



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

Project Outcomes



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

Project Outcomes

**Snježana Rezić
Andre Govaert
Geert De Lepeleer
Dražena Gašpar
Ivana Zovko**

The publication is produced within the implementation of the TEMPUS Project: 511262-TEMPUS-1-2010-1-BE-TEMPUS-SMGR “Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA.

Prepared by:

Snježana Rezić

Andre Govaert

Geert De Lepeleer

Dražena Gašpar

Ivana Zovko

CONTENTS

1. INTRODUCTION	5
2. ANALYSIS OF PRESENT SITUATION IN AREA OF DEVELOPMENT OF KPI IN EU AND B&H	6
2.1. Analysis of present situation in area of development KPI in EU	6
2.1.1. Monitoring and measuring of achieved results	6
2.1.2. Perception of performance in public education institutions through indicators	7
2.2. Key Performance indicators in EU HEI	8
2.3. Analysis of present situation in area of development KPI in BiH	9
3. COMMON KPI SET	10
4. REQUIREMENTS FOR MONITORING OF KPI	12
5. IT REQUIREMENT FOR STUDY PROGRAMME REGISTER	14
5.1. Basic business processes	14
5.2. Universal defining and unique registering of master records	15
5.3. Registering of study programmes, courses and methods of courses implementation	16
5.4. Registering of academic staff	17
5.5. Registering of curricula	17
5.6. RSP database searching	18
5.7. System administration	18
5.8. Multilingualism	19
5.9. General requirements	19
6. KPI SOFTWARE	20
6.1. Application purpose	20
6.2. General characteristics of USKPI	20
6.3. Database login	21
6.4. User interface	22
6.4.1. Basic screen layout	22
6.4.2. Screen header	22
6.4.3. Central part of the screen	23
6.5. Master data	26
6.5.1 Academic and Calendar Years	27
6.5.2 Organisational structure	27
6.5.3 Academic and administrative staff	28
6.5.4. Definition of indicators	29
6.6. Update of indicators	34
6.6.1. Manual data entry	34
6.6.2 Loading data from excel files	38
6.6.3 Analytics of indicators	41
6.7. Displaying indicators	43
6.8. Interorganizational analyses	47
6.9. Administration	49
6.10. Attachments	50
7. SOFTWARE FOR STUDY PROGRAMME REGISTER	52
7.1. Application purpose	52
7.2. General characteristics of the application	52
7.3. Database login	53
7.4. User interface	54
7.4.1. Basic screen layout	54
7.4.2. Screen header	55
7.4.4. Central part of the screen	56
7.4.3. Status part of screen	58

7.5 Master data	59
7.5.1. Countries	59
7.5.2 Academic years	60
7.5.3. Accreditation organization	60
7.5.4. Organization unit	61
7.5.5. Characteristics of studies and courses	63
7.6. Studies and courses	63
7.6.1. Studies	63
7.6.2. Courses	65
7.6.3.Academic staff	66
7.6.4.Engagements	67
7.6.5.Europass Curriculum Vitae	69
7.7.Curricula	73
7.8.Administration	78
7.9. RSP - Register of Study Programmes-Public access	78
7.9.1.Search register	78
8. CONCLUSION	84

1. INTRODUCTION

Changes in higher education in BiH, just as throughout Europe and elsewhere, were as many and radical as they were continuous. The reform of the higher education system in BiH is necessary both by the need to adapt to the demands of modern society, constantly changing, and also by bringing quality standards and performance of BiH education system to European standards. The reform of the education system in BiH is in progress and should always have in mind that the effectiveness and quality of educational services must increase so that our education is compatible with the European system and that the trained workforce in BiH will be able to integrate easily in the sole labour market. Higher education institutions in our country must be prepared to operate in a competitive education market, assuming greater managerial autonomy for each of them, a flexible regulatory framework and adequate financing. Today, being competitive as an institution of higher education requires more openness and transparency, a review of services and marketing culture, according to the European realities and values of the European education system, such as cultural diversity and research orientation.

The objective of the project „Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA“ 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. 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.

6. ANALYSIS OF PRESENT SITUATION IN AREA OF DEVELOPMENT OF KPI IN EU AND B&H

6.1. Analysis of present situation in area of development KPI in EU

The quality of European education, and of higher education in particular, has been identified as one of the key factors which will allow Europe to succeed in a global competition. In 2003 in Berlin the Ministers for higher education stated that the primary responsibility for quality assurance lies with higher education institutions. Further, various policies and action lines have been developed to improve quality; among other initiatives, European degree structures have been revised, mobility of students and teachers is encouraged, and transparency and comparability of qualifications is promoted. The definition of quality assurance varies from one country and institution to another. The study uses QA in its broadest sense, including all activities related to defining, assuring and enhancing the quality of an HEI, thus arguing in favour of adopting an all-encompassing approach derived from institutions' own strategic goals, fitting into their internal quality culture, while also fulfilling the external requirements for QA. These activities should include, but are not limited to, activities mentioned by the ESGs. The approach adopted by the survey is therefore not limited to checking compliance with the ESGs, but also includes elements of institutional strategic management.

Strategic planners at HEIs have to make sure that all faculties, departments and units are involved in the strategy development process as a top-down approach is not always the key to success. Ensuring that the strategy has the envisaged impact, that it is implemented successfully and that it contributes to the HEI's institutional development are only some of the tasks planning staff have to manage. Whereas the overall strategy is set out for several years, short-term action plans are drafted to reach targets. Furthermore, every faculty drafts its own plans. All these contributions need to be coordinated to work together towards the common goals of the overall strategy.

6.1.1. Monitoring and measuring of achieved results

Staff in charge of implementation and execution of strategic plans are also confronted with the question of effective monitoring and measuring of achieved results. Key Performance Indicators are one possibility to monitor achievements. However, in some areas success is difficult to display with quantitative measures. Therefore, a methodology for assessing developments in such areas needs to be defined. Furthermore, the internal audit's findings can also contribute to the overall strategy development.

Orientation toward performance began in 1982 when in the United Kingdom within the central administration, the Audit Commission was set up with the responsibility in assessing the efficiency and effectiveness.

The definition leads us to the conclusion that "performance is not ascertained, it is built". Although the concept of performance is hard to define, experts in this field assign to the concept of performance numerous acceptations:

- The term performance is the bearer of a progress ideology, the effort to do something as good as possible;
- Performance is a word often used for metaphorical allusions which it contains;
- Performance means success, is the result of an action, is a process that occurs at a certain moment in time.

In another approach performance represents a state of competitiveness of the institution reached by a level of effectiveness and efficiency, which ensures a sustainable market presence on a competitive market. Performance and value represent a perfect tandem for effective management and

modern institutions. Measuring performance, means to appreciate the value and knowing the value means, “to translate” performance.

Research on national regulations in the field shows that performance in education is not defined directly and explicitly, but indirectly, through education quality, defined as follows: a set of features of a program and its provider, through which are satisfied beneficiaries' expectations and quality standards. Quantifying performance in education is made through performance indicators. Starting from different definitions and approaches on performance indicators (Sauvageot, 2003) experts define indicators as conceptual technologies which determine WHAT is considered important in the evaluation and HOW are those elements, so that performance indicators are the bearers by default of the institutional normative premises. Other specialists on this field (Vlăsceanu et al, 2007) believe that performance indicators are statistical parameters representing a measure of the degree to which an educational institution or training program performs on a specific dimension of quality. Also, performance indicators may represent numerical values used for measuring something difficult to quantify, being distinguished from mere statistical management by the fact that, involves a reference point, such as standard or a "comparer". Research findings on how to define performance indicators are based on the assumption according to which performance indicators mediate directly between goals and results. Moreover, quality and performance must characterize all the public and private institutions, especially educational institutions, so that performance becomes the major objective of the whole society.

2.1.2.Perception of performance in public education institutions through indicators

In preparing the indicators, an important role is played by creating the frame of reference which will carry out the assessment: for whom, for what? Key performance indicators in EU higher education have the following characteristics:

- They are statistical indicators that provide an objective measure on how an educational institution performs and allow the institution to define its own performance as a benchmark (reference point), enabling inter-institutional comparisons;
- Is a tool for measuring the degree of achievement of an activity conducted by an organization providing education in relation to a standard;
- Identifies those results that vary from a minimum acceptable level up to a maximum identifiable level. The minimum level of performance indicators meets the requirements of a standard, and the maximum correspond to reference standards, are optional and distinguish the quality for institutions in a hierarchical progressive manner.

The need to optimize the educational activity, the implementation of an efficient management, quality assurance and compatibility of educational systems has led to numerous investigations in this area by adopting, as a theoretical reference framework of some organizational models explaining the functionality of the educational system and establishing a system for performance appraisal. Each model generated by default has a specific philosophy on the method for evaluating institutional performance, design and use of performance indicators at HEI level.

Therefore, assessing the performance of the education system must use a system of indicators grouped by policy areas of education, by level of education or components, on the priorities and objectives of reform programs. The purpose for using indicators in the public educational institutions is to increase the quality of this public service. But, the existence of a relevant system of performance indicators, involves considering the following fundamental aspects:

- Existence of legal framework which will establish the legal limits for defining such indicators;

- The existence of a general reference framework covering a number of issues related to the performance concept, performance indicators and methodology for their application, without which comparable measurements would be impossible to make;
- developing a system of unitary performance indicators, but also diversified on a national level according to the cascade approach and customizing it for each public institution of higher education on a local level;
- continuity and continuous improvement of the performance indicators system for public educational institutions;
- continuous monitoring of the system and advice for applying, reviewing and evaluating the performance indicators at HEI level.

Beyond this frame of reference, but in a close relationship with it, the functions of performance indicators in relation to the type of responsibility assumed at the public education. Institution can be defined on several levels, as follows:

- to ensure the comparability of institutional performance by standardizing key aspects of defining and ensuring the educational process;
- information on the objectives of effectiveness of institutional strategies;
- informing the key stakeholders about the quality of education and the impact of the institution.

Also, the criteria, the standards and performance indicators are formulated so that the emphasis should not be put only on the compliance of an organization at a predetermined or predefined set of quantitative and qualitative terms, but also on the deliberate employment, voluntary and proactive of the institution for assessing some demonstrable performance by actual results.

2.2. Key Performance indicators in EU HEI

Higher education institutions use performance indicators for four primary reasons:

1. To monitor their own performance for comparative purposes,
2. To facilitate the assessment and evaluation of institutional operations,
3. To provide information for external quality assurance audits, and
4. To provide information to the government for accountability and reporting purposes.

Performance indicators used at the national level are designed to:

1. Ensure accountability for public funds,
2. Improve the quality of higher education provision,
3. Stimulate competition within and between institutions ,
4. Verify the quality of new institutions,
5. Assign institutional status,
6. Underwrite transfer of authority between the state and institutions, and
7. Facilitate international comparisons.

In the EU education system, criteria, standards and performance indicators are formulated so that emphasis is placed on employment intentional and proactive institution to achieve performance and results, in addition to other quantitative and qualitative terms. Hierarchical relationships are established between them (Image. 1):

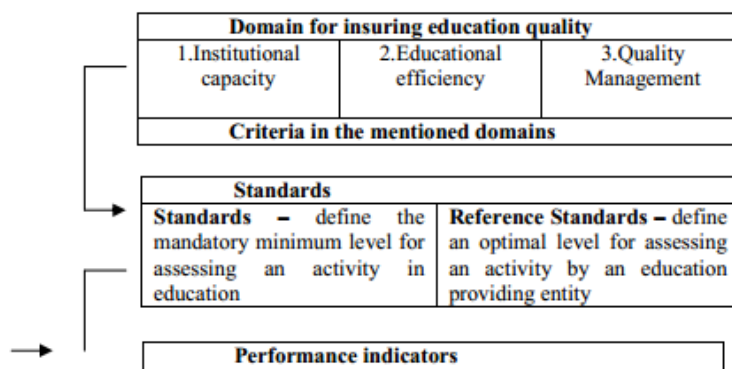


Image.1 – Correspondence and hierarchical relations between domains, criteria, standards and KPI

Research model for defining and measuring performance from higher education institutions show the following:

- The important role of university autonomy in obtaining the maximum level of indicators and by default in delivering a high quality of the educational process and institutions;
- Facilitates benchmarking activities, respectively, comparing institutions with each other in terms of market share, research performance or cost, but also within the entity, by comparing individual performance;
- Performance is synonymous with quality education;
- Performance is synonymous with management reliability and quality of the entity and by default, of the entity;
- Performance involves the use in conditions of efficiency, economy and human resources effectiveness, financial and material;
- Performance is not a state, it is built by pooling efforts of everyone involved in education process;
- Provides orientation toward performance of the institution and of all its activities and for maximizing the performance;
- Provides a management system based on performance evaluation using specific performance indicators defined and strictly in accordance with international standards both in terms of inputs and the outputs.

2.3. Analysis of present situation in area of development KPI in BiH

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”. A very important comprehensive component of the Bologna process is quality assurance which is in B&H Universities implemented at different levels. During 2006 QA offices were developed at all 8 public universities, they were equipped with IT equipment and QA coordinators were appointed and trained. The development and establishment of QA systems were significantly stimulated by international projects in which all public B&H Universities have participated (TEMPUS project „Strengthening Quality Assurance in B&H“ (JEP 19074 2004), project by the Council of Europe „Strengthening Higher Education in B&H, Tempus project “From Quality Assurance to Strategy Development”(JEP_41078_2006). However, situation in B&H higher education is very heterogeneous, also regarding quality assurance. The degree of quality assurance procedures development at the institutional level is different from university to university. As far as national level

is concerned, only criteria for accreditation and standards and guidelines for quality assurance have been adopted. Quality assurance is not recognized as an instrument for strategic management of universities. 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, especially regarding learning outcomes, competences, relation to society.

In BiH higher education institutions, the performance is measured based on a model developed by the appropriate body respectively Agency for Development of Higher Education and Quality Assurance (HEA).

SWOT analysis of state KPI in BiH is given on fig.2.

S People trained and educated in QA, cooperation, University QA capacity developed, cooperation, tradition Strategy development Evaluation Accreditation Internationalization Student competencies (graduated)	W Lack of the funding for QA Lack of IT system Lack of staff , student and administration interest Resistance of changes Lack of alumni organizations Lack of implementation ECTS system Lack of awareness of management Limited of autonomy
O Cooperation with EU universities Cooperation with external and internal stakeholder Accreditation of institutions and study programs EU Funds available Involving of alumni Role in development of the society Establishing of common QA system (HEA, Min. standards, framework) BiH QA experts involved in regional and international processes	T Political situation and influence Lack of harmonization of legislation and ministry coordination Lack of budget Lack of national strategy Non fair competition between universities Heterogenic development of HE in BiH Non inclusion of HEA in EU QA organizations

3.COMMON KPI SET

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

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

The set should comprise information on institutional input parameters, institutional process parameters, as well as institutional output parameters. The set should measure the success of attaining as many as possible of the institutional strategic objectives. 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:

I Management

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

II Education

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

III Research

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

IV Cooperation with society

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

V 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

VI Internationalization

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

VII 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
2. Student/academic staff ratio: Number of students /number of lecturers (calculated for each programme, even separately for each study year, because 1st year is often with higher number of students)
 - 2.1. Average student/staff ratio
 - 2.2. Maximum student/staff ratio
 - 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

VIII Student Services

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

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

- a) *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;
- b) *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. It is essential that the definitions of these indicators do not change and to be monitored from year to year.

4.REQUIREMENTS FOR MONITORING OF KPI

USKPI (University system for KPI) software should ensure support for the following activities related to KPI:

- Universal definition and a unique data scheme of KPI definitions in the USKPI database.

- Automatic data acquisition from external sources for calculation of the KPI indicators.
- Manual data entry from external sources for calculation of the KPI indicators.
- Searching (browsing) of USKPI database
- System Administration.

Each KPI has the following common attributes:

- Domain
- Strategic goal
- Name
- Purpose/Aim
- Interpretation
- Data source (input) for calculation
- Procedure of measurement
- Target value
- Intervals of measurements
- Levels of measurements and presentation
- The ways of graphical presentation
- Confidence level
- Trend indicators
- Status indicators

Automatic data acquisition from external sources

- Generating of excel templates for fulfillment of data necessary for KPI calculation
- Validation procedures for fulfillment of excel documents
- Validation procedures for checking of excel documents before loading into database
- Import data procedures
- Reports related to the process of checking and importing data into system.

Manual data entry from external sources

- Data entry can be done by the person who was given a certain role in the system.
- The person, who works on data entry, can do that at the level permitted by the administrator (University, Faculty, Study group, etc.)
- Validation procedures should control every individual data entry either that is the control of data domain or logical correctness of numerical and descriptive data.
- Before writing data in the database validation procedure should provide logical correctness and consistence of entire entry.

Searching (browsing) of USKPI database

User should choose:

- Data level
- Reference period
- Comparison period(previous year or one before)
- Selection of trend and state indicators overview.
 - Data level means: university, faculty, study program ...
 - Reference/Comparison period means academic year
 - Interface for the KPI indicators overview should provide the user with a possibility to turn on or off the trend indicators or actions which should be taken over in accordance to the expressed values.

System Administration

- System users are uniquely defined in the system by the user name which has to contain the following data also:
 - Initial password
 - Affiliation to a certain organization structure
 - E-mail address
 - Date of user creation
 - Date of the last system access
 - Date of system access expiration
 - Activity indicator

It is necessary to define user roles for the needs of access and usage of certain system functionalities:

- Super administration (system administration of users and working rights)
- Administration (generating of KPI indicators definition)
- Editorial (acceptance of data necessary for calculation KPI indicators)
- Analysis (KPI analyses, public and not public ones)
- Guest (public access to application)

Multilingualism

USKPI software will use all public Universities in B&H therefore it is necessary to provide its availability in all three language variants: Bosnian, Croatian and Serbian. Besides that it is necessary to provide the English version of the software. Selection of a certain software language version should be defined at the user level and the user should be able to change the current language variant during the software usage.

5. IT REQUIREMENT FOR STUDY PROGRAMME REGISTER

The aim of this activity is to define requirements which have to be fulfilled by the software for monitoring Register of study programmes (hereinafter: RSP) at Universities. The basic task of such software is, besides creating a register of all accredited and non accredited study programmes 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 is an electronic database lead by every University in B&H individually, while each of them has responsibility for maintenance of the concerned database. Authorized ministries and HEA will put the links for the register of every individual higher education institution on their sites. They can add information about the higher education system in BIH and about studying in BIH.

Application software RSP should provide registering and reporting on every business process related to maintenance and monitoring of data about register of study programmes (hereinafter Register). For accurate functioning of the system it is necessary to ensure individual actions of all participants in the process of maintenance and usage of the system and harmonize data flows in order to give prompt and correct information to all participants in the process.

5.1. Basic business processes

RSP should include the following business processes:

- Universal defining and unique registering of master records

- Registering of characteristics of study programmes, courses and methods of courses implementation
- Registering of academic staff
- Registering of study programmes
- RSP database searching
- System administration

Document will describe the basic characteristics of every process and the way in which RSP software has to ensure their implementation.

5.2. Universal defining and unique registering of master records

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 master data

Organization structure of the University should be stored in RSP database with 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
- 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.)
- 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 master 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.

5.3. Registering of study programmes, courses and methods of courses implementation

Registering of studies is a process which is necessary for storing basic data related to defining an individual study into a database. Following data are registered for that purpose:

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

5.4. Registering of academic staff

All data about teaching staff who teach at the course studies are stored into RSP database by the process of registering academic staff. It is necessary to provide minimal storage of the following data:

- Name and surname
- Unique code
- Professional qualifications
- Title
- Academic level
- Appertaining engagement at the University member is registered for a member of the academic staff.
- Expanded registration of academic staff contains all data necessary for Europass CV generating:
 - Personal data
 - Work experience (multiple data)
 - Occupation or position held
 - Main activities and responsibilities
 - Name and address of employer
 - Type of business or sector
 - Education and training
 - Title of qualification awarded
 - Principal subjects/Occupational skills covered
 - Name and type of organization providing education and training
 - Additional information

RSP software should provide generating Europass CV documents either in PDF or Word format.

5.5. Registering of curricula

Detailed ways of study programmes realization in an academic year are defined through registering of curricula. A syllabus should contain schedule of courses and their performers per a semester. A curriculum should contain records which define the way of performing a course in details. Minimal data which should be stored in RSP base are the following:

Syllabus:

- academic year
- faculty
- study
- semester
- course (obligatory/optional/group of elective courses)
- components of course performance

- leader Responsibel

Curriculum should be connected to the course units and course unit responsible from the syllabus in order to provide storage of the following data:

- Lectures
- Ordinal number
- Description of the course
- Activities related to a particular lecture (lecture, exercises, presentations, etc.)
- Number of hours for a certain activity
- Learning activities and work forms
- Assessment
- Type (basic or alternative)
- Way (preliminary exam, written exam, oral exam, seminar paper, etc.)
- Assessment weighting
- Course material and Literature (list of basic and additional literature)
- Performers (list of course performers)?
- Competences
- Type (theoretical knowledge, analysis, modeling, practical knowledge, oral expression)
- Description

5.6. RSP database searching

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

Detailed description of data visible at these levels is given in previous chapters.

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 (it is explained in more details in chapter System administration).

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.

5.7. System administration

RSP administration system should provide activities of defining the system user and appertaining working rights. System users are unambiguously defined in the system by the username to which it is necessary to connect the following data:

- Initial password
- Affiliation to a certain organization structure
- E-mail address
- Date of user forming
- Date of the last system access
- Expiry date of system access
- Indicator of activities

It is necessary to define the following user roles for the needs of access and usage of certain system functionalities:

- Super-administrative (administration of users' system and working rights)
- Administrative (generating of RSP master data bank)
- Editorial (generating of data on studies, courses and curricula)
- Analyses (RSP analyses, public and non public)
- Guest (public access to application with a purpose of Register searching)

With every user it is possible to define which roles in the system he/she can use. Of course public access to application (guest role) is a predefined role which is given to every user during his/her forming. Other roles are given to the user by a predefined super-administrator user.

Administration part of RSP software should contain overviews and statistics of the system usage as a whole, as well as from the viewpoint of an individual user.

For the needs of analysis and monitoring of work with system data it is necessary to put data auditing indicators on all tables:

- Date and time of creating an entry
- User who created the entry
- Date and time of the last change of the entry
- User who last changed the entry.

