

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
NATIONAL TECHNICAL UNIVERSITY  
“KHARKIV POLYTECHNIC INSTITUTE”

**SELF-STUDY GUIDELINES**  
**for the “Information technologies in education” course**  
for full-time students of the second (master's) level of higher education,  
specialty A1 "Educational Sciences",  
educational program "Pedagogy of Higher Education"

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**Self-study guidelines** for the “Information technologies in education” course for full-time students of the second (master's) level of higher education, specialty 011 "Educational, Pedagogical Sciences", educational program "Pedagogy of Higher Education" / уклад.: Ye.V. Vorobiova, A.L.Khrypunova, N.V. Pidbutska, N.V. Sereda – Kharkiv: NTU «KhPI», 2025. – 36 p.

Reviewer: T.V. Hura

Department of Pedagogy and Psychology of Social Systems Management named after Academician I.A. Zyazyun

## Educational and methodological materials of lectures

### Plan of lecture classes

| <b>Topic</b>   | <b>Hours</b> |
|--|--------------|
| Theoretical aspects of the emergence and functioning of the information space  | 2            |
| The main aspects of effective interaction in the information space   | 6            |
| Preparation and creation for publication of major professional achievements in the scientific and educational fields | 6            |
| Presentation of the results of scientific research and pedagogical activity by means of ICT                          | 6            |
| Information environment of an educational institution  | 6            |
| Educational information space, features of its creation  | 6            |

Topic 1. Theoretical aspects of the emergence and functioning of the information space Theoretical and practical aspects of information technology in modern scientific thought.

Historical aspects of the development and formation of IT. The concept of information and its types. Information space. Ways of working with information. Technologies and tools for processing text, digital, graphic and sound information. MS Office software package. Principles and programs for building algorithms. Opportunities and features of Google services. Google academy. Search for information to process the results of your own research.

Recommended references:

1. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 c.

2. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 c.

3. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 c.

Topic 2. The main aspects of effective interaction in the information space

Special scientific services and social networks. The main means of presenting one's own image through special methods of posting information. Author's authority. The etiquette of communication between a researcher and a teacher on the Internet. Regulatory and legal principles of interaction taking into account the specifics of information networks. Technologies for working in databases and information networks. Features of the development of training course materials using basic information technologies. Packages for the development of multimedia training courses. Grants and their search.

Recommended references:

1. Shakhova G.A., Demydova Y.E., Kvasnyk O.V. Fundamentals of computer science, information technology and computer ergonomics for the humanities: a textbook. Kharkiv: Panov A.M., 2019. 118c.

2. Organization of pedagogical interaction of participants in the educational process in the computer-oriented learning environment of a higher education institution. Information Technologies and Learning Tools, 2018, Vol. 67, No. 5. Kyiv, pp. 199-212.

3. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 c.

4. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 c..

Topic 3. Preparation and creation for publication of major professional achievements in the scientific and educational fields

The main sources on the requirements and principles of publication. Specifics of publication in the information space. Copyright protection and academic integrity. Scientific content blog. Creating a preprint and poster presentation. Services for creating and publishing a publication. Leading services in publishing the results of activities.

Recommended references:

1. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 c.

2. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 c.

3. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 c.

4. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 c.

5. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 p.

Topic 4. Presentation of the results of scientific research and pedagogical activity by means of ICT Requirements for presentations. Types of programs for presenting the results of professional activities. Data visualization and impact on "consumers" of educational and scientific products by means of IT. Special multi-program tools for presenting the course and results of research. Advantages and disadvantages of presentation through ICT. Graphical representation of data. Types of presentation. Types of visualization.

#### Recommended references:

1. Shakhova G.A., Demydova Y.E., Kvasnyk O.V. Fundamentals of computer science, information technology and computer ergonomics for the humanities: a textbook. Kharkiv: Panov A.M., 2019. 118c.
2. Sereda N.V., Kvasnyk O.V. Fundamentals of public speaking: a textbook. Kharkiv: NTU "KHPI", 2020. 304 c.
3. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 c.
4. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 c.
5. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 c.

