# E-EDUCATION CONTENT MANAGEMENT

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*Abstract:* *E-learning is an innovative technology used to increase professionalization and student academic mobility. The ICT is considered to be a technological platform for higher education fundamentalization at the modern stage of development. Regarding the e-learning system, the implementation of the designed module of Web Dean's Office allows to regularly monitor how educational content is created and used, as well as to observe and analyze the activities of all educational process participants. It was an essential requirement to consider the forms of e-learning implementation and the requirements for education performance assessment and evaluation, which gives a possibility to both academic staff performance assessment in the educational content management system (performed tasks) and a control over student activity and academic group excellence in order to ensure quality education, while developing the module.*

**Keywords:** e-learning, Web Dean's Office, quality education, control of participants.

## INTRODUCTION

The expanded application of e-learning and distance education technology for all forms of education in all fields of study; the created online courses and other kinds of e-learning content; standards for designing e-learning content and e-environments and the global shift from Learning Management System (LMS) to Training Management System (TMS) are among the main global trends in education informatization. Therefore, e-learning implementation based on using e-content that includes electronic training courses (ETC) and e-collaboration of all the participants of the educational processes is given a special attention to at Borys Grinchenko Kyiv University (BGKU) on the basis of electronic information and education environment of the University (Morze, Buinytska, Hrytseliak, 2015).

## 1.   BGKU E-LEARNING SYSTEM

The peculiar features of e-learning are connected with the use of means, instruments and tools for education that could combine the efforts of the teacher and the student in order to facilitate the process of learning of the content of courses; to engage students into active learning with the help of educational materials and sources; to maintain systemic interaction between the teacher and the student, among the students, in collaborative small group forms of activity (forum discussions of different issues, chatting, video conferences), in customization and differentiation of educational processes harmonized with the student capacities and abilities; to promote personification in education and training in order to take student interests into account; to ensure academic staff and student time-efficiency due to automation of routine tasks performance.

There are various ways for e-learning system implementation at HEI. Purchasing a ready-to-install solution with the possibilities that are documented, that serves as a platform for the customer (institution) to spread an e-learning system is the most common way. The price for software application includes detailed documentation, as well as methodological and technical support. Yet, the customer (institution) implements the system in operation without any help.

The second option foresees entering an e-learning system in operation by the developer under the framework of its implementation, which is considerably more expensive and is, consequently, a less common practice for HEI. Nevertheless, the fact that the customer gets a unique system which is capable of problem-solving as an outcome of the project is an advantage.

The third option is the least risky considering finances. It is the ASP-service application. The point is that the customer gets an access to an existing functional e-learning system that is created on the platform of a software product.

The fourth variant was chosen by BGKU. It is deploying freely-distributed learning management system which is self-expanding using its own potential.

The BGKU e-learning system is organized on the platform of LMS MOODLE (Modular Object-Oriented Dynamic Learning Environment), and it is accessible at http://e-learning.kubg.edu.ua/ (Figure1). MOODLE is a free open source system for learning management that is targeted at cooperation, collaboration and interaction between the teacher and the student.

With the help of this system, students have a possibility to remotely learn educational material of different subjects, send the assignments done for the teacher to check them, take tests using the global network – the Internet. Teachers, in their turn, develop their own online courses and practice distance learning, send messages to their students, delegate, collect and check student homework, keep electronic registers for student academic record, set various course resources with the deadlines for working with them, etc. (Morze N., Buinytska O., Varchenko-Trotsenko L., 2015).

