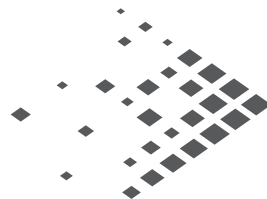




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Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA Tempus - 511262-TEMPUS-1-2010-1-BE-TEMPUS-SMGR

Dissemination booklet

ENG-BA version



Mostar/Gent 2013.

**Tempus - 511262-TEMPUS-1-2010-1-BE-TEMPUS-SMGR –
Strategic Management of Higher Education Institutions
Based on Integrated Quality Assurance System-SHEQA**

Dissemination booklet

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Ivana Zovko**

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Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA

Project ID	511262-TEMPUS-1-2010-1-BE-TEMPUS-SMGR
Project Type	Governance Reform
Target country	Bosnia and Herzegovina
Title	Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA
Objectives	The main objective of this project concerns the introduction of KPI and study programme register as tool for strategic management of B&H HEI.
Duration	3 years
Tempus Grant	900.335,66 EUR
Grant Holder	Katholieke Hogeschool Sint-Lieven – KAHO
Project management	KAHO Sint-Lieven- Geert De Lepeleer University of Mostar-Snježana Rezić
Partners	KAHO Sint-Lieven
	University of Mostar
	WUS Austria
	University of Zenica
	University of Banja Luka
	University of East Sarajevo
	University of Tuzla
	University of Sarajevo
	University of Džemal Bijedić
	University of Bihać
	Agency for Development of Higher Education and QA
	University of Girona
	University College Cork – National University of Ireland Cork
	University of Maribor
	Ministry of education, science, culture and sport of WH canton
	Ministry of education,science,culture and sport of ZEDO Canton
	Ministry of Education and Science of Canton Sarajevo
	Ministry of education and science of Republic of Srpska

Projekat ID	511262-TEMPUS-1-2010-1-BE-TEMPUS-SMGR
Tip projekta	Reforma upravljanja
Ciljna država	Bosna i Hercegovina
Naziv projekta	Strateško upravljanje visokoškolskom institucijom temeljeno na integriranom sistemu za osiguranje kvaliteta-SHEQA
Ciljevi projekta	Glavni cilj projekta je uvođenje KPI i registra studijskih programa kao instrumenta strateškog upravljanja BH visokoškolskim institucijama.
Trajanje	3 godine
Tempus sredstva	900.335,66 EUR
Nositelj projekta	Katholieke Hogeschool Sint-Lieven -KAHO
Menadžment projekta	KAHOSint-Lieven- Geert De Lepeleer Sveučilište u Mostaru-Snježana Rezić
Partneri	KAHO Sint-Lieven
	Sveučilište u Mostaru
	WUS Austria
	Univerzitet u Zenici
	Univerzitet u Banja Luci
	Univerzitetu Istočnom Sarajevu
	Univerzitet u Tuzli
	Univerzitet u Sarajevu
	Univerzitet Džemal Bijedić
	Univerzitet u Bihaću
	Agencija za razvoj visokog obrazovanja i osiguranja kvaliteta BIH
	University of Girona
	University College Cork – National University of Ireland Cork
	University of Maribor
	Ministarstvo obrazovanja, znanosti, kulture i športa ZHŽ
	Ministarstvo obrazovanja, nauke, culture i sporta ZEDO kantona
	Ministarstvo obrazovanja i nauke Sarajevskog kantona
	Ministarstvo prosvjete i nauke Republike Srpske

PREFACE

As a coordinator of this Tempus project it is a great honor for me to write this introductory chapter.

The past three years gave us once again a great example of the strength of Tempus in gradually but surely improving the quality of higher education in the Bosnia and Herzegovina. Improving the strategic management of the HEI in BiH based on quality assurance is an important key factor in the further implementation of the Bologna declaration in the partner country.

There is a great synergy between the universities from Bosnia and Herzegovina, authorized ministries and Agency for development of Higher education and quality assurance.

The cooperation agreement between the all BiH partners guarantees the sustainability of the project results. Especially I want to express my gratitude to all project partners with whom I have been ideally cooperating within this project: my KAHOS colleagues, the EU partners, the partner universities, the ministries and the representatives from HEA. All of them have been contributing to a really good atmosphere, showed great hospitality and I really do appreciate all efforts done by all partners involved in the project. The successfully implemented project outcomes are the result of a close cooperation between all project partners.

Yours sincerely,

Geert De Lepeleer
International Project Coordinator KAHOSint-Lieven

PREDGOVOR

Kao koordinatoru projekta, zaista mi je zadovoljstvo napisati predgovor ovoj publikaciji.

U posljednje tri godine smo vidjeli još jednom vrijednost Tempusa kroz postupno ali sigurno poboljšanje osiguranja kvaliteta visokog obrazovanja u Bosni i Hercegovini. Unapređenje strateškog upravljanja visokoškolskim institucijama u Bosni i Hercegovini bazirano na osiguranju kvaliteta je važan faktor u daljnjoj provedbi Bolonjske deklaracije u partnerskoj zemlji. Postoji velika sinergija između univerziteta iz Bosne i Hercegovine, nadležnih ministarstava i Agencije za razvoj visokog obrazovanja i osiguranje kvaliteta. Saradnja svih BH partnera jamči održivost rezultata projekta.

Posebno želim izraziti zahvalnost svim projektnim partnerima s kojima sam odlično sarađivao u okviru ovog projekta: mojim kolegama sa Katholieke Hogeschool, partnerima iz EU, univerziteta iz BiH, ministarstvima i predstavnicima Agencije za razvoj visokog obrazovanja i osiguranja kvaliteta. Svi oni su doprinijeli stvaranju odličnog ambijenta, pokazujući veliku gostoljubivost i ja stvarno cijenim sve napore svih partnera uključenih u projekt. Uspješno proveden projekt je rezultat izvrsne saradnje svih projektnih partnera.

Vaš,
Geert De Lepeleer
Koordinator za međunarodnu saradnju KAHOSint-Lieven

2. SHORT PROJECT DESCRIPTION

The objective of this project is to assist the Universities in B&H to assure relevant information for their own management, as well as information for the state bodies in the context of accreditation, re-accreditation and issuing licenses of study programmes. This objective will be realized by introducing key performance indicators and a register of study programmes as tools for strategic management of higher education institution, but also for strengthening cooperation with the Agency for higher education and quality assurance.

The development of key performance indicators in quality management and the creation of a register for higher education in Bosnia and Herzegovina are an evident part of a total quality management system and contribute in this way also to the further development of strategic management at all B&H universities in close cooperation with the Agency for higher education and quality assurance and the responsible Ministries of Education.

2.1. Wider objective

Wider objective of the project is improvement of the quality assurance system in a way that it becomes an instrument of strategic management of B&H universities and together with the Agency for development of higher education and quality assurance and authorized ministries supports the structural reform of higher education reform in the entire Bosnia and Herzegovina. Quality assurance in B&H is not recognized as an instrument for strategic management of universities. The existing situation without clearly defined key performance indicators (KPI) at the national level and the lack of a register of study programmes does not allow comparison of universities in B&H or a benchmark with EU Universities, especially regarding learning outcomes, competences, relation to society, etc.