It is necessary to monitor changes of certain data in the database completely. That means that every new entry will be registered, as well as its changes and possible deleting of the entry. Besides these data, time of the event and user who caused it are also registered. Defining of data which will be monitored in this way is under control of super-administrator.

5.8. Multilingualism

RSP software use all public universities in B&H, therefore it is necessary to provide availability in all three language variants: Bosnian, Croatian and Serbian. Besides that it is essential to provide English version of the software. Selection of a language variant should be defined at the user's level and the user should be enabled to change current language variants during the work with software.

5.9. General requirements

The following general requirements are put in front of RSP:

- System should enable multi-user way of work and it should be implemented in the optimal multilayer architecture
- System should be based on contemporary software tools

- System should be built by the model of open systems and match to international and industrial standards
- System should completely support online updating
- System should produce informative messages on the monitors while it works
- System should have messages about errors and guide the user to adequate solutions
- System should enable data protection with a possibility of defining a system user and their rights of data access.
- System should provide data archiving as well as procedures of recovery from incident situations.
- System should provide adequate backup system (recovery system)

System should:

- have procedures of checking validity for preventing data duplicating
- have controls for providing that all data are returned completely in the case of system failure
- have controls in the system for providing referential integrity of database
- have the central database as the exclusive place where data for every university, to which the softer is delivered, are maintained and archived.
- Any data from the central database should not be on the computers of the system users.
- All transactions which are done through Internet must use HTTPS protocol.

6. KPI SOFTWARE

This manual focuses on introducing end users to the USKPI application. This manual covers the following general topics:

- Purpose and description of the application
- Master data- Description of the work with the master data of the application
- Data for KPI calculation - Description of the way of application use for the KPI update purposes
- Presentation of indicators –Description of how to use interface for presentation of indicators stored in the database
- Administration – Description of the process of administration of users and their rights to access to the application and data.

6.1. Application purpose

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. 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

6.2. 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 archieving a history of data changes.
- The system provides an adequate system of data protection, backup and recovery.

The USKPI ensures:

- Validation procedures to prevent duplication of data
- Controls to ensure referential integrity of database
- The possibility of simultaneous operation of group (batch) and on-line activities
- Prevent access to data record in update phase
- Database as an exclusive place to maintain and archive data for each university software to be delivered
- That data from central database are not on the user's computers

USKPI software is available in all three language versions: Bosnian, Croatian and Serbian. In addition, the English version of the software is also provided.

USKPI software provides the localization of data in a manner that each of the data is entered into the database in all language versions, where initial entry is on language version used by software user who creates the data.

More information about all of this will be provided in the section of instructions that describes the work with concrete data.

6.3. Database login

In order to sucessfully start the application and proceed with using its possibilities, it is necessary to log into the application. The login pocedure starts with entering the application web address into the user web browser.

The login form that looks like the one in Image 2., appears on the screen.

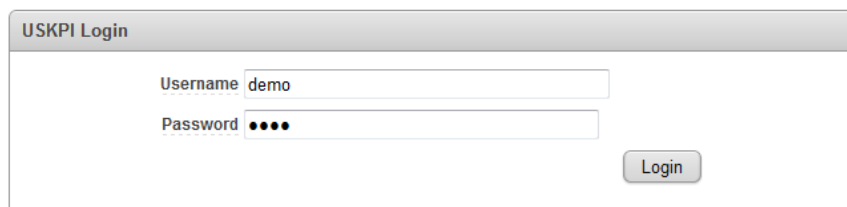
The image shows a login window titled "USKPI Login". It contains two input fields: "Username" with the text "demo" and "Password" with four black dots. A "Login" button is located at the bottom right of the form.

Image 2. USKPI Login Form

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 password you enter can not be seen for safety reasons (for each typed character the asterisk (*) is displayed).

After data entry it is necessary to press the ENTER key or click with mouse on the Login button. If you entered the correct data, the access to the main application screen is provided, and if data entry is not correct you will get the same login screen.

Image No.3 shows the main application menu



Image 3. Main application menu

6.4. User interface

Regardless of the purpose, each screen has certain common characteristics that make everyday work much easier for application user.

6.4.1. Basic screen layout

The following image shows one typical application screen:

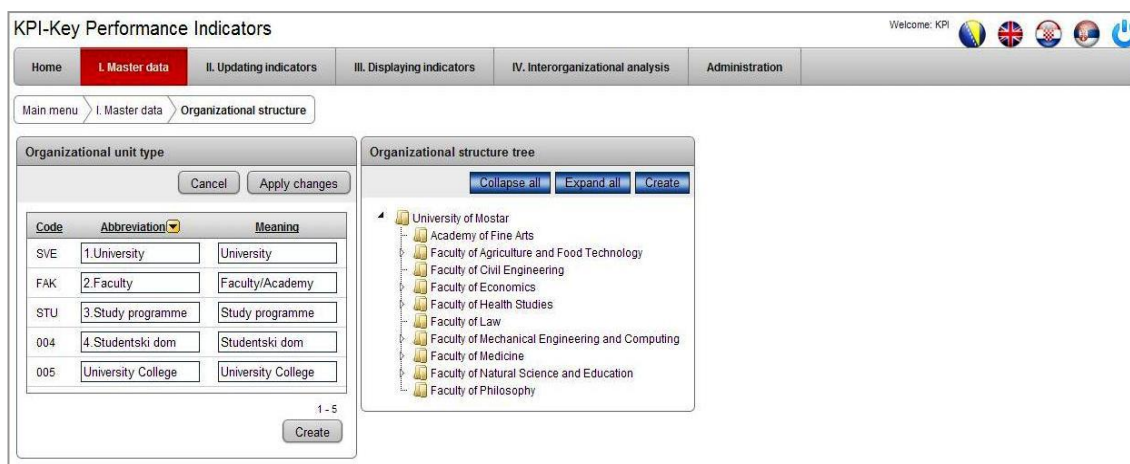


Image 4. Application screen

We can distinguish three main parts of the screen:

Header or upper part of the screen

Central part of the screen

Status or lower part of the screen





6.4.2. Screen header



Image 5. Screen header

Screen header contains the application title, navigation elements that provides:

- Change of application language version

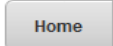
-  Bosnian language
-  English language
-  Croatian language
-  Serbian language

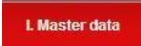
- Application logout

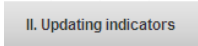


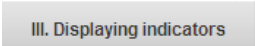
Logout

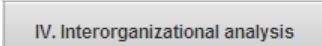
Navigation to interface for individual processes

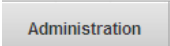
 Navigation to main application menu

 Navigation to a group of actions related to maintenance of master data including definitions of indicators

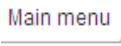
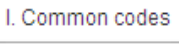
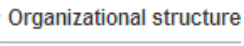
 Navigation to a group of actions related to updating of values of individual indicators.

 Navigation to screens for display of indicator values

 Navigation to screens for display of indicator values analyses between individual organisational units of the University.

 Navigation to screens for administration of users and their access rights.

- Navigation within screens of individual processes

This navigation menu displays the sequence of selected actions to reach the currently displayed screen. By selecting any link it is possible to take one or more steps backward in the displayed navigation.

6.4.3. Central part of the screen

Central part of each application form consists of display of data and actions possible to perform. For example on the Image No.6, actions possible to perform, using available form elements, will display.

The screenshot shows a web application interface with two main panels. The left panel, titled 'Organizational unit type', contains a table with columns 'Code', 'Abbreviation', and 'Meaning'. The table has five rows of data. Above the table are 'Cancel' and 'Apply changes' buttons, and below it is a 'Create' button. The right panel, titled 'Organizational structure tree', shows a hierarchical tree structure of the University of Mostar, including faculties like Fine Arts, Agriculture and Food Technology, Civil Engineering, etc. It has 'Collapse all', 'Expand all', and 'Create' buttons at the top.

Code	Abbreviation	Meaning
SVE	1. University	University
FAK	2. Faculty	Faculty/Academy
STU	3. Study programme	Study programme
004	4. Studentski dom	Studentski dom
005	University College	University College

Image 6. Central part of the screen

The screen consists of two frames. In the first one it is possible to maintain data about type of organizational unit, while in the other one, organisational structure stored in the database, is displayed.

The meaning of each element of the first frame is the following:

Cancel By using this button, user leaves this form, and returns to previous form, in the hierarchy of the menu.

Apply changes By using this button, changes on data the user performed are saved.

Create By using this button a new (empty) record in the table of type of organisational units is created, and user is provided with the possibility of entry data about new type. After entry the data into the fields „Abbreviation“ and „Meaning“, the new record is to be stored into database by using button „Save“.

Abbreviation Arrow by the field name, pointed out that data in the table are sorted in ascending order. By clicking the link that represents the column title, it is possible to change the sort order from ascending to descending and vice versa. This action is possible to perform on each field that is marked as link (field title underlined). Therefore, you can notice on the Image No.5 that is possible to sort the data per all three criteria (Code, Abbreviation and Meaning)

1 - 4 Indicator of record numbers in the database. (Currently the cursor is positioned on the record 1 of total 4 records stored in the database).

It is necessary to mention that certain codes of domain data are predefined (similar to codes for types Faculty/Academia, University and Study Numeric identification will be given to all new codes).

The other frame also consists of data from database that shows the hierarchial organisation of data about organisational units. On this type of frame the following actions are possible:

Collapse all Action of collapsing the organisational structure in the way that only roof structure without superior elements are displayed.

Expand all Action of expanding the organisational structure in the way that all elements of the hierarchy are displayed.

Create Creation of new record in the organisational structure. By clicking the button a new form for data entry is opened.

Faculty of Agriculture and Food Technology

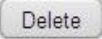
By clicking the arrow beside organisational unit title, all subordinate structures of selected elements will be displayed. In this case, click on the arrow will display all studies on Faculty of Agriculture.

The form for entering new one or update the existing organisational structure, is also opened in the central part of the screen and replaces the existing form, and links for navigation shows the order of the forms.

The screenshot shows the 'KPI-Key Performance Indicators' application. At the top, there is a 'Welcome: KPI' message and several flags. Below this is a navigation bar with four tabs: 'Home', 'I. Master data' (which is highlighted in red), 'II. Updating indicators', 'III. Displaying indicators', and 'IV. Interorganizational analysis'. Under the 'I. Master data' tab, there is a breadcrumb trail: 'Main menu > I. Master data > Organizational structure > Edit organizational structure'. The main content area is titled 'Organizational structure' and contains a form with the following fields: 'Type' (a dropdown menu showing 'Faculty/Academy'), 'Organizational unit code' (a text box with '10001'), 'Abbreviation' (a text box with 'APTF'), 'Full name' (a text box with 'Faculty of Agriculture and Food Technology'), 'Area of study programme' (a dropdown menu showing '-- Select study programme area--'), 'Upper organizational structure' (a dropdown menu showing '-University of Mostar'), and 'Duration of the study program (years)' (a text box with '0'). At the top right of the form, there are three buttons: 'Cancel', 'Delete', and 'Apply changes'.

Image 7. Entry/Update of data about organisational structure

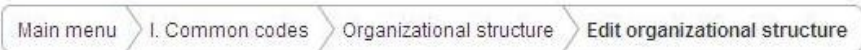
On image 7. it is possible to notice more additional elements of interface that used throughout the application:

 Button for action of deleting the database entry.

* Organizational unit code Prompt of data to be entered .

Parent organizational unit 

Data entry by using list with possible values

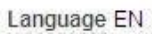


By clicking the link „Organisational structure” the user is returned on the screen, where he started with updating the data about organisational structure.

It is essential to mention that all elements of the screen are part of generally adopted standard web interfaces and that is very easy to navigate through this interface for average user of Internet.

2.3. Status part of screen

Status part of the screen holds status messages. Currently, only message about language in use, is active.

 Indication that application on English language is currently active.

By changing the language options, the language of interface is changed, and language of data from the database is also changed. For example, the user changes the language into English, by using the previously described link in the form of flag. The screen from Image 7. would have the following layout:

The screenshot shows the 'KPI-Key Performance Indicators' application interface. At the top, there is a 'Welcome: KPI' message and several flags. Below this is a navigation bar with tabs: 'Home', 'I. Master data' (selected), 'II. Updating indicators', 'III. Displaying indicators', 'IV. Interorganizational analysis', and 'Administration'. Under the 'I. Master data' tab, there is a sub-menu with 'Main menu', 'I. Master data', 'Organizational structure', and 'Edit organizational structure'. The 'Organizational structure' form is displayed, featuring fields for 'Type' (set to 'Faculty/Academy'), 'Organizational unit code' (10001), 'Abbreviation' (APTF), 'Full name' (Faculty of Agriculture and Food Technology), 'Area of study programme' (a dropdown menu), 'Upper organizational structure' (University of Mostar), and 'Duration of the study program (years)' (0). There are 'Cancel', 'Delete', and 'Apply changes' buttons at the top right of the form.

Image 8. Entry/Update of data about organisational structure in English version of the application

It is important to note that the record in the English language has been created simultaneously with the creation of records in a language that was active when the user has created the original record on the Faculty of Agriculture. In order to localize the data to the application language, it is necessary to activate the desired language and update the descriptive information (name of faculty in this case).

6.5. Master data

The basis of any quality software, among other things, is high-quality master database. Using link I. Master data, the form, with a links to access the interface for maintaining of the following groups of master data, is activated.

- Academic and calendar years
- Organisational structure
- Academic and administrative staff
- Definition of indicators



Image 9. Application Master data

6.5.1 Academic and Calendar Years

Academic and calendar years are important because they determine the interval of indicator measurement.

One entry in the table “Years” represents one academic year, and also the calendar year, on which indicators later associate to. The data to be entered are:

- Academic year
- Date of academic year starting date
- Date of academic year end date
- Calendar year

<input type="checkbox"/>	Year	Start	End	Calendar Year
<input type="checkbox"/>	2012/2013	01.10.2012	30.09.2013	2013
<input type="checkbox"/>	2011/2012	01.10.2011	30.09.2012	2012
<input type="checkbox"/>	2010/2011	01.10.2010	30.09.2011	2011
<input type="checkbox"/>	2009/2010	01.10.2009	30.09.2010	2010
<input type="checkbox"/>	2008/2009	01.10.2008	30.09.2009	2009
<input type="checkbox"/>	2007/2008	01.10.2007	30.09.2008	2008
<input type="checkbox"/>	2006/2007	01.10.2006	30.09.2007	2007
<input type="checkbox"/>	2005/2006	01.10.2005	30.09.2006	2006
<input type="checkbox"/>	2004/2005	01.10.2004	30.09.2005	2005
<input type="checkbox"/>	2003/2004	01.10.2003	30.09.2004	2004

Image 10. Maintaining of table of years

6.5.2 Organisational structure

The organizational structure in USKPI software is set hierarchically and presented with the following data:

- Organisational unit type
- Code
- Abbreviation
- Title
- Field of study program
- Superior organisational unit
- Duration in years (for studies)

Interface to maintain data on organizational units has been described in the previous section. It is important to note that category of users which is responsible for maintaining master data (administrator role), have access to the codebook of the organizational structure.

These users can fully maintain the codebook, while other users can view those parts of the organizational structure they belong. The predefined domain fields of study programmes are set in the USKPI software. It is shown in Image 11.

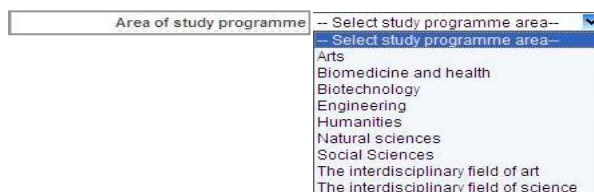


Image 10. Domain of study program fields

The selection of data from this domain is possible only with entry and update of data for organizational unit type „Study“.

6.5.3 Academic and administrative staff

USKPI software provides the analytical monitoring of certain indicators, on the level of staff employed in the organizational structure that is observed. Form for the maintenance of academic and administrative staff provides entry and update information on this staff. Data to be recorded for a single person are as follows:

- staff type
- person code
- Name
- Last name
- Occupation/Profession
- Faculty/Academia

For entry of data about staff type a domain with predefined values is created:

- Academic staff
- Administrative staff,
- and for entry of data about occupation, respectively profession a domain with predefined values is created:
- assistant
- docent
- associate professor
- lector/expert assistant
- junior assistant
- full professor

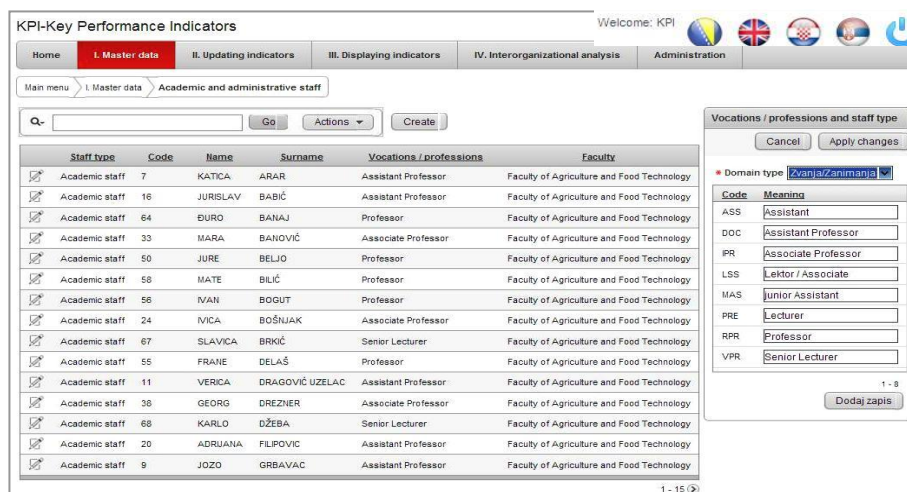


Image 12. Academic and administrative staff

Updating of these domains is ensured, because it may be necessary to record other staff types with some other occupassions/professions, in future use of the application.

6.5.4. Definition of indicators

The most important part of the master data is definitions of indicators. This part of the master data must be maintained carefully in order to correctly apply each individual indicator definition data. For this reason, the definition of the indicators will be described in detail. We will use Indicator of group I- Management - I.01.1 Index of financial resources - the total budget in the description. By selecting the link "Definitions of indicators", the screen (Image 12) displaying a group of indicators activates. The indicators are arranged in groups according to their respective affinities, to facilitate later retrieval and display its values. USKPI software comes with predefined groups for agreed common indicators. These groups are as follows:

- Management
- Education
- Research
- Cooperation with the environment
- Financing
- Internationalization
- Human resources
- Student services

By clicking on the "New Record" button, the form for entering a new group, opens. Updating data of an existing group can be performed by clicking on the icon "Edit" which opens the previously mentioned form filled in with the available data.

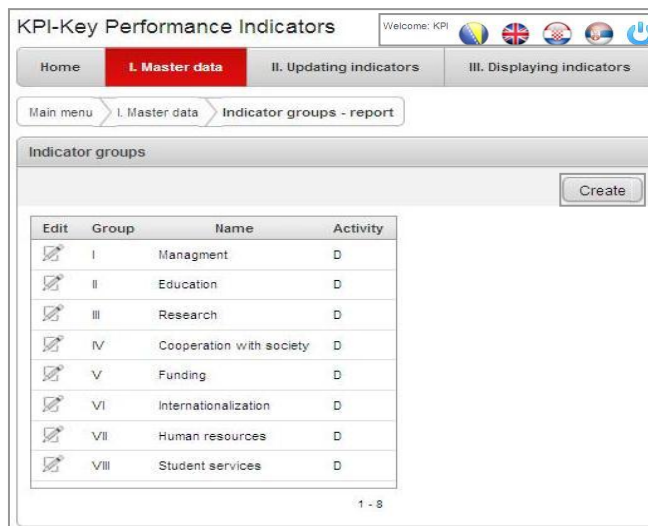


Image 13. Groups of indicators

Along with the display and the ability to update data about the group, a table of indicators which belong to a selected group is displayed (Image 14).

Welcome: KPI

KPI-Key Performance Indicators

Home I. Master data II. Updating indicators III. Displaying indicators IV. Interorganizational analysis

Main menu I. Master data Indicator groups - report Master Detail

Cancel Delete Apply changes Create

* Group

* Name

* Activity ☒ Yes

1 of 8

Edit	Indicator	Name
	I.01.1	Index of financial resources - total budget
	I.01.2	Index of financial resources - students fees
	I.01.3	Index of financial resources - research projects (domestics)
	I.01.4	Index of financial resources - EU projects
	I.01.5	Indexes of financial resources - donations
	I.02	Realization of strategic plan (% of realization annually)
	I.03.1	Total budget per employers
	I.03.2	Total budget per students
	I.04.1	Web visibility of main strategic documents
	I.04.2	Visibility of main strategic documents in other media
	I.04.3	Visibility of main strategic documents - public presentation

1 - 11

Image 14. Table of indicators

Adding a new of indicator to the selected group is enabled by clicking on the "New Record" button. Data on individual indicator will be explained as noted previously on I.01.1 indicator indices of financial resources - the total budget. Clicking the "Edit" button next to this indicator, activates the screen with detailed information about indicator.

Details of individual indicator definition are creted based on form for definition of indicator (Attachment 1) and those are as follows:

Group id - Group identifier is data that USKPI automatically assign to the indicator, in order to ensure the connection between indicator and individual indicator.

Indicator - Code of indicator. Codes are not assigned automatically. The user assigns a code, and according to the group and its code, data on the indicators in use in USKPI software are being sorted. Before the creation of individual indicators it is necessary to create new groups of indicators and related individual indicators and to adequately encrypt them in order to have clear and logical views. During encryption of common indicators, groups are marked with Roman numerals, while the single indicator get its code that consists of code of group, code of subgroup and code of indicator. Thus for a given indicator, code "I.01.1" means:

- I. – group
- 01. – subgroup "Indexes of financial resources"
- 1. – total budget

Name -Abbreviated name of indicator. This name is being used together with its code during the search and display od indicator's value. Target value - Each indicator should have a specific target value set at the university level. The indicators in this image are compared with this value.