E-learning is an innovative technology used to increase professionalization and student academic mobility, whereas ICTs are considered to be a technological platform for higher education fundamentalization at the modern stage of development.
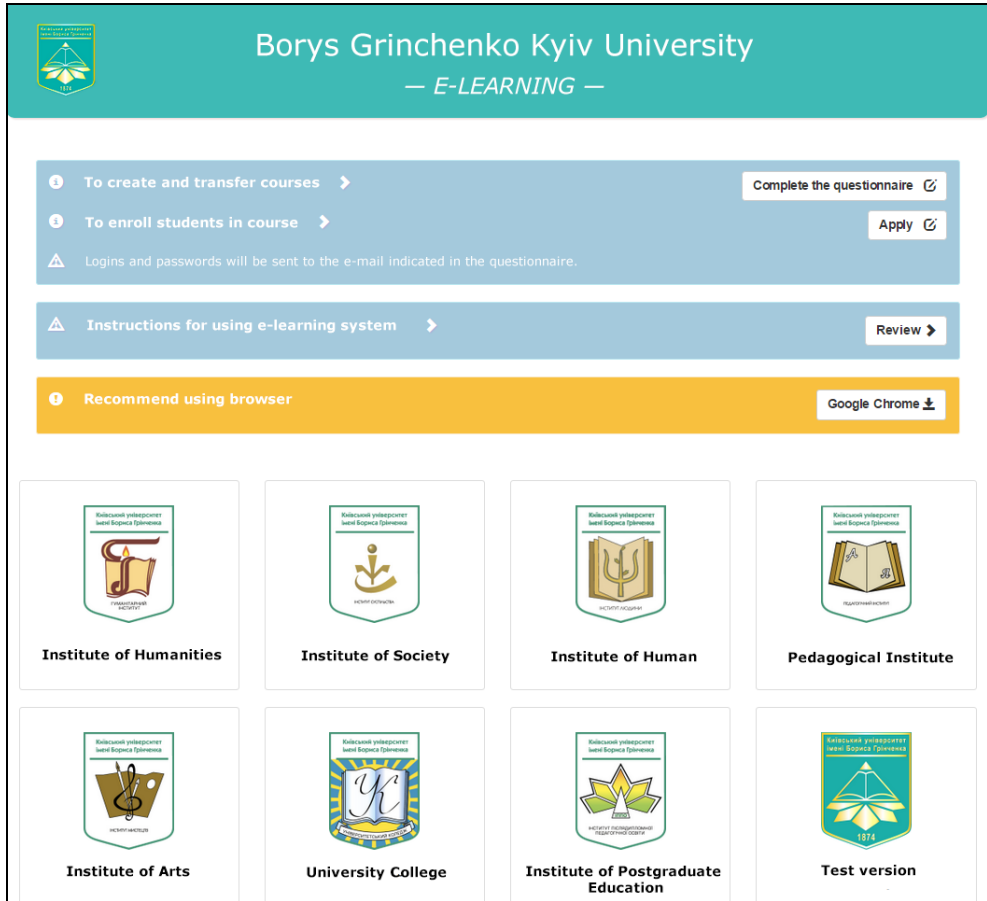


**Figure 1. Home page of the University E-learning System**
*Source: Own work*

## 2. WEB DEAN'S OFFICE MODULE IN MOODLE ENVIRONMENT E-LEARNING CONTENT MANAGEMENT SYSTEM

Through the developed "Web Dean's Office" (e-Dean's Office) module, the standard options of e-learning have been expanded at the University in order to organize and monitor the quality of the educational process. The development of e-Dean's Office was one of the objectives according to the local plan of BGKU as a participant of Tempus DESIRE (544091-TEMPUS-1-2013-1-BE-TEMPUS - JPCR), an international project, to ensure and control the quality of the developed

online courses in embedded systems that are included into the curricula for training advanced students.

E-Dean's Office Module is implemented via MOODLE learning environment API (Application Programming Interface) following the recommendations of the official technical documentation ( http://dev.moodle.org/ ) using such technologies as PHP, MySQL, JavaScript, HTML, JSON.

It was essential to consider the two component parts - forms of e-learning implementation and the requirements for education performance assessment and evaluation at HEI –while developing the module.

The main functionality of the e-Dean's Office developed is:

- making it possible to divide educational environment into subdivisions (institutes, chairs);

- creating training courses with possible additional settings (hours, forms of testing, authors, etc.);

- widening information about academic groups and students to include specialty, specialization, form of training, field of study, EQL (Education Qualification Level), etc.;

- working out curricula for directions of training with possible linking of training courses;

- student profile (page) for current courses, assignments that have not been accomplished and academic record to be displayed;

- group profile (page) for student academic record and courses during the current period to be displayed;

- teacher profile (page) for assignments that have not been checked and settings of training courses to be displayed;

- automated transfer of groups to directions of training for further education;

- synchronizing with an external data base to update information about academic staff, subdivisions, courses, etc.;

- automated collection of statistics regarding academic disciplines, training courses, chairs, etc.;

- search for teachers, groups and students by subdivisions to simplify the system navigation.