A national register of study programmes should enable an overview of learning outcomes and competences of study programmes in a clear structure of qualitative and quantitative information (for potential students, potential employers, Agency for higher education and quality assurance and authorized Ministries, which is the basis for mobility of teachers and students). Register of study programmes contains also information regarding evaluation, learning outcomes and competences, ECTS credits, etc. With defined KPI the register of study programmes represents the basis for accreditation and planning of higher education done by authorized ministries.

2. KRATKI OPIS PROJEKTA

Cilj ovog projekta je pomoći univerzitetima u BiH da osiguraju relevantne informacije za svoje vlastito upravljanje, kao i informacije za državna tijela u kontekstu akreditacije, ponovne akreditacije i izdavanja licenci studijskih programa i univerziteta. Ovaj cilj će se ostvariti uvođenjem ključnih indikatora osiguranja kvaliteta i registra studijskih programa kao alata za strateško upravljanje visokoškolskom institucijom, ali i za jačanje saradnje sa Agencijom za visoko obrazovanje i osiguranje kvaliteta. Razvoj ključnih indikatora osiguranja kvaliteta i registra studijskih programa u Bosni i Hercegovini kao dijela TQM sistema u saradnji sa Agencijom za razvoj visokog obrazovanja i nadležnim ministarstvima obrazovanja će pridonijeti daljnjem razvoju strateškog menadžmenta BiH visokoškolskih institucija.

2.1. Osnovni cilj projekta

Osnovni cilj projekta je unapređenje sistema osiguranja kvaliteta na način da postane instrument strateškog razvoja BH univerziteta te da se u saradnji s Agencijom za visoko obrazovanje i osiguranje kvaliteta i nadležnim ministarstvima obrazovanja potpomogne strukturna reforma visokog obrazovanja u čitavoj Bosni i Hercegovini.

Na državnom nivou su usvojeni samo standardi i smjernice za osiguranje kvaliteta. Osiguranje kvaliteta nije prepoznato kao instrument za strateški menadžment univerziteta. Postojeća situacija bez jasno definiranih indikatora osiguranja kvaliteta (KPI) na državnom nivou i nepostojanje registra studijskih programa ne dozvoljava poređenje univerziteta u BiH odnosno poređenje sa evropskim univerzitetima, posebno po pitanju ishoda učenja, kompetencija, veze s društvom, itd.

Državni registar studijskih programa bi trebao pružiti pregled ishoda učenja i kompetencija studijskih programa u obliku jasne strukture s kvalitetnim i kvantitativnim informacijama (za potencijalne studente, potencijalne poslodavce, Agenciju za razvoj visokog obrazovanja i osiguranje kvaliteta te nadležna Ministarstva, što stvara osnovu za mobilnost nastavnika i studenata). Registar studijskih programa također sadrži informacije koje uključuju evaluaciju, ishode učenja i kompetencije, ECTS bodove, itd. Zajedno s definisanim indikatorima osiguranja kvaliteta registar studijskih programa predstavlja osnovu za akreditaciju i planiranje visokog obrazovanja koje će provesti nadležna ministarstva.

2.2. Specific project objectives

1. Analysis and comparison of the best practices of development of key performance indicators for higher education institutions in Europe
2. Defining and implementation of key performance indicators of higher education institutions in B&H
3. Development and implementation of the register of study programmes of higher education institutions in B&H
4. Contribution to strengthening and development of strategic management of higher education institutions in B&H on the basis of key performance indicators used in the European area of higher education
5. Improvement of cooperation with the Agency for development of higher education and quality assurance and authorized ministries of education

2.3. Benefits of the project realization

The benefit of this project realization is multiple for all users of QA system: University management, students, teaching and administrative staff, Agency for higher education and quality assurance, authorized ministries of education, employers, governments of cantons, Federation, RS and Council of Ministers. Continuous monitoring and analysis of KPI will create a basis not only for strategic planning of higher education institutions, but also for planning of higher education done by authorized institutions, both cantonal and state ones. Students, either current or potential ones, will have necessary information about study programmes (curricula, enrolment quotas, study programmes offer, learning outcomes, required competences...).

Work of administrative staff will be facilitated in collecting and analyzing data in more flexible curricula. Academic staff can make a comparison of courses and modules within study programmes, including indicators with info on the success rate of students.

Public authorities can have information based on KPI and the register of study programmes can be used as an instrument in creating policy of higher education and allocation of funds. The register of study programmes can give to employers a clear overview of available study programmes and the number of graduated students in certain areas.

KPI and the creation of register of study programmes would also considerably facilitate the evaluation and accreditation processes, as defined by the Agency for higher education and quality assurance.

2.2. Specifični ciljevi projekta

1. Analiza i poređenje najboljih praksi razvoja indikatora kvaliteta za visokoškolske institucije u Evropi
2. Definisanje i implementacija ključnih indikatora kvaliteta visokoškolskih institucija u BiH
3. Razvoj i implementacija registra studijskih programa visokoškolskih institucija u BiH
4. Doprinos jačanju i razvoju strateškog upravljanja visokoškolskim institucijama u BiH na osnovu ključnih indikatora koji se koriste u evropskom prostoru visokog obrazovanja
5. Poboljšanje saradnje s Agencijom za visoko obrazovanje i osiguranje kvaliteta i nadležnim ministarstvima obrazovanja

2.3. Korist od realizacije projekta

Korist realizacije ovog projekta je mnogostruka za sve korisnike sistema osiguranja kvaliteta: univerzitetski menadžment, studente, nastavno i administrativno osoblje, Agenciju za razvoj visokog obrazovanja i osiguranje kvaliteta, nadležna ministarstva obrazovanja, poslodavce, vlade kantona, Federaciju, Republiku Srpsku i Vijeće ministara.

Konstantno praćenje i analiza indikatora će stvoriti osnovu ne samo za strateško planiranje visokoškolskih institucija nego i za planiranje od strane nadležnih državnih i kantonalnih institucija. Studenti, bilo upisani ili potencijalni, će imati potrebne informacije o studijskim programima (nastavnim planovima i programima, upisnim kvotama, ponudi studijskih programa, ishodima učenja, potrebnim kompetencijama, itd.).

Rad administrativnog osoblja u prikupljanju i analiziranju podataka će se olakšati. Akademsko osoblje će moći napraviti uporedbu kolegija i modula unutar studijskih programa, uključujući indikatore s informacijama o stopi uspjeha studenata. Vlasti mogu imati informacije koje se temelje na indikatorima za osiguranje kvaliteta, a registar studijskih programa se može iskoristiti u stvaranju politike visokog obrazovanja i alokaciji finansijskih sredstava. Registar može poslodavcima dati jasan pregled dostupnih studijskih programa i broj diplomiranih studenata u određenim područjima.