KPI-Key Performance Indicators

Welcome: KPI

Home I. Master data II. Updating indicators III. Displaying indicators IV. Interorganizational analysis Administration

Main menu I. Master data Indicator groups - report Master Detail Edit indikatora

Edit indicator data

Cancel Delete Apply changes

* Group Id 3869

* Indicator 1.01.1

* Name Index of financial resources - total budget

* Target value 1.20

* Interval of measurements per Calendar Year

* Measurement moments February

* Measurement unit indeks

* The degree of confidentiality Faculty

* Level Faculty/Academy

* Method of calculating ☐ Absolute value ☒ Quotient

* Sign ☒ Positive ☐ Negative

* Analytics Y/N No

Analytic type

* Numerator Total budget of current year

Denominator Total budget of previous year

* Trend down 0.02

* Trend up 0.20

* Condition upper level 0.02

* Condition lower level 0.10

* Activity Y/N Yes

Descriptions

Image 15. Detailed data about indicator

Interval of
Measurement

The indicator can be measured at the level of academic or calendar year. Selection of the appropriate value is done by using list of values that offers these two options.

For this indicator the value of "calendar year" is selected because the value of the budget is adopted at the level of the calendar year (which is the fiscal year also), and the comparisons of this indicator are being done in this time interval.

Moment of
measurement

Each indicator should be measurable, but besides the method of measurement for it, the moment in which to measure this value is to be defined. Possible values of the selection are months of the calendar year.

Trend
Descending/Ascending

These data are relative indicators of the trend in observing changes in indicators year- over-year. In the case of Image 14, the lower limit of trend is of 0.02, while the upper limit is 0.20. What does this mean? By entering this information, the user has expressed a will that change of the value of

indicators observed in relation to the previous year, should not be below 0.02. If the value of the difference is below this value, the trend of change the indicator will be considered as declining. Value of its change between 0.02 and 0.20 would be considered as relative stagnation, and value above 0.20 would be considered as a growth trend. The values of these elements are a matter of evaluation for users of USKPI-I. This interpretation of trend limits is for indicators with a positive sign. For indicators with a negative sign it is necessary to reverse the logic. For example, if observed indicator is negative, then the values of 0.02 and 0.20 will change their places, given that it is desirable the difference between indicators for observed and prior periods would be as small as possible.

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

Condition

Growth/Decline

Different levels of indicator change, activates warning alarms in relation with necessity to take certain actions in order to achieve the set goals. Upper and lower limit of these indicators should not necessarily be the same as the limits of the trend described above. The user defines the lower limit of the condition in a manner that it warns the value of difference below this limit implies a condition that requires an action. The difference positioned between the lower and upper limit represents a zone of anticipatory state. The difference above the upper limit presents the positive condition of the indicator and doesn't require a correcting action. Signs of the condition are presented in the following way:



Condition requires an action

Warning condition

Positive condition

The presented definitions refer to positive indicators and for indicators with negative sign, it is necessary to reverse the logic in defining lower and upper limit of condition indicators.

Activity

Indication of indicator activity. Possible values are Yes and No. The value „Yes“ means that the indicator is active, which means it is in use. The value of "No" means that this indicator is not currently in use.

In the bottom of the screen link "descriptions" is visible. Activation of this link on the screen opens the possibility for entering detailed descriptive information, related to the individual indicator. It is possible to enter information relating to descriptions of the following categories:

- Strategic goal
- Purpose
- Interpretation
- Procedure of measurement
- Data source.

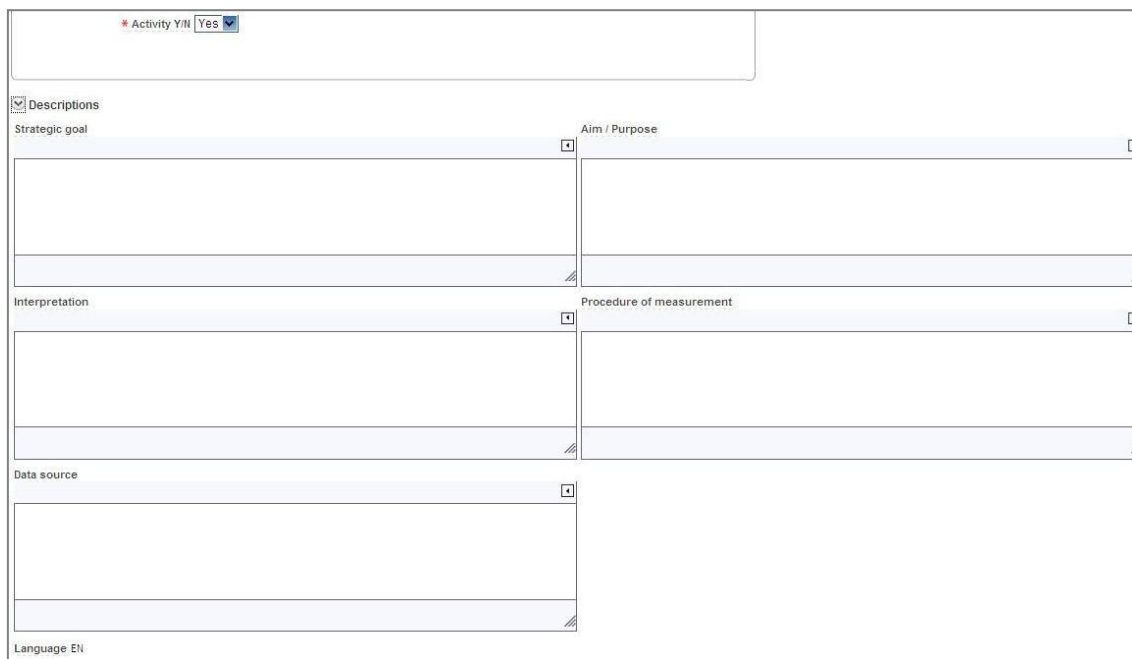


Image 16. Additional elements of indicators

Since this is a larger amount of text describing the individual category, entry fields can be expanded or you can activate the toolbar to format the entered text. An example of the increased entry field and the formatting toolbar is shown in Image 17.

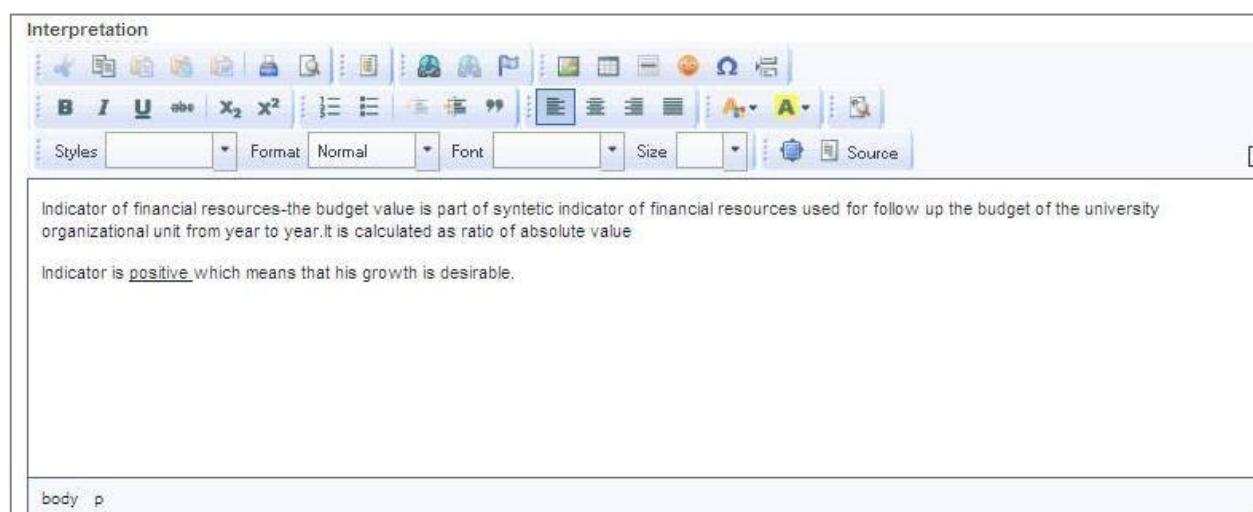


Image 17. Edit of indicator interpretation

6.6. Update of indicators

Options of USKPI, which provides update of values of individual indicators, are accessible through the interface menu II.Updating indicators.



Image 18. Options of updating the indicators

USKPI provides two ways for updating indicators and its analytics:

- Manual entry and update of indicator value
- Acquisition of data from excel CSV files

6.6.1. Manual data entry

For users that want to manually enter the data into database, USKPI software provides user interface for fast and simple data entry. Process of data entry is based on universal definitions of KPI indicators and is led by them.

Data entry can be done by a person who is assigned with the relevant role in the system. A person who enters the data, can enter data on the level at which administrator allow it (university, college, studies, etc.). Validation procedures control each individual entry of the data, whether it is about controlling domain of the data or about logical correctness of numerical and descriptive data. Procedure of validation ensures logical accuracy and consistency of the entire record prior to its recording into the database.

Entry of indicator into the database in the language of the user, who made the entry, means simultaneous entry and update of the indicator in all active languages of the USKPI system. Unlike

other data (master data of USKPI system), in addition to the data entry, an update is also being done in all languages, in this part of the system, because it is a purely numerical data. Method of data entry will be presented on the example of the group indicator I-Management.

The screenshot shows the 'KPI-Key Performance Indicators' web application. The top navigation bar includes 'Home', 'I. Master data', 'II. Updating indicators' (which is highlighted), 'III. Displaying indicators', 'IV. Interorganizational analysis', and 'Administration'. Below the navigation bar is a breadcrumb trail: 'Main menu > II. Updating indicators > Updating indicators'. The main content area is divided into two sections. The first section, 'Data input parameters', contains four dropdown menus: 'From year' (with a hint 'Select academic year'), 'To year', 'Organizational unit' (with a hint 'Select Organizational Unit'), and 'Group' (with a hint 'Select group'). There is also an 'Indicator' dropdown with a hint 'Select indicator'. A 'Fill indicators' button is located to the right of these dropdowns. The second section, 'Tabular Form', contains a table with columns: 'Academic year', 'Cal. year', 'Organizational unit', 'Group', 'Indicator', 'Value', and 'Value'. Below the table, there is a 'Download Excel' link and the text 'No data found.' To the right of the table are 'Cancel' and 'Apply changes' buttons.

Image 19. Screen for update of indicaor value

Form consists of two basic parts: Part for parametrization of data entry and part for update of indicators.

The first part of the form is used to entry the parameters which narrows the set of indicators that you want to enter or update. The initial database contains only the definition of indicators, but not their entry per academic / calendar years in the desired organizational structure. Therefore, it is necessary to load this database with values of indicators.

Loading of database is carried out by using the parameters by which the user expresses his intention. Parameters are related to the period of time, organization and indicators:

- From year Enter the academic/calendar year from which we want to load the database
- To year Enter the year to which we want to load the database to
- Organization Enter the organization for which we load the data
- Group Enter the group of indicators which we want to load
- Indicator Enter the individual indicator if the intention of user is to load or update individual indicator. This data is optional and if we do not enter it, assumption is that user wants to load/update complete group of indicators

If the database contains indicators per given default parameters, they will be displayed in the table on the part of the screen for updating the data. Suppose we want to fill and update the indicator I.01.1 for the period 2009-2011 for the University of Mostar. In order to perform this action, the user should have the role of "Edit User" (purpose of roles was clarified in the section describing the administration of USKPI users). To be able to update the indicator values for all members of the University of Mostar, it is necessary that in the administrative settings this organizational unit is being granted to him. If these requirements are met, then the user has access to form in the image 18, and is applying the following parameters:

From year: 2008/2009

To year: 2010/2011

Organization: University of Mostar

Group: I-Management

Indicator: I.01.1 - I.01.1-Indexes of financial resources – total budget

Assuming that there is no values for these parameters in the database, the table of values of the indicators would be empty and would look like as in Image 20, and at the bottom of the screen we could see a message that no records has been found for the given criterion.

Image 20. Entry the parameters for updating of indicator values

In this case it is necessary to load the table of indicator values. By using the button "Load the indicators" records in the database would be created and displayed on screen with the message about successfully completion of the loading operation.

If the indicators, based on the given criteria, are in the database, the process of loading would not cause any updates to the data. Before you insert any records, a check of its existence is being performed, and in the case of its absence the record is going to be inserted.

Image 21. Screen for updating the indicators after loading process

Values for calculation of indicators are initially set to 0, and user is provided with the possibility to update its values through table. It is clear that for indicator I.01.1 the level of measurement is calendar year and it is presented in the table. Every row of the table consists of:

- Calendar year to which indicator applies
- Organizational unit to which indicator applies
- Group and name of the indicator
- Numerator amount
- Denominator amount

By using the link "Download Excel", for possible update of data that would be loaded into the database, creation of Excel file is provided. During creation of excel file, USKPI software offers initial file name `my_report_download.xls`

and offers the possibility of opening or saving a file. It is recommended that the file is saved under the name that describes its contents. By using MS Excel we can update data about the values of indicators and to prepare them for import into USKPI database. It should be noted that in the Excel file, just like in a form, it is only allowed to update data about indicator value, while other data should not be updated. These other data are used later in the proper import of data, and their update may affect on the occurrence of errors during the import.

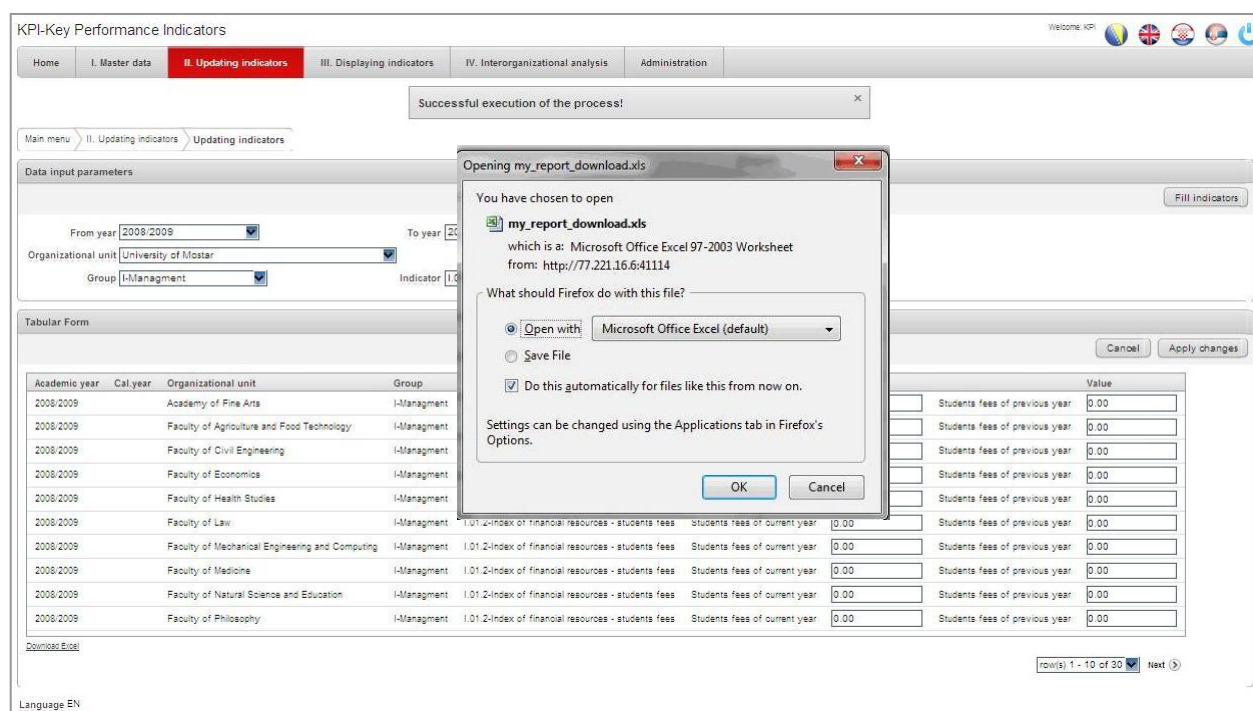


Image 22. Generating of excel file

6.6.2. Loading data from excel files

USKPI option for loading data is available by using link II. Updating indicators – Loading KPI values.



Image 23. Link for acquisition of data

As data loading is being done through use of CSV file format, it is necessary to open excel file and save it in CSV file format. The process is simple. After opening the Excel file with the data, the file should be saved in CSV format using the option "Save As" as evident from Image 23.

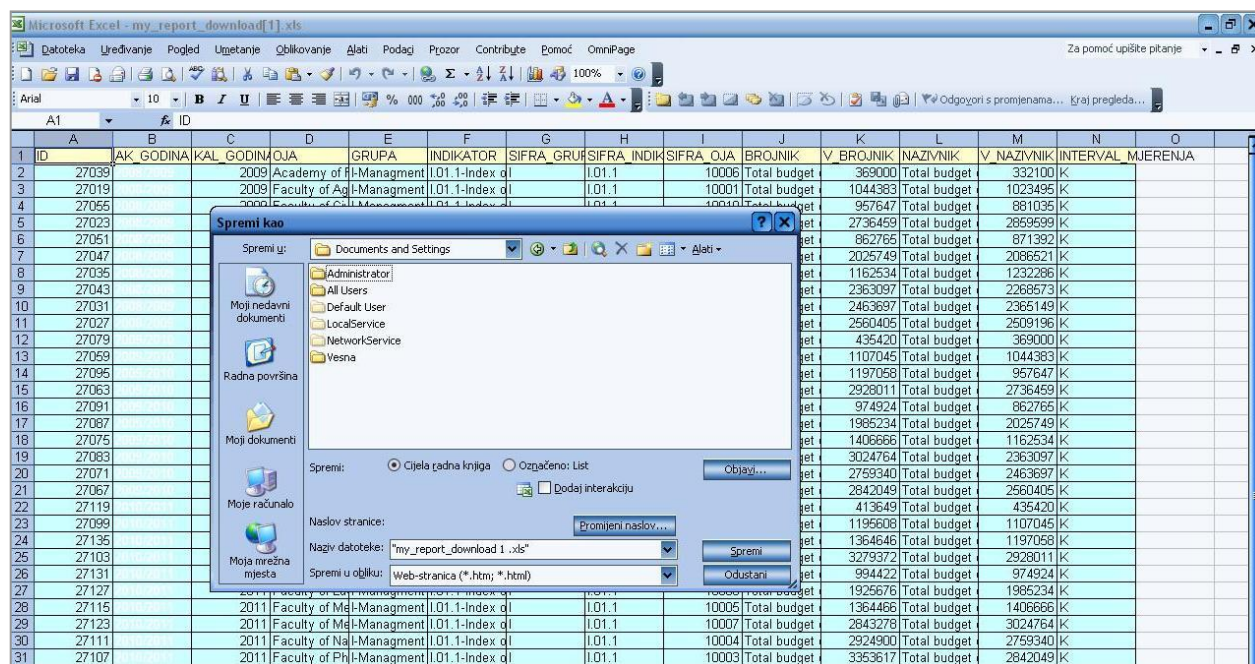


Image 23. Saving a file with data in CSV format

The process of loading the data requires few steps through which USKPI lead the user with its intuitive interface:

- Definition of data source for loading
- Mapping data/tables
- Validation of data
- Display of loading results.

The first step defines the type of data sources. In addition to the CSV file, user can manually paste the tab delimited data in the space provided for it. The example of import which is processed in this manual provides the use of CSV files. Therefore, in the file name field it is necessary to enter the full path to the data source.

Button "Browse" opens the standard interface of the operating system for location and selection of files.

The CSV files commonly use a character ',' (semicolon) as separator. This information is provided in the field separator. If the user uses a different separator it should be entered in this field. When creating a CSV file, it is possible to close the data with quotation marks. This option is at the user's disposal, and if he use it, it is necessary to define which character is used for restricting the data. As excel file used for updating of data, uses the first row for the table column names, it is important to mark this by using check mark in the field "First row contains column names." During definition of the data source, the first screen contains the information on globalization: the currency symbol, group separator and decimal character. Used symbols of this kind must be reported. In this example, comma is used as decimal character, which is important to enter, while the group separator and currency symbol were not used at all. After completing the data that have been previously explained, the user goes to the next step, and he uses the button "Next>".

KPI-Key Performance Indicators

Home I. Master data **II. Updating indicators** III. Displaying indicators IV. Interorganizational analysis Administration

Main menu > II. Updating indicators > KPI loading

Data source

Data source [Cancel] [Next >]

Importing from ☒ Upload file, comma separated (*.csv) or tab delimited ☐ Copy and Paste

* File name C:\Documents and Settings\Val... [Browse...]

* Separator :

Optionally enclosed by "

First row contains column names ☒ Yes

Globalization

Currency \$

Group separator ,

Decimal sign .

Image 24. First step in data import

The next step informatively displays a table of data that USKPI software read from the file for loading. The user can view the data to import without having to change anything in the table. The table shows all rows with the data and column names.

Column Names	Do Not Load	AK_GODINA	Do Not Load	OJA - varcha	GRUPA - var	INDIKATOR - varchar(255)	SIFRA_GRP	SIFRA_IN
Row1	27039	2008/2009	2009	Academy of Fine Arts	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row2	27019	2008/2009	2009	Faculty of Agriculture and Food Technology	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row3	27065	2008/2009	2009	Faculty of Civil Engineering	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row4	27023	2008/2009	2009	Faculty of Economics	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row5	27061	2008/2009	2009	Faculty of Health Studies	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row6	27047	2008/2009	2009	Faculty of Law	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row7	27035	2008/2009	2009	Faculty of Mechanical Engineering and Computing	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row8	27043	2008/2009	2009	Faculty of Medicine	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1
Row9	27031	2008/2009	2009	Faculty of Natural Science and Education	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1

Image 25. Second step in data import

The next step is validation of data. USKPI shows the sequence of actions for performing of data import into the database of indicator values. With each sequence of data, the action and logical error of the data is displayed. If the error is displayed, the user is able to stop the import process, repair the data and start the import again.

