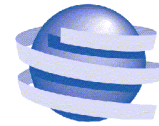




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**INTERNEWS**

**e-Gov Project**

# **SYSTEM DESCRIPTION**

**FOR**

**DEVELOPMENT OF SOFTWARE APPLICATION FOR**

**STUDENTS' BENEFITS ONLINE**

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## **1. INTRODUCTION**

*The e-Gov Project* shall together with Ministry of Education and Science develop and implement software application for online submission of student requests for lodging at the state owned dormitories and scholarships and student loans. The software application will also cover the automatic processing of the requests, their evaluation and granting.

Starting from this year the process of application will be fully automated and no requests submitted in hard copy will be accepted.

The system will be used in the Republic of Macedonia. All references in this document to legal text refer to the relevant legislation in the Republic of Macedonia.

## **2. PROCESS OF APPLYING FOR A STUDENT BENEFIT**

Even though the software application should cover online submission of requests for lodging at the dormitories, for scholarships and student loans this section will focus on the process for state dormitories but the processes for the other benefits are similar.

The process is regulated by the rulebook issued by the Ministry of Education and Science. The rulebook is issued every year and prescribes the conditions and manners of accommodating the students in dormitories. This year rulebook will be finalized by 1<sup>st</sup> of April 2007 and it will correspond to the process described here to accommodate the new electronic system.

The Commission formed by the Ministry of Education and Science is the body that carries out the reception of students in student dormitories.

Through a public announcement students will be invited to apply for rooms in state dormitories. This will probably take place around 15<sup>th</sup> July.

A certain number of rooms will be set aside for the students which enrol in the universities for the first time. The time period for applying for lodging for these new students is the beginning of September.

The criteria for lodging students in state owned dormitories are the following:

1. Success in their studies
2. Regular attendance at the course;
3. The student's family and its wealth status;
4. Distance between the university and the student's permanent domicile.

The points for each criterion are calculated as prescribed in the rulebook.

The distribution of rooms is carried out from the 1<sup>st</sup> until the 10<sup>th</sup> of September except for students that enrol in the institutions for higher education for the first time for which the distribution is done the 10<sup>th</sup> of October.

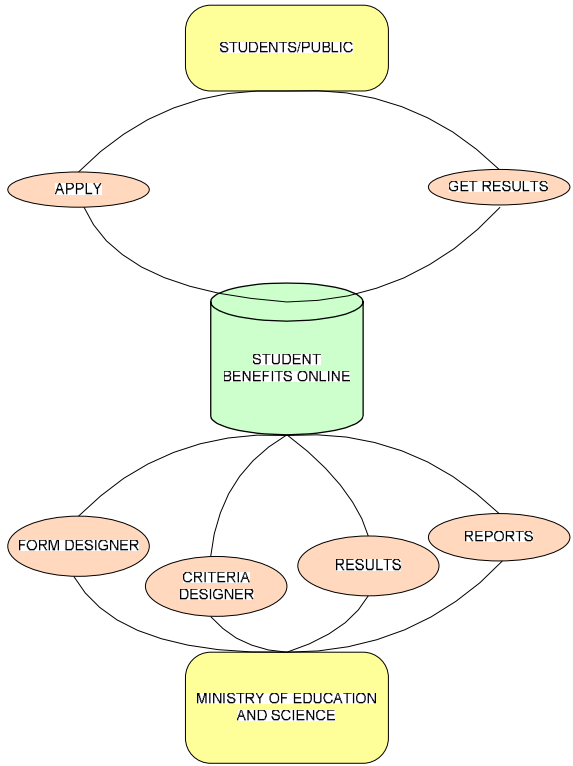
When the rooms are distributed the students are obligated to provide evidence that they are full-time students, i.e. that they have enrolled. Students, who have enrolled the school year

with a precondition, are obligated to submit a confirmation of their enrolment no later than February in the following calendar year, so that they can retain their user-status.

Rooms that for various reasons will not be occupied during the first round of distributions will be granted to students who are on the waiting list according to their ranking.

### 4. SOFTWARE MODULES

It is of paramount importance that the user interface must be attractive to the user. The e-Gov project will pay attention to this issue and the bidder is recommended to submit an example of design.



This chapter describes how the software shall operate. The design of the software application shall be modular and composed of separate software modules. The following software modules are foreseen for the system:

#### 4.1 Module 1: Form Designer

Web-based form designer module should allow administrators from the Ministry of Education and Science to create new forms and to modify existing forms. The forms should be used for electronic submission of the applications for the needs of the Ministry and this module should be used in future for creation of other forms such as for students credits for example.

The form designer should be able to create "active" forms meaning that logical and arithmetical controls must be included with the form.

#### **4.1.1. Application form**

The application form should be designed to consist of all mandatory and optional fields.

No registration in addition to the submitted request will be required.

The Personal Identification Number (PIN) shall be used as a control instrument for verification of the submitted application form. If the PIN is not valid, the application shall be automatically rejected by the system.

The application should be designed in an attractive way with only limited amount of information and fields on each screen with simple next/previous buttons for navigation between the screens.

The applicant should confirm the validity and truthfulness of the data submitted by checking a specific verification box.

#### **4.1.2. Point system**

The system should be able to allocate certain points per item from the form submitted by the applicant. The points are defined in the rulebook published by the Ministry of Education and Science.

Total points per applicant are calculated by the formula to be defined in the rulebook.

It must be possible for the system administrator to change these formulas if the rulebook is amended next year.