Indikatori za osiguranje kvaliteta i stvaranje registra studijskih programa će također znatno olakšati procese evaluacije i akreditacije kao što je definirala Agencija za razvoj visokog obrazovanja i osiguranje kvaliteta.

3. RESULTS OF THE PROJECT

The main results of this project are:

1. Common set of key performance indicators for B&H Higher education;
2. Study programme register for B&H higher education

3.1. Common set of KPI

A work group advised that the key performance indicators in B&H higher education should have the following characteristics:

1. complying with the mission of the university, that is, they should reflect the main activities of the universities, which are education and research;
2. specific, quantifiable and standardized, in order to be able to compare the different universities or even make internal comparisons between departments;
3. simple and consistent with the activities for which they will be a reference for a decision;
4. acceptable and true, for all those involved in the assessment;
5. bring information about the activities and operation of the universities.

The work group proposed a set of thirty six indicators.

The broad underlying principles for the selection of a set of key performance indicators are:

1. The set should comprise information on institutional input parameters, institutional process parameters, as well as institutional output parameters.
2. The set should measure the success of attaining as many as possible of the institutional strategic objectives.
3. Each indicator in the set should be clearly defined and easy to understand.

The following set of KPI are recognized as important for B&H HEI:

Management

1. Indexes of financial resources (total budget, students fees, research projects (domestics) EU projects, donation) on the basis of current and previous year
2. Realization of strategic plan (% of realization annually)
3. Total budget per employers and total budget per students
4. Visibility of main strategic documents (web, other media, public presentation)

3. REZULTATI PROJEKTA

Glavni rezultati projekta su:

1. zajednički set ključnih indikatora osiguranja kvaliteta za BiH visokoškolske institucije
2. Registar studijskih programa za BiH visoko obrazovanje

3.1. Zajednički set KPI

Radna grupa je zaključila kako set ključnih indikatora osiguranja kvaliteta u BiH visokom obrazovanju treba imati sljedeće karakteristike:

1. Trebaju biti u skladu s misijom univerziteta, tj. trebaju se odnositi na glavne aktivnosti na univerzitetu i to obrazovanje i istraživanje;
2. Trebaju biti specifični, mjerljivi i standardizirani, kako bi se mogli koristiti za poređenje različitih univerziteta ili čak za unutarnje poređenje između odjeljenja jednog univerziteta;
3. Jednostavni i u skladu sa aktivnostima za koje će biti referenca za odluku;
4. Prihvatljivi i istiniti za sve one koji su uključeni u procjenu;
5. Daju informacije o aktivnostima i radu univerziteta,

Radna skupina je predložila set od trideset šest indikatora. Temeljni principi za izbor seta ključnih indikatora za osiguranje kvaliteta bila su:

1. Set KPI treba sadržavati informacije o institucionalnim ulaznim parametrima, institucionalnim procesnim parametrima, kao i institucionalnim izlaznim parametrima.
2. Set KPI treba mjeriti uspješnost postizanja institucionalnih strateških ciljeva.
3. Svaki indikator u setu mora biti jasno definisan i lako razumljiv.

Sljedeći set KPI je izabran za BiH visokoškolske institucije.

Menadžment

1.Indeksi finansijskih resursa (ukupni budžet, studentske participacije , domaći istraživački projekti, EU projekti, donacije), a računa se tekuća u odnosu na prethodnu godinu
2.Realiziranje strateškog plana (% realiziranih aktivnosti na godišnjoj nivou)
3.Ukupan budžet po zaposlenima i ukupan budžet po studentima
4.Vidljivost i dostupnost glavnih strateških dokumenata (na web-u, drugim medijima, javno predstavljanje)

Education

1. Percentage of students successfully finished the first year of the first circle
2. Percentage of graduates per each generation
3. The application/admission ratio
4. Percentage of external experts engaged in the teaching process

Research

1. Number of publications published in the relevant databases
2. Number of citations
3. The percent of research innovation funding in total university budget
4. Number of international research projects
5. Number of students included into research projects
6. Number of finished doctoral thesis on the yearly basis

Cooperation with society

1. Number of realized lifelong learning courses
2. Number of master/doctoral thesis realized in cooperation with society on the yearly basis

Funding

1. Total budget/ number of students
2. Own incomes/ total budget
3. Income from economy
4. Income from EU project
5. Income from students' fees
6. Income from research projects
7. Total budget/number of graduated

Internationalization

1. Number of teaching mobility
2. Number of student mobility
3. Number of courses given in foreign language

Human resources

1. Workload: Number of classes per week (calculated for each lecturer):
1.a. Average workload
1.b. Maximum workload
1.c. Minimum workload
1.d. Number of mentorship candidates/ number of lecturers

Obrazovanje

1. Procenat studenata koji su uspješno završili prvu godinu prvog ciklusa
2. Procenat završenih studenata za "čistu" generaciju
3. Odnos prijavljeni za upis/upisani
4. Procenat vanjskih eksperata angažiranih u nastavnom procesu

Istraživanje

1. Broj publikacija objavljenih u relevantnim bazama podataka
2. Broj citata
3. Procenat novca od istraživanja i inovacija u ukupnom budžetu univerziteta
4. Broj međunarodnih istraživačkih projekata
5. Broj studenata uključenih u istraživačke projekte
6. Broj odbranih doktorskih teza na godišnjem nivou

Saradnja sa okruženjem

1. Broj realizovanih predmeta u cjeloživotnom obrazovanju
2. Broj magistarskih i doktorskih teza realizovanih zajedno sa okruženjem na godišnjem nivou

Finansiranje

1. Ukupan budžet / Broj studenata
2. Vlastiti prihodi / ukupan budžet
3. Prihodi od saradnje s privredom
4. Prihodi od EU projekata
5. Prihodi od studentskih participacija i školarina
6. Prihodi od istraživačkih projekata
7. Ukupan budžet / broj završenih studenata

Internacionalizacija

Broj nastavnika koji su učestvovali u mobilnosti
Broj studenata koji su učestvovali u mobilnosti
Broj predmeta koji se predaju na stranom jeziku

Ljudski resursi

1. Opterećenje nastavnika: Broj sati u sedmici (računa se za svakog nastavnika):
1.a. Prosječno opterećenje
1.b. Maksimalno opterećenje
1.c. Minimalno opterećenje
1.d. Broj kandidata za mentorstvo/broj mentora

2. Student/academic staff ratio: Number of students /number of lecturers (calculated for each programme, even separately for each study year, because 1 st year is often with higher number of students)
2.1. Average student/staff ratio administrative and technical staff
2.2. Maximum student/staff ratio administrative and technical staff
2.3. Minimum student/staff ratio administrative and technical staff
3. Age distribution of all, academic, technical and administrative staff
4. Number of staff/academic title
5. Number of staff for each gender/ academic title
6. Number of full time employed teaching staff/total number of teaching staff
7. Total number of teaching staff/number of non-teaching staff Ratio

Student services

1. Special needs services (access)
2. Number of alumni club members per year activities
3. Internet access points per student

3.1.1.Implementation of KPI

The implementation of a common set of KPI at the university in B&H, requires that two fundamental conditions are checked beforehand:

- institutionalization*: high degree of acceptance and generalized consensus, by those involved in the process of management control, regarding the use of the indicators previously chosen;
- standardization*: permanence in time of the same panel of indicators, as well as the use by BH universities.