Sequence	Action	AK_GODINA	OJA	GRUPA	INDIKATOR	SIFRA_GRP	SIFRA_INDIKATOR	SIFRA_OJA	BROJNIK_V	BROJNIK	NAZIVNIK	NAZIVNIK
1	INSERT	2008/2009	Academy of Fine Arts	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10008	Total budget of current year	369000	Total budget of previous year	332100
2	INSERT	2008/2009	Faculty of Agriculture and Food Technology	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10001	Total budget of current year	1044383	Total budget of previous year	1023495
3	INSERT	2008/2009	Faculty of Civil Engineering	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10010	Total budget of current year	957647	Total budget of previous year	981035
4	INSERT	2008/2009	Faculty of Economics	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10002	Total budget of current year	2736459	Total budget of previous year	2859599
5	INSERT	2008/2009	Faculty of Health Studies	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10009	Total budget of current year	862765	Total budget of previous year	871392
6	INSERT	2008/2009	Faculty of Law	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10008	Total budget of current year	2025749	Total budget of previous year	2086521
7	INSERT	2008/2009	Faculty of Mechanical Engineering and	I-Management	I.01.1-Index of financial resources - total budget	I	I.01.1	10005	Total budget of current year	1182534	Total budget of previous year	1232286

Image 26. Third step in data import

Having confirmed the correctness of data, the last step follows - loading of data. Using the same button name, the process of loading starts and the result of loading is displayed on the last screen of the process: the number of new, updated and incorrect entries.

Image 27. Last step in data import

On the previously described screen for update of the indicators, quick and easy check of imported data can be done. Table of indicator values now shows data imported from the CSV file.

Academic year	Cal year	Organizational unit	Group	Indicator	Total budget of current year	Total budget of previous year
2009	2009	Academy of Fine Arts	I-Management	I.01.1-Index of financial resources - total budget	569,000.00	332,100.00
2009	2009	Faculty of Agriculture and Food Technology	I-Management	I.01.1-Index of financial resources - total budget	1,044,389.00	1,025,495.00
2009	2009	Faculty of Civil Engineering	I-Management	I.01.1-Index of financial resources - total budget	867,647.00	891,035.00
2009	2009	Faculty of Economics	I-Management	I.01.1-Index of financial resources - total budget	2,735,459.00	2,859,599.00
2009	2009	Faculty of Health Studies	I-Management	I.01.1-Index of financial resources - total budget	862,765.00	871,392.00
2009	2009	Faculty of Law	I-Management	I.01.1-Index of financial resources - total budget	2,025,749.00	2,086,521.00
2009	2009	Faculty of Mechanical Engineering and Computing	I-Management	I.01.1-Index of financial resources - total budget	1,162,634.00	1,232,286.00
2009	2009	Faculty of Medicine	I-Management	I.01.1-Index of financial resources - total budget	2,363,097.00	2,268,573.00
2009	2009	Faculty of Natural Science and Education	I-Management	I.01.1-Index of financial resources - total budget	2,463,697.00	2,365,149.00
2009	2009	Faculty of Philosophy	I-Management	I.01.1-Index of financial resources - total budget	2,550,405.00	2,509,196.00

Image 28. Values of loaded indicators

6.6.3 Analytics of indicators

Indicators which need more analytical description have this information in their definitions and type of analytics has been specified. We will take for an example the indicator VII.02.1, Ratio students / academic staff. From the initial definition of the indicator it is clear that indicator has its analytics and that it is of type Study -Year. What does this mean? By regular procedure for updating and uploading of data it is possible to set the value of this indicator at the level of the academic year and faculty. If the user wants and owns the analytics of this data, indication of number of students and academic staff at the individual study and year, then he is able to record this data and link them with a synthetic indicator. As this process is similar to the previously described one, a short overview of the process follows.

Edit indicator data

Cancel Delete Apply changes

* Group Id 3875

* Indicator VII.02.1

* Name Student/academic staff ratio: Number of students /number of lecturers

* Target value

* Interval of measurements per Academic Year

* Measurement moments February

* Measurement unit students/lecturers

* The degree of confidentiality Faculty

* Level Faculty/Academy

* Method of calculating ☐ Absolute value ☒ Quotient

* Sign ☒ Positive ☐ Negative

* Analytics Y/N Yes

Analytic type Study programme-Academic year

* Numerator Number of students

Denominator Number of lecturers

* Trend down

* Trend up

* Condition upper level

* Condition lower level

* Activity Y/N Yes

Image 29. Indicator VII.02.1 – Indicators for analytics existence

The process of manual update begins by selecting a parameter loading/ display. As a demonstration, we choose the academic year 2009/2010, Faculty of Agriculture, and the aforementioned parameter. From the pictures it is possible to notice that in the "offer" of indicators there is no other indicator because the analytics is not entered for any other indicator.

KPI-Key Performance Indicators

Welcome KPI

Home I. Master data II. Updating indicators III. Displaying indicators IV. Interorganizational analysis Administration

Main menu II. Updating indicators Updating KPI analytics

Input parameters

Academic year 2009/2010 Organizational unit Faculty of Agriculture and Food Technology Indicator -- Select KPI to update analytics data --

Fill KPI analytic

Tabular Form

Study programme Year Professor Value Iznos

Download Excel

No data found.

Cancel Apply changes

Image 30. Creating indicator analytics

By using the button "Fill KPI Analytics " analytics that creates records on indicator VII.02.1 and for all studies at the Faculty of Agriculture per study years is being created. The user must first enter the indicator at synthetic level (indicator VII.02.1 at the level of Faculty of Agriculture, through the process described in the previous two chapters) otherwise he gets a warning "Indicator for which you want to enter the analytics is not recorded". After loading the analytics for indicators, we could notice that both courses of the Faculty of Agriculture are visible in the table of analytics (General Course of Agriculture and Food Technology per years 1-3 with the possibility of entering the number of students and academic staff). For the presentation of the software purpose, we will enter fictitious data for these indicators.

The screenshot shows the 'KPI-Key Performance Indicators' software interface. The 'II. Updating indicators' tab is active. The 'Input parameters' section shows 'Academic year' as 2009/2010, 'Organizational unit' as Faculty of Agriculture and Food Technology, and 'Indicator' as VII Human resources/VII.02.1-Student/academic staff ratio: Number of students /number of lecturers. The 'Tabular Form' section contains a table with columns: Study programme, Year, Professor, Value, and Iznos. The table has 6 rows of data for two study programmes (OPCI SMJER AGRONOMIJA and PREHRAMBENA TEHNOLOGIJA) across three years (1, 2, 3). The 'Value' column has input fields for 'Number of students' and 'Number of lecturers'. The 'Iznos' column has input fields for 'Number of students' and 'Number of lecturers'. The table data is as follows:

Study programme	Year	Professor	Value	Iznos
OPCI SMJER AGRONOMIJA	1	Number of students	80.00	Number of lecturers 15.00
OPCI SMJER AGRONOMIJA	2	Number of students	80.00	Number of lecturers 13.00
OPCI SMJER AGRONOMIJA	3	Number of students	51.00	Number of lecturers 12.00
PREHRAMBENA TEHNOLOGIJA	1	Number of students	80.00	Number of lecturers 15.00
PREHRAMBENA TEHNOLOGIJA	2	Number of students	70.00	Number of lecturers 13.00
PREHRAMBENA TEHNOLOGIJA	3	Number of students	30.00	Number of lecturers 12.00

Image 31. Updating of indicator analytics

And for Analysis of indicators, as well as for the "synthetic" indicators, there is a possibility to export the data into Excel file, to update them and then import it into USKPI database. This process is almost identical to the previously described one, so it will not be separately explained.

6.7.Displaying indicators

The end-user of USKPI software searches the database of indicators with user interface by using the link on the tab III. Displaying indicators. The screen that displays indicators consists of three parts:

- Tree of indicators
- Tabular presentation of indicators
- Graphical presentaiton of indicators

In the first part, the user defines the parameters for the display of indicators. He has the possibility to select the referent academic / calendar year, the appropriate organizational unit for which he wants to display indicators, and group of indicators or individual indicator. In the example on Image 32, as the reference year, calendar year 2011 is selected. In tabular and graphical display, indicator is being displayed for the referent year and for previous year to it. Faculty of Agriculture is selected in the organizational structure. The user can select the organizational unit from the group of organizational units that are subordinate to that organizational unit assigned to him through administrative settings to

USKPI-I.

When selecting indicators it is possible to select a group of indicators from a tree or a single indicator. In this case, the indicator I.01.1 is selected, which is presented in the process of updating the value of the indicator.

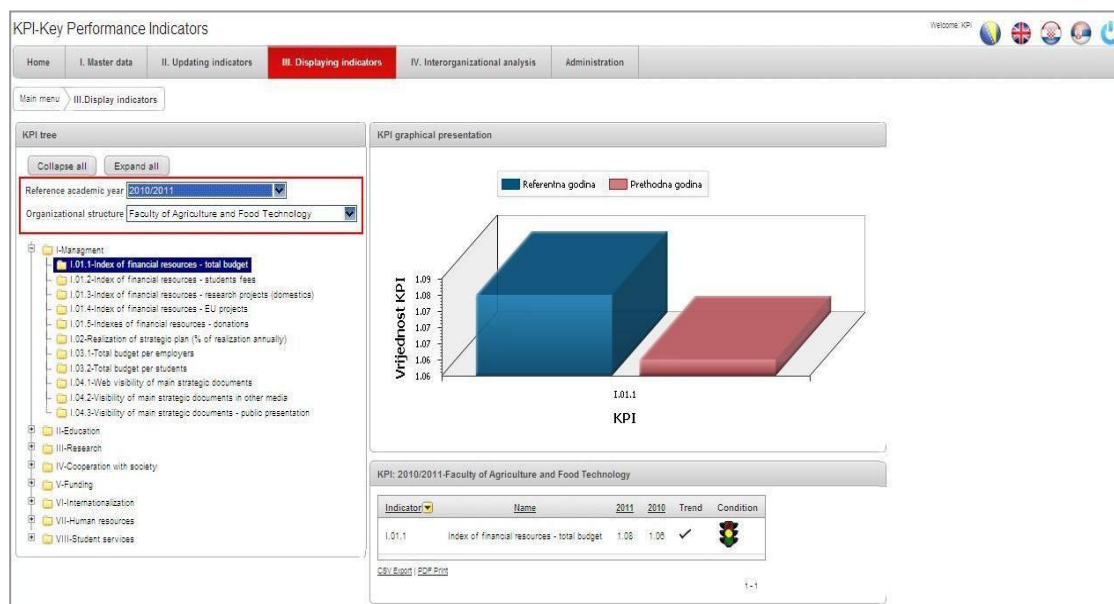


Image 32. Presentation of indicator I.01.1 for Faculty of Agriculture in the referent year 2011

Table of indicator values shows that the index which makes the quotient of the budget for current and previous year, for the 2011. year is 1,08 while for the previous year it is 1,06. These values of indicators are defined by index of relative stagnation of trend and warning condition of indicator state.

They are shown as symbols ✓ and 🚦. The following table will give an explanation of trend indications and condition in relation to reported parameters of indicator.

Table 1. Indications of trend for concrete example

Trend down	Trend up	Index 2011	Index 2010	Difference	Trend Indication
0,02	0,20	1,08	1,06	0,02	✓

Table 2. Possible situations of trend indications for indicator I.01.1

Index difference	Trend indicator
difference < 0,02	⬇ Declining
0,02 <= difference <= 0,20	✓ Relative stagnation
difference > 0,20	⬆ Growth

Table 3. Indications for state of index movement for a specific example

Condition down	Condition up	Index 2011	Index 2010	Difference	Condition Indication





0,02	0,10	1,08	1,06	0,02	
------	------	------	------	------	---

Table 4. Possible situations of indicator state for indicator I.01.1

Index difference	Status indicator
difference < 0,02	 Action required
0,02 <= difference <= 0,10	 Warning
difference > 0,10	 Positive

The user is able to see the data that were the source for the calculation of indicators. Moving the mouse pointer over the individual figure of graph will show the value of the indicator, but will also create a link for reviewing data about the indicator.

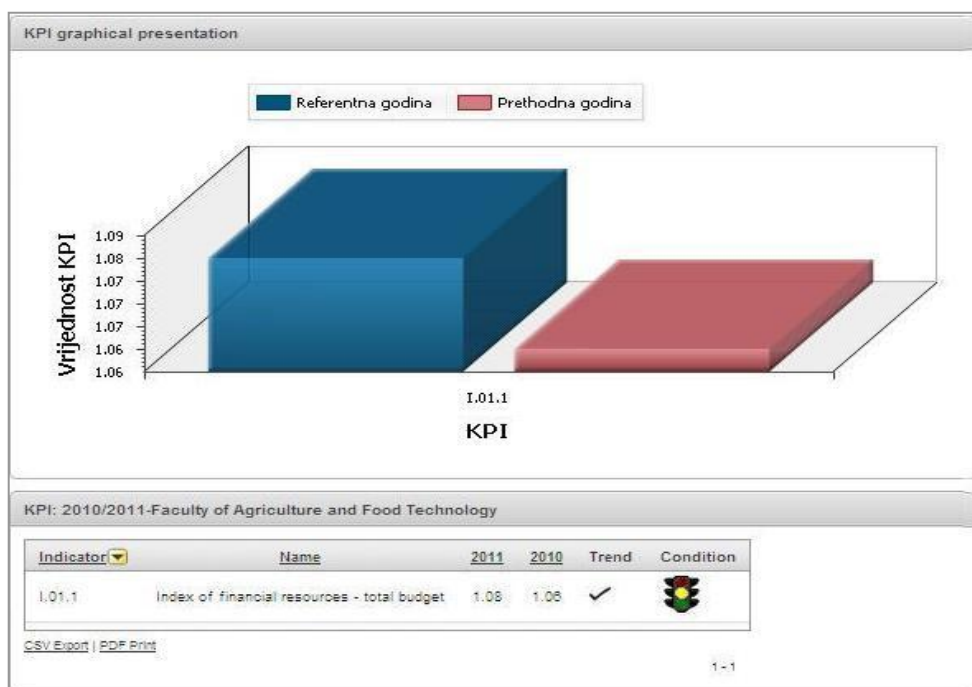


Image 33. Graphic presentation and link to table of values for calculation of indicator

Mouse click will display the table with the values of indicators and a graphic presentation of movement from year to year. Through this table all years are visible (academic or calendar) and not only those selected as a referent one and its previous year.

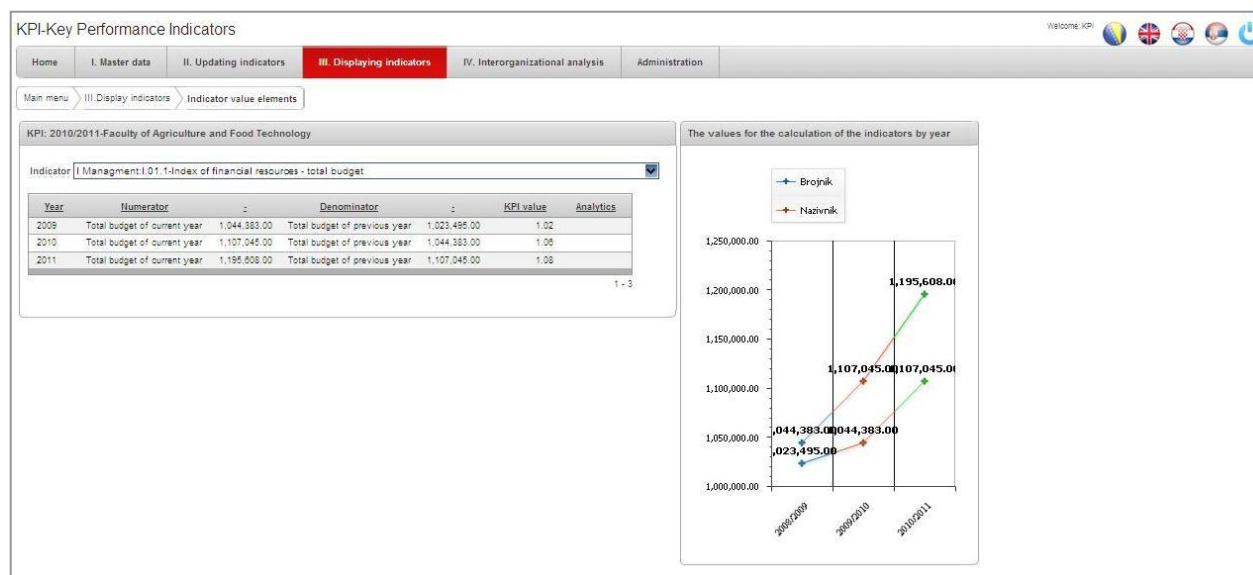


Image 34. Presentation of values for calculation of indicator per years

In the example of analytical indicator VII.02.1 a way the analytics is available will be dispalyed.

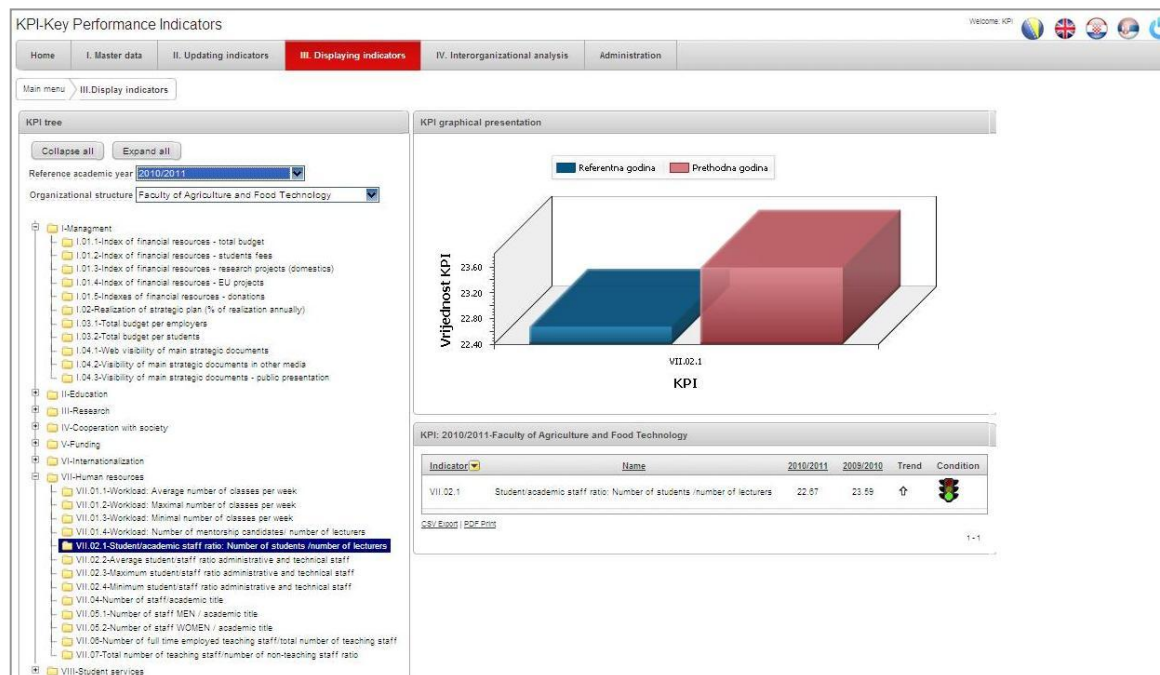


Image 35- Display of indicator VII.02.1

Click on the element of the graph will display values for the calculation of indicators, as well as link to Analytics of indicators.

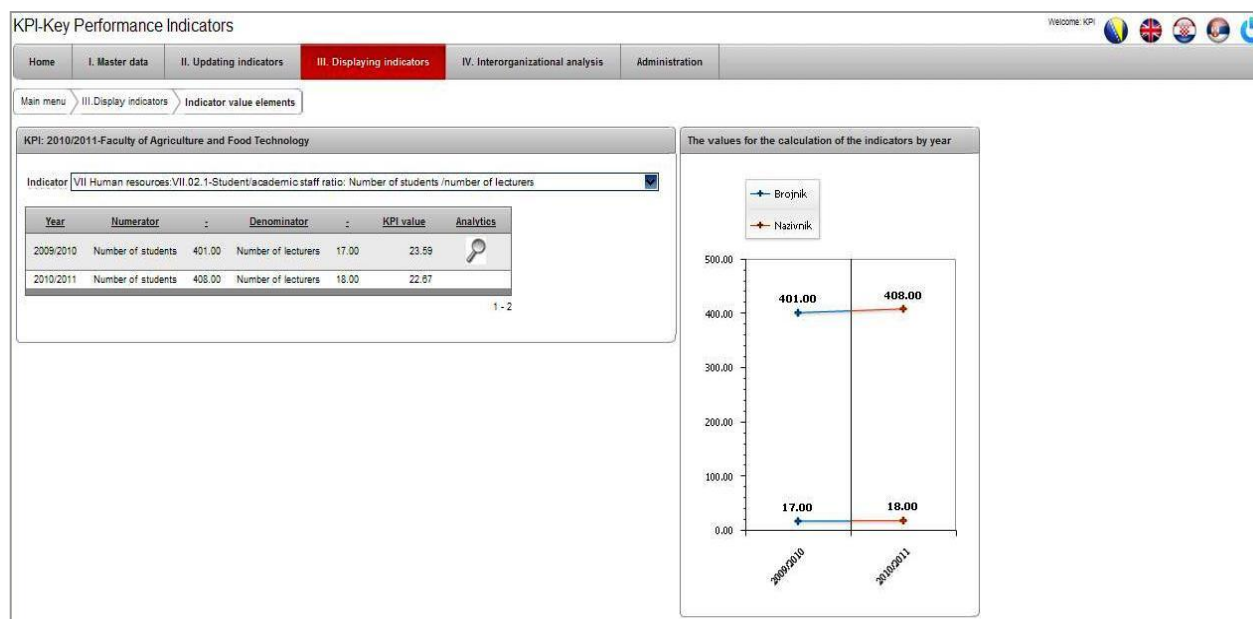


Image 36. Indexes for calculation of indicators with link to analytics

By clicking the link for analytics, a table of indicators analytics displays, which in this case shows the number of students and academic staff per study and study years.

Study programme	Professor	Year	Numerator	Iznos	Nazivnik	Iznos	KPI value
OPĆI SMJER AGRONOMIJA		1	Number of students	90	Number of lecturers	15	23.59
OPĆI SMJER AGRONOMIJA		2	Number of students	80	Number of lecturers	13	23.59
OPĆI SMJER AGRONOMIJA		3	Number of students	51	Number of lecturers	12	23.59
PREHRAMBENA TEHNOLOGIJA		1	Number of students	90	Number of lecturers	15	23.59
PREHRAMBENA TEHNOLOGIJA		2	Number of students	70	Number of lecturers	13	23.59
PREHRAMBENA TEHNOLOGIJA		3	Number of students	30	Number of lecturers	12	23.59

Image 37. Analitics of indicators

6.8. Interorganizational analyses

Interorganizational analysis shows the indicators per organizational units the user has the right to view. Parameters of display in this case are academic / calendar year and the indicator. For example of

displaying interorganizational analysis, we will select the 2011 calendar year and the indicator I.01.1. Image 38 shows the results obtained.

