



SCHOOL OF BUSINESS
AND MANAGEMENT OF
TECHNOLOGY OF BSU



Innovative ICT Education for Social-Economic Development (IESED)
574283-EPP-1-2016-1-LT-EPPKA2-CBHE-JP

IT-TECHNOLOGIES IN EDUCATION

Minsk 2017

1. COURSE PLAN

Course code 12

| Year of study | Semester | Academic hours | | | | | Hours of course work | ECTS | Number of hours |
|---------------|----------|----------------|----------|-----|-------------------|------------------|----------------------|------|-----------------|
| | | Total | Lectures | Lab | Practice/ seminar | Independent work | | | |
| 3 | 6 | 136 | 18 | 42 | 8 | 68 | 0 | 5 | Full-time |
| 4 | 7,8 | 136 | 4 | 10 | 4 | 118 | 0 | 5 | Part-time |

2. COMPETENCIES (IT Profile 1-9)

- Plan and organize automated support of various activities
- To be able to apply basic scientific and theoretical knowledge for solving practical problem

3. COURSE GOAL

- Assistance in the development of future teacher's professional competence;
- Formation of a holistic view of the role of information technologies in the modern educational environment and pedagogical activity;
- Mastering capabilities of information technologies in solving pedagogical tasks.

4. COURSE OUTCOMES (4-5)

After completing this course student will be able to:

- know principles of using modern information technologies in professional activity, and main trends of the ICT technologies development;
- use application software and the Internet for solving typical professional tasks in the methodology of education;
- define methods of using modern information technologies into educational activities;
- choose ICT means for solving practice-oriented and research problems.

5. COURSE CONTENT (FULL TIME)

| № | Name of the topic | Number of academic hours | | | | | Form of knowledge control |
|----------|---|--------------------------|----------|-----------------|----------|------------------|---|
| | | TOTAL | Lectures | practical tasks | labs | Independent work | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Information environment of general secondary education | 12 | 2 | 2 | 2 | 6 | |
| 1.1 | Education informatization. Information educational environment. Possibilities of contemporary information educational environment. Informational education environment as a means of organizing the information activity of a | 4 | 2 | | | 2 | <i>Test No 1, Independent work No 1</i> |

| | | | | | | | |
|----------|--|-----------|----------|----------|-----------|----------|---|
| | teacher and a student | | | | | | |
| 1.2 | Unified information educational environment. Components of the UIEE | 4 | | 2 | | 2 | Practical work "Creating and publishing a multimedia presentation : Unified information educational environment" |
| 1.3 | Information Republican educational environment. Educational portals | 4 | | | 2 | 2 | Final work "Educational portals" |
| 2 | Information technologies in pedagogue professional activity | 18 | 2 | 2 | 6 | 8 | |
| 2.1 | Didactic goals and tasks of using modern information and communication technologies in education. ICT opportunities for the development of creative thinking | 4 | 2 | | | 2 | <i>Test No 2, Independent work No 2</i> |
| 2.2 | Technical means of information and communication technologies used in teaching students | 4 | | 2 | | 2 | Practical work "Creating and publishing a multimedia presentation : Technical means of information and communication technologies used in teaching students" |
| 2.3 | Information tools and technologies that provide the work of multimedia centers in educational institutions | 10 | | | 6 | 4 | Final work "Preparation of materials for the interactive whiteboard and techniques for using it. Mobile and telecommunication tools used in general secondary education." |
| 3 | The main types and essence of study material as the most important component of information pedagogical technologies | 14 | 2 | | 4 | 8 | |
| 3.1 | The concept of study material. Communication activity and the essence of information communication in learning process. The teacher role in the effective use of study materials | 6 | 2 | | | 4 | <i>Test No 3, Independent work No 3</i> |
| 3.2 | Principles of the development of study material optimal structure | 8 | | | 4 | 4 | Final work "Principles of the development of study material optimal structure" |
| 4 | Information and education resources for educational purpose: their classification and didactic functions | 14 | 2 | | 4 | 8 | |
| 4.1 | The concept of an electronic education resource (EER). Classification of EER. Systematization, description of electronic educational resources | 6 | 2 | | | 4 | <i>Test No 4, Independent work No 4</i> |
| 4.2 | Examination of electronic educational resources environment | 8 | | | 4 | 4 | Final work "Forms of interaction with global information environment resources" |
| 5 | Methods of using information and communication technologies for solving typical professional and methodological problems | 20 | 2 | | 10 | 8 | |
| 5.1 | Definition of typical professional and methodical problems. Algorithms for solving typical professional and methodical problems | 4 | 2 | | | 2 | Test No 5, Independent work No 5 |
| 5.2 | Use of information technologies, information systems in solving typical professional-methodological problems | 16 | | | 10 | 6 | Final work "Use of information technologies in solving typical professional-methodological problems" |
| 6 | The use of information technology in educational work | 16 | 2 | 2 | 4 | 8 | |