The Module provides a possibility to edit settings, create new records and delete old ones (subdivisions, training courses, directions of training, etc.) using special technical pages. Users are divided into groups with certain rights and levels of

access. Therefore, the system is protected from unauthorized editing of personal data or system settings (Morze, Buinytska, Kocharyan, 2015).

e-Dean's Office Module consists of four sections: personal pages of students and teachers (virtual room); search system; management; statistics (Figure 2).
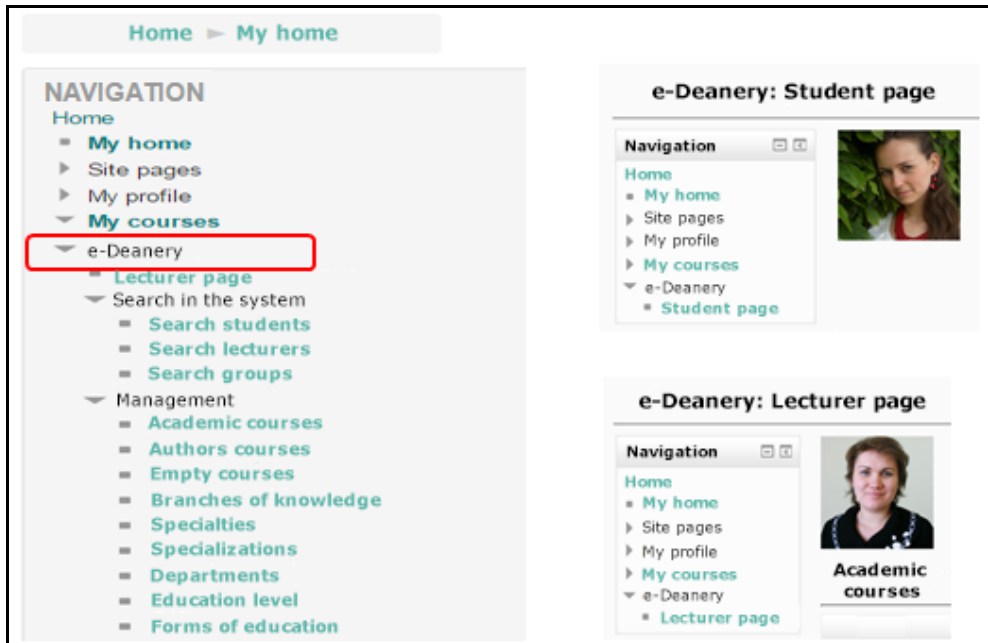


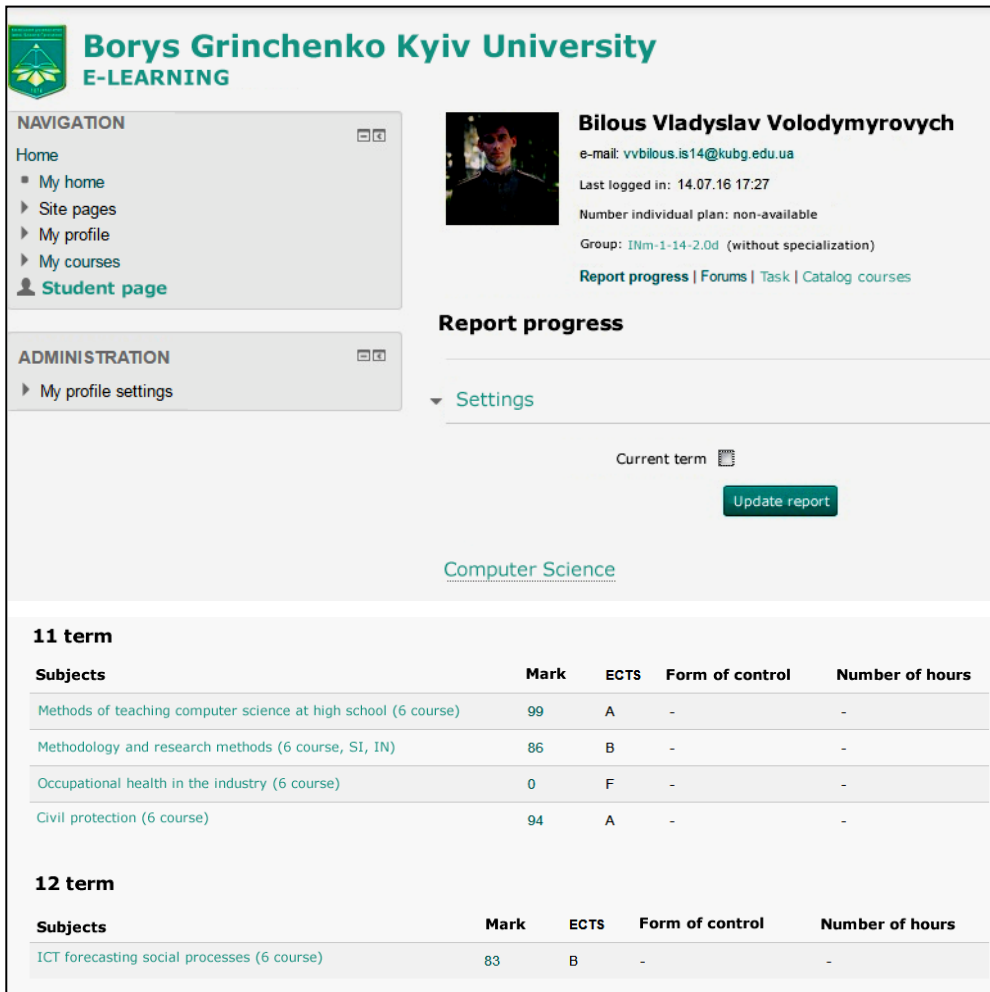**Figure 2.** **The Structure of e-Dean's Office**
*Source: Own work*