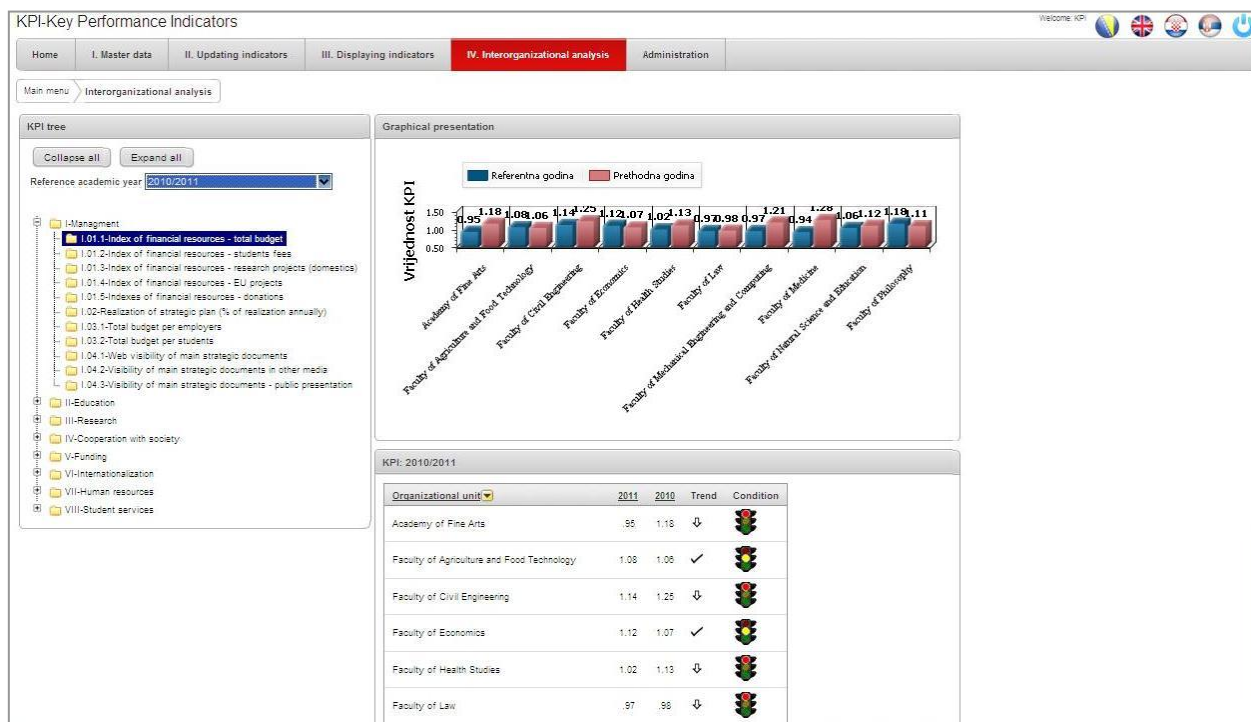


Image 38. Interorganizational analyses

Click on any graphic element will provide us with the possibility to see the values for the calculation of the indicators for selected organizational unit. If, for example, we click on the graphic presentation of indicators for the Faculty of Economics, a table of indicators from Image 39 will be provided.

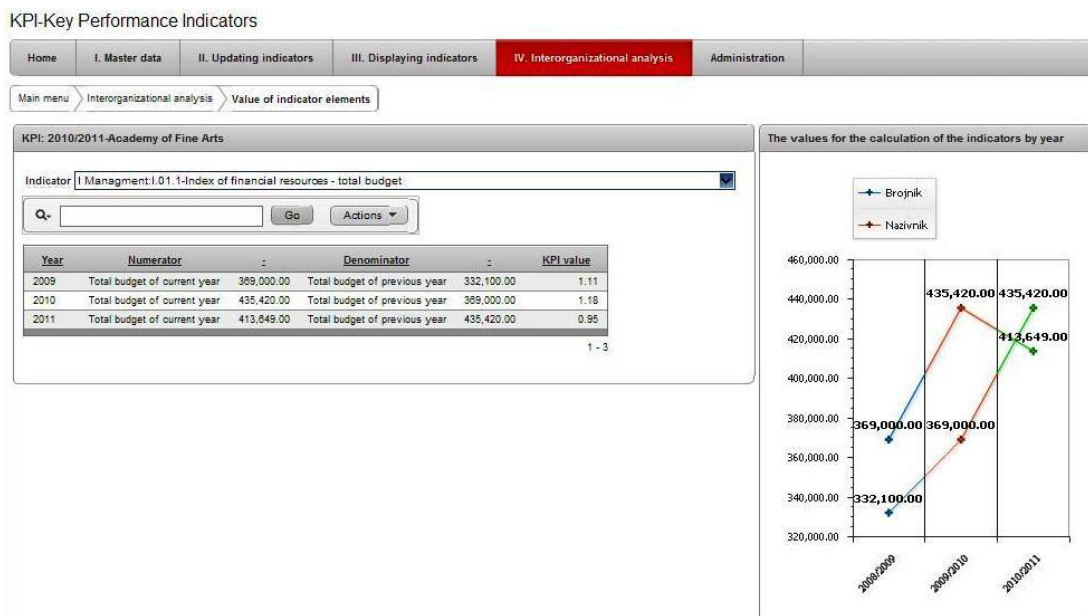


Image 39. Indexes for calculation of indicator I.01.1 for selected Faculty of Economics

6.9. Administration

Through the process of administration it is possible to create and maintain the users of USKPI software, administration and rights to work on application and to view the activities for individual user.

The initial screen for processes of administration contains a table of users with the following data:

- Last Name
- Name
- Username
- E-mail adress
- Activity of the user
- Date of validity for username
- Date of last access to the USKPI software
- Organizational affiliation
- User language
- Link for pasword change

KPI-Key Performance Indicators

Welcome KPI

Home

I. Master data

II. Updating indicators

III. Displaying indicators

IV. Interorganizational analysis

Administration

Main menuApplication users

Q-

Go

Actions

Create user

Surname	Name	Username	E-mail	Activity	Expiration date	Last Login	Organizational unit	Language	Chg Pwd	
	ADMIN	ADMIN	-	Ne	-	Wednesday, 21 December, 2011 16:24:26	University of Mostar	HR	Change password	
	ANALYZE	ANALYZE	-	Ne	-	Tuesday, 20 December, 2011 12:13:6	University of Mostar	HR	Change password	
	Demo	KPI	-	Da	29.02.2012	Friday, 17 February, 2012 13:41:4	University of Mostar	EN	Change password	
	Demo	SVEMO	-	Ne	31.01.2012	Wednesday, 18 January, 2012 20:52:21	University of Mostar	HR	Change password	
	Demo	UNBI	-	Ne	31.01.2012	Tuesday, 24 January, 2012 15:5:5	University of Mostar	BA	Change password	
	Demo	UNIBL	-	Ne	31.01.2012	Thursday, 19 January, 2012 11:41:8	University of Mostar	SR	Change password	
	Demo	UNMO	-	Ne	31.01.2012	Thursday, 26 January, 2012 8:38:1	University of Mostar	BA	Change password	
	Demo	UNSA	-	Ne	31.01.2012	Friday, 27 January, 2012 14:40:5	University of Mostar	BA	Change password	
	Demo	UNSSA	-	Ne	31.01.2012	Thursday, 19 January, 2012 10:36:13	University of Mostar	SR	Change password	
	Demo	UNTZ	-	Ne	31.01.2012	Monday, 23 January, 2012 14:19:41	University of Mostar	BA	Change password	
	Demo	UNZE	-	Ne	31.01.2012	Thursday, 26 January, 2012 9:9:59	University of Mostar	BA	Change password	
	Demo	User	DEMO	demo.user@gmail.com	Da	-	Thursday, 16 February, 2012 12:16:27	University of Mostar	HR	Change password
	EDIT	EDIT	-	Ne	-	Tuesday, 20 December, 2011 12:12:58	Faculty of Agriculture and Food Technology	HR	Change password	
	SUPERADMIN	SUPERADMIN	-	Ne	-	Tuesday, 20 December, 2011 12:12:28	University of Mostar	HR	Change password	
	Willem	vanden Berg	WILLEM	-	Da	-	?	EN	Change password	

Image 40. Users of USKPI

Creation of a new user is a process that is initiated by clicking on the button New User. Form for creation of users is the same as those for editing data on existing customer, which can be accessed by using the link for editing, which is located in the first column of each row of the table. For the purpose of explanation of data and process of maintenance the user, we will edit the data about the user “Demo User”.

For each user the following data are being entered:

Last name	Last name of the user
Name	Name of the user
Username	Username for access to USKPI system
E-mail	user email address

Activity	User activity Yes/No. It is very simply to block the access to the system for a user by setting this indicator to No.
Valid until	Date and time until the access to USKPI system for active user is possible
Organization	Organization to which user belongs. The user has right to access the data for this one and all subordinate organizational units.
Role	Roles are described in table 5.

The screenshot displays the 'Administration' tab of the 'KPI-Key Performance Indicators' system. It is divided into three main sections:

- Application users:** A form for configuring a user named 'KPI'. Fields include Surname, Name, User Name, E-mail, Activity (Yes), Expiration date (29.02.2012 23:59), Organizational unit (UNIVERSITY OF MOSTAR), Language (English), and role permissions (Superadministrator, Administrator, Edit user, Analyze user, Guest user, all set to No).
- User activity:** A table showing user actions. The table has columns: View Date, Page Name, Elapsed Time, Think Time, and Rows Queried. It lists 15 entries of user activity.
- Logging data:** A list of login timestamps, showing logins from Friday, 17 February 2012, to Saturday, 11 February 2012.

Image 41. Data for Demo user

Table 5. Roles in the system

Superadministrator	Administration of system of users and user work rights
Administrator	Generating of definitions of KPI indicators
Edit user	Acquisition of data for calculation of KPI indicators
Analyze user	KPI analyses
Guest	Public KPI analyses

Roles are placed hierarchically. This means that each role has rights assigned to her and all rights associated with the lower role. For example, the role of Superadministrator has rights for administration of user system and their rights to work in it, and all the rights that have Administrator, Edit role, Analyze role and Guest role.

In the region Logging data, it is possible to see all user loggings on application and in the region User activity, all user actions through USKPI system are visible.

6.10. Attachments

Attachment 1 . Form for unique definition of KPI indicator

Indicator Sheet	NR E37	BIH / uni	Version nr	Date:
<i>Domain</i>				
<i>Strategic goal</i>	Attractive and student-centered education			

<i>Name</i>	Short name of the indicator
<i>Aim / Purpose</i>	For which is the indicator a criterion?
<i>Interpretation</i>	How do we interpret the evolution of the values

<i>Procedure of measurement</i>	Exact way of measurement and calculation, possibly related to backside with detailed information about specific elements or references to sources		
<i>Source of the facts data input</i>	Where? Sample?		
<i>Target value)</i>	Threshold? Evolution in time		
<i>Interval of measurements</i>	Annually?	Measurement moments	February?
<i>Level(s)</i>	University, faculty, study programme, central service, library,		

Graphical presentation

--

	Responsible(s)	Methods
<i>Measurements</i>		When How
<i>Calculation</i>		Software, manually
<i>Visualisation</i>		Software, manually
<i>Intern reporting</i>		By whom to whom, confidentiality
<i>Analyse and discuss</i>		when, where, with whom, possible decisions
<i>External communication</i>		applicable
<i>Customize</i>		How it is decided to adjust indicator, measurements, standard value, sampling interval, time of measurement, indicator sheet ..

Wouter Van den Berghe Tilkon

7. SOFTWARE FOR STUDY PROGRAMME REGISTER

This manual focuses on introducing end users to the RSP application (Register of study programmes).

The Manual covers the following general topics by chapters:

- Introduction – purpose and description of the application - data managed by the application, login to the system and to the application, description of the work with the program
- Master data- Description of the work with the system of the application's master data
- Courses, Studies and Academic staff – Description of the application usage for the the purpose of updating data on courses, studies and academic staff
- Curricula – description of how the interface is used for updating the curriculum in the database
- Administration – Description of the process of administration of users and their rights to access to the application and data
- Presentation to the system end users– description of interface and its usage for the purpose of presenting the curriculum to interested parties.

7.1. Application purpose

Teaching processes on the University are performed according to established curricula. RSP is an electronic database lead by every University in B&H individually, while each of them has responsibility for maintenance of the concerned database. Application software RSP, provides registering and reporting on every business process related to maintenance and monitoring of data about register of study programmes (hereinafter Register). For accurate functioning of the system, it is necessary to ensure individual actions of all participants in the process of maintenance and usage of the system and harmonize data flows in order to give prompt and correct information to all participants in the process.

RSP is the software that ensures simple and quick method of gathering and presentation of key information related to the curricula.

- Basic elements of the software are the following:
- User interface to maintain a set of master data and courses and studies definitions
- User interface to maintain a set of data related to the curriculum for the academic years
- User interface for RSP database search
- Administering security settings

7.2. General characteristics of the application

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.

General characteristics of RSP 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 system users.
- The system produces 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 and recovery (engl. recovery and back up).

The system ensures:

- Validation procedures to prevent duplication of data
- Controls to ensure referential integrity of database
- The possibility of simultaneous operation of group (batch) and on-line activities
- Prevent access to data record in update phase
- Database as an exclusive place to maintain and archive data for each university where software is to be delivered
- That data from central database are not on the user's computers

RSP software is designed for 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. Choosing a particular language version of software is defined at the user level, and the user is able to use the software to change the current language version.

RSP software also provides the localization of data. Data are entered into database in the language variant used by user.

In the case one of local languages is being used, the data are recorded into database as local variation of the data.

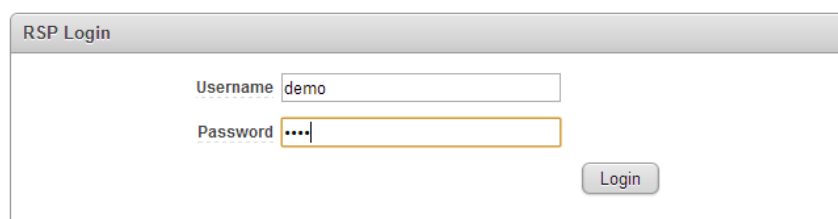
In the case English language is being used, English variant of data are being recorded into database.

Use of the application through the interface on one of the local languages presents a local variant of the data, while the use of the English version interface displays data in the English version. Data in both variants are independent from each other and should be independently maintained in the database. More information about all of this will be provided in the section of instructions that describes the work with concrete data.

7.3. Database login

In order to successfully start the application and proceed with using its possibilities, it is necessary to log into the application. The login procedure starts with entering the application web address into the user web browser.

The login form that looks like the one in Picture 1., appears on the screen.



The image shows a web-based login form titled "RSP Login". It features two input fields: "Username" containing the text "demo" and "Password" containing masked characters "....". A "Login" button is positioned at the bottom right of the form area.

Image 42. RSP Login Form

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 password you enter can not be seen for safety reasons (for each typed character the asterisk (*) is displayed.

After data entry it is necessary to press the ENTER key or click with mouse on the Login button. If you entered the correct data, the access to the main application screen is provided, and if data entry is not correct you will get the same login screen. Image No.43 shows the main application menu

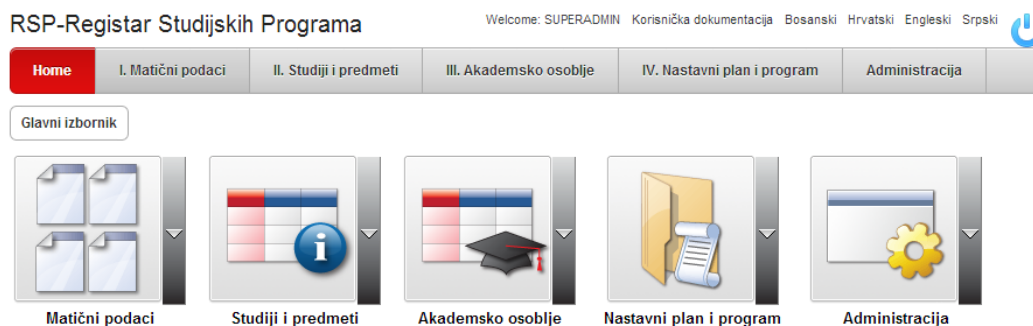


Image 43. Main application menu

7.4. User interface

Regardless of the purpose, each screen has certain common characteristics that make everyday work much easier for application user.

7.4.1. Basic screen layout

The following image shows one typical application screen:

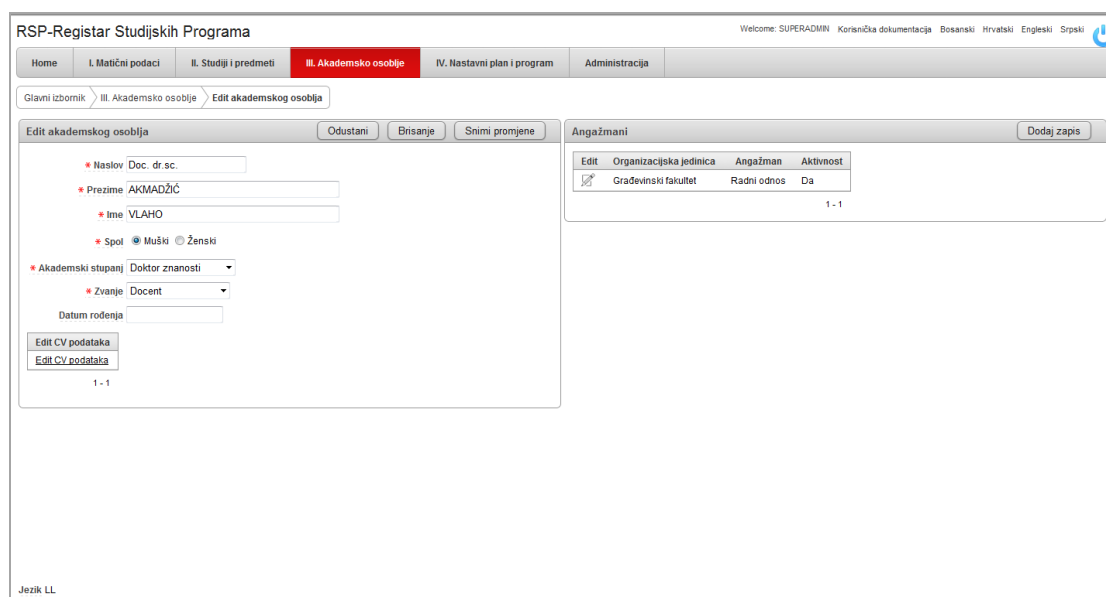


Image 44. Application screen

Three main parts of the screen can be distinguished:

- Header or upper part of the screen
- Central part of the screen
- Status or lower part of the screen

7.4.2. Screen heather

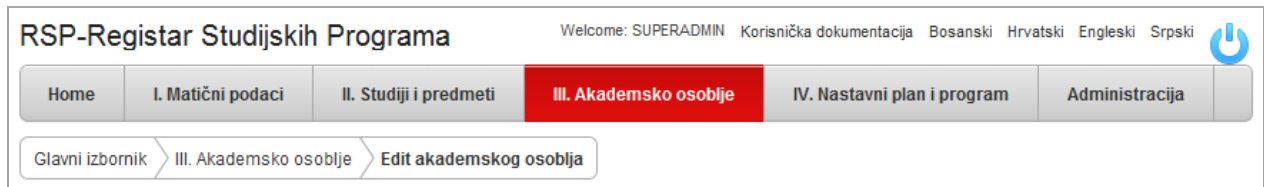


Image 45. Screen heather

Screen heather contains the application title, navigation elements that provide:

- change of application language version
- Bosnian language
- English language
- Croatian language
- Serbian language
- Application logout

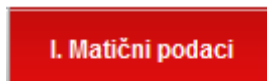


Logout

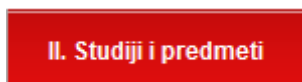
Navigation to interface for individual processes



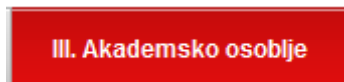
Navigation to Main Application Menu



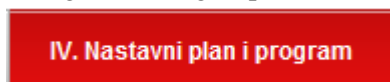
Navigation to a group of actions related to maintenance of master data



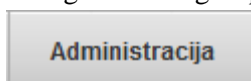
Navigation to a group of actions related to update of data on studies and courses



Navigation to a group of actions related to update of data on academic staff

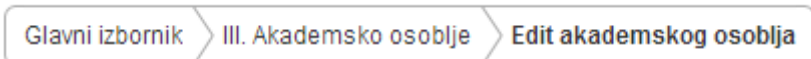


Navigation to a group of actions related to update of data on curricula



Navigation to screens for administration of users and their access rights.

Navigation within screens of individual processes



This navigation menu displays the sequence of selected actions to reach the currently displayed screen. In the displayed navigation, it is possible to take one or more steps backward by selecting any link.

7.4.4. Central part of the screen

Central part of each application form consists of display of data and actions possible to perform. For example on the Image No.5, actions possible to perform, using available form elements, will display.

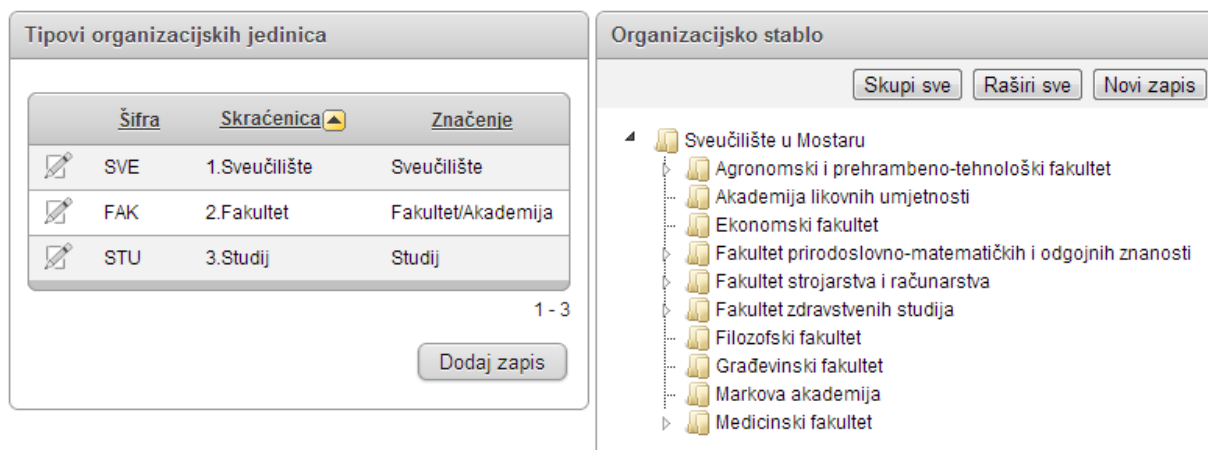
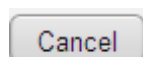


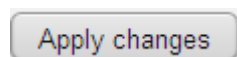
Image 46. Central part of the screen

The screen consists of two frames. In the first one it is possible to maintain data about type of organizational units, while in the other one, the organizational structure stored in the database, is displayed.