| | | | | | | | |
|----------|---|------------|-----------|----------|-----------|-----------|--|
| 6.1 | Informatization of extracurricular activities of schoolchildren. Information technology for leisure-time activities of schoolchildren | 4 | 2 | | | 2 | <i>Test No 6, Independent work No 6</i> |
| 6.2 | Students communities networks | 4 | | 2 | | 2 | Practical work “Students communities networks” |
| 6.3 | Information techniques and technologies providing the work of modern Internet services | 8 | | | 4 | 4 | Final work “Use of information technologies in solving typical professional-methodological problems” |
| 7 | Computer based diagnostic assessment tool in teaching process | 14 | 2 | | 4 | 8 | |
| 7.1 | Acquaintance with the diagnostic tools. Planning diagnostic procedures | 6 | 2 | | | 4 | <i>Test No 7, Independent work No 7</i> |
| 7.2 | Determining the students educational abilities with the use of computer pedagogical resources and development of study tasks | 8 | | | 4 | 4 | Final work “Система учебных заданий в соответствии с диагностическими исследованиями” |
| 8 | Information technology in pedagogical research. | 14 | 2 | | 4 | 8 | |
| 8.1 | Pedagogical monitoring. Databases. Collection and accumulation of data of a child. Analysis and mathematical processing of the accumulated data | 6 | 2 | | | 4 | <i>Test No 8, Independent work No 8</i> |
| 8.2 | Use of MS Office computer technologies for mathematical data processing. | 8 | | | 4 | 4 | Final work “Statistic data processing of pedagogical experiment” |
| 9 | Technological process of the teacher individual activity and his professional development.pedagogical | 14 | 2 | 2 | 4 | 6 | |
| 9.1 | Basic concepts of the individual technological process in pedagogical activity | 4 | 2 | | | 2 | <i>Test No 9, Independent work No 9</i> |
| 9.2 | Principles and methods of information support and technical ensuring a teacher pedagogical individual activity | 4 | | 2 | | 2 | Practical work “Principles and methods of information support and technical ensuring a teacher pedagogical individual activity.” |
| 9.3 | Modern communication tools reflecting the teachers’ achievements, creative contests of pedagogical mastery | 6 | | | 4 | 2 | Final work “Use of information technologies in solving typical professional-methodological problems” |
| | Total | 136 | 18 | 8 | 42 | 68 | |

6. COURSE CONTENT (PART TIME)

| № | Name of the topic | Number of academic hours | | | | | Form of knowledge control |
|----------|---|--------------------------|----------|-----------------|------|------------------|---------------------------|
| | | TOTAL | Lectures | practical tasks | labs | Independent work | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Information environment of general secondary education | 12 | | | | 12 | |