#### Topic 5. Information environment of an educational institution

Creating an information and educational resource using the DREAMWEAER Html page editor program. Psychology of management in the content and design of educational resources (web page design). Educational services of the Internet. Model of an electronic training course. The possibilities of hypertext technology for the development and creation of an electronic training course. Forms of implementation of an e-learning course and its place in the educational process. Distance learning

#### Recommended references:

1. Organization of pedagogical interaction of participants in the educational process in the computer-oriented learning environment of a higher education institution. Information Technologies and Learning Tools, 2018, Vol. 67, No. 5. Kyiv, pp. 199-212.
2. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies

of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 c.

3. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 c..

4. Kalinina L.M., Noskova M.V. Google services for teachers. First steps of a beginner / L.M. Kalinina, M.V. Noskova: Study guide – Lviv, ZUKC, 2013. 182 c.

5. Phenomenon of innovations: education, society, culture: monograph; edited by V. Kremen. K.: Pedagogical thought, 2008. 472 c.

6. Gurevych R.S. Information technologies of education: innovative approach: a textbook / edited by R.S. Gurevych Vinnytsia: LLC firm "Planer", 2012. 348 c.

#### Topic 6. Educational information space, features of its creation.

Educational technologies that ensure the quality of the learning process and the realization of the goals of modern education with the help of information tools. Active position and ability to self-manage a scientist.

#### Recommended references:

1. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 c.

2. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 c.

3. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 c.

4. Organization of pedagogical interaction of participants in the educational process in the computer-oriented learning environment of a higher education institution. Information Technologies and Learning Tools, 2018, Vol.

67, No. 5. Kyiv, pp. 199-212.

5. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 c.

6. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 c..

## **Methodological materials to ensure students' self-study**

Students' self-study (SS) takes a leading place in the system of modern higher education. Of all the types of learning activities, the SS largely ensures the formation of independence as a leading trait of a student's personality.

Self-study completes the tasks of all other types of learning activities. After all, knowledge that has not become the object of one's own activity cannot be considered a person's real property. Therefore, SS has educational, personal, and social significance.

Learning activity is characterized by subjectivity, activity, subject matter, purposefulness, structure and content.

Special features of self-study are as follows:

- changes in the subject itself;
- dependence on the level of development of the student and reliance on the achieved level of development;
- mastering general methods of action and scientific concepts;
- precedence of general methods of action to solving problems;
- dependence of changes in mental properties and behavior of students on the results of their own actions.

*Performing self-study involves:*

1. Study of educational literature using the university library and the Internet.
2. Studying the educational material given for independent work.
3. Mastering knowledge, types and methods of activity in a particular subject area.
4. Self-checking of the acquired knowledge with the help of the presented questions.

If necessary, you can get an individual consultation from a teacher on how to complete self-work. For this purpose, the department develops a schedule of teacher consultations each semester.

## Questions for self-study

1. What is meant by the concept of “information society” and what are its features?
2. What is meant by the concept of “information”?
3. What are the types of information?
4. What is meant by the term “information resource”?
5. What is the essence of the concept of “informatization” and what are its main tasks?
6. What is the essence of the concept of “information technology”?
7. What are the areas of implementation of information technology in the educational process?
8. What are the conditions for the effective use of information technology in the educational process of higher education?
9. What is the classification of information technology?
10. What are the main trends in the development of information technology?  
What are audiovisual learning tools?
12. What is the classification of audiovisual teaching aids depending on their didactic functions?
13. What are the directions of influence of audiovisual teaching aids on the effectiveness of the educational process?
14. What are the conditions for effective implementation of audiovisual teaching aids?
15. What are the advantages of a static image on the screen compared to tables and posters?
16. What are sound teaching aids?
17. What are the ways to record and playback sound?
18. What are the didactic and technical characteristics of manuals and devices for recording and reproducing sound?