The methodology to be used in the implementation of systems of management indicators in the university, should have the direct participation of the managers team.

Management structure of universities and key persons responsible for the quality, collects, assess and analyze data on key performance indicators of universities. This process begins by defining the vision, mission, goals and strategy of the university. After defining the basic strategic goals, the university needs indicators to enable monitoring of their implementation. Key indicators should be complete and accurate. Each indicator must be measurable, and its way of measuring is to be clearly defined.

2. Odnos Studenti/Akademsko osoblje: Broj studenata/broj nastavnika (računa se za svaki program, posebno za svaku godinu studija jer na prvoj godini obično ima veliki broj studenata)
2.1. Prosječan odnos Studenti/uposleno administrativno i tehničko osoblje
2.2. Maksimum Studenti/uposleno administrativno i tehničko osoblje
2.3. Minimum Studenti/uposleno administrativno i tehničko osoblje
3. Godine starosti – distribucija za sve zaposlene, akademsko, tehničko i administrativno osoblje
4. Broj osoblja/akademski titula
5. Broj osoblja u odnosu za svaki rod / akademski titula
6. Broj nastavnog osoblja u stalnom radnom odnosu/ ukupan broj nastavnog osoblja
7. Ukupan broj nastavnog osoblja/ broj ne-nastavnog osoblja

Studentske usluge

1. Usluge za studente sa posebnim potrebama (pristup)
2. Broj alumni članova po godini i aktivnostima
3. Pristup internetu po studentu

3.1.1.Implementacija KPI

Implementacija seta zajedničkih KPI na univerzitetima u BiH, zahtijeva ispunjavanje dva osnovna preduslova:

- institucionalizacija*: visoki stepen prihvatanja i postignut konsenzus, od strane onih koji su uključeni u proces upravljanja institucijom o korištenju izabranih pokazatelja;
- standardizacija*: kontinuirano korištenje navedenih indikatora od strane BH univerziteta.

U metodologiji koja se koristi za provedbu upravljanja KPI na univerzitetu, treba izravno učestvovati menadžment institucije.

Menadžment univerziteta i osobe odgovorne za osiguranje kvaliteta sakupljaju, ispituju i analiziraju podatke o KPI na univerzitetu. Ovaj proces započinje definisanjem vizije, misije, ciljeva i strategije univerziteta. Nakon definisanja glavnih strateških ciljeva, KPI omogućuju univerzitetima praćenje njihove implementacije. KPI trebaju biti potpuni i tačni. Svaki indikator treba biti mjerljiv i način njegovog mjerenja jasno definisan.

It is essential that the definitions of these indicators do not change and to be monitored from year to year.

USKPI (University System of KPIs) is software that provides a simple and fast method of data collection, calculation and presentation of key performance indicators necessary for the efficient management of the University.

Basic elements of USKPI software are as follows:

- User interface for maintaining set of master data and definition of indicators,
- User interface for automatic and manual import of data about key performance indicators,
- Reporting on indicator values,
- Administration of security settings.

3.1.2. General characteristics of USKPI

USKPI is a web-oriented e.g. database web centric application developed by using Oracle Application Express tools and it uses Oracle Database 11g Express Edition (XE) as a database. General characteristics of USKPI application are as follows:

- Application provides a multi-user mode and is implemented in an optimal multilayered architecture;
- Development and implementation of application is based on modern software tools;
- On-line update of data is fully supported;
- The system has on-screen display, report formats and transactions that can easily fit into the environment of users;
- The system produces an informative messages on the screen during its usage;
- The system provides error messages and gives the user the instructions for appropriate solutions.
- The system provides data protection with the ability to define system users and their access rights to data.
- The system provides archiving a history of data changes.
- The system provides an adequate system of data protection, backup and recovery.

USKPI software use all public universities in BiH and it is ensured to be available in all three language versions: Bosnian, Croatian and Serbian. In addition, the English version of the software is also provided.

Each program user has its own user name and password that uniquely identifies him in the database. The login procedure ensures that unauthorised users can not use programs and data stored in the database. The following image shows one typical application screen:

Od posebne važnosti je da se indikatori i način njihovog praćenja ne mijenja iz godine u godinu.

USKPI (University System of KPIs) je softver koji pruža jednostavan i brz metod prikupljanja, računanja i prezentacije ključnih indikatora poslovanja neophodnih za efikasnije upravljanje univerzitetom.

Osnovni elementi USKPI softvera su sljedeći:

- Korisnički interfejs za održavanje skupa matičnih podataka i definicije indikatora
- Korisnički interfejs za automatsko i ručno punjenje podataka o ključnim indikatorima
- Izvještavanje o vrijednostima indikatora
- Administriranje sigurnosnih postavki

3.1.2. Osnovne karakteristike USKPI

USKPI je web orijentisana (eng. database web centric) aplikacija razvijena upotrebom Oracle Application Express alata, a kao podatkovnu osnovu koristi Oracle Database 11g Express Edition (XE). Opšte karakteristike USKPI aplikacije su sljedeće:

- Aplikacija omogućava višekorisnički način rada i implementirana je u optimalnoj višeslojnoj arhitekturi
- Razvoj i implementacija aplikacije je bazirana na savremenim softverskim alatima.
- U potpunosti je podržano on-line ažuriranje podataka.
- Sistem ima prikaze na ekranu, formate izvještaja i transakcija koji se lako uklapaju u okruženje korisnika sistema.
- Sistem prikazuje informativne poruke na ekranu za vrijeme korištenja.
- Sistem prikazuje poruke o greškama i upućuje korisnika na odgovarajuća rješenja.
- Sistem omogućava zaštitu podataka sa mogućnošću definisanja korisnika sistema i njihovih prava pristupa podacima.
- Sistem osigurava arhiviranje povijesti promjene podataka.
- Sistem osigurava adekvatan sistem zaštite podataka i oporavak (engl. recovery and back up).