| | | | | | | | | |
|----------|---|-----------|----------|--|---|----------|--|---|
| 1.1 | Education informatization. Information educational environment. Possibilities of contemporary information educational environment. Informational education environment as a means of organizing the information activity of a teacher and a student | 4 | | | | 4 | <i>Test No 1, Independent work No 1</i> | |
| 1.2 | Unified information educational environment. Components of the UIEE | 4 | | | | 4 | Practical work “Creating and publishing a multimedia presentation : Unified information educational environment” | |
| 1.3 | Information Republican educational environment. Educational portals | 4 | | | | 4 | Final work “Educational portals” | |
| 2 | Information technologies in pedagogue professional activity | 20 | 2 | | | 4 | 14 | |
| 2.1 | Didactic goals and tasks of using modern information and communication technologies in education. ICT opportunities for the development of creative thinking | 6 | 2 | | | 4 | <i>Test No 2, Independent work No 2</i> | |
| 2.2 | Technical means of information and communication technologies used in teaching students | 4 | | | | 4 | Practical work “Creating and publishing a multimedia presentation : Technical means of information and communication technologies used in teaching students” | |
| 2.3 | Information tools and technologies that provide the work of multimedia centers in educational institutions | 10 | | | | 4 | 6 | Final work “Preparation of materials for the interactive whiteboard and techniques for using it. Mobile and telecommunication tools used in general secondary education.” |
| 3 | The main types and essence of study material as the most important component of information pedagogical technologies | 14 | | | | 2 | 12 | |
| 3.1 | The concept of study material. Communication activity and the essence of information communication in learning process. The teacher role in the effective use of study materials | 4 | | | | 4 | <i>Test No 3, Independent work No 3</i> | |
| 3.2 | Principles of the development of study material optimal structure | 10 | | | | 2 | 8 | Final work “Principles of the development of study material optimal structure” |
| 4 | Information and education resources for educational purpose: their classification and didactic functions | 16 | | | | 2 | 14 | |
| 4.1 | The concept of an electronic education resource (EER). Classification of EER. Systematization, description of electronic educational resources | 6 | | | | 6 | <i>Test No 4, Independent work No 4</i> | |
| 4.2 | Examination of electronic educational resources | 10 | | | 2 | 8 | Final work “Forms of interaction with global information environment resources” | |
| 5 | Methods of using information and communication technologies for solving typical professional and methodological | 20 | 2 | | | 4 | 14 | |

| | | | | | | | |
|----------|--|------------|----------|----------|-----------|------------|--|
| | problems | | | | | | |
| 5.1 | Definition of typical professional and methodical problems. Algorithms for solving typical professional and methodical problems | 8 | 2 | | | 6 | Test No 5, Independent work No 5 |
| 5.2 | Use of information technologies, information systems in solving typical professional-methodological problems | 12 | | | 4 | 8 | Final work "Use of information technologies in solving typical professional-methodological problems" |
| 6 | The use of information technology in educational work | 14 | | | | 14 | |
| 6.1 | Informatization of extracurricular activities of schoolchildren. Information technology for leisure-time activities of schoolchildren | 2 | | | | 2 | Test No 6, Independent work No 6 |
| 6.2 | Students communities networks | 4 | | | | 4 | Practical work "Students communities networks" |
| 6.3 | Information techniques and technologies providing the work of modern Internet services | 8 | | | | 8 | Final work "Use of information technologies in solving typical professional-methodological problems" |
| 7 | Computer based diagnostic assessment tool in teaching process | 12 | | | | 12 | |
| 7.1 | Acquaintance with the diagnostic tools. Planning diagnostic procedures | 6 | | | | 6 | Test No 7, Independent work No 7 |
| 7.2 | Determining the students educational abilities with the use of computer pedagogical resources and the development of individual study tasks | 6 | | | | 6 | Final work "System of study tasks in accordance with diagnostic research" |
| 8 | Information technology in pedagogical research | 14 | | | | 14 | |
| 8.1 | Pedagogical monitoring.Databases. Collection and accumulation of data of a child. Analysis and mathematical processing of the accumulated data | 6 | | | | 6 | Test No 8, Independent work No 8 |
| 8.2 | Use of MS Office computer technologies for mathematical data processing | 8 | | | | 8 | Final work "Statistical data processing of pedagogical experiment" |
| 9 | Technological process of the teacher individual activity and his professional development | 14 | | 2 | | 12 | |
| 9.1 | Basic concepts of the individual technological process in pedagogical activity | 2 | | | | 2 | Test No 9, Independent work No 9 |
| 9.2 | Principles and methods of information support and technical ensuring a teacher pedagogical individual activity | 6 | | 2 | | 4 | Practical work "Principles and methods of information support and technical ensuring a teacher pedagogical individual activity." |
| 9.3 | Modern communication tools reflecting the teachers' achievements, creative contests of pedagogical mastery | 6 | | | | 6 | Final work "Use of information technologies in solving typical professional-methodological problems" |
| | Total | 136 | 4 | 4 | 10 | 118 | |

