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REQUIREMENTS TO STUDENT AND TEACHER INFORMATION SYSTEM

An issue of creating and introduction of work organization support software for students and teachers at universities is topical. The article describes requirements of student and teacher information system for Ukrainian universities. The aim of the article is to examine, analyze and offer general approaches to building services of work organization support system for teachers and students at universities.

Keywords: *services, campus management system, software for universities, conception, information technologies.*

Introduction

Software of the Ukrainian universities consists of web portals, software systems for different purposes and areas. The aim of introduction any software tool to an educational institution is to increase awareness, to reduce amount of a routine work, to automatize processes, to get reports promptly, etc. Analysis of the literature on the research matter reveals using a wide range of software for solving managerial tasks of universities [1-4], organization and support of distance learning systems, educational software to support different lessons. Unfortunately, systems for supporting organization of work of students and teachers have not got a sufficient level of development, spreading and introduction. The issue of creating, testing and introduction of such software in universities is topical as well.

Managerial software is described in works of native and foreign scientists: S.I.Arhangelskiy, V.Y.Bykov, V.Y.Bodryakov, V.I.Bondar, I.E.Bulah, N.O.Verbitskaya, L.I.Danilenko, G.A.Dmytrenko, G.V.El'nikova, V.I.Juravlev, O.E.Kovalenko, Y.A.Konarjevsky, O.A.Orlova, N.M.Ostroverhova, V.I.Maslova, V.S.Pikelna, V.D.Rudenko, O.V.Spivakovsky, Y.I.Tabakov, V.S.Tatyanchenko, Y.V. Tryus, T.I. Shamova, Y.V. Chernova, L.I.Phishman, etc.

Distance learning software is described in works of V.Y.Bykov, G.M.Kravtsov, V.M.Kuharenko, N.G.Sirotenko, etc.

The article is devoted to describing a system for supporting an organization of work of teachers and students at universities.

Problem Statement

The aim of this article is to examine, analyze and suggest universal approaches to building an informational web system of supporting a work organization for teachers and students at Ukrainian universities.

Statement of main research material with complete reasoning of received scientific results.

Software that supports administrative services (university administration, accounting department, dean's office) is widespread at modern universities. Two most important user groups, namely students and teachers, do not have any access to the relevant information (for example, timetable changes, planned meetings, workshops, etc.) in the majority of educational establishments. Main issues of developing such software are examined in this article.

The aim of developing a web oriented informational system of faculty work support is to give an instrument to students and teachers to support business processes, to increase awareness level and access important information.

According to the aim, let us consider a model of a service portal of supporting work organization for teachers and students at universities.

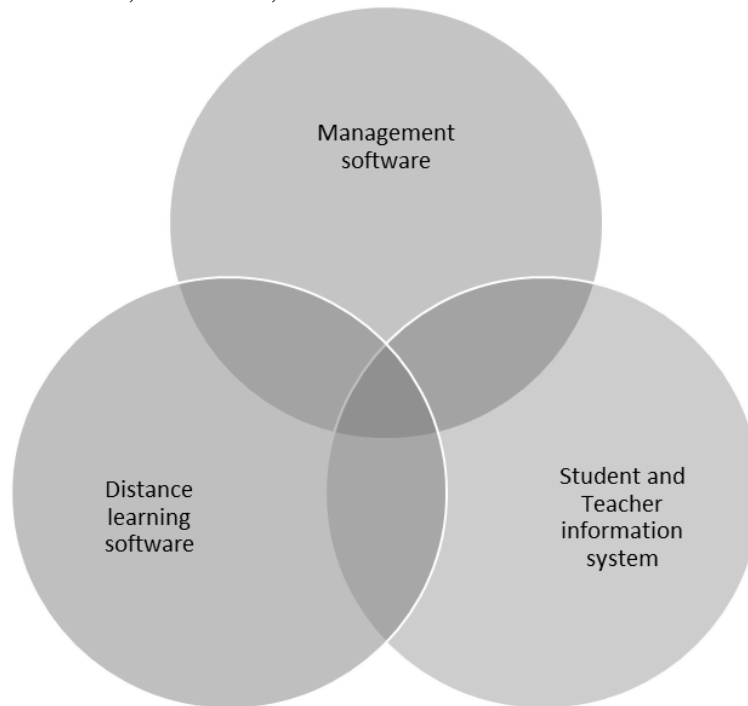
A service of supporting faculty business processes must satisfy the following users' needs: students, teachers, department workers, dean's office employees, university administration and interested persons: university entrants, graduating students, sponsors, parents.

Thorough analysis of business processes at a faculty, a survey of students' and teachers' opinion helped to define their needs and formulate demands to the system.

Basic needs of students are: getting information about learning plan, timetable, topics of lessons, course works and theses, examinations and modules, practical training, current and final marks, tuition fee, rules of studies, etc. An interaction with a dean's office, communication with students and teachers make an interactive part of a functional.

Basic needs of teachers are: getting information about a workload, timetable, examinations, teaching and methodological documentation package list, course works and theses, practical training administration, giving and viewing marks, filling an own page.