19. What is the scope and methodology of using sound aids in teaching and educational work?
20. What are the combined teaching aids.
21. What are the possibilities of cinema and television in the educational process?
22. What types of lists do you know?
23. How does Microsoft Word indicate errors when entering text?
24. What paragraph settings can be changed?
25. What is the purpose of the ruler?
26. How is the text editor menu organized?
27. What are the three main groups of operations used in the processing of text documents?
28. What is the difference between editing and formatting a document?
29. What is the difference between the text input modes Insert and Replace?
30. How do I select a text fragment?
31. What operations can be performed with the selected fragment?
32. What is the method of creating information and methodological materials for educational work using Microsoft Word?
33. What are the types of references to a cell or a range of cells? How do they differ?
34. What is the feature of formulas in Microsoft Excel spreadsheets?
35. What are the main elements of a chart?
36. What are the ways to select a range of cells?
37. What editing operations are available for the selected range?
38. What is a presentation?
39. What are the basic requirements for creating presentations?
40. What is the purpose of the Microsoft PowerPoint program?
41. What do you know ways to create a presentation?
42. How do you insert a new slide?
43. What are some ways you can create tables on a slide?
44. How do I insert a graphic?

45. How do you insert sound and video into a slide?
46. What are hyperlinks and action buttons used for in Microsoft PowerPoint?
47. What do I use animation effects for in Microsoft PowerPoint?
48. What ways does Microsoft PowerPoint provide for launching presentations?
49. What are the classifications of test tasks?
50. What are the indicators for evaluating test tasks?
51. What are the didactic possibilities of certain types of test tasks?
52. What are the advantages and disadvantages of computer-based testing?
53. What is the general structure of the known programs-shells for testing?
54. What are the didactic functions of the testing software?
55. How to enter the content of test tasks into the test software?
56. How to enter reference codes and task difficulty coefficients?
57. What is the purpose of the Virtualexs server?
58. What programs do you know for statistical processing and detailed analysis of research results?
59. What systems do you know for checking text documents for borrowings from publicly available sources on the Internet?
60. How to work with the program “Antiplagiarism”?
61. What is instructional design?
62. What are the main stages of educational design?
63. What forms of instructional design do you know?
64. What is a WebQuest?
65. What is the purpose of WebQuests in the educational process?
66. How to activate the cognitive activity of students through the use of WebQuests?
67. How to organize the independent work of applicants with the help of WebQuests?

68. What is the information and educational environment of an educational institution?
69. What is E-learning?
70. What is the technology of creating an electronic educational and methodological complex of the discipline?
71. What is the method of teaching students based on the use of electronic educational and methodological complex of the discipline?
72. What is the didactic purpose of electronic manuals?
73. What are the features of building electronic manuals?
74. What is the methodology for preparing the content of electronic manuals?
75. What is the methodology of teaching using electronic aids?
76. What is the essence of the concept of “distance learning”?
77. What are the general principles of distance learning?
78. What are the main stages of historical development of distance learning?
79. What are the differences between distance learning and other types of learning?
80. What are the advantages and disadvantages of distance learning?
81. What are the psychological and pedagogical features of distance education?
82. What are the peculiarities of the activities of the student and the teacher in distance learning?
83. What is the state and prospects of distance learning?
84. What are the latest regulatory documents that provide distance learning?
85. What is a distance learning platform?
86. What distance learning platforms do you know?
87. What are the features of using the Moodle distance learning platform?
88. What is the method of creating and filling a course in Moodle?
89. What are the features of using the MS Teams distance learning platform?
90. What is the method of creating and filling a course in MS Teams?

91. What are electronic educational resources?
92. What is the classification of electronic educational resources on a functional basis?
93. What are the requirements for electronic educational resources?
94. What are the features of the examination and dissemination of electronic educational resources?
95. What are the types of Internet connection?
96. What are web technologies?
97. What are the social services of Web 2.0 technology?
98. Is it possible to organize the educational process using Web 2.0 technologies?
99. What is e-mail?
100. What are the main operations with mail?
101. What parts does an email address consist of?
102. What is Wikipedia? Who owns the copyright to articles on Wikipedia?
103. What is a webinar?
104. What is Web 3.0 technology?
105. What are the prospects for using Web 3.0 technologies in the educational process?
106. Why does a higher education institution need a website?
107. What are the requirements for the structure and content of the website of an educational institution?
108. What are the modern means of creating a website?
109. What are the Joomla, Drupal, DLE systems designed for?
110. Who are freelancers?
111. How are websites promoted on the Internet?