7. THEORETICAL CONTENT

| № | Names of topics | Content |
|-----|--|---|
| 1.1 | Information environment of general secondary education | Education informatization. Information educational environment. Possibilities of contemporary information educational environment. Informational education environment as a means of organizing the information activity of a teacher and a student |
| 2.1 | Information technologies in pedagogical professional activity | Didactic goals and tasks of using modern information and communication technologies in education. ICT opportunities for the development of creative thinking |
| 3.1 | The main types and essence of study material as the most important component of information pedagogical technologies | The concept of study material. Communication activity and the essence of information communication in learning process. The teacher role in the effective use of study materials |
| 4.1 | Information and education resources for educational purpose: their classification and didactic functions | The concept of an electronic education resource (EER). Classification of EER. Systematization, description of electronic educational resources |
| 5.1 | Methods of using information and communication technologies for solving typical professional and methodological problems | Definition of typical professional and methodical problems. Algorithms for solving typical professional and methodical problems |
| 6.1 | The use of information technology in educational work | Informatization of extracurricular activities of schoolchildren. Information technology for leisure-time activities of schoolchildren |
| 7.1 | The use of information technology in educational work | Acquaintance with the diagnostic tools. Planning diagnostic procedures |
| 8.1 | Information technology in pedagogical research | Pedagogical monitoring. Databases. Collection and accumulation of data of a child. Analysis and mathematical processing of the accumulated data |
| 9.1 | Technological process of the teacher individual activity and his professional development | Basic concepts of the individual technological process in pedagogical activity |

8. PRACTICAL CONTENT

| № | Name of the practical assignment | Content |
|-----|--|---|
| 1.2 | Unified information educational environment. The concept of a unified information educational environment (UIEE). Components of the UIEE | Overview of the components of an information educational environment |
| 2.2 | Technical means of information and communication technologies used in teaching students | Structuring of technical means and technologies used in teaching students |
| 6.2 | Online communities of students | Analysis of online communities of students |
| 9.2 | Principles and methods of information support and technical ensuring a teacher pedagogical individual activity | Overview of information resources for pedagogical creative competitions |

9. LABORATORY PRACTICE

| № | Name of the practical assignment | Content |
|-----|------------------------------------|--|
| 1.3 | Information Republican educational | Overview of national educational resources |

| | | |
|-----|---|---|
| | environment. Educational portals | |
| 2.3 | Information tools and technologies that provide the work of multimedia centers in educational institutions | Contemporary multimedia and mass media. Tools of "virtual reality". Interactive whiteboard, its technical and pedagogical features. Preparation of materials for the interactive whiteboard and techniques for using it. Mobile and telecommunication tools used in general secondary education |
| 3.2 | Principles of the development of study material optimal structure | Development of optimal study information structure |
| 4.2 | Examination of electronic educational resources | ETR quality assessment: requirements, comprehensive expertise (technical, content, design-ergonomic), evaluation criteria. Forms of interaction with global information environment resources. Open education resources of the world information environment |
| 5.2 | Use of information technologies, information systems in solving typical professional-methodological problems | Overview of information technologies and systems. Solving typical professional tasks with the use of information tools |
| 6.3 | Information techniques and technologies providing the work of modern Internet services | Technical means and software providing modern Internet services |
| 7.2 | Determining the students educational abilities with the use of computer pedagogical resources and development of individual study tasks | Diagnostics of students' educational abilities and development of individual educational tasks |
| 8.2 | Use of MS Office computer technologies for mathematical data processing | Statistical processing. Modern systems for processing statistical information. Visual presentation of the accumulated data and the results of mathematical analysis and data processing. Graphs and diagrams drawing |
| 9.3 | Modern communication tools reflecting the teachers' achievements, creative contests of pedagogical mastery | Online communities of pedagogues. Overview of websites reflecting the creative achievements of teachers |

10. ASSIGNMENT FOR INDEPENDENT WORK

1. General secondary education information environment.

Study of the main and additional literature on a topic.