## 2.1. Student Virtual Room – Student Profile (Page)

STUDENT PROFILE (PAGE) that can be found on NAVIGATION bar of e-Dean's Office. Using this service enables students to see information in their accounts (name, surname, e-mail, when they were last seen in the system, individual plan number, group code), an academic record, a catalogue of elective courses (Figure 3).

ACADEMIC RECORD can be viewed both for the current semester and for the period of study of the chosen specialty. The academic record shows score in each academic discipline, ECTS grading scale, forms of examination and hours for the discipline, having been obtained by the current moment.

Information on forums, discussions in which the student takes part, is shown in FORUM menu that can be found in STUDENT PROFILE (PAGE) (Figure 4).

It is possible to see in what forums the students have participated and when they took part in discussions, as well as to refresh the content of disputes about problematic issues, in FORUM section.

**Figure 3. STUDENT PROFILE (PAGE) In e-Dean's Office**
*Source: Own work*



**Figure 4. FORUMS On Student Profile Page**
*Source: Own work*

STUDENT PROFILE (PAGE) also shows the assignments that the student has to do in all the courses that have ETC developed. They can be found using TASKS menu (Figure 5).

The possibility to find all the tasks, that have been assigned during the whole period of study, as well as the ones that are assigned for the current semester, has found its implementation in TASKS menu. If the students select a task, they go to doing it at once, whereas if they select an academic discipline, they go to the complete ETC of the chosen subject.



**Figure 5. TASKS Assigned For the Current Semester**
*Source: Own work*

The student are given a possibility to get variants of assignments; to send the assignments done; to do tests; to review the results of assessment of their works and tests; if it is necessary, to communicate with the teachers or representatives of educational department (supervisors); to receive information on educational process.



**Figure 6. Display of the ETC Assessment**
*Source: Own work*

An individual student performance record, that includes the deadlines for current control (control papers, tests, etc.), is carried out via e-Dean's Office. It also concerns records by separate subjects (according to modules within one course) and qualification papers. If we select the specific score in course GRADE menu, we will receive information on the academic record of all the activities that are mentioned in the academic discipline ETC (Figure 6). USER'S GRADES show the title of the assignment done, its percentage in the ETC, the score (points and percentage) for the assignment done, the assessment scale, reviews (comments) left by the teacher while checking and the correspondent value of the assignment in the frame of the course.

| Course name | Mark |
| --- | --- |
| 8.04030201 INF | 59,14 |
| Sociology of Education (5 course) | 149 (A) |
| ICT forecasting social processes (6 course) | 83,00 |
| Methods of teaching social and pedagogical subjects (6 course) | 99 (A) |
| Fundamentals of information education (5 course) | - |
| Methodology and research methods (6 course, SI, IN) | - |
| Monitoring of training activities (5 course) | - |
| Educational measurement (5 course) | 42 |
| Occupational health in the industry (6 course) | 0 (-) |
| Civil protection (6 course) | 94 (A) |
| SICTC | 46,00 |