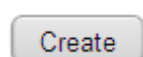
The meaning of each element of the first frame is the following:



By using this button, user leaves this form, and returns to previous form, in the hierarchy of the menu.



By using this button, changes on data the user performed are saved.



By using this button a new (empty) record in the table of type of organisational units, and user is provided with the possibility of entry data about new type. After entry the data into the fields „Abbreviation“ and „Meaning“, the new record is to be stored into database by using button „Save“.



Arrow situated by the field name, pointed out that data in the table are sorted in ascending order. By clicking the link that represents the column title, it is possible to change the sort order from ascending to descending and vice versa. This action is possible to perform on each

field that is marked as link (field title underlined). Therefore, you can notice on the Image No.46 that is possible to sort the data per all three criteria (Code, Abbreviation and Meaning)

1 - 4 Indicator for number of records in the database. (Currently the cursor is positioned on the record 1 of total 4 records stored in the database).

It is necessary to mention that certain codes of domein data are predefined (similar to codes for types Faculty/Academia, University and Study Numeric identification will be given to all new codes.

The other frame also consists of data from database that shows the hierarchial organisation of data about organisational units. On this type of frame the following actions are possible:

Skupi sve Action of collapsing the organizational structure in the way that only roof structure without superior elements are displayed.

Raširi sve Action of expanding the organisational structure in the way that all elements of the hierarchy are displayed.

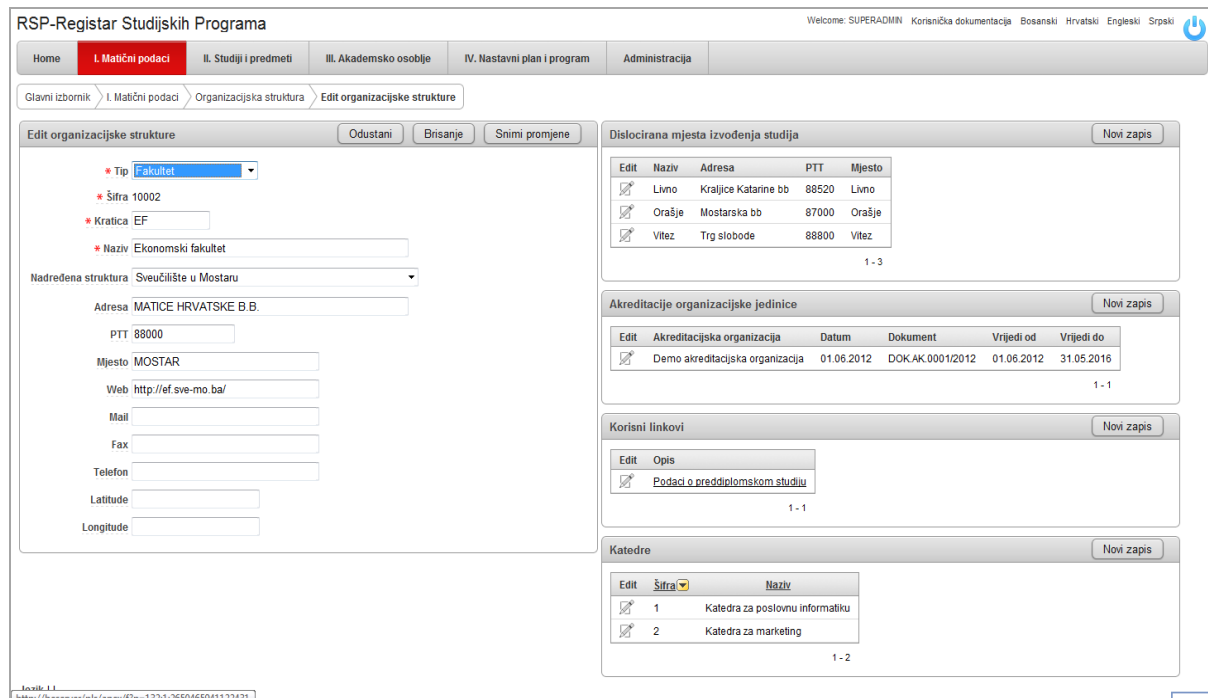
Novi zapis Creation of new record in the organisational structure. Ba clicking the button a new form for data entry is opened.

Faculty of Agriculture and Food Technology

By clicking the arrow beside organisational unit title, all subordinate structures of selected elements will be displayed. In this case, click on the arrow will display all studies on Faculty of Agriculture.

Faculty of Agriculture and Food Technology

By clicking the organisational unit title, the form for update of data on the selected organisational unit. The form for entering new one or update the existing organizational structure, is also opened in the central part of the screen, and replaces the existing form while the navigation links show the order of the forms.



RSP-Registar Studijskih Programa

Welcome: SUPERADMIN | Korisnička dokumentacija | Bosanski | Hrvatski | Engleski | Srpski

Home | **I. Matični podaci** | II. Studiji i predmeti | III. Akademsko osoblje | IV. Nastavni plan i program | Administracija

Glavni izbornik > I. Matični podaci > Organizacijska struktura > Edit organizacijske strukture

Edit organizacijske strukture | Odustani | Brisanje | Snimi promjene

* Tip: **Fakultet**

* Šifra: 10002

* Kratica: EF

* Naziv: Ekonomski fakultet

Nadređena struktura: Sveučilište u Mostaru

Adresa: MATICE HRVATSKE B.B.

PTT: 88000

Mjesto: MOSTAR

Web: http://ef.sve-mo.ba/

Mail:

Fax:

Telefon:

Latitude:

Longitude:

Dislocirana mjesta izvođenja studija | Novi zapis

Edit	Naziv	Adresa	PTT	Mjesto
<input checked="" type="checkbox"/>	Livno	Kraljice Katarine bb	88520	Livno
<input checked="" type="checkbox"/>	Orašje	Mostarska bb	87000	Orašje
<input checked="" type="checkbox"/>	Vitez	Trg slobode	88800	Vitez

1 - 3

Akreditacije organizacijske jedinice | Novi zapis

Edit	Akreditacijska organizacija	Datum	Dokument	Vrijedi od	Vrijedi do
<input checked="" type="checkbox"/>	Demo akreditacijska organizacija	01.06.2012	DOKAK.0001/2012	01.06.2012	31.05.2016

1 - 1

Korisni linkovi | Novi zapis

Edit	Opis
<input checked="" type="checkbox"/>	Podaci o preddiplomskom studiju

1 - 1

Katedre | Novi zapis

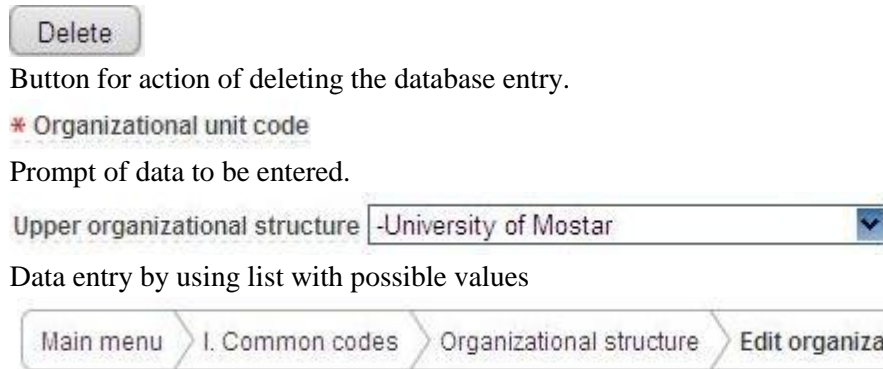
Edit	Šifra	Naziv
<input checked="" type="checkbox"/>	1	Katedra za poslovnu informatiku
<input checked="" type="checkbox"/>	2	Katedra za marketing

1 - 2

10/10/11
http://heserver/els/apeu/?id=1321:2650465941122431

Image 47. Entry/Update of data about organisational structure

On image 47. it is also possible to notice more additional elements of interface, that is being used throughout the application:



By clicking the link „Organizational structure“ the user is returned on the screen, where he started with updating the data about organizational structure.

It is essential to mention that all elements of the screen are part of generally adopted standard web interfaces and that is very easy to navigate through this interface for average user of Internet.

7.4.3. Status part of screen

Status part of the screen holds status messages. Currently, only message about language in use, is active.

Language EN Indication that application on English language is currently active.

By changing the language options, the language of interface is changed, and language of data from the database is also changed. For example, the user changes the language into English, by using the previously described link in the form of flag. The screen from Image 48. would obtain the following layout:

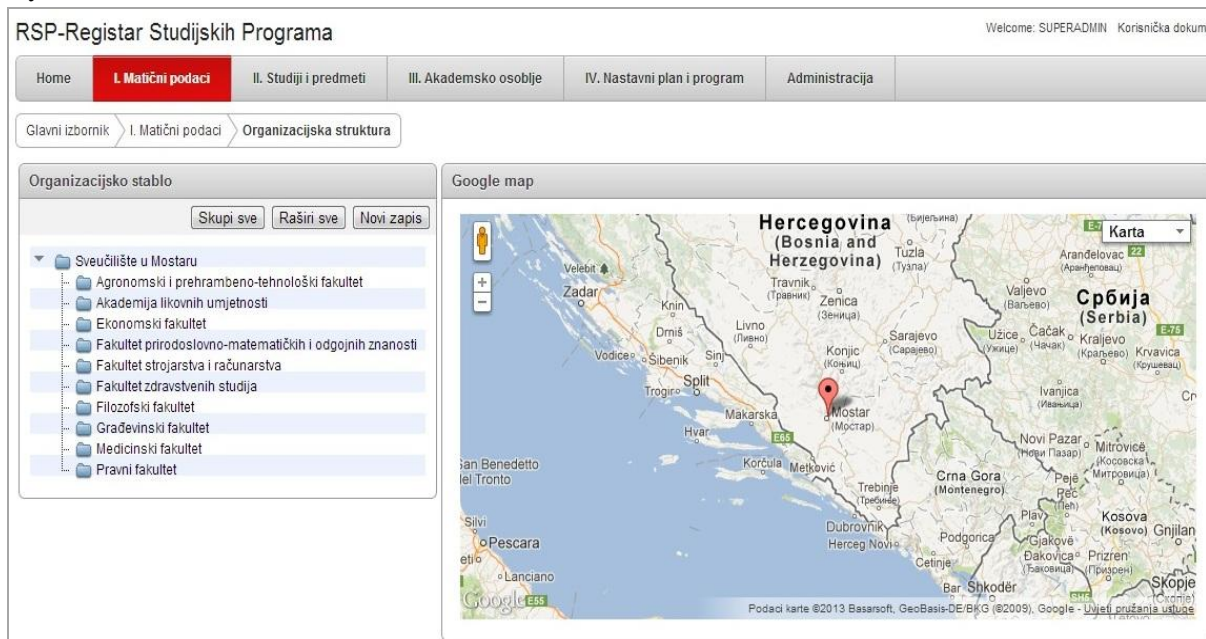


Image 48. Entry/Update of data about organisational structure in English version of the application

It is important to note that the record in the English language has been created simultaneously with the formation of records in a language that was active when the user has formed the original record of the Faculty of Agriculture. In order to localize the data to the application language, it is necessary to activate the desired language and update the descriptive information (name of faculty in this case).

7.5 Master data

The basis of any quality software, among other things, makes high-quality master data base. Using link I. Master data, the form, with a links to access the interface for maintaining of the following groups of master data, are activated:

- Countries
- Academic and calendar years
- Accreditation organizations
- Organisational structure
- Characteristics of studies and courses

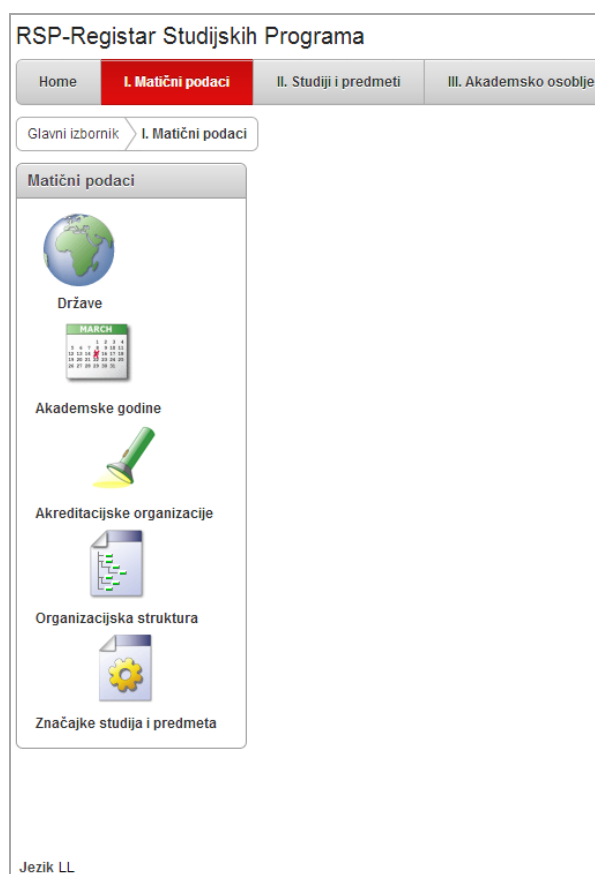


Image 49. Application Master data

7.5.1. Countries

List of country codes contains predefined set of data about countries. The data about country is used with accreditation organization, and with country and citizenship of professor when entering data about academic staff.

RSP-Registar Studijskih Programa Welcome: SUPERADMIN [Korisnička dokumentacija](#) [Bosanski](#) [Hrvatski](#) [Engleski](#) [Srpski](#)

Home **I. Matični podaci** II. Studiji i predmeti III. Akademsko osoblje IV. Nastavni plan i program Administracija

Glavni izbornik > I. Matični podaci > Države

Q- Go Actions Novi zapis

	Naziv	Eng Naziv	Troslovna Oznaka	Dvoslovna Oznaka
	AFGANISTAN	AFGHANISTAN	AFG	AF
	ALBANIJA	ALBANIA	ALB	AL
	ALŽIR	ALGERIA	DZA	DZ
	AMERIČKA SAMOA	AMERICAN SAMOA	ASM	AS
	AMERIČKI DJEVIČANSKI OTOCI	VIRGIN ISLANDS U.S.	VIR	VI
	ANDORA	ANDORRA	AND	B
	ANGOLA	ANGOLA	AGO	AO
	ANGUILLA1	ANGUILLA	AIA	AI
	ANTARKTIKA	ANTARCTICA	ATA	AQ
	ANTIGVA I BARBUDA	ANTIGUA AND BARBUDA	ATG	AG
	ARGENTINA	ARGENTINA	ARG	AR
	ARMENIJA	ARMENIA	ARM	AM
	ARUBA	ARUBA	ABW	AW
	AUSTRALIJA	AUSTRALIA	AUS	AU
	AUSTRIJAA	AUSTRIA	AUT	AT

1 - 15

Slika 50. Maintenance of country codes

7.5.2 Academic years

Codebook of academic years is essential for determining the basis for the historical representation of the registry of study programmes.

The data to be entered are:

- Academic year
- Academic year starting date
- Academic year end date
- Calendar year

RSP-Registar Studijskih Programa Welcome: SUPERADMIN [Korisnička dokumentacija](#) [Bosanski](#) [Hrvatski](#) [Engleski](#) [Srpski](#)

Home **I. Matični podaci** II. Studiji i predmeti III. Akademsko osoblje IV. Nastavni plan i program Administracija

Glavni izbornik > I. Matični podaci > Održavanje tablice akademskih godina

Akadske godine Novi zapis

	Godina	Datum Start	Datum End	Kalendarska godina
	2012/2013	01.10.2012	30.09.2013	2013

1 - 1

Image 51. Maintenance of academic year's table

7.5.3. Accreditation organization

Accrediting organization's codebook contains information about the organizations that carry out the process of accreditation of universities and their members. It contains only basic information about these organizations: the name and country of the organization.

Image 52. Accreditation organizations

7.5.4. Organization unit

By selecting "organizational unit" from the master data menu, an initial form with presented hierarchical structure of the university and Google map with the location of individual members of the university, is obtained.

Image 53. Organization units

The organizational structure of the RSP software is hierarchically set. By clicking on each member of the organizational structure, it is possible to view and edit the detailed information. These data are shown in Image 54.

RSP-Registar Studijskih Programa

Welcome: SUPERADMIN Korisnička dokumentacija Bosanski Hrvatski Engleski Srpski

Home **I. Matični podaci** II. Studiji i predmeti III. Akademsko osoblje IV. Nastavni plan i program Administracija

Glavni izbornik I. Matični podaci Organizacijska struktura **Edit organizacijske strukture**

Edit organizacijske strukture Odustani Brisanje Snimi promjene

* Tip **Fakultet**

* Šifra 10002

* Kratica EF

* Naziv Ekonomski fakultet

Nadređena struktura Sveučilište u Mostaru

Adresa MATICE HRVATSKE B.B.

PTT 88000

Mjesto MOSTAR

Web <http://ef.sve-mo.ba/>

Mail

Fax

Telefon

Latitude

Longitude

Dislocirana mjesta izvođenja studija Novi zapis

Edit	Naziv	Adresa	PTT	Mjesto
<input checked="" type="checkbox"/>	Livno	Kraljice Katarine bb	88520	Livno
<input checked="" type="checkbox"/>	Orašje	Mostarska bb	87000	Orašje
<input checked="" type="checkbox"/>	Vitez	Trg slobode	88800	Vitez

1 - 3

Akreditacije organizacijske jedinice Novi zapis

Edit	Akreditacijska organizacija	Datum	Dokument	Vrijedi od	Vrijedi do
<input checked="" type="checkbox"/>	Demo akreditacijska organizacija	01.06.2012	DOK.AK.0001/2012	01.06.2012	31.05.2016

1 - 1

Korisni linkovi Novi zapis

Edit	Opis
<input checked="" type="checkbox"/>	Podaci o prediplomskom studiju

1 - 1

Katedre Novi zapis

Edit	Šifra	Naziv
<input checked="" type="checkbox"/>	1	Katedra za poslovnu informatiku
<input checked="" type="checkbox"/>	2	Katedra za marketing

1 - 2

Jezik LL

Image 54. Details about organization unit

Basic data on the organizational unit that can be stored in the database are as follows:

- Type of organization unit
- Code
- Abbreviation
- Title
- Superior organisational unit
- Address
- Postal code and city
- Web address
- Mail address for contact
- Fax number
- Telephone number
- Latitude and Longitude data for precise location on Google map

It is important to note that categories of users which is responsible for maintaining the master data (Administrator group), have access to the codebook of the organizational structure. These users can fully maintain the codebook, while other users can view only those parts of the organizational structure they belong.

In addition to the basic information for each organizational unit, it is possible to define a range of additional data which are divided into the following groups:

- Dislocated places of conducting studies
- Data on the accreditation process conducted in an organizational unit
- The list of departments at the university
- Useful web links that will be presented to end users of the system

7.5.5. Characteristics of studies and courses

During registering courses and study programmes, there are a number of domains from which data should be selected in the process of maintaining the data. Maintenance of these domains is under this menu item of master data.

Edit	Šifra	Značenje
<input checked="" type="checkbox"/>	KV	Kliničke vježbe
<input checked="" type="checkbox"/>	LV	Laboratorijske vježbe
<input checked="" type="checkbox"/>	P	Predavanja
<input checked="" type="checkbox"/>	PK	Vježbe u praktikumu
<input checked="" type="checkbox"/>	PZZV	Vježbe u PZZ
<input checked="" type="checkbox"/>	S	Seminari
<input checked="" type="checkbox"/>	T	Vježbe tjelesne kulture
<input checked="" type="checkbox"/>	TN	Terenska nastava
<input checked="" type="checkbox"/>	V	Audiorne vježbe
<input checked="" type="checkbox"/>	VJ	Vježbe

Image 55. Maintenance of common set of domains

By selecting a particular domain from the list of possible domains, appropriate data in the table appears. The maintenance process consists of adding a new items or correction of the existing ones. Deletion is not allowed.

7.6. Studies and courses

For the proper functioning of the RSP system it is necessary to register all studies and courses and all related information.

Image 56 : Studies and courses

7.6.1. Studies

Registering of studies is a process which is necessary for storing basic data related to defining an individual study into database.