To prepare a talk and presentation on educational environment as a part of socio-cultural environment.

2. Information technologies in pedagogue professional activity

Study of the main and additional literature on a topic.

To prepare a talk and presentation on new information technologies in education.

3. The main types of information and the essence of study information as the most important part of information pedagogical technologies.

Study of the main and additional literature on a topic.

To prepare a talk on the features of selection and structuring study information and its presentation for processing with the use of the given information technology.

4. Information educational resources of educational purpose: their classification and didactic functions.

Study of the main and additional literature on a topic.

To hold an expertise of the given information educational resources.

5. Methods of using information and communication technologies for solving typical professional and methodic tasks.

Study of the main and additional literature on a topic.

To analyze the experience on solving typical professional and methodic tasks with the use of information and communication technologies.

6. Using information technologies in educational work.

Study of the main and additional literature on a topic.

To prepare a scenario of an educational event.

7. Computer diagnostics in teacher activity.

Study of the main and additional literature on a topic.

To develop brief recommendations on using information technologies for a given students group

8. Information technologies in pedagogical research.

Study of the main and additional literature on a topic.

To prepare a talk and presentation on the features of using one of the statistical methods for processing the results of pedagogical research.

9. Technological process of the teacher individual activity and his professional development.

Study of the main and additional literature on a topic.

To prepare a talk and presentation on the use of information technologies in the appearances of the contest “Teacher of the year” participants.

11. SYSTEM OF ASSESSMENT OF KNOWLEDGE AND SKILLS (ACCORDING TO THE NATIONAL REQUIREMENTS)

A ten-point scale, depending on the grade and the mark, includes the following criteria:

10 (ten) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline, as well as on major issues that go beyond its limits;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- perfect mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- the expressed ability independently and creatively to solve complex problems in non-standard situations;
- complete and profound studying of basic, additional literature on the subject of the discipline;
- the ability to freely navigate in theories, concepts and directions on the discipline and give them an analytical assessment, use the scientific achievements of other disciplines;
- creative independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

9 (nine) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently and creatively to solve complex problems in non-standard situations within the curriculum of the institution of higher education on the academic discipline;
- complete studying of basic, additional literature on the subject of the discipline, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- Systematic, active independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

8 (eight) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline (methods of complex analysis, information technology), the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently to solve complex problems within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- active independent work on practical, laboratory classes, systematic participation in group discussions, high level of the culture of performance of tasks.

7 (seven) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- free possession of generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them an analytical assessment;
- independent work on practical, laboratory classes, participation in group discussions, high level of the culture of performance of tasks.

6 (six) points, passed:

- sufficiently full and systematized knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of the necessary scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;

- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks.

5 (five) points, passed:

- sufficient knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions;
- mastering of the tools of the academic discipline, the ability to use it in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks;
- independent work on practical, laboratory classes, periodic participation in group discussions, sufficient level of the culture of performance of tasks.

4 (four) points, passed:

- sufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, logical statement of the answer to questions, the ability to make sound conclusions;
- ability to draw conclusions without essential errors;
- mastering of the tools of the academic discipline, the ability to use it in solution of standard (typical) tasks;
- ability to solve standard (typical) tasks under the guidance of a teacher;
- ability to navigate in basic theories, concepts and directions on the discipline and give them an assessment;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.