## References for self-study

1. Dybkova L.M. Informatics and computer technology: Textbook for students of higher educational institutions / L.M. Dybkova – K.: VC Academy, 2002. – 320 p.
2. Bratkevych V.V. Informatics. Computer technology. Computer technologies: Textbook for students / V.V. Bratkevych, M.V. Butov, I.O. Zolotareva and others; Edited by O.I. Pushkar – K.: VC Academy, 2002. – 704 p.
3. Information technologies in education and in the management of educational institutions: Educational and methodical complex / Kamianets-Podilskyi State University / Fedochuk V.A., Spivak L.M. (authors-compilers) – Kamianets-Podilskyi: Kamianets-Podilskyi State University, RVV, 2005. 18 p. 5. Information technologies; Dictionary of terms / Perevozchykova O. (trans. and scientific and technical ed.) – Official edition – K.: Derzhspozhyvstandart Ukrainy, 2005 – (National standard of Ukraine).
7. Kalachova L.V. Use of audiovisual teaching aids Video presentation [Electronic resource] / L.V. Kalachova. Kalachova: <http://www.youtube.com/watch?v=Vp9v31ME5Yg>
8. Kalacheva L.V. Requirements for the presentation of visual material. Video presentation [Electronic resource] / LV Kalacheva. Kalacheva: <http://www.youtube.com/watch?v=9OOKslbFlr8>.
9. Kalachova LV. The concept of audiovisual teaching aids, their classification. Video presentation [Electronic resource] / LV Kalachova. Kalachova. – Access mode: <http://www.youtube.com/watch?v=OrmZRzbGOXO>.
10. Korniyets O.M. Complex of programs for testing Testing: Study guide / Korniyets O.M. – Chernihiv: CHOIPPO named after K.D. Ushynsky, 2010. – 38 p. 10. Korniyets O.M. Communication on the Internet: Study guide / Korniyets O.M. – Chernihiv: CHOIPPO named after K.D. Ushynsky, 2010. – 62 p.
11. Features of self-education of university teachers in the conditions of informatization of the educational process [Electronic resource] / Makhinya T.A. //

Theory and methods of education management. Electronic scientific professional edition. – Issue 1 (10), 2013. – Access mode to the journal: <http://umo.edu.ua/katalog/793-elektronne-naukovefahove-vvdannia-teorii-a-ta-metodvka-upravlinni-a-osvitoiuq-vypusk-10-2013>

12. New Media and Communication Technologies: a set of curricula for the specialties “journalism”, “publishing and editing”, “advertising and public relations” / edited by V. Shevchenko – Kyiv: Palyvoda A. V., 2012. – 412 p.

13. New information technologies: Textbook / Kyiv National Economic University. – Kyiv: KNEU, 2005. – 445 p.

14. A detailed description of how to use LearningApps.org. Registration on the site, searching for exercises, creating your own exercises, creating and managing a class URL: <https://naurok.com.ua/metodichna-rozrobka-vak-koristuvatisva-servisomlearningapps-org-88709.html> (accessed April 16, 2018).

15. Effective communication for educational managers. Online course on the EdEra platform. URL : <https://courses.ed-era.com/courses/course-vLEDERASMARTOSVITA+EC101+EC101/about>

16. Communication tools for building a reputation. Online course on the Prometheus platform. URL : [https://edx.prometheus.org.ua/courses/NaUKMA/CI101/2014\\_T1/about](https://edx.prometheus.org.ua/courses/NaUKMA/CI101/2014_T1/about) Naidenova A. V. Online manual “Intelligence Cards as an Effective Tool for Working with Information” URL : <https://ru.calameo.com/read/004373434dec4e2bf2b83>

17. About Google services. URL : <https://sites.google.com/site/edugservis/home> (accessed 04/16/2018)

18. Created resources LearningApps.org on the example of information technology URL : <http://LearningApps.org/watch?v=pitctracj01>