RSP-Registar Studijskih Programa

[Home](#)
[I. Matični podaci](#)
[II. Studiji i predmeti](#)
[III. Akademsko osoblje](#)
[IV. Nastavni plan i program](#)
[Administracija](#)

[Glavni izbornik](#)
[II. Studiji i predmeti](#)
[Studiji](#)

Organizacijska jedinica	Šifra	Naziv	Kratice
<input type="checkbox"/> Agronomski i prehrambeno-tehnološki fakultet	0001	OPĆI SMJER AGRONOMIJA	AGR
<input type="checkbox"/> Agronomski i prehrambeno-tehnološki fakultet	0002	PREHRAMBENA TEHNOLOGIJA	PT
<input type="checkbox"/> Ekonomski fakultet	0001	PREDDIPLOMSKI SVEUČILIŠNI STUDIJ POSLOVNE EKONOMIJE	OECC
<input type="checkbox"/> Ekonomski fakultet	0004	STRUČNI STUDIJ POSLOVNE EKONOMIJE	SSPE
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	12	BIOLOGIJA I KEMIJA	BK
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	D12	BIOLOGIJA I KEMIJA-DIPLOMSKISTUDIJ	BKD
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	15	BIOLOGIJA I ZEMLJOPIS	BZ
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	D15	BIOLOGIJA I ZEMLJOPIS - DIPLOMSKI STUDIJ	BZD
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	102	FIZIČKA KULTURA	FKD
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	2	FIZIČKA KULTURA	FK
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	D02	FIZIČKA KULTURA-DIPLOMSKI STUDIJ	FKD
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	14	FIZIKA I ZEMLJOPIS	FZ
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	D14	FIZIKA I ZEMLJOPIS - DIPLOMSKI STUDIJ	FZD
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	16	GLAZBENA UMJETNOST	GU
<input type="checkbox"/> Fakultet prirodoslovno-matematičkih i odgojnih znanosti	40	GLAZBENA UMJETNOST - FLAUTA	GUF

Image 57: Maintenance of Studies

Following data are registered for that purpose:

[Home](#)
[I. Matični podaci](#)
[II. Studiji i predmeti](#)
[III. Akademsko osoblje](#)
[IV. Nastavni plan i program](#)
[Administracija](#)

[Glavni izbornik](#)
[II. Studiji i predmeti](#)
[Studiji](#)
[Edit Studija](#)

* Organizacijska jedinica

Agronomski i prehrambeno-tehnološki fakultet

* Šifra

0001

* Kratica

AGR

* Naziv

OPĆI SMJER AGRONOMIJA

* Znanstveno područje

Nepoznato

* Način izvedbe

RE

* Trajanje u semestrima

6

* N-predmetni studij

N/A

* Razina studija

Prvi ciklus

* Vrsta studija

Sveučilišni studij

* Tip studija

Studij

* Završni rad

Završni rad

* Akademski stupanj

Prvostupnik

* Stručni akademski naziv

Prvostupnik

* ECTS

180

Semestara do usmjerenja

Smjerovi na studiju

☐ Šifra Naziv

No data found.

Jezik LL

Image 58: Registering data related to studies

Following data are registered for that purpose:

- Organization unit

- Unique Code
- Acronym
- Name
- Scientific field
- Way of performance
- Duration in semesters
- Number of courses per study
- Level of study
- Form of study
- Type of study
- Final work
- Academic level
- Title acquired upon finishing the study
- Number of ECTS credits
- Duration till orientation

7.6.2. Courses

This form provide basic information about the course taken at a certain study.

RSP-Registar Studijskih Programa

Home
I. Matični podaci
II. Studiji i predmeti
III. Akademsko osoblje

Glavni izbornik
II. Studiji i predmeti
Predmeti

Q-
Go
Actions
Novi zapis

Org Jedinica
Katedra

Org Jedinica : Agronomski i prehrambeno-tehnološki fakultet, Katedra :

Šifra	Naziv	Kratica
FT111	KEMIJA 1	KEM1

Org Jedinica : Agronomski i prehrambeno-tehnološki fakultet, Katedra :

Šifra	Naziv	Kratica
FT112	MATEMATIKA 1	MAT1
FT113	TEHNIČKA FIZIKA	TF
FT114	BIOLOGIJA	BIO
FT115-1	NJEMAČKI JEZIK 1	NJEM1
FT115-2	ENGLESKI JEZIK 1	ENG1
FT116	TJELESNA I ZDRAVSTVENA KULTURA 1	TJEL1
FT121	KEMIJA 2	KEM2
FT122	MATEMATIKA 2	MAT2
FT123	INŽENJERSKA TERMODINAMIKA	INŽTER
FT124	ELEMENTI STROJEVA	ELSTR
FT125	OSNOVE INFORMATIKE	OINF
FT126-1	NJEMAČKI JEZIK 2	NJEM2

heserver/pls/apex/f?p=132:49:1999476415494883::NO:::

Image 59 : Courses

RSP-Registar Studijskih Programa

Home I. Matični podaci **II. Studiji i predmeti** III. Akademsko osoblje IV. Nastavn

Glavni izbornik > II. Studiji i predmeti > Predmeti > Edit Predmet

Edit Predmet Odustani Brisanje Snimi promjene

* Organizacijska jedinica Agronomski i prehrambeno-tehnološki fakultet

* Šifra FT112

* Naziv MATEMATIKA 1

* Kratica MAT1

Katedra

* Polaže se Da

* Ulazi u prosjek Da

Image 60: Edit data about Courses

When entering the data about courses it is necessary to define the following characteristics:

- Organization unit
- Code
- Name
- Acronym
- Department at university
- Indicator if an examination is taken (yes/no)
- Indicator if the grade is the part of grades average (yes/no)

7.6.3.Academic staff

RSP software provides the analytical monitoring of certain data on the level of staff employed in the organizational structure that is observed. Form for the maintenance of academic staff provides entry and update information on members of academic staff.

RSP-Registar Studijskih Programa

Home I. Matični podaci II. Studiji i predmeti **III. Akademsko osoblje**

Glavni izbornik > III. Akademsko osoblje

Q- Go Actions Dodaj zapis

Prezime, ime	Datum rođenja
asis dipl.prof. AJDUK - KURTOVIĆ MILEA	-
Doc. dr.sc. AKMADŽIĆ VLAHO	-
Prof. dr.sc. ANDRIČEVIĆ ROKO	-
Prof. dr.sc. ANTUNOVIĆ ŽELJKO	-
Prof. dr.sc. ANČIĆ MLADEN	-
Pred. dr.sc. ANDELIĆ RAJIĆ JAVORKA	-
Doc. dr.sc. ARAPOVIĆ JURICA	-
Doc. dr.sc. ARAR KATICA	-
Doc. dr.sc. BABIĆ DRAGAN	-
Prof. dr.sc. BABIĆ JOSIP	-
Doc. dr.sc. BABIĆ JURISLAV	-
Prof. dr.sc. BABIĆ MATE	-
Prof. dr.sc. BABIĆ ZORAN	-
Doc. dr.sc. BAJŠANSKI IGOR	-
Prof. dr.sc. BAKULA BRANKO	-

1 - 15

Jezik LL

Image 61: Academic staff

Data to be recorded for a single member of academic staff are as follows:

- Title
- Last name
- Name
- Gender
- Academic level
- Zvanje
- Date of birth
- Edit CV data

RSP-Registar Studijskih Programa

Welcome: SUPERADMIN Korisnička dokumentacija Bosansko

Home I. Matični podaci II. Studij i predmeti **III. Akademsko osoblje** IV. Nastavni plan i program Administracija

Glavni izbornik > III. Akademsko osoblje > Edit akademskog osoblja

Edit akademskog osoblja Odustani Brisanje Snimi promjene

* Naslov asis dipl. prof.

* Prezime AJDUK - KURTOVIĆ

* Ime MILEA

* Spol ☐ Muški ☒ Ženski

* Akademski stupanj Diplomirani profesor

* Zvanje asistent

Datum rođenja

Edit CV podataka
Edit CV podataka

1 - 1

Angažmani Dodaj zapis

Edit	Organizacijska jedinica	Angažman	Aktivnost
	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	Vanjski suradnik	Da

1 - 1

Image 62. Academic staff data entry

7.6.4. Engagements

- Edit
- Organization unit
- Engagement
- Activity

Welcome: SUPERADMIN Korisnička dokumentacija Bosansko

i plan i program Administracija

Angažmani Dodaj zapis

Edit	Organizacijska jedinica	Angažman	Aktivnost
	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	Vanjski suradnik	Da

1 - 1

Image 63 a. Engagement of academic staff

7.6.5.Europass Curriculum Vitae

RSP-Registar Studijskih Programa

Home I. Matični podaci II. Studiji i predmeti **III. Akademsko osoblje** IV. Nastavni plan i program Administracija

Glavni izbornik > III. Akademsko osoblje > Edit akademskog osoblja > Edit CV osobnih podataka

Edit CV osobnih podataka i vještina Odustani Brisanje Snimi promjene

ID 30489781
Ime MILEA
Prezime AJDUK - KURTOVIĆ
Spol ☐ Muški ☒ Ženski
Datum rođenja
Ulica Ulica...
Ptt PTT...
Mjesto Mjesto...
Država BOSNA I HERCEGOVINA
Državljanstvo
Vozačka dozvola
A A1 Voz B BE
C1 C1E C CE
D1 D1E Voz D DE
Vještine
Komunikacijske vještine
Organizacijske vještine
Poslovne vještine
Računalne vještine

Kontakti
Dodaj zapis
Edit Tip kontakta Kontakt
Mail osoba@domain.com 1-1
Radno iskustvo
Dodaj zapis
no data found
Obrazovanje i osposobljavanje
Dodaj zapis
no data found
Maternji jezik i poznavanje stranih jezika
Dodaj zapis
no data found
Dodatne informacije
Dodaj zapis
no data found

Image 62 b: Curriculum Vitae

The Europass CV is a formulary set up at European level that permits a chronological, systematic and dynamic presentation of individual's education, his qualifications and competences. It provides a transparent record of information about the person, his language skills, work experience, completed education and additional skills acquired outside the official education and training system.

The Europass CV also places special emphasis on non-formal and informal knowledge: it foresees special sections for detailing social, organisational, technical, computer and artistic skills and competences. The recording of these, at first sight, "invisible" and "unserious" skills and competences, gives a comprehensive overview of an individual's abilities.

Data to be recorded in the CV could be divided on few sections:

- Personal information
- Name
- Last name
- Gender
- Date of birth
- Address information
- Nationality

- Contact information (Telephone, Mobile, Fax, E-mail address)
- Driving license
- Work experience

The screenshot shows the 'Edit radno iskustvo' (Edit work experience) form within the RSP-Registar Studijskih Programa application. The form is part of the 'III. Akademsko osoblje' section. It includes fields for 'Od' (From) and 'Do' (To) dates, 'Zanimanje ili radno mjesto' (Interest or job position), 'Poslodavac' (Employer), 'Adresa' (Address), 'PTT', 'Mjesto' (Location), 'Država' (Country), 'Web', 'Djelatnost' (Activity), and a large text area for 'Glavni poslovi i odgovornosti' (Main jobs and responsibilities). Navigation buttons 'Odustani' (Cancel) and 'Snimi promjene' (Save changes) are at the top right. The bottom left corner shows 'JezikHR'.

Image 62 c: Data about work experience in CV

- Date from
- Date to
- Occupation or position held
- Name of employer
- Address of employer
- Type of business or sector
- Main activities and responsibilities
- Education and training

The screenshot shows the 'Edit obrazovnog ciklusa' (Edit education cycle) form within the RSP-Registar Studijskih Programa application. The form is part of the 'III. Akademsko osoblje' section. It includes fields for 'Od' (From) and 'Do' (To) dates, 'Naziv dodijeljene kvalifikacije' (Name of awarded qualification), 'Organizacije pružatelja obrazovanja i osposobljavanja' (Education and training providers), 'Mjesto' (Location), 'Država' (Country), 'Razina EKO-a ili nacionalne klasifikacije' (EKO level or national classification), and a large text area for 'Glavni predmeti / stečene profesionalne vještine' (Main subjects / acquired professional skills). Navigation buttons 'Odustani' (Cancel) and 'Snimi promjene' (Save changes) are at the top right. The bottom left corner shows 'JezikHR'.

Image 62 d: Data about education in CV

- Date from
- Date to
- Title of qualification awarded
- Organization providing education and training (Name, City, Country)
- Level in national or international classification
- Main courses/Professional skills obtained

Languages

a. Understanding-listening

A1: I can understand familiar words and very basic phrases concerning myself, my family and immediate surroundings when people speak slowly and clearly.

A2: I can understand phrases and the highest frequency vocabulary related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local area, employment). I can catch the main points in short, clear, simple messages and announcements.

B1: I can understand the main points of clear standard speech on familiar matters regularly encountered in work, school, leisure, etc. I can understand the main points of many radio or TV programmes on current affairs or topics of personal or professional interest when the delivery is relatively slow and clear.

B2: I can understand extended speech and lectures and follow even complex lines of argument provided the topic is reasonably familiar. I can understand most TV news and current affairs programmes. I can understand the majority of films in standard dialect.

C1: I can understand extended speech even when it is not clearly structured and when relationships are only implied and not signalled explicitly. I can understand television programmes and films without too much effort.

C2: I have no difficulty in understanding any kind of spoken language, whether live or broadcast, even when delivered at fast native speed, provided I have some time to get familiar with the accent.

b. Understanding-reading

A1: I can understand familiar names, words and very simple sentences, for example on notices and posters or in catalogues.

A2: I can read very short, simple texts. I can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and I can understand short simple personal letters.

B1: I can understand texts that consist mainly of high frequency everyday or job-related language. I can understand the description of events, feelings and wishes in personal letters.

B2: I can read articles and reports concerned with contemporary problems in which the writers adopt particular attitudes or viewpoints. I can understand contemporary literary prose.

C1: I can understand long and complex factual and literary texts, appreciating distinctions of style. I can understand specialised articles and longer technical instructions, even when they do not relate to my field.

C2: I can read with ease virtually all forms of the written language, including abstract, structurally or linguistically complex texts such as manuals, specialised articles and literary works.

c. Speaking-spoken interaction

A1: I can interact in a simple way provided the other person is prepared to repeat or rephrase things at a slower rate of speech and help me formulate what I'm trying to say. I can ask and answer simple questions in areas of immediate need or on very familiar topics.

A2: I can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities. I can handle very short social exchanges, even though I can't usually understand enough to keep the conversation going myself.

B1: I can deal with most situations likely to arise whilst travelling in an area where the language is spoken. I can enter unprepared into conversation on topics that are familiar, of personal interest or pertinent to everyday life (e.g. family, hobbies, work, travel and current events).

B2: I can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible. I can take an active part in discussion in familiar contexts, accounting for and sustaining my views.

C1: I can express myself fluently and spontaneously without much obvious searching for expressions. I can use language flexibly and effectively for social and professional purposes. I can formulate ideas and opinions with precision and relate my contribution skilfully to those of other speakers.

C2: I can take part effortlessly in any conversation or discussion and have a good familiarity with idiomatic expressions and colloquialisms. I can express myself fluently and convey finer shades of meaning precisely. If I do have a problem I can backtrack and restructure around the difficulty so smoothly that other people are hardly aware of it.

Speaking-spoken production

A1: I can use simple phrases and sentences to describe where I live and people I know.

A2: I can use a series of phrases and sentences to describe, in simple terms, my family and other people, living conditions, my educational background and my present or most recent job.

B1: I can connect phrases in a simple way in order to describe experiences and events, my dreams, hopes and ambitions. I can briefly give reasons and explanations for opinions and plans. I can narrate a story or relate the plot of a book or film and describe my reactions.

B2: I can present clear, detailed descriptions on a wide range of subjects related to my field of interest. I can explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.

C1: I can present clear, detailed descriptions of complex subjects integrating sub-themes, developing particular points and rounding off with an appropriate conclusion.

C2: I can present a clear, smoothly-flowing description or argument in a style appropriate to the context and with an effective logical structure which helps the recipient to notice and remember significant points.

Writing

A1: I can write a short, simple postcard, for example sending holiday greetings. I can fill in forms with personal details, for example entering my name, nationality and address on a hotel registration form.

A2: I can write short, simple notes and messages. I can write a very simple personal letter, for example thanking someone for something.

B1: I can write simple connected text on topics which are familiar or of personal interest. I can write personal letters describing experiences and impressions.

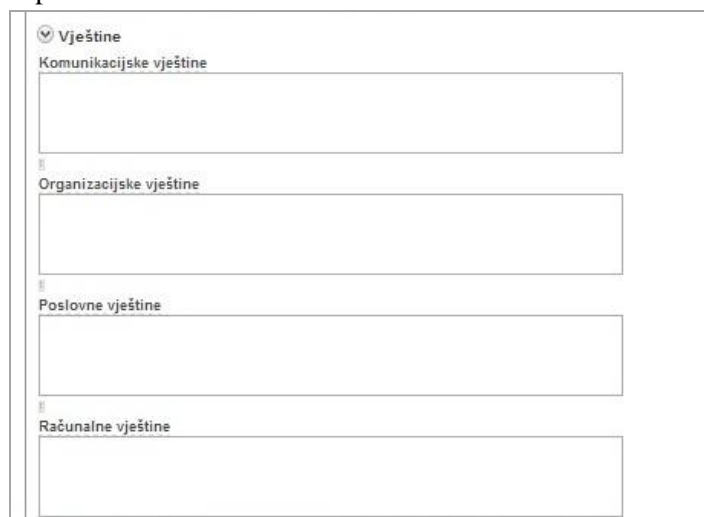
B2: I can write clear, detailed text on a wide range of subjects related to my interests. I can write an essay or report, passing on information or giving reasons in support of or against a particular point of view. I can write letters highlighting the personal significance of events and experiences.

C1: I can express myself in clear, well-structured text, expressing points of view at some length. I can write about complex subjects in a letter, an essay or a report, underlining what I consider to be the salient issues. I can select a style appropriate to the reader in mind.

C2: I can write clear, smoothly-flowing text in an appropriate style. I can write complex letters, reports or articles which present a case with an effective logical structure which helps the recipient to notice and remember significant points. I can write summaries and reviews of professional or literary works.

Diploma/certificate obtained

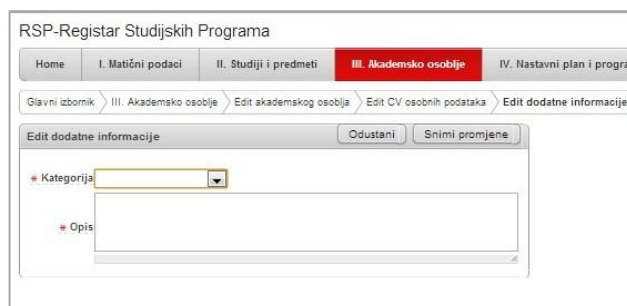
Personal skills and competencies



The form is titled 'Vještine' (Skills) and contains four sections, each with a text input field:

- Komunikacijske vještine** (Communication skills)
- Organizacijske vještine** (Organizational skills)
- Poslovne vještine** (Business skills)
- Računalne vještine** (Computer skills)

- Communicational skills
- Organizational skills and competencies
- Technical skills and competencies
- Computer skills and competencies
- Additional information and annexes



The screenshot shows the 'RSP-Registar Studijskih Programa' web application. The navigation bar includes 'Home', 'I. Matični podaci', 'II. Studiji i predmeti', 'III. Akademsko osoblje' (highlighted), and 'IV. Nastavni plan i program'. The breadcrumb trail is: 'Glavni izbornik > III. Akademsko osoblje > Edit akademskog osoblja > Edit CV osobnih podataka > Edit dodatne informacije'. The 'Edit dodatne informacije' form has buttons for 'Odustani' and 'Snimi promjene'. It includes a 'Kategorija' dropdown menu and a large 'Opis' text area.

7.7. Curricula

RSP-Registar Studijskih Programa

[Home](#)
[I. Matični podaci](#)
[II. Studiji i predmeti](#)
[III. Akademsko osoblje](#)
[IV. Nastavni plan i program](#)

[Glavni izbornik](#)
[Nastavni planovi i programi](#)

	Akadska godina	Organizacijska jedinica	Studij
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	BIOLOGIJA I KEMIJA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	BIOLOGIJA I ZEMLJOPIS
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	FIZIČKA KULTURA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	FIZIKA I ZEMLJOPIS
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	GLAZBENA UMJETNOST
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA - ORAŠJE
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA I FIZIKA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA I KEMIJA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA I PEDAGOGIJA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	INFORMATIKA I ZEMLJOPIS
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	KEMIJA I FIZIKA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	MATEMATIKA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	MATEMATIKA I FIZIKA
	2012/2013	Fakultet prirodoslovno-matematičkih i odgojnih znanosti	MATEMATIKA I INFORMATIKA

1 - 15

Image 63: Curricula

Using link IV. Curricula the report with list of existing curricula is open. With each curriculum, data about corresponding academic year and related study are presented. Existing curricula can be edited by clicking the icon . Form for creation of new curricula is open by using button „Add record“.

[Glavni izbornik](#)
[Nastavni planovi i programi](#)
[Edit studija u akademskoj godini](#)

Edit studija u akademskoj godini

* Akadska godina

* Organizacijska jedinica

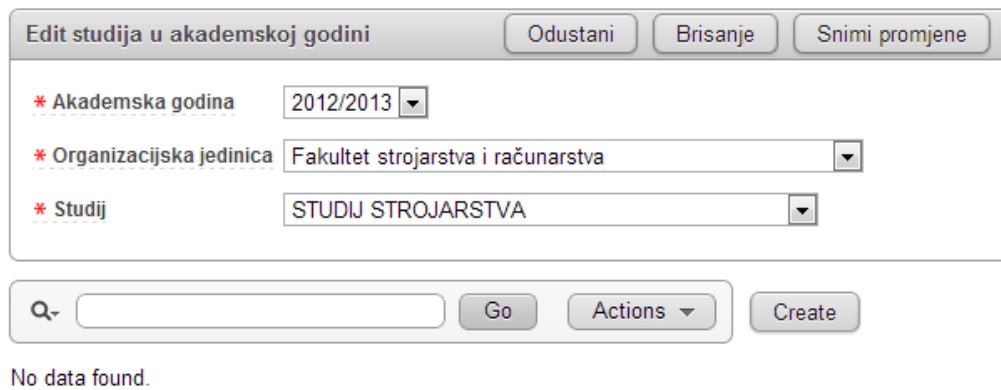
* Studij

Image 64: Form for creation of new curricula

To create a new curriculum, it is necessary to select the corresponding academic year, select the organizational unit or university for which the curriculum is being created and study from this university where teaching process is being held according to this curriculum. After entering this information, and saving your changes, this curriculum is listed in all curricula.