USKPI softver je izrađen za sve javne univerzitete u BiH te je osigurano da bude dostupan u sve tri jezične varijante: bosanski, hrvatski i srpski. Pored toga, osigurana je i engleska verzija softvera. Svaki korisnik programa ima svoje korisničko ime i lozinku koja ga jedinstveno identifikira u bazi podataka. Postupak prijave osigurava da se neovlašteni korisnici ne mogu služiti programom i podacima pohranjenim u bazi. Sljedeća slika prikazuje glavni ekran i meni aplikacije:

KPI-Key Performance Indicators

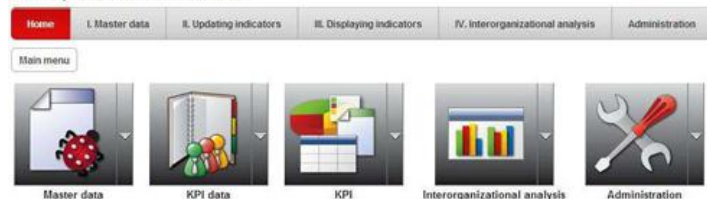


Fig.1. The main application menu

In analyzes of indicator's values and their trends in relation to the set limits, changes are being graphically displayed with the following indicators:



Trend of declining

Trend growth

Trend of relative stagnation

The end-user of USKPI software searches the database of indicators with user interface. The indicators can be displayed as:

1. Tree of indicators,
2. Tabular presentation of indicators,
3. Graphical presentaion of indicators.

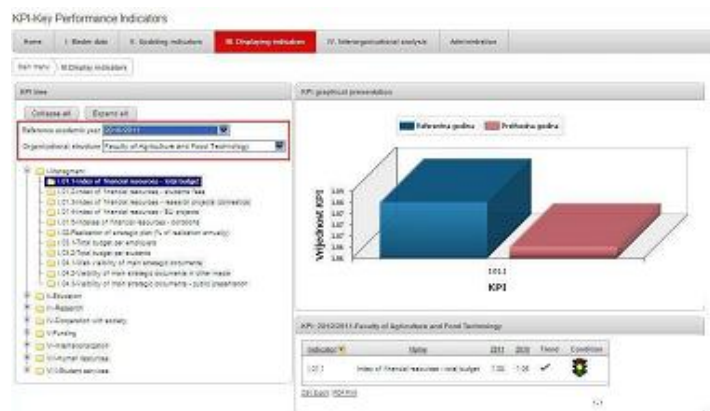


Fig.2. Screen of display indicator

KPI-Key Performance Indicators



Sl.1. Glavni meni aplikacije

Pri posmatranju vrijednosti indikatora i njihovog trenda u odnosu na zadane granice, promjene se grafički prikazuju sljedećim indikatorima:



Trend pada

Trend raste

Trend relativne stagnacije

Krajnji korisnik USKPI softvera pretražuje bazu indikatora pomoću korisničkog interfejsa. Ekran za prikaz indikatora sastoji se od tri dijela:

1. Stablo indikatora
2. Tabelarni prikaz indikatora
3. Grafički prikaz indikatora

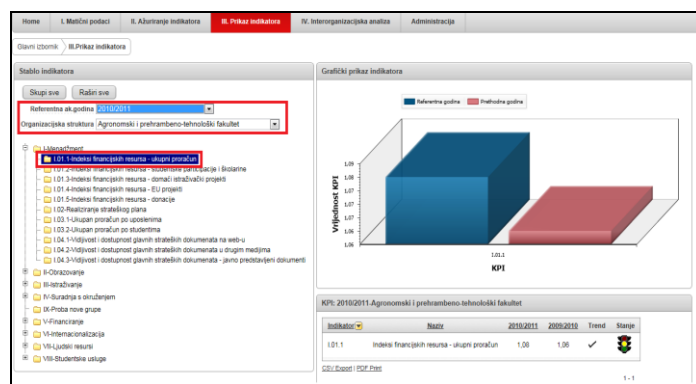


Fig.2. Prikaz indikatora

3.2. Study programme register

One of the basic aims of the project was creating a register of study programmes (RSP) in the state universities of BIH and basic information about higher education institutions, enabling entry of relevant data about study programmes at University, their storage into database, searching and presenting data to interested parties (potential students, parents, agencies, ministries, professors, students, international partners, career advisers, work field, second chance students, ...).

RSP should include the following processes:

- Universal defining and unique registering of master data
- Registering of characteristics of study programmes, courses and methods of courses implementation
- Registering of academic staff
- Registering of study programmes

3.2.1. Universal defining and unique registering of master data

A good register is based on the unique and precise defined system of master data. It is composed of:

- Organization structure of the University
- Study characteristics
- Course characteristics
- Other common data

Organization structure of the University consist from the following data:

- Basic data (name, location, type of organization unit)
State/private
- Contact data (web, mail, telephone, fax)
- Dislocated places of conducting studies
- Map of locations at which the studies are conducted
- Accreditation data
- Links for access to information about:
 - Enrollment conditions
 - Rulebook on studying
 - Student services
 - Student organizations

Characteristics of study programmes make a system of codes for unique defining of a certain study characteristics. For this purpose it is necessary to define:

- Study cycles (I, II, III)
- Kinds of studies (university or specialist)
- Types of studies (study, orientation, educational programme, etc.)

3.2. Registar studijskih programa

Jedan od osnovnih ciljeva projekta je definisanje registra studijskih programa (RSP) na javnim BH univerzitetima i omogućavanje osnovnih informacija o visokoškolskoj instituciji, prihvata/unosa relevantnih podataka o studijskim programima na univerzitetu, njihovo pohranjivanje u bazu podataka, te pretraživanje i prezentovanje podataka zainteresiranim stranama (potencijalnim studentima, roditeljima, agencijama, ministarstvima, profesorima, studentima, ...).

RSP treba obuhvatiti sljedeće poslovne procese :

- Univerzalno definisanje i jedinstveno evidentiranje matičnih podataka
- Evidentiranje studija, predmeta i načina izvođenja predmeta
- Evidentiranje akademskog osoblja
- Evidentiranje studijskih programa

3.2.1 Univerzalno definisanje i jedinstveno evidentiranje matičnih podataka

Osnovu dobrog Registra čini jedinstveno i precizno definiran sistem matičnih podataka. Njega čine:

- Organizaciona struktura univerziteta
- Karakteristike studija
- Karakteristike predmeta
- Ostali zajednički podaci

Organizacijska struktura univerziteta sastoji se od sljedećih podataka:

- osnovni podaci (naziv, lokacija, tip organizacione jedinice)
- javni/privatni
- kontakt podaci (web, mail, telefon, fax)
- dislocirana mjesta izvođenja studija
- mapa lokacija na kojima se izvode studiji
- podaci o akreditaciji
- linkovi za pristup informacijama o:
 - uslovima upisa
 - pravilniku o studiranju
 - studentskim servisima
 - studentskim organizacijama i sl.

Karakteristike studija čine sistem šifri kojima se jedinstveno definišu karakteristike pojedinog studija. U ovu svrhu potrebno je definisati:

- nivoe studija (I, II, III)
- vrste studija (univerzitetski ili stručni)
- tipove studija (studij, smjer, obrazovni program i sl.)