19. Digital communications in the global space. Online course on the Prometheus platform. URL : [https://courses.prometheus.org.ua/courses/coursev1:Prometheus+ITArts101+2017\\_T1/about](https://courses.prometheus.org.ua/courses/coursev1:Prometheus+ITArts101+2017_T1/about) 10. Web technologies WEB 2.0: website. URL : <http://edu-lider.ru/web-texnologiiweb-2-0/> 11. Word and Excel: tools and

life hacks. Online course on the Prometheus platform. URL :  
<https://edx.prometheus.org.ua/courses/course-v1:DNU+PRIN101+2017 T1/about>

## **Methodological recommendations/educational resources for practical (seminar) classes**

### Plan of practical (seminar) classes

| <b>Topic</b>   | <b>Hours</b> |
|--|--------------|
| Work on improving information retrieval skills, search engines and services  | 2            |
| The main aspects of interaction in the educational space   | 6            |
| Preparation and creation of major professional achievements in the scientific and educational fields for publication   | 6            |
| Presentation of research and teaching results using ICT tools  | 6            |
| Information environment of an educational institution  | 6            |
| Educational technologies that ensure the quality of the learning process and the realization of the goals of modern education with the help of information tools | 6            |

### Practical tasks for the classes

Topic 1: Work on improving information retrieval skills, search engines and services

An annotated list of publications on the research topic presented online using specialized search engines and social networks. Select your research topic for analysis. Analyze the most relevant services, create a query, and analyze the data. Analyze the results in terms of quality, relevance, and effectiveness of the information in accordance with the specified search, which correspond to the specifics of your dissertation research.

Topic 2. The main aspects of interaction in the educational space

Create a portfolio in a special form, post it online. Choose a portfolio form, fill it out according to the requirements. Identify advantages and possible

prospects. Create a self-presentation. Create an image of a scientist-teacher with the help of information technologies and networks (for example, scholars)).

Topic 3. Preparation and creation of the main professional achievements in the scientific and educational spheres for publication

Creating a publication based on the results of the dissertation in accordance with the approved standards. Create a publication (e.g., abstract, article) based on the annotated various sources found on the topic of your research; Choose a service for publishing a publication, analyze the feasibility of publishing a publication, check the protection of information, use experience in academic integrity. Check the publication for plagiarism before publishing.

Topic 4. Presentation of research and teaching results using ICT tools

Prepare a presentation of the speech in accordance with the research topic in accordance with the approved requirements in one of the modern services. Choose a service for presenting research results and justify the choice. Create a presentation program and materials, present the development.

Topic 5. Information environment of an educational institution

Research of services and tools for organizing the learning process, ensuring interactivity and dynamism of this process. Analyze services and tools for organizing the educational process and test services for interactivity and dynamism of the educational process. Create a fragment of a training session using interactive services Completion of an individual task. Develop a fragment of learning outcomes monitoring. Create a fragment of a lesson using modern educational services and programs

Topic 6: Educational technologies that ensure the quality of the learning process and the realization of the goals of modern education with the help of information tools. Creating a fragment of the discipline using tools used for distance learning.

### Recommended references:

1. Kukharenko V.M., Bondarenko V.V. External distance learning in Ukraine: Monograph / edited by V.M. Kukharenko, V.V. Bondarenko – Kharkiv: Municipal Printing House, 2020. 409 p.

2. Shakhova G.A., Demydova Y.E., Kvasnyk O.V. Fundamentals of computer science, information technology and computer ergonomics for the humanities: a textbook. Kharkiv: Panov A.M., 2019. 118 p.

3. Sereda N.V., Kvasnyk O.V. Fundamentals of public speaking: a textbook. Kharkiv: NTU "KHPI", 2020. 304 p.

4. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 p.

5. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 p.

1. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 p.

2. Organization of pedagogical interaction of participants in the educational process in the computer-oriented learning environment of a higher education institution. Information Technologies and Learning Tools, 2018, Vol. 67, No. 5. Kyiv, pp. 199-212.

3. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 p.

4. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 p.

5. Kalinina L.M., Noskova M.V. Google services for teachers. First steps of a beginner / L.M. Kalinina, M.V. Noskova: Study guide – Lviv, ZUKC, 2013. 182 p.

6. Phenomenon of innovations: education, society, culture:

monograph; edited by V. Kremen. K.: Pedagogical thought, 2008. 472 p.