3 (three) points, failed:

- insufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- knowledge of a part of the basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, presentation of answers to questions with significant, logical errors;
- weak possession of the tools of the academic discipline, incompetence in solving standard (typical) tasks;
- inability to navigate in basic theories, concepts and directions on the discipline;

- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

2 (two) points, failed:

- fragmented knowledge within the educational standard of higher education;
- knowledge of individual literary sources, recommended by the curriculum of the institution of higher education on the discipline;
- inability to use scientific terminology of the academic discipline, the presence in the answer rude, logical errors;
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

1 (one) point, failed:

- lack of knowledge and (competences) within the educational standard of higher education, failure to answer, failure to appear for attestation without good cause.

11. METHODS AND TOOLS OF IMPLEMENTATION OF THE CONTENT OF THE EDUCATIONAL PROGRAM AND TRAINING OF EDUCATIONAL, TRAINING AND METHODOLOGICAL MATERIALS

The training will be conducted using interactive methods (round tables, project method, Implementation of individual practical assignments, business games, individual solution of situational tasks, work in groups) and distance learning technologies, implemented by means of the training portal (eLearning Server). The students will be provided with electronic presentations of lectures, electronic and printed versions of handouts for practical classes.

On full-time classes, students will learn the discipline directly in the computer lab. The following software (SW) will be used during the training modern browsers.

12. RESOURCES

Basic literature

(no more than 8 and year of publication should be not older than 5 years)

1. Гаврилов, М.В. Информатика и информационные технологии: учеб. для бакалавров.- // М.В. Гаврилов М.В. [и др].- М.: Юрайт. 2012.
2. Захарова И.Г. Информационные технологии в образовании: учеб. пос. для студ. вузов.- 5-е изд., стер. / И.Г. Захарова. – М.: Академия, 2008.
3. Информационные и коммуникационные технологии в образовании: учебно-методическое пос./ под ред. И.В. Роберт. – М.: Дрофа. 2008
4. Панов, В.И. Психодидактика образовательных систем: теория и практика. – СПб.: Питер, 2007. – 352 с.
5. Полат, Е.С. Современные педагогические и информационные технологии в системе образования: учеб. пос. для вузов// Е.С. Полат- М.: Академия, 2008.
6. Трайнев, В.А. Новые информационные и коммуникационные технологии в образовании / В.А. Трайнев, И.В. Трайнев. – М.: Дашков и К*, 2009
7. Хроленко, А.Т. Современные информационные технологии для гуманитариев: практическое руководство / А.Т. Хроленко. – М.: Флинта: Наука, 2010
8. Развитие интеллектуального и творческого потенциалов личности будущего педагога: культурно-педагогический концепт: монография / П.Д. Кухарчик, И.И. Цыркун, А.И. Андарало, В.Г. Игнатович, В.Н. Пунчик, Л.Н. Тимашкова, Е.Н. Артеменок,

С.В. Вабищевич, Л.М. Волкова, В.Н. Шураев, О.И. Котлобай, Н.А. Никитенок: под общ. ред. И.И. Цыркуна. – Минск: БГПУ, 2010. – 232 с.

Additional literature

1. Андресен, Бент. Б. Мультимедиа в образовании: специализированный учеб. курс: [пер. с англ] / Бент. Б. Андерсен, Катя Ван Ден Бринк. – 2 – е изд.; испр. и доп. – М.: Дрофа, 2007. – 221 с.
2. Киселев, Г.М. Информационные технологии в педагогическом образовании. Учебник для бакалавров / Г.М. Киселев, Р.В. Бочкова. - М.: Дашков и Ко, 2012.
3. Красильникова, В.А. Использование информационных и коммуникационных технологий в образовании: учебное пособие / В.А. Красильникова. - М.: Директ-Медиа, 2013
4. Лемешко Т.Б. Информационные технологии в образовании: учебное пособие / Т.Б. Лемешко. - М.: Издательство РГАУ-МСХА имени К.А. Тимирязева, 2012. - 132 с.
5. Роберт И.В. Теория и методика информатизации образования (психолого-педагогический и технологический аспекты) / И.В. Роберт. - Эл. изд. - М. : БИНОМ. Лаборатория знаний, 2014. - 399 с.
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