*Review — General report — User's mark*

**Figure 7. Assessment General Report Review**
*Source: Own work*

**12 term**

| | | | | | |
| --- | --- | --- | --- | --- | --- |
| Total in category "12 term" Average rating. | - (Empty) | - | 0–100 | - | - |
| System programming | 0,00 % (Empty) | - | 0–100 | - | 0,00 % |
| Technology development of distributed databases | 0,00 % (Empty) | - | 0–100 | - | 0,00 % |
| Sociology of education | 11,11 % | 149,08 | 0–170 | 87,70 % | 9,74 % |
| Civil protection | 11,11 % | 94,39 | 0–150 | 62,93 % | 6,99 % |
| Occupational health in the industry | 11,11 % | 0,00 | 0–125 | 0,00 % | 0,00 % |
| Civil protection | 11,11 % | 94,39 | 0–150 | 62,93 % | 6,99 % |
| ICT forecasting social processes | 11,11 % | 83,00 | 0–100 | 83,00 % | 9,22 % |
| Educational measurement | 11,11 % | 42,42 | 0–100 | 42,42 % | 4,71 % |
| Monitoring of training activities | 11,11 % | 13,81 | 0–100 | 13,81 % | 1,53 % |
| Methods of teaching computer science at high school | 11,11 % | 99,09 | 0–106 | 93,48 % | 10,39 % |
| Methodology and research methods | 11,11 % | 85,99 | 0–100 | 85,99 % | 9,55 % |
| Fundamentals of information education | 0,00 % (Empty) | - | 0–0 | - | 0,00 % |
| Total mark of course Average rating. | - | 59,14 | 0–100 | 59,14 % | - |

**Figure 8. Academic Record for the Period of Study**
*Source: Own work*

If GENERAL REPORT link is selected, the score obtained in the academic disciplines and the average grade for the period of study of the specialty is displayed (Figure 7).

If we use SPECIALITY CODE link in GENERAL REPORT, we will get the results of the academic performance with the specified percentage of the training program me that has been already completed in all the academic disciplines in the context of semesters (Figure 8).

## 2.2. Virtual Teacher Room– Teacher Profile

In a virtual teacher room – TEACHER PROFILE, personal data, last seen (in the e-learning system) information, academic disciplines and courses lectured by the teachers, forums they participate to discuss problematic issues and the catalogues of courses designed to be elected by students are shown (Figure 9).



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Last logged in: 31.07.16 21:26
Courses | Forums | Catalog courses

**Academic courses**

| Name | Number of hours | | Form of control | | Training direction | Export |
|---|---|---|---|---|---|---|
| Modern information and communications technology in psychology | 144 | ✎ | Exam | ✎ | 8.03010301 Practical psychology | Statement of the success |
| Modern information and communications technology in the social field | 108 | ✎ | Exam | ✎ | 8.01010601 Social pedagogy | Statement of the success |
| Modern information and communications technology in the social field | 108 | ✎ | Exam | ✎ | 7.01010601 Social pedagogy | Statement of the success |
| Modern information and communications technology in psychology | 144 | ✎ | Exam | ✎ | 7.03010301 Practical psychology | Statement of the success |
| Modern information and communications technology in the social field (External form of education) | 108 | ✎ | Exam | ✎ | 7.01010601 Social pedagogy (External form of education) | Statement of the success |
| Modern information and communications technology in the social field (External form of education) | 108 | ✎ | Exam | ✎ | 8.01010601 Social pedagogy (External form of education) | Statement of the success |
| Modern information and communications technology in psychology (External form of education) | 108 | ✎ | Exam | ✎ | 7.03010301 Practical psychology (External form of education) | Statement of the success |
| Modern information and communications technology in psychology (External form of education) | 108 | ✎ | Exam | ✎ | 8.03010301 Practical psychology (External form of education) | Statement of the success |
| Modern information and communications technology in psychology | 108 | ✎ | Exam | ✎ | 8.03010201 Psychology | Statement of the success |
| Methods of teaching computer science at high school | 144 | ✎ | Exam | ✎ | 8.04030201 Computer science | Statement of the success |
| Methods of teaching computer science at high school | 144 | ✎ | Exam | ✎ | 8.04030203 Social computer science | Statement of the success |

**Figure 9. TEACHER PROFILE In e-Dean's Office**

Choosing the links FORUMS on TEACHER PROFILE (PAGE), it is possible to take a look at the forums by the academic disciplines and the forums in which the teacher has taken part (Figure 10).