	2012/2013	Fakultet strojarstva i računarstva	STUDIJ STROJARSTVA
--	-----------	------------------------------------	--------------------

Image 65: Created curricula



Edit studija u akademskoj godini

* Akademaska godina 2012/2013

* Organizacijska jedinica Fakultet strojarstva i računarstva

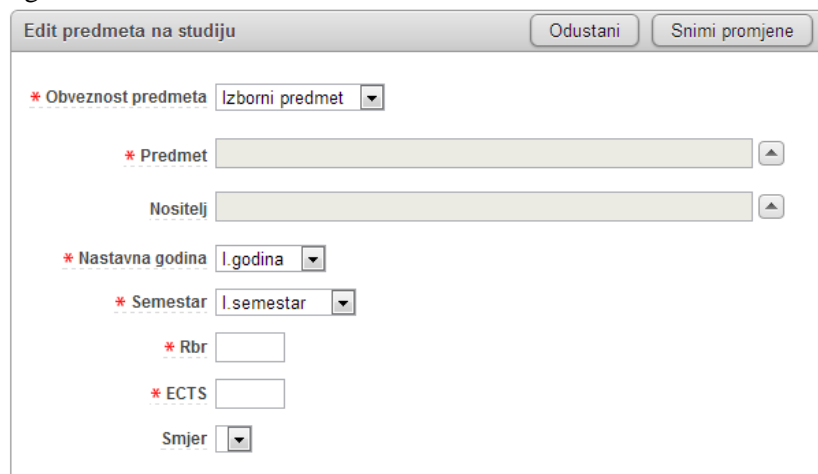
* Studij STUDIJ STROJARSTVA

Q- Go Actions Create

No data found.

Image 25: Editing curricula

It is necessary to add the courses to the curriculum that are performed within it. Form to add courses is opened by clicking on the button "Create".



Edit predmeta na studiju

* Obveznost predmeta Izborni predmet

* Predmet

Nositelj

* Nastavna godina I.godina

* Semestar I.semestar

* Rbr

* ECTS

Smjer

Image 66: Adding courses to the curriculum

You must enter the data on the performance of subjects according to the syllabus:

- Obligatory character of the course: the course can be optional or mandatory
- Course: select one of the courses added to the organizational unit in question
- Holder: choose one of the members of the academic staff within the organizational unit
- Academic year and semester in which the subject is taught.
- Ordinal number of the course
- Number of ECTS credit for that course
- Subject of study in which the course is being performed
- After saving changes the course is visible in curriculum details overview.

Glavni izbornik > Nastavni planovi i programi > Edit studija u akademskoj godini

Edit studija u akademskoj godini [Odustani] [Brisanje] [Snimi promjene]

* Akademska godina: 2012/2013

* Organizacijska jedinica: Fakultet strojarstva i računarstva

* Studij: STUDIJ STROJARSTVA

Q- [Go] [Actions] [Create]

Obveznost	Predmet	Nositelji	Godina	Semestar	Rbr	Ects	Smjer	Nastava	Detalji
Izborni predmet	MATEMATIKA I.	Prof. dr.sc. BORKA JADRIJEVIĆ	1	1	1	6	-	-	[Edit]
Izborni predmet	CAD/CAM SUSTAVI	Prof. dr.sc. MILENKO OBAD	1	1	2	4	-	-	[Edit]
Izborni predmet	INDUSTRIJSKA PRAKSA	Prof. dr.sc. ŠIMUN BOGDAN	2	3	4	3	-	-	[Edit]

1 - 3

Image 67. Curriculum

Curriculum for each course within the study programme can be edited by clicking the link Edit.

Glavni izbornik > Nastavni planovi i programi > Edit studija u akademskoj godini > Edit predmeta i nositelja

Opis predavanja | Način izvedbe predmeta | Literatura | Kompetencije | Način polaganja | Izvođači

no data found [Dodaj zapis]

Image 68: Editing the curriculum

The curriculum is regulated by adding:

- Description of lectures
- Ways of the course
- Literature
- Competence
- Method of examinaation
- Performer

These items are added by clicking the "Add a record" button on the appropriate tab.

Edit opisa predavanja [Odustani] [Brisanje] [Snimi promjene]

* Rbr: 1

* Opis: Uvodno predavanje

Aktivnosti [Odustani] [Brisanje] [Snimi promjene]

Aktivnost	Broj sati
Predavanje	1
Prezentiranje	1

1 - 2 [Dodaj zapis]

Image 69: Editing the lecture descriptions

For a description of lectures it is necessary to enter the serial number of lectures, and a description of the content. The activities that are taking place and its duration may be added with some lecturers.

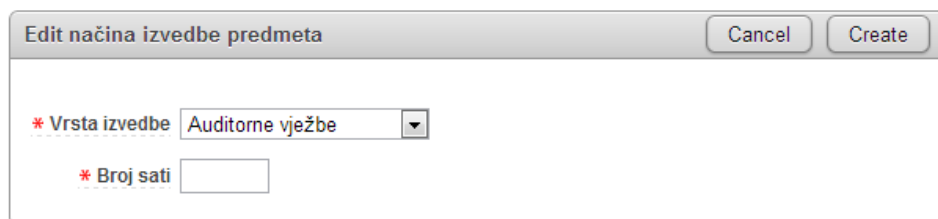


Image 70: Editing the method of course performance

Method of course conducting shall be regulated by adding the method of course performance and the number of hours for each performance.

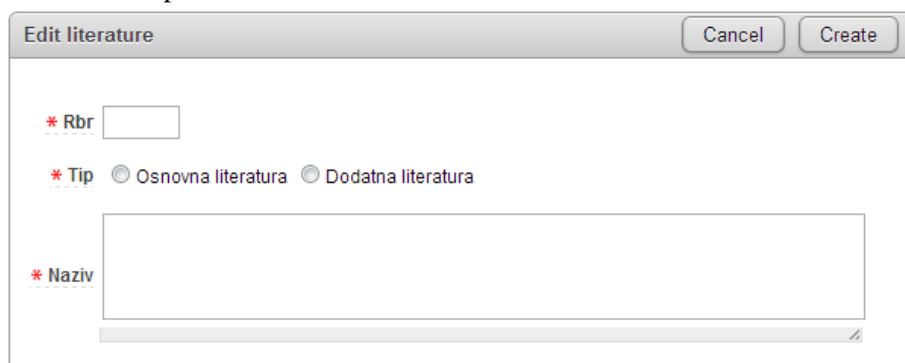


Image 71: Editing the literature

The curriculum for each course it is possible to define the necessary literature, and to categorize it as basic or additional.

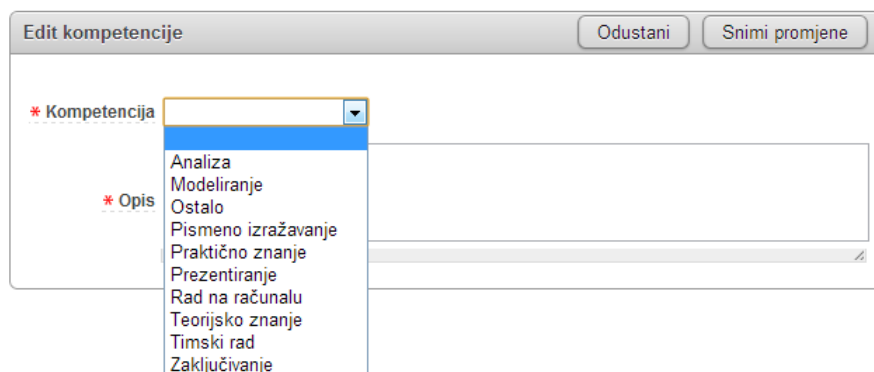


Image 72: Editing the competences

Within the curriculum it is possible to define the competencies that are acquired by mastering the subject matter.



Image 73: Editing the examination method

The curriculum defines the way in which exam for each subject is taken. It is possible to define basic and alternative methods of examination. For each method of examination, what part that method takes in the final grade.



Image 74: Editing the lecturers

For each subject in the curriculum, it is being defined who are the lecturers and is that lecturer a holder or not.

7.8.Administration

Through the process of administration, it is possible to maintain the database of RSP software users, appertaining working rights on the application and to view the activities for individual user. With every user it is possible to define which roles in the system he/she can use. Public access to the application (guest role) is a predefined role which is given to every user during his/her forming. Other roles are given by a predefined super-administrator user.

Creation of a new user is a process that is initiated by clicking on the button New User. Form for creation of users is the same as those for editing data on existing user, which can be accessed by using the link for editing which is located in the first column of each row of the table.

Administration part of RSP software should contain overviews and statistics of the system usage as a whole, as well as from the viewpoint of an individual user.

The initial screen for processes of administration contains a table of users with the following data:

Last Name	Last name of the user
Name	Name of the user
Username	Username for access to RSP system
E-mail	User email address
Activity	User activity Yes/No. It is very simply to block the access to the system for a user by setting this indicator to No
Valid until	Date and time until the access to RSP system for active user is possible
Last access	Date of last access to the RSP software
Organizational affiliation	Organization which user belongs. The user has right to access the data for this one and all subordinate organizational units
Language	User language
Chg pwd	Link for password change
Superadmin user	Superadmin user D/N
Admin user	Admin user D/N
Edit user	Edit user D/N
Analyze user	Analyze user D/N

RSP-Registar Studijskih Programa

Welcome: SUPERADMIN Korančka dokumentacija Bosanski Hrvatski Engleski Srpski

Home I. Matični podaci II. Studiji i predmeti III. Akademsko osoblje IV. Nastavni plan i program **Administracija**

Glavni izbornik Korisnici aplikacije

Q- Go Actions Novi korisnik

	Prezime	Ime	Username	E-mail	Aktivnost	Vrijedi do	Zadnji Login	Organizacija	Jezik	Change Password	SuperAdmin user	Admin user	Edit user	Analyze user
ADMIN	ADMIN	ADMIN	-	-	Da	31.03.2020	Nedjelja, 18. Studeni, 2012 18:49:46	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	N	D	D	D
ANALYZE	ANALYZE	ANALYZE	-	-	Ne	-	Utorak, 20. Prosinac, 2011 12:13:8	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	N	N	N	D
Demo	KPI	KPI	-	-	Da	31.03.2012	Subota, 31. Ožujak, 2012 11:16:11	Fakultet strojarstva i računarstva	Engleski	Change Password	D	N	N	N
Demo	SVEMO	SVEMO	-	-	Da	15.03.2012	Srijeda, 18. Siječanj, 2012 20:52:21	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNBI	UNBI	-	-	Da	31.03.2012	Ponedjeljak, 05. Ožujak, 2012 18:44:0	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNIBL	UNIBL	-	-	Da	31.07.2012	Srijeda, 13. Lipanj, 2012 0:19:17	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNIMO	UNIMO	-	-	Da	31.03.2012	Ponedjeljak, 05. Siječanj, 2012 13:13:38	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNSA	UNSA	-	-	Da	31.03.2012	Utorak, 06. Ožujak, 2012 14:13:22	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNSSA	UNSSA	-	-	Da	31.03.2012	Utorak, 27. Ožujak, 2012 12:9:52	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNTZ	UNTZ	-	-	Da	31.03.2012	Ponedjeljak, 23. Siječanj, 2012 14:19:41	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	UNZE	UNZE	-	-	Da	31.03.2012	Utorak, 06. Ožujak, 2012 20:50:15	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	N	N	N
Demo	User	DEMO	-	demo.user@gmail.com	Da	-	Petak, 18. Svibanj, 2012 21:17:33	Fakultet strojarstva i računarstva	Lokalni jezik	Change Password	D	D	D	D

Image 75: Administration

7.9. RSP - Register of Study Programmes-Public access

RSP is software that provides an easy and quick way of collecting and presenting of key information related to the curricula.

The basic elements of this software are as follows:

- User interface (interface) for searching information related to universities, university courses and curricula.

7.9.1. Search register

Registry of study programmes is being searched by selecting the desired values of the fields in the "Search Criteria" area and by clicking "Search by default criteria" button. Possible search criteria includes: Academic year, University, Scientific field, Type of study, and Study cycle. If university has a dislocated place of conducting studies, it can be used as additional search criteria.

By clicking "Search by default criteria" button in the "Overview of study programmes" part of screen, we will get search results. The list of universities and subordinate faculties and studies within them for the academic year, that meet the set criteria, are included in the search results.

Search criteria Search by default criteria

2012/2013

Fakultet strojarstva i računarstva

-- Select Scientific Area --

-- Select type of study --

-- Select Study Cycle --

Overview of study programmes

Sveučilište u Mostaru

Fakultet strojarstva i računarstva

STUDIJ RAČUNARSTVA

STUDIJ STROJARSTVA

Image 76. Search Register

In Image 76, we can see an example of searching the Registry. In this case, we are searching the Registry by parameters „Academic year (2012/2013)“ and „University“ (Faculty of Engineering and Computer Science).

In the section "Overview of study programmes" we get results for University of Mostar, University of Engineering and Computer Science is within it, at which the studies of Mechanical engineering and Computer Science are organised for academic year 2012/2013. Rolling the mouse over the name of University, we get the tooltip that we can get detailed information on a particular organizational unit by clicking its name.

After clicking the name of the organisational unit we will get a detailed overview of the selected item with the following information:

- Contact information (Name, Address, Phone, Fax, E-mail...)
- Google map with displayed locations of dislocated centers of conducting studies
- List of dislocated places of conducting studies
- Data on accreditations owned by an organisation
- Useful links
- Departments

RSP Home page > Organisation Unit Details

Organisation Unit Details [Cancel]

Title * Sveučilište u Mostaru

Parent structure

Address Trg hrvatskih velikana 1

Postal Code 88000

City Mostar

Web www.sve-mo.ba

Mail info@sve-mo.ba

Fax +38736300033

Phone +38736300035

Google map of dislocated places of study programs performance

Dislocated places of study performance: no data found

Organisation Unit Accreditations: no data found

Useful links: no data found

Departments at university: no data found

The Google map shows the location of Mostar, Bosnia and Herzegovina, and surrounding areas including Croatia, Serbia, and Montenegro.

Image 77. Detail data about University of Mostar

RSP Home page > Organisation Unit Details

Organisation Unit Details Cancel

Title * Fakultet strojarstva i računarstva

Parent structure

Address Matice hrvatske b.b.

Postal Code 88000

City MOSTAR

Web www.fsr.ba

Mail office@fsr.ba

Fax 036/337-012

Phone 036/337-001

Dislocated places of study performance

Title	Address	Postal Code	City
Orašje	Mostarska bb	87000	Orašje

1 - 1

Organisation Unit Accreditations

Accreditation Organization	Date	Document	Valid from	Valid to
Demo akreditacijska organizacija	01.10.2010	01/10/10 br.554	01.10.2010	01.10.2015

1 - 1

Useful links

Description

#DESCRIPTION#

1 - 1

Departments at university

no data found

Google map of dislocated places of study programs performance

Image 78. Detail data about University of Mechanical Engineering and Computer Science

Overview of study programmes

- Sveučilište u Mostaru
 - Fakultet strojarstva i računarstva
 - STUDIJ RAČUNARSTVA
 - STUDIJ STROJARSTVA

Image 79. Studies in academic year

Moving your mouse over the Course title, we get an information that by clicking on the name we can find information about the curriculum for this Course. In addition, by clicking the name of the Course in the upper right corner of the area "Overview of study programme" - the button "Details of the programme" appears. By clicking this button, a new page with more information about the selected study opens.

Some of additional information about study are:

- Organisational unit at which the study has been organised
- Scientific area which it belongs to (Study of Mechanical Engineering belongs to the field of Engineering Science, so if we set criteria "Scientific area = Engineering" in search of the Registry, as a result we will get this study)
- Study level
- Academic level
- Number of ECTS
- Study programme courses
- Accreditations of Study programme

By clicking the name of the study in the "Overview of study programmes" area on the right side of the screen, in the "Curriculum" area - the curriculum of selected study in a given academic year opens (when searching the registry, we set the parameter „Academic year!“).

Image 801. Search by default criteria

Image 81. Search result

Curriculum

-- Academic year --

-- Semester --

-- Type of course --

-- Course of Study/Module --

Q

Go

Actions

1 - 15 of 37

Code	Subject	Course	Performer	Year	Semester	ECTS	Type	Teaching
MFO101	MATEMATIKA 1	-	Prof. dr.sc. IVO IVIĆ	1	1	7	Nonelective Course	-
MFO102	LINEARNA ALGEBRA	-	Prof. dr.sc. IVO IVIĆ	1	1	6	Nonelective Course	-
MFO103	FIZIKA I	-	Prof. dr.sc. ZORAN PRIMORAC	1	1	6	Nonelective Course	-
PRO101	UVOD U RAČUNALA I PROGRAMIRANJE	-	Prof. dr.sc. MIRJANA BONKOVIĆ	1	1	7	Nonelective Course	-
DEO101	VJEŠTINE KOMUNICIRANJA U ORGANIZACIJU	-	Prof. dr.sc. VLADO MAJSTOROVIĆ	1	1	3	Nonelective Course	-
DEO102	TJELESNA I ZDRAVSTVENA KULTURA	-	Doc. mr.sc. MLADEN KVESIĆ	1	1	1	Nonelective Course	-
DKS114SP	INDUSTRIJSKA PRAKSA I	-	Prof. dr.sc. IVO IVIĆ	1	1	1	Nonelective Course	-
MFO104	MATEMATIKA 2	-	Prof. dr.sc. IVO IVIĆ	1	2	7	Nonelective Course	-
MFO105	FIZIKA II	-	Prof. dr.sc. ZORAN PRIMORAC	1	2	6	Nonelective Course	-
ESO101	ELEKTROTEHNIKA	-	Doc. dr.sc. ANTE REZIĆ	1	2	6	Nonelective Course	-
PRO102	PROGRAMIRANJE	-	Prof. dr.sc. MIRJANA BONKOVIĆ	1	2	7	Nonelective Course	-
GMO101	RAČUNALNA GRAFIKA I CAD	-	Prof. dr.sc. ADISA VUČINA	1	2	3	Nonelective Course	-
DEO103	TJELESNA I ZDRAVSTVENA KULTURA	-	Doc. mr.sc. MLADEN KVESIĆ	1	2	1	Nonelective Course	-
MFO206	MATEMATIKA 3	-	Doc. dr.sc. NIKOLA KOCEIĆ	2	3	5	Nonelective Course	-
ESO202	ELEKTRONIKA	-	Prof. dr.sc. SVEN GOTOVAC	2	3	6	Nonelective Course	-

Image 82. Curriculum for selected Course of Computer Science in a given academic year 2012/2013

In the curriculum we can see:

- Code and Subject
- Course of the subject
- Subject Performer
- Academic year and semester the subject being performed
- Number of ECTS for the subject
- Subject type
- The way of subject performance

We can further search the displayed curriculum or narrow it by setting criteria in the fields above subjects list - Academic year, Semester, Subject type, Study Course / Module.

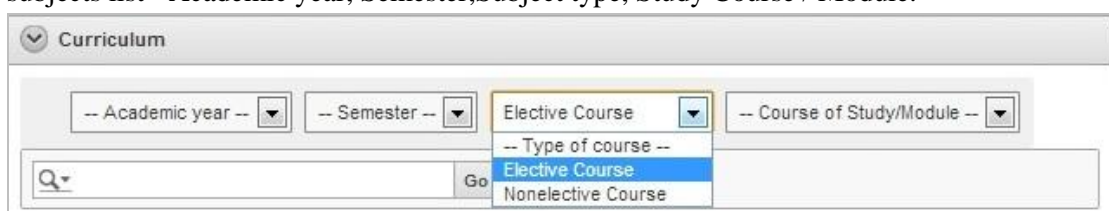


Image 83. Parameters for searching curricula

Code	Subject	Course	Performer	Year	Semester	ECTS	Type	Teaching
SO001	MATEMATIKA I.	-	Prof. dr.sc. BORKA JADRIJEVIĆ	1	1	6	Elective Course	-

Image 85. Data from Curriculum

With overview of the curriculum we have the possibility to view additional information about subject and professor who is subject performer.

By clicking the Subject - a page with the subject curriculum opens up (Image 86).

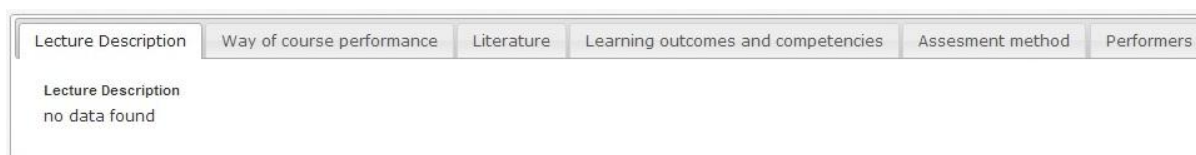


Image 86. Curriculum of the Mathematics 1

Data we could see are:

- Lecture description
- Way of course performance
- Literature
- Learning and competency outcomes
- Way of examination
- Performers

By clicking the Professor's Name and Surname, the page with his CV opens in the Curriculum. Information we could see are:

- Basic personal information
- Skills
- Contact information

- Work experience
- Education and Training
- Language skills
- Additional information

Edit CV Personal Data and Skills [Cancel]

Name * BORKA

Surname * JADRIJEVIĆ

Gender ☒ Female ☐ Male

Date of birth [] [] [] [] [] [] [] [] [] []

Street * Ulica...

Postal Code * PTT...

City * Mjesto...

Country * BOSNIA AND HERZEGOVINA

Citizenship []

Skills

Communication skills

Organisational Skills

Professional Skills

Computer skills

Contacts
no data found

Work experience
no data found

Education and Training
no data found

Mother tongue and foreign languages
no data found

Additional information
no data found

Image 87. Professor CV

8. CONCLUSION

Research carried out highlights the difficulty in defining and measuring performance in public institutions of higher education field due to: plurality and diversity of educational institutions; differences in values and perceptions they have about performance; different elected representatives of those institutions; the absence of a genuine competitive environment, should be based on the value; the nature of public services; the complexity of socio-political environment, which generates a number of risks with direct influence on delivering performance.

In our opinion, the performance of the education system is defined by the quality of education, namely, by the credibility of the institution. Therefore, national assessment model in the field of higher education institutions, based on field quartet - criteria - standards – performance indicators, define explicitly the KPI of the institution.

Research model for defining and measuring performance from higher education institutions show the following:

- The important role of university autonomy in obtaining the maximum level of indicators and by default in delivering a high quality of the educational process and institutions;
- Facilitates benchmarking activities, respectively, comparing institutions with each other in terms of market share, research performance or cost, but also within the entity, by comparing individual performance;
- Performance is synonymous with quality education;
- Performance is synonymous with management reliability and quality of the entity and by default, of the entity;
- performance involves the use in conditions of efficiency, economy and human resources effectiveness, financial and material;
- Performance is not a state, it is built by pooling efforts of everyone involved in education process;
- Provides a management system based on performance evaluation using specific performance indicators defined and strictly in accordance with international standards both in terms of inputs and the outputs.

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.



European Commission
TEMPUS