- Types of final paper (final paper, master thesis, doctoral thesis, etc.)
- Way of performance (full-time, part-time, "distance", choice etc.)
- Academic title acquired upon finishing a study (bachelor, engineer, master, etc.)
- Professional qualifications
- Scientific areas covered by studies
- Language of study performance
- Learning outcomes and competences-link

Characteristics of courses make a system of codes for unique defining of characteristics of certain courses taught as a part of a study. For this purpose it is necessary to define:

- Type of teaching
- Way of performance
- Way of taking an exam
- Competences and learning outcomes
- Types of literature

Other common data make a system of codes necessary for defining certain elements data structure covered by Register. Here belong:

- States Ministries
- Administrative structure
- Dislocated centers
- Academic calendar
- Accreditation organizations, etc.

3.2.2 Registering of study programmes, courses and methods of courses implementation

Registering of studies is a process which is necessary for provide basic information about the individual study. Following data are registered for that purpose:

- Faculty at which the study is performed
- Type of study
- Level of study in National Qualification framework?
- Unique code
- Name
- Acronym
- Way of performance
- Duration in semesters
- Duration till orientation?
- Title acquired upon finishing the study
- Number of ECTS credits

- tipove završnog rada (završni rad, magistarski rad, doktorska disertacija i sl.)
- načine izvođenja (redovni, vanredni, „na daljinu“ i sl.)
- stručni akademski naziv koji se stiče završetkom studija (bachelor, inženjer, magistar struke i sl.)
- stručne spreme
- naučna područja pokrivena studijima
- jezik izvođenja studija
- ishodi učenja i kompetencije.

Karakteristike predmeta čine sistem šifri kojim se jedinstveno definiraju karakteristike pojedinih predmeta koji se izučavaju u sklopu studija. U ovu svrhu definišu se sljedeći šifarnici:

- vrsta nastave
- način izvođenja
- način polaganja
- kompetencije i ishodi učenja
- tipovi literature

Ostali zajednički podaci čine skup šifarnika neophodnih za definisanje pojedinih elemenata strukture podataka pokrivena Registrom. Ovdje spadaju:

- Države
- Administrativna struktura
- Dislocirani centri
- Akademski kalendar
- Akreditacijske organizacije i sl.

3.2.2. Evidentiranje studija, predmeta i načina izvedbe predmeta

Evidentiranje studija je proces kojim je u bazu podataka potrebno smjestiti osnovne podatke vezane za definisanje pojedinačnog studija. U tu svrhu evidentiraju se sljedeći podaci:

- Fakultet na kome se studij izvodi
- Tip studija
- Nivo studija
- Jedinstvena šifra
- Naziv
- Skraćenica
- Načini izvođenja
- Trajanje u semestrima
- Trajanje do usmjerenja
- Stručni naziv koji se stiče završetkom studija
- Broj ECTS bodova

- Date and act on study approval
- Study group to which it belongs
- Scientific field
- Learning outcomes and competences
- State of accreditation

Definition of courses and method of implementation provide basic information about the course taken at a certain study. Elements of course definition are:

- Faculty at which it is performed
- Unique code
- Name
- Acronym
- Indicator if an examination is taken in the course framework
- Indicator if the grade is a part of grades average
- Number of ECTS credits
- The lowest unit of the university organization structure at which it is performed
- Method of course implementation
- Learning outcomes.

3.2.3. Registering of academic staff

All data about teaching staff who teach at the course studies are necessary to RSP. It is necessary to provide minimal storage of the following data:

Personal data

Work experience

Education and training

Personal skills and Competences

Additional information

Registration of academic staff contains all data necessary for Europass CV.

3.2.4. Registering of curricula

Detailed ways of study programmes realization in an academic year are defined through registering of curricula. Minimal data which should be stored in RSP are the following:

- Syllabus
- academic year
- faculty
- study
- semester
- type of course (obligatory/optional/group of elective courses)
- Responsible teacher

- Datum i akt odobrenja studija
- Studijska grupa kojoj pripada
- Naučno polje
- Ishodi učenja i kompetencije
- Status akreditacije

Definicija predmeta i načina izvođenja osigurava osnovne informacije o predmetu koji se sluša na pojedinačnom studiju. Elementi definicije predmeta su:

- Fakultet na kojem se izvodi
- Jedinствена šifra
- Naziv
- Skraćenica
- Indikator da li se predmet polaže
- Indikator da li ocjena ulazi u prosjek ocjena
- Broj ECTS bodova
- Najniža jedinica organizacijske strukture univerziteta na kojoj se izvodi
- Način izvođenja predmeta
- Ishodi učenja.

3.2.3. Evidentiranje akademskog osoblja

Svi podaci o nastavnom osoblju koje izvodi nastavu na predmetnim studijima su sadržani u RSP. Potrebno je osigurati minimalno čuvanje sljedećih podataka:

- Lični podaci
- Radno iskustvo
- Obrazovanje i usavršavanje
- Lične vještine i kompetencije
- Dodatne informacije

Evidencija akademskog osoblja sadrži sve podatke neophodne za generiranje Europass CV-a.

3.2.4. Evidentiranje kurikuluma studijskog programa

Detaljni načini realizacije studijskih programa u pojedinačnoj akademskoj godini su definisani u ovom dijelu. Minimalni podaci koji moraju biti sadržani u RSP su sljedeći:

- Syllabus
- Akademaska godina
- Fakultet
- Studij
- Semestar
- Tip kolegija (obavezni/izborni, grupa izbornih predmeta)
- Nosilac predmeta

3.2.5. Software for RSP

RSP software should enable 2 different data access:

- Public access
- Internal access

Public access implies that all interested people can access data for public presentation directly through Internet without username and password. There are three levels of public access:

- University
- Study programme
- Courses

Internal access implies the access protected by the username and password and enables entry, update and administration of data in accordance to defined user roles in the framework of RSP system. RSP software should provide database searching by different criteria:

- Faculties
- Scientific areas
- Scientific fields
- Cycles
- Lecturers
- Courses, etc.

Searching result should be studies which satisfy the given conditions. Overview of data obtained by searching should provide possibilities of finding out the lowest levels of data connected to studies, courses and curricula.

RSP software is availability in all three language variants: Bosnian, Croatian and Serbian. Besides that it is essential to provide English version of the software.

RSP is an electronic database that should be maintained by every single public university in Bosnia and Herzegovina, where each of them has a responsibility to maintain the respective databases.

Agency for development of Higher education and quality assurance is responsible for monitoring and public view of RSP and provides access to the register through their website.

RSP is a web-oriented (Eng. database web centric) application developed by using Oracle Application Express tools and it uses Oracle Database 11g Express Edition (XE) as a database. Main menu is divided into three logical units fig. no.3:

- Search criteria,
- Overview of Study Programmes and
- Curriculum.

3.2.5. Softver za RSP

RSP softver treba omogućiti dva različita pristupa podacima:

- Javni pristup
- Interni pristup

Javni pristup podrazumijeva da svi zainteresirani putem Interneta mogu direktno, bez korisničkog imena i lozinke, pristupati podacima namijenjenim za javno prezentovanje. Tri su nivoa javnog pristupa:

- Univerzitetski
- Studijski program
- Predmeti

Interni pristup podrazumijeva pristup zaštićen korisničkim imenom i lozinkom, a omogućava unos, ažuriranje i administriranje podataka u skladu sa definisanim korisničkim ulogama u okviru RSP.