7. Gurevych R.S. Information technologies of education: innovative approach: a textbook / edited by R.S. Gurevych Vinnytsia: LLC firm "Planer", 2012. 348 p.

8. Hamburg Declaration on Adult Learning. The Fifth International Conference, on Adult Education. – Hamburg. – Access mode: <http://www.unesco.org/education/uie/confintea/declaeng.htm>.

9. Loginov S.P. Foreign experience in the use of information and communication technologies in distance learning. History and 10 prospects – [Electronic resource]. – Access mode: <http://ito.edu.ru/2008/Kursk/II/II-0-25.html>.

10. Zabolotnyi V.F. Didactic principles of multimedia application in the formation of methodological competence of future physics teachers: PhD thesis for the degree of Doctor of Pedagogical Sciences: specialty 13.00.02 "Theory and methods of teaching (physics)" / V.F. Zabolotnyi. Kyiv, 2010. 38 p.

11. Law of Ukraine "On the National Program of Informatization" No. 554-IX of 13.04.2020, VVR, 2020, No. 37, p. 277 – comes into force on January 1, 2021

12. Free Tools for Teachers – Free Educational Technology – [Electronic resource]. – Access mode: <http://www.elearningindustry.com/321-free-tools-for-teachers-free-educational-technology>

13. Using Technology to Enhance Teaching & Learning – SMU – [Electronic resource]. – Access mode: <https://www.smu.edu/Provost/CTE/Resources/Technology>.

14. <https://tech.ed.gov/files/2017/01/NETP17.pdf> – [Electronic resource]. – Access mode: Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update.

## **Methodological instructions/recommendations for completing an individual assignment**

1. Theoretical task. Report - volume 10-15 pages.

Prepare a presentation based on the report - at least 10 slides.

General requirements for the abstract

- The style is scientific.
- The sequence is logical.
- Page format - A4.
- Font and size - Times New Roman, 14.
- Line spacing - one and a half.
- The volume of the abstract: 5-10 pages (school), 10-20 pages (student), 15-30 pages (for applicants to graduate school).
- Margins: left margin - 30 mm, right margin - 15 mm, top and bottom margin - 20 mm (or 25 mm and 20 mm, respectively, depending on the conditions of the educational institution).
- Simple outline - 1-2 sections.
- The list of references should include 10-15 titles.
- Section headings are written in CAPITAL letters.
- Subsection titles are written in lowercase letters (except for the first one).

A standard report traditionally consists of several parts: Title page; Table of Contents; Introduction; Body; Conclusion; and References.

The table of contents contains a list of sections, subsections, and page numbers to them. Often, instead of the table of contents, you are required to write an outline. The plan can be simple, when you need to list the names of the paragraphs of the essay in a numbered list, and complex, when in addition to the paragraphs, you also indicate their subparagraphs.

**An introduction** usually lasts a page and a half. Its main purpose is to introduce the reader to the essence of the problem. The introduction justifies the choice of the topic (why it is important) and its relevance. We outline the goals and objectives of the work. If necessary, make a brief review of the sources used. If you can't write an introduction at first, you can do it after writing the conclusion, when all your thoughts are systematized and finalized.

**The main body.** Before you start writing the main body, you need to decide on the titles of chapters and paragraphs - the main requirements for an abstract. Next, you should build a chain of presentation so as not to disrupt the sequence of thoughts and not to deviate from the given topic. Highlight the main aspects as much as possible; the main part of the essay should outline the main concepts set forth in the sources. Be sure to cite the author if you use quotations: this is an indicator of your scientific "savvy". When citing, make references. There are several options for their formatting, for example, footnotes can be placed at the end of the page, or they can be indicated briefly in square brackets with the number of the source in the bibliography and the original page of the quote ([10, p. 355]), so it is better to clarify their formatting in advance.

**Conclusion.** The conclusion summarizes the main topic in a concise form and presents the author's own view of the problem and its solution.

**A list of references, or bibliography,** is a systematic compilation of a list of sources used. In other words, it is information that even an outsider can use to find a particular book. The list is compiled in alphabetical order on the last page.

The topic of the report can be chosen by the applicant in accordance with the principle of academic freedom, in consultation with the teacher, and within the framework of the educational component.