Lots of tasks, which are examined below, can be seen in different forms in university management systems or in distance learning systems (pic.1). Usually, managerial software is accessible nor for teachers neither for students, distance learning systems often do not contain necessary and relevant information. Accordingly, students and teachers suffer from "informational hunger". It is necessary to underline, that the main task of the examined system is to provide an access to relevant information, first of all, to teachers and students.



Pic. 1. Intersection of different kinds of software in Universities.

Let us examine the tasks of each service and requirements to them.

General Services

These are the services, which all users have, and service functions, which do an auxiliary work. Among them we can distinguish the systems of authentication and authorization, news, private messages, alerts, own page constructors, etc.

Student's Services

A student is a main user of educational services. Student's services are designed to simplify a communicational component between a dean's office, a department, teachers and students as much as possible.

Teacher's Services

A teacher is a main provider of educational services. Teacher's services are designed to simplify communicational component between a dean's office, a department, students and teachers as much as possible. Let us examine teacher's services in detail.

Let us examine necessary services in detail.

Timetable

Timetable is an important component of learning organization. Usually, a student works with a weekly timetable in the first place.

A weekly timetable for student (personalized) contains the next information about each lesson: subject, type of a lesson, teacher, lecture room, information about a lesson.

Weekly timetable for teacher (personalized) contains the next information about every lesson: weekly timetable, subject, type of a lesson, group, lecture room, information about a lesson, timetable selection (individual timetable), defining time for consultations and individual lessons.

Selection within a timetable (individual timetable) allows each student and teacher to have own personalized timetable.

While changing a timetable, users must get a message (an email, sms, etc.).

Timetable service for a student must give a possibility to view individual lessons and consultations of subjects, and a functionality of signing up for certain individual lessons.

Course Works and Theses

A service "Course Works and Theses" supports a functionality of choosing a topic and a teacher for course works and theses for students as well as setting topics of works and choosing a student to do course works and theses for teachers.

A student has the next facilities: viewing topics of works, suggested by teachers; a possibility to sign up for a teacher; a possibility to suggest a topic to a certain teacher; viewing time frame and patterns, etc.

A teacher has the next facilities: viewing amount and type of work; defining topics and annotations of works; choosing a student from the list of recorded ones; viewing dates of preliminary and final presentations.

Examinations and Modules

A service "Examinations and Modules" supports a functionality of informing about final tests, examinations, modules.

A student and a teacher have the next facilities: viewing a list of examinations and final tests; viewing time frame.

Gradebook

A service "Gradebook" supports a functionality of viewing marks for examinations and modules.

A student has the next facilities: viewing marks; viewing preceding marks; viewing a rating; viewing a mean grade; viewing achievement tendency.

Practical Training

A service "Practical Training" is used for informing students about practical training, topics of practical training, a base for practical training, pending tasks of practical training, etc.

A student has the next facilities: filing an application for a placement; suggesting a topic for a practical training; viewing a placement; viewing a topic; viewing tasks; viewing marks.

A teacher has the next facilities: viewing a placement of students; a possibility to set topics of practical training; control of practical training progress.

Tuition Fee

A service "Tuition Fee" enables a student to control financial issues, connected with payment for educational and additional services of a university.

A student has the next facilities: viewing a list of payments; paying for educational and additional services; viewing arrears of payments.

Record Book

A module "Record Book" enables a student to view electronic record book. Its main functionality for a student is: viewing a list of a group; viewing a topic of a lesson; viewing marks; viewing attendance marks.

A module "Record Book" enables a teacher to keep an electronic record book. Its main functionality is: viewing a list of a group; defining a topic of a lesson; evaluation; attendance marks.

Cooperation with a Dean's Office

A service "Dean's Office" enables a student to contact dean's office, file a request, view information, etc.

A student has the next facilities: viewing dean's office messages; filing a request for a transfer to education free of charge; filing a request for a transfer to paid education; filing a request for a transfer to distant/resident education; filing a request for a free attendance; ordering certificates, etc.

Teachers' Workload

A service "Workload" is designed to view an amount of work a teacher must do during a year.

A teacher has the next facilities: viewing a yearly and terminal workload; viewing workload change; viewing a personal plan; planning certain types of work.

Teaching and Methodological Documentation Package

A module enables a teacher to control a condition of teaching and methodological documentation package for each discipline.

A teacher has a possibility to view: availability of teaching and methodological documentation package materials; data on the materials, which need more work; data on the time frame.

Notifications

A module "Notifications" is used for announcing important events, news, notices, urgent work and dates. Its functionality is: viewing important dates and notifying the closest events.

Teacher's Page

A teacher can (and must) have his/her own page on a website of the university, faculty, department.

A module "Teacher's Page" provides a possibility to prepare a standard teacher's page with basic information.

A typical page contains: information about a teacher; list of articles; list of teaching aids; yearly plans of scientific work.

Third-party Software Integration

Data for system work are concurrently used for other aims as well. In perspective, a development of similar software should occur in a direction of integration with managerial and distance learning software.