Clicking on CATALOGUE OF COURSES which is displayed on TEACHER PROFILE (PAGE0, we can find all elective courses available to students (Figure 11). The teachers can choose the ones they lecture and to move them to MY COURSES to further analyze the performance of the students who will decide to take them.

**Figure 10. Forums by Academic Disciplines**
*Source: Own work*



**Figure 11. Catalogue of Elective Courses**
*Source: Own work*

Using e-Dean's Office allows the teacher to shape information (reports, academic activity outcomes) on the student performance during the course. The peculiarity of the teacher page is generation of student academic records by each of the academic disciplines. To get that done, you should go to TEACHER PROFILE (PAGE), select ACADEMIC RECORD STATEMENT in the line of the names of the academic discipline (Figure 12), enter the academic group code, fill in some standard spaces that are displayed in the record statement (Figure 13), use EXPORT function, print it out and sign the generated document (Figure 13).

**Figure 12. Filling in the Key Fields to Generate the Academic Record Statement**

*Source: Own work*

Data is exported from e-Dean's Office module of the e-learning system as a typical text document which can be edited. It gives the educational department office workers a possibility to register the academic record statement in and to note its number.

**Borys Grinchenko Kyiv University**

Form of study: Full-time
Subdivision: Institute of Society
Branch of knowledge: 0403 System sciences and cybernetics
Specialty: Social computer science
Specialization: _____
Course VI Group SINm-1-14-2.0d
2016/2017 academic year

**SEMESTER CONTROL STATEMENT № _____**

Methods of teaching computer science at high school (6 course)
(Name of subject)

V term.

Date 2016.07.31

Examiner: Buinytska Oksana Petrivna
(degree, surname, initials)

Lector, who teaching practical works: Buinytska Oksana Petrivna
(degree, surname, initials)

| № | Full Name student | № INPS (gradebook) | The number of points (current control) | Signature, who teaching practical works: | The number of points (Final control - Exam) | Total points | The final score for national system | Score scale ECTS | Signature examiner |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Honchar Viktoriia Dmytrivna | | 57 | | 40 | 97 | Excellent | A | |
| 2 | Kordetska Maryna Hennadiivna | | | | | | Fail | F | |
| 3 | Lihus Serhii Andriiovych | | | | | | Fail | F | |
| 4 | Lebabina Maryna Hennadiivna | | 52 | | 37 | 89 | Good | B | |

Students in the group: 11

Director

_____
(Signature)

Yakovenko Ihor Valentynovych
(surname, initials)

Absent _____
Present _____
"Excellent" A: 4
"Good": 2 - B: 2; C: 0
"Pass": 1 - D: 0; E: 1
"Fail": 4
FX with repeating an exam 0
F with obligatory re-learning course 0

Lector

_____
(Signature)

**Figure 13. The Generated Group Performance Academic Record Statement**
*Source: Own work*

## 3. USING E-DEAN'S OFFICE BY ADMINISTRATION

With the help of e-Dean's Office module, educational department administrators and supervisors, university and structural subdivision administration have a possibility to both account academic staff performance in the e-learning content management system and to analyze how efficiently the academic staff perform their educational tasks, as well as to control student activities and academic group excellence. These functions are implemented in Section Two of the Module – SERACHING of SYSTEM where you have certain separated options to find

students (by surname), teachers (by surname) and academic groups (by specialty code) by institutions (Buinytska 2015).

Having found a particular student or teacher in the e-learning system, administrators (supervisors) get access to the virtual rooms of the selected people and they have a possibility to view all kinds of activity of educational process participants.

It is rather convenient for educational department supervisors and administrators to be able to monitor academic group excellence in all the academic disciplines during the current semester (Figure 14), which also enables them to generate academic record statements for scholarship and to control their performance.