RSP softver osigurava pretraživanje baze podataka po različitim kriterijima:

- Fakultetima
- Naučnim područjima
- Naučnim poljima
- Ciklusima
- Predavačima
- Predmetima i sl.

Rezultat pretraživanja su studiji koji zadovoljavaju zadane uvjete. Prikaz podataka dobivenih pretraživanjem nudi saznanja najnižih nivoa podataka vezanih za studije, predmete i nastavne planove i programe.

RSP softver je dostupan u sve tri jezične varijante: bosanski, hrvatski i srpski. Pored toga osigurana je i engleska verziju softvera.

RSP je elektronička baza podataka koju vodi svaki pojedinačni javni univerzitet u BiH, pri čemu svako od njih ima odgovornost za održavanje svoje baze podataka. Agencija za razvoj visokog obrazovanja i osiguranja kvaliteta je zadužena za nadzor RSP-a i osigurava pristup registru preko svoje web stranice.

RSP je web orijentirana (eng. database web centric) aplikacija razvijena korištenjem Oracle Application Express alata, a kao podatkovnu osnovu koristi Oracle Database 11g Express Edition (XE).

Glavni meni aplikacije podijeljen je na tri logičke cjeline sl. 3:

- Kriterij pretraživanja,
- Pregled studijskih programa i
- Nastavni plan.

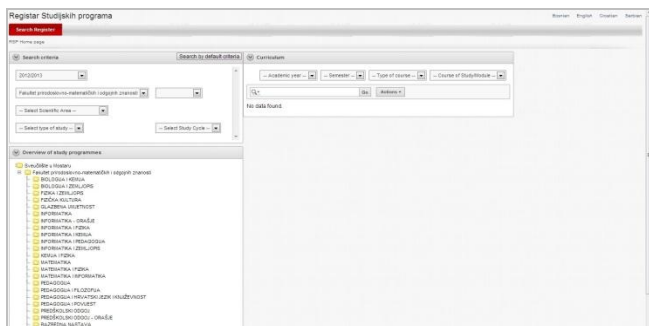
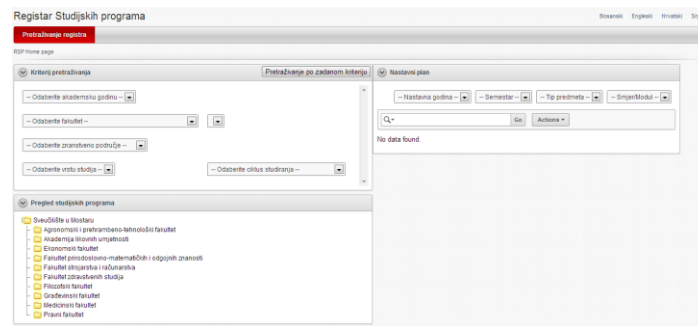


Fig.3. Main menu of RSP



Sl.3. Glavni meni RSP-a

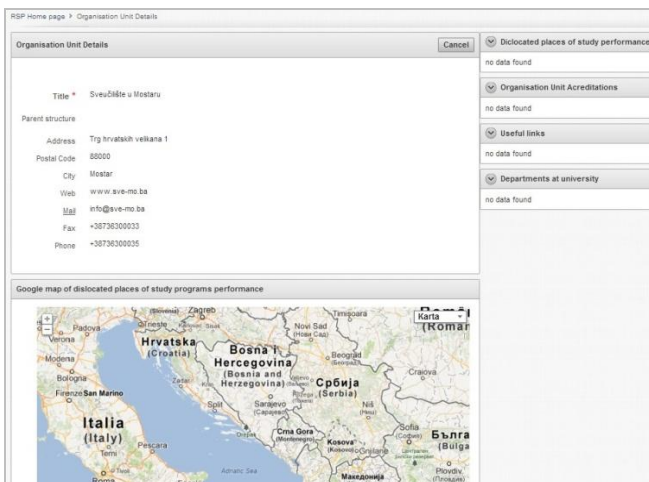
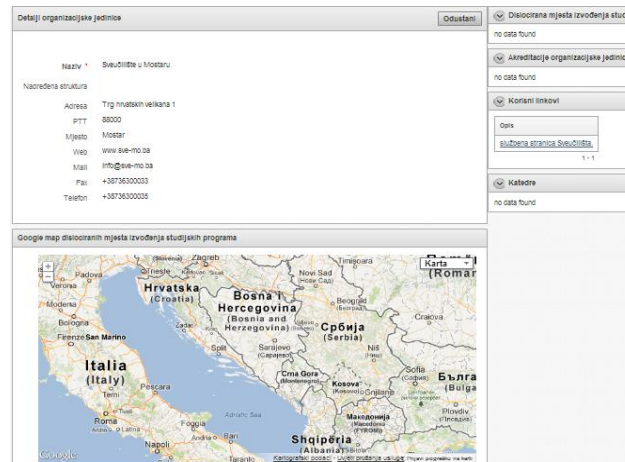


Fig.4. Basic data about University



Sl.4. Osnovni podaci o instituciji

Curriculum

Academic year: -- Semester: -- Type of course: -- Course of Study/Module: --

Go Actions

Code	Subject	Course	Performer	Year	Semester	ECTS	Type	Teaching
MF0101	MATEMATIKA 1	-	Prof. dr. sc. IVO MIČ	1	1	7	Nonlective Course	-
MF0102	LINEARNA ALGEBRA	-	Prof. dr. sc. IVO MIČ	1	1	6	Nonlective Course	-
MF0103	FIZIKA I	-	Prof. dr. sc. ZORAN PRIMORAC	1	1	6	Nonlective Course	-
PRO101	UVOD U RAČUNALA I PROGRAMIRANJE	-	Prof. dr. sc. MIRJANA ROMKOVIĆ	1	1	7	Nonlective Course	-
DE0101	VJEŠTINE KOMUNICIRANJA U ORGANIZACIJU	-	Prof. dr. sc. VLADIM MAJSTORVIĆ	1	1	3	Nonlective Course	-
DE0102	TAJLESNA I ZDRAVSTVENA KULTURA	-	Doc. mr. sc. MILADEN KVERIĆ	1	1	1	Nonlective Course	-
DKS1145P	INDUSTRIJSKA PRAKSA I	-	Prof. dr. sc. IVO MIČ	1	1	1	Nonlective Course	-
MF0104	MATEMATIKA 2	-	Prof. dr. sc. IVO MIČ	1	2	7	Nonlective Course	-
MF0105	FIZIKA II	-	Prof. dr. sc. ZORAN PRIMORAC	1	2	6	Nonlective Course	-
ES0101	ELEKTROTEHNIKA	-	Doc. dr. sc. ANTE BEŽIĆ	1	2	6	Nonlective Course	-
PRO102	PROGRAMIRANJE	-	Prof. dr. sc. MIRJANA ROMKOVIĆ	1	2	7	Nonlective Course	-
OKO101	RAČUNALNA GRAFIKA I CAD	-	Prof. dr. sc. ADELA VOJČIĆ	1	2	3	Nonlective Course	-
DE0103	TAJLESNA I ZDRAVSTVENA KULTURA	-	Doc. mr. sc. MILADEN KVERIĆ	1	2	1	Nonlective Course	-
MF0206	MATEMATIKA 3	-	Doc. dr. sc. NEKOLA KOČIĆ	2	3	5	Nonlective Course	-
ES0202	ELEKTRONIKA	-	Prof. dr. sc. SVEN GOTOVAC	2	3	6	Nonlective Course	-