At the end of the selection process the system shall be able to send individually the result to each applicant if the applicant has submitted a valid email address. The system shall display a list with all names that have been granted a dormitory. The list shall also separately contain those put on the waiting list in order of priority. The list shall state that persons not found on the list were rejected. That page should have printer friendly feature so the student can print it and store it.

The software should keep forms and criteria history.

### **4.2. Module 2: Announcements**

The system should be able to publish forms created and tested with the form designer module. When the form is published the official enrolment process starts. The system should have possibility to determine deadlines for submission of the applications. It should also be possible to have multiple forms published for different purposes and possibly operated in parallel.

### 4.3 Module 3: Reports

This module should provide reporting system for all users of the system:

- Report on all candidates who applied (Internal report);
- Final list of ranked candidates (Public report);
- List of candidates per dormitory (Public report);

Some of these reports, such as the final list of ranked candidates should be published on the website of the Ministry of Education and Science and the software should enable it.

### 4.4 Module 4: Administration

This module is intended for the system administrators and should include functionalities needed for the maintenance of the system.

This module should provide monitoring and error reporting regarding applications sent and operating of the system (WEB interface, databases)

## 5. SECURITY REQUIREMENTS

The system works with private data sent by the students and that data that must be secured. The solution should be based on open and well-established standards in security and privacy:

**5.1. Security trail:** All applications should be accepted and checked continuously by the system in terms of security and in order to provide statistical reports on different stages of the process. The system should log events and access control and should provide a module for automated processing of system logs, offering the capability of generating reports on user/system events. Such reports can bring in highlight attempts to perform illegal activities, like changing data and accessing confidential information. Only authorised persons should be able to gain access to this tool.

**5.2 Privacy issues:** The system should make impossible personal information collected to be intercepted and read when transmitted or stored.

The webpage must display clearly the **privacy policy**.

### 5.3. Data transfer protection

- **Verify integrity:** SSL encryption mechanism must ensure that the message or data sent has not been changed or corrupted in transit online.
- **Ensure privacy:** Encryption method should be used to protect information being intercepted and read during Internet transmission.
- **Confirm transmission:** The software should feature a mechanism to require the student to submit combination of numbers and letters as displayed on the screen to confirm that a person is trying to access the page, rather than an automated program. This helps prevent automated programs from misusing the application process.

## **6. PERFORMANCE AND SCALABILITY**

The solution should be scalable to support growing numbers of users while adhering to performance requirements.

## **7. BACKUP AND RECOVERY**

The e-submission services system is 24/7 system where the business continuity is crucial and the software developer will have to cooperate with the Ministry of Education and Science on defining and testing the back-up and recovery procedures for the developed system. The backup should be done on hard disk drives and tape media and in accordance to the standards defined by the Central Register.

## **8. QUALITY ASSURANCE**

*The e-Gov Project* considers Quality Assurance as a critically important component of this project. While it is recognized that the recipient organization will be conducting tests to verify the acceptability of the software, this should not be seen as a substitute for verification of the deliverables by the developers prior to submission.

The developer should plan and execute white box and black box testing at their development site before it is delivered and installed at the production site of the recipient.

White box testing will be performed according to a plan of the developer's own design. It should include unit testing of each module as well as integration testing between modules, and overall system testing. The developer shall send a confirmation letter to *the e-Gov Project* certifying that white box has been completed. This letter is considered part of the deliverable.

The list of functionalities and criteria to be used for black box testing will be provided to the developer by *the e-Gov Project* and will be sent to the developer before the commencement of testing. The developer shall be responsible for conducting two rounds of black box testing:

- one in the laboratory environment at the development site
- one in the production site of the recipient organization

A third round of black box testing will be conducted by the recipient organization following or coinciding with the training to be provided by the developer.

The developer shall fix all issues found during any of the testing phases and send a final testing report to the e-Gov Project. This final testing report is considered to be part of the deliverable and will be required before the Project can issue the acceptance letter.

## **9. LANGUAGE**

The public part of the software application should be displayed both in Macedonian and Albanian language. For the Macedonian language the Cyrillic alphabet must be used in Macedonian code-page standard.

For the interfaces used by the authorized persons from the Ministry of Education and Science the Macedonian language and the Cyrillic alphabet should be used.

## **10. ICT INFRASTRUCTURE**

The software should be installed on the servers located at the General Secretariat.

General Secretariat uses the following Microsoft Servers and technologies:

- Microsoft Office SharePoint Portal Server 2003
- Microsoft Exchange Server 2003
- Microsoft Office 2003 System (InfoPath 2003)
- Microsoft SQL Server 2000
- Microsoft ISA Server 2004
- Microsoft Windows Server 2003 Standard and Enterprise Edition

The software application should provide seamless integration with Governmental portal <http://www.uslugi.gov.mk>

## **11. TRAINING**

The timing of the training shall be agreed between the Ministry of Education and Science and the selected software developer. Ideally, the training should take place during the testing of the software.

The training shall be organized at the premises of the Ministry of Education and Science, using their computers and classroom. However, bidder may propose different training location, including its own classroom, if available.

The training should be organized for 2 groups of internal users: first group will consist of three system administrators from the IT Department of the General Secretariat and the Ministry of Science and Education; and the second group of five persons from the commission formed by the Ministry of Education and Science.

The training shall also incorporate form designing about which the System Description provides more detailed information.

The user manuals and guides, both hardcopy and electronic, presented in an instructive way, should be available at the time of training. The manuals and guides should be written in Macedonian language.