**PPs-1-14-4.0d**

| | |
|---|---|
| Amount of students | 17 |
| Branch of knowledge | 0301 Social and political sciences |
| Specialty | 7.03010301 Practical psychology |
| Specialization | non-available |
| Education level | Specialist |
| Year of entry | 2014 |
| Training period (years) | 1 |
| Form of study | Full-time |

✏ Edit configuration

**10 term**

| Subject / students | Acmeology (6 course) | Sociology of Education (5 course) | SICT in psychology (5 course) |
|---|---|---|---|
| Konshyn Artem Denysovych | 35 (FX) | 124 (A) | 95 (A) |
| Khodakivska Anastasiia Volodymyrivna | 32 (F) | 0 (F) | 73 (D) |
| Hulak Dmytro Hryhorovych | 40 (FX) | 138 (A) | 97 (A) |

**Figure 14. Accounting of Academic Group Excellence**
*Source: Own work*

By selecting the link TRAINING COURSES located in ADMINISTRATION menu of e-Dean's Office module, we will get access to information about all the ETCs that are present in the system, which chair is responsible for their implementation, whether or not the ETC is a certified one (Figure 15). By selecting FILTERS, we may get statistic reports on the ETC developed by chair or specialty.

**Figure 15. List of Training Courses**
*Source: Own work*

Going to link DIRECTION OF TRAINING (SPECIALITY), the HEI administration can find student academic performance record statements in all the academic disciplines of the chosen specialty (Figure 16).



**Figure 16. Accounting of Excellence by Specialty Disciplines**
*Source: Own work*

Except accounting of excellence by disciplines, administrators can also analyze how students attend the ETC. To have it done, you should go to the link with the title of the ETC you need to check, and you should choose PARTICIPANTS on NAVIGATION bar (Figure 17). Applying the filters you need, in particular, available groups, not active participants for more than (one day, one week, one month, one year, etc.) and the role of student – there is a possibility to see the lists of students who ignore the work with the ETC.

**Figure 17. Accounting of Student Attendance**
*Source: Own work*

MANAGEMENT Section of Wed Dean's Office Module enables to view and edit (by the users with the appropriate rights for system management) the following categories:

- training courses (there are the developed ETC for each specialty labeled with internal certification);

- authors of courses (it is possible to get to know the name of the developer by the title of the ETC);

- empty courses (that do not contain any educational resources);

- field of study, specialization, subdivision EQL, forms of training (a simple list as a guide);

- specialties (reviewing disciplines over the whole period of student mastering of the chosen specialty in the context of distribution by semesters);

- expulsion of students (after the training is completed);
- LDAP synchronization (synchronizing users' accounts via the single login system to the BGKU e-resources).

## CONCLUSION

Using Web Dean's Office module in the University's e-learning system allows the creation and use of e-learning content, as well as certain e-resources, to be constantly monitored with the activities of all the participants in the educational process being observed and analyzed. The transparency and open access to all statistical reports are considered to be an incentive for the teachers to be motivated to develop quality advanced electronic resources that can appeal to students and facilitate the desire to master academic disciplines.

Overall, the developed and certified e-learning courses in the academic disciplines, placed in the e-learning system, are one of the key instruments of assessment of the ICT implementation for educational activity and quality education at the University.

## REFERENCES

Buinytska O. 2015: *Module "e- Dean's " in the management of educational content LMS Moodle environment*. Computer science and information technology in schools, №4, 2015, p.62-71.

Morze N., Buinytska O., Hrytseliak B., 2015: *Implementation of corporate standards of ICT competence – guarantee qualitative open electronic environment of the university*. IT tools - Good Practice of Effective Use in Education: Monograph. Katowice, Cieszyn, 2015, pp. 41-61. ISBN: 978-83-60071-82-3 2015

Morze N.V., Buinytska O.P., Kocharyan A.B. 2015: *IC-competence of teachers and students as a way to formation of information educational environment of the university* (pp. 151-196). Section II. Competency-oriented education: quality assurance. In Ogneviuk V.O., Khoruzhaya L.L. and others (Eds.). Collective monograph. Kyiv: Borys Grinchenko Kyiv University, №24, 2015, 124 p. ISSN 2311-2409

Morze N.V., Buinytska O.P., Varchenko-Trotsenko L.O., 2015: *Creation of a smart university is our strategic objectives*: Section V. In Ogneviuk V.A. (Eds.). 5th edition with changes. Kyiv : Borys Grinchenko Kyiv University, 2015, 206p. ISBN 978-966-7548-84-1.