Besides software, a system should contain such types of support:

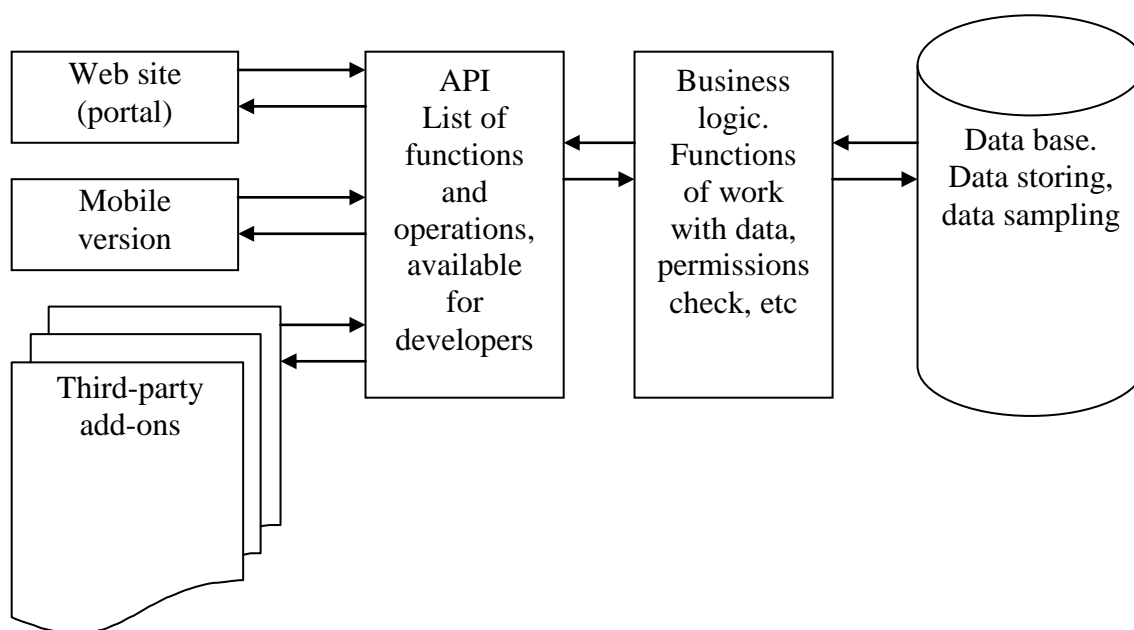
- technical (personal computers for server organization, personal and network computers, laptops, smartphones, etc.);
- informational (learning plans, constituent documents, manuals, live data bases and personnel data bases);
- organizational (regulations of a country and organizations, which define a work of a system).

System Architecture and Software Choice

A system is based on client-server architecture, with a possibility to provide an access to authorized third-party add-ons.

A client part should have a possibility of accessing it using the Internet with the help of a computer or a smartphone. The architecture is represented at the picture 2.

Software, which is a basis for the system, have to be free of charge and free to use. For its development, a LAMP platform, Python programming language and MySql database were chosen.



Pic. 2. System Architecture.

A development of the system is planned to be finished before the middle of 2014.

Conclusions

Student and Teacher information system should become an important part of managing and supporting of business processes in universities. Using a faculty web site as an example, we can separate out necessary modules, like: timetable, course works and theses, examinations and modules, gradebook, practical training, tuition fee, record book, cooperation with a dean's office, workload for teachers, teaching and methodological documentation package, notifications, teacher's page.

Software should be developed on a basis of client-server architecture and have a possibility of mobile access.

Development and introduction of service software for the faculty will facilitate informatization of cooperation between main parties of educational process, adjustment of an information environment for all business processes of the faculty; contribute to openness and transparency of higher education

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ВИМОГИ ДО ІНФОРМАЦІЙНОЇ СИСТЕМИ ДЛЯ СТУДЕНТІВ ТА ВИКЛАДАЧІВ

Актуальною є проблема створення та впровадження програмного забезпечення підтримки організації роботи студентів, викладачів у вищих навчальних закладах. Стаття присвячена опису системи підтримки організації роботи викладачів, студентів у вищих навчальних закладах. Метою статті є розглянути, проаналізувати, запропонувати загальні підходи до побудови сервісів підтримки організації роботи викладачів, студентів у вищих навчальних закладах.

Ключові слова: сервіси, послуги, управління навчанням, програмне забезпечення університетів, концепція, інформаційні технології.

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ТРЕБОВАНИЯ К ИНФОРМАЦИОННОЙ СИСТЕМЕ ДЛЯ СТУДЕНТОВ И ПРЕПОДАВАТЕЛЕЙ

Актуальной является проблема создания и внедрения программного обеспечения поддержки организации работы студентов, преподавателей в высших учебных заведениях. Статья посвящена описанию системы поддержки организации работы преподавателей, студентов в высших учебных заведениях. Целью статьи является рассмотреть, проанализировать, предложить общие подходы к построению сервисов поддержки организации работы преподавателей, студентов в высших учебных заведениях.

Ключевые слова: сервисы, услуги, управления обучением, программное обеспечение университетов, концепция, информационные технологии.