. Фамилия и инициалы (строчными)
      - Аннотация
      - Ключевые слова
      - Текст статьи
      - Список литературы

На английском языке:

- Название статьи ПЕЧАТНЫМИ буквами
- ФИО. Фамилия и инициалы (строчными)
- Аннотация
- Ключевые слова

3) **Текст статьи**

ФОРМАТ И ОБЪЕМ

- Количество стр. – от 10 до 15, интервал – 1.0
- Шрифт Times New Roman, 14
- аннотация на языке статьи и аннотация - на англ.
- Ключевые слова (от 5 до 7 слов или словосочетаний)
- Поля страниц: верхнее, нижнее, левое , правое – 2,5 см
- Нумерация страниц в правом нижнем углу

Требования к аннотации (на языке оригинала и английском)

Аннотация должна представлять собой самостоятельный текст. Аннотация должна быть посвящена статье – проведённому исследованию, а не предмету исследования в целом. Она представляет собой краткое, но информативное резюме статьи и включает характеристику основной темы, проблемы объекта, цели, основные методы, результаты исследования и главные выводы. В аннотации не допускается использование формул, аббревиатур, ссылок на позиции в списке литературы.

Важно! Аннотация пишется одним абзацем объёмом на языке оригинала - 500-600 знаков (около 100 слов), и на английском (около 100 слов). Аннотация на английском языке обязательна!

Требования к списку литературы

Список литературы приводится в алфавитном порядке, со сквозной нумерацией. Ссылки в тексте из списка литературы оформляются в квадратных скобках, например, [12]. Список литературы должен содержать не менее 10 источников. На все позиции списка должна быть ссылка в тексте статьи и наоборот – вся упоминаемая литература должна быть перечислена в списке литературы. При оформлении придерживаться соответствующих стандартов библиографического описания (например, ГОСТ 7.1- 2003 и др).

Пример аннотации

ЎЗБЕКИСТОНДА ОЛИЙ ТАЪЛИМ ИСЛОҲОТЛАРИНИНГ ДОЛЗАРБ МУАММОЛАРИ ВА УЛАРНИ ҲАЛ ЭТИШДА АҚШ ТАЖРИБАСИНИНГ АҲАМИЯТИ

Юнусов Ҳ. М.

Аннотация: Ушбу мақолада АҚШ таълим тизимининг тарихи, бугунги кундаги ҳолати, америка олий таълимининг ўзига хос хусусиятлари, хусусан, юридик таълимнинг эътиборга молик жиҳатлари, ўқув жараёнини ташкил этиш, таълим бериш услублари ҳамда олий таълимдан кейинги касбий фаолият масалалари ҳақида сўз боради. Шунингдек, унда олий таълимда ўқитиш методлари, аудиториядан ташқаридаги фаолият, олийгоҳларнинг халқаро ва миллий рейтинги, битирувчиларни иш билан таъминлаш, олий таълимдаги рақобат, таълим индустрияси, кутубхоналар фонди, олий таълимни ривожлантиришдаги полицентрик ёндашувлар, нодавлат ноҳукумат ташкилотлар ва уюшмаларнинг олий таълимдаги ўрни ҳақида фикр юритилади. Энг муҳими, мақолада Ўзбекистонда олий таълим ислоҳотларининг долзарб муаммолари ва уларни ҳал этишда АҚШ тажрибасининг аҳамияти хусусида муаллифнинг таҳлилий фикрлари баён этилган ҳамда аниқ таклиф ва тавсиялар илгари сурилган.

Калит сўзлар: олий таълим, таълим босқичлари, таълим дастурлари, аккредитация, таълим методлари, аудитория, меҳнат бозори, рақобат, таълим индустрияси, кутубхона хизматлари, хусусийлаштириш, полицентрик ёндашув, нодавлат ташкилотлар, касбий уюшмалар.

THE CURRENT PROBLEMATIC ISSUES OF HIGHER EDUCATION REFORMS IN UZBEKISTAN AND THE IMPORTANCE OF THE USA EXPERIENCE IN SOLVING THEM

Yunusov Kh.

Abstract: This article deals with the history of the US education system, its current condition, peculiarities of American higher education, especially, noteworthy aspects of the higher education, the organization of the educational process, teaching methods as well as issues on professional activities after higher education.

It also discusses teaching methods in higher education, extracurricular activities, international and national rankings of universities, graduate employment, competition in higher education, the education industry, the library fund, polycentric approaches to higher education, the role of NGOs and professional associations in higher education. Most importantly, the article presents the author's analytical views on current issues of higher education reform in Uzbekistan and the importance of the US experience in solving them, as well as specific proposals and recommendations elaborated by him.

Keywords: higher education, stages of education, educational programs, accreditation, teaching methods, audience, labor market, competition, education industry, library services, privatization, polycentric approach, non-governmental organizations, professional associations.

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Таҳририят манзили:
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E-mail: heresbook@gmail.com
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