Fig.5. Display of curriculum

Nastavni plan

Nastavna godina: -- Semester: -- Tip predmeta: -- Smjer/Modul: --

Go Actions

Šifra	Naziv predmeta	Smjer	Nastavnik nositelj	Godina	Semestar	ECTS	Tip	Nastava
MF0101	MATEMATIKA 1	-	Prof. dr. sc. IVO MIČ	1	1	7	Obezni	P30 V15
MF0102	LINEARNA ALGEBRA	-	Prof. dr. sc. IVO MIČ	1	1	6	Obezni	P30 V15
MF0103	FIZIKA I	-	Prof. dr. sc. ZORAN PRIMORAC	1	1	6	Obezni	P30 V15
PRO101	UVOD U RAČUNALA I PROGRAMIRANJE	-	Prof. dr. sc. MIRJANA ROMKOVIĆ	1	1	7	Obezni	V130 P30
DE0101	VJEŠTINE KOMUNICIRANJA U ORGANIZACIJU	-	Prof. dr. sc. VLADIM MAJSTORVIĆ	1	1	3	Obezni	V15 P15
DE0102	TAJLESNA I ZDRAVSTVENA KULTURA	-	Doc. mr. sc. MILADEN KVERIĆ	1	1	1	Obezni	-
DKS1145P	INDUSTRIJSKA PRAKSA I	-	Prof. dr. sc. IVO MIČ	1	1	1	Obezni	TN60
MF0104	MATEMATIKA 2	-	Prof. dr. sc. IVO MIČ	1	2	7	Obezni	-
MF0105	FIZIKA II	-	Prof. dr. sc. ZORAN PRIMORAC	1	2	6	Obezni	-

Sl.5. Pregled studijskih programa

4.CONCLUSION

Bosnia and Herzegovina as a country in transition and preparing itself for entrance into European Union, showed its readiness to implement the reform of higher education by signing the Bologna declaration in 2003. One of the commitments, which B&H took over by signing Bologna declaration, is “promotion of European cooperation in quality assurance because of making comparative criteria and methodologies”.

Quality assurance is not recognized as an instrument for strategic management of universities. Besides, the wider outcome of this project is: To contribute to the further development and modernization of higher education in B&H in accordance with European standards in EHEA and to further develop a quality assurance system to support the strategic management of HEI in B&H.

The situation without clearly defined Key Performance Indicators (KPI) at the national level and the lack of a register of study programmes doesn't allow comparison of universities in B&H or a benchmark with EU Universities.

A national register of study programmes should enable an overview of learning outcomes and competences of study programmes in a clear structure of qualitative and quantitative information (which inform potential students, potential employers, Agency for higher education and quality assurance and authorized Ministries about study programmes, which is the basis for mobility of teachers and students).

The common set of KPI at the national level has developed through this project, on the basis upon predefined indicators at the institutional level. In addition we developed a model for monitoring indicators and the method of their presentation to University management.

A register of study programmes contains also info about study programmes including evaluation, the learning outcomes and competences, ECTS credits, etc.

All public B&H universities build capacity for full implementation of KPI and study programme register through the purchase of equipment and training of staff.

The project "Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System" gave a substantial contribution to reform of higher education in B&H, especially in terms of strengthening the quality assurance system, but also the strategic management of the institution as well as cooperation with the HEA and the public bodies.

4.ZAKLJUČAK

BIH, kao zemlja u tranziciji i pripremnim aktivnostima za ulazak u Evropske integracije, iskazala je spremnost da provede reformu visokog obrazovanja potpisivanjem Bolonjske deklaracije 2003. godine. Jedna od obaveza koju je BiH preuzela potpisivanjem Bolonjske deklaracije je i „promicanje evropske saradnje u osiguravanju kvaliteta radi izrade komparativnih kriterija i metodologija“.

Osiguranje kvaliteta nije prepoznato kao instrument za strateško upravljanje visokoškolskim institucijama. Zato je širi cilj ovog projekta: Promovisanje razvoja aktivnosti sistema osiguranja kvaliteta u funkciji podrške strateškom upravljanju visokoškolskom institucijom, a na osnovu uporedivih kriterija i metodologija baziranih na EU preporukama.

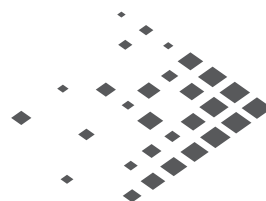
Stanje bez jasno definiranih indikatora osiguranja kvaliteta i nepostojanja registra studijskih programa na nacionalnom nivou ne omogućuje poređenje univerziteta unutar BiH, ni sa EU univerzitetima. Registar studijskih programa treba omogućiti predstavljanje univerziteta i njihovih studijskih programa u jasnoj strukturi kvalitativnih i kvantitativnih informacija (koje informiše potencijalne studente, potencijalne poslodavce o diplomiranim studentima, Agenciju za visoko obrazovanje i osiguranje kvaliteta i nadležna ministarstva o studijskim programima, što je osnova za mobilnost nastavnika i studenata.

Kroz ovaj projekt je razvijen set zajedničkih indikatora za osiguranje kvaliteta na nacionalnom nivou na osnovu prethodno definisanih indikatora na institucionalnom nivou. Osim toga, razvijen je model za praćenje indikatora i način njihovog predstavljanja menadžmentu univerziteta kako bi bili osnova za strateško planiranje.

Registar studijskih programa omogućuje uvid u brigu institucije za svoje studijske programe, provodi li se njihova evaluacija kontinuirano, jesu li jasno definisani ishodi učenja i kompetencije, raspodjelu ECTS kredita i sl.

Kroz projekt su svi javni univerziteti izgradili kapacitete za potpunu primjenu KPI i registra studijskih programa kroz nabavku opreme i obuku osoblja.

Projekt “Strateško upravljanje visokoškolskom institucijom bazirano na integrisanom sistemu za osiguranje kvaliteta” je dao značajan doprinos reformi visokog obrazovanja u BiH posebno u pogledu jačanja sistema osiguranja kvaliteta, ali i procesa strateškog upravljanja institucijom kao i saradnje sa HEA i nadležnim institucijama.



Agencija za razvoj visokog
obrazovanja i osiguranje
kvalitete



European Commission
TEMPUS