## **Approximate topics of reports:**

### **I. Reports.**

1. The essence of information technologies and directions of their use in the educational process
2. Possibilities of using the Microsoft Office package in the professional and pedagogical work of a higher education teacher
3. The use of information and communication technologies in science
4. Information educational environment of the educational institution
5. Creation of an electronic educational and methodological complex of the discipline
6. Distance learning in education
7. Cloud technologies and possibilities of using Google Apps services in the educational process
8. The use of the global Internet and web services in the professional and pedagogical activities of the teacher
9. Formation of a teacher's brand in social media
10. Positioning of an educational institution on the Internet

### **II. Creative assignment.**

Essay on the topic: “Effective communications in the scientific and pedagogical activities of a modern university teacher: information and communication aspect”.

Structure of the task:

1) describe the relevance of the introduction of information technologies in the educational process of higher education institutions (you can analyze the use of online learning, means of communication through messengers, determine the effectiveness of providing the educational process using the MS Teams platform, etc;)

2) to analyze the directions of realization of effective communication with the help of IT technologies;

3) to propose and justify their own attitude to the use and widespread introduction of IT technologies in the university from the perspective of a student and a teacher.

Volume – up to 5 pages.

### **III. Research assignment.**

Find a dissertation study by a foreign researcher on the subject of the discipline (2020-2025).

Make an abstract based on the text of the work (3 pages) and a short presentation (5 slides).

## **Educational and methodological materials for current, intermediate and final control**

1. Describe the new information technologies in education.
2. Identify areas of implementation of information technology in the educational process.
3. Analyze the possibilities of information technology as a means of improving the effectiveness of the educational process
4. Determine the conditions for the effective use of new information technologies in the educational process of the university
5. Reveal the essence of audiovisual teaching aids and their classification depending on didactic functions
6. Describe the software tools for recording and playback of sound
7. Analyze the scope and methods of using sound aids in teaching and educational work
8. Determine the conditions for the effective implementation of audiovisual teaching aids
9. Describe the possibilities of using the Microsoft Word text editor in the professional and pedagogical work of a higher education teacher.
10. Determine the possibilities of using the Microsoft Excel word processor in the professional and pedagogical work of a higher education teacher.
11. Reveal the technology of creating presentations in Microsoft Power Point.
12. Describe the advantages and disadvantages of computer-based testing.
13. Describe the structure and didactic functions of testing software.
14. Explain the possibilities of using information and communication technologies in science.
15. Explain the programs of statistical processing and detailed analysis of research results.

16. Describe the systems for checking text documents for borrowings.
17. Analyze instructional design, its main forms and stages of design.
18. Define the essence and purpose of Web Quests in the educational process.
19. Analyze the information and educational environment of the educational institution.
20. Reveal the technology of creating an electronic educational and methodological complex of the discipline.
21. Describe electronic educational resources, their examination and distribution.
22. Reveal the methodology of teaching students through the use of electronic educational and methodological complex of the discipline.
23. Describe the didactic purpose and features of the construction of electronic manuals.
24. Describe the methodology of teaching using electronic aids.
25. Describe the methodology for preparing the content of electronic manuals.
26. Explain the general principles and history of distance learning.
27. Analyze the advantages and disadvantages of distance learning.
28. Explain the regulatory and legal support of distance learning.
29. Determine the characteristics of the activities of the applicant and the teacher in the conditions of distance learning.
30. Analyze the state and prospects of distance learning.
31. Reveal the features of distance learning platforms in the context of an educational institution.
32. Describe the features of the distance learning platform Moodle.
33. Describe the features of the distance learning platform MS Teams.
34. Analyze the technology of information retrieval.
35. Describe the features of educational resources and portals on the Internet.

36. Explain the types and characteristics of social services of Web 2.0 technology.
37. Explain the essence of Web 3.0 technology and the prospects for its use in the educational process.
38. Identify the requirements for the structure and content of the site of the educational institution.
39. Explain the modern means of creating a website.
40. Describe the basics of creating and promoting websites on the Internet.

## Materials for studying

### Basic

1. The Law of Ukraine On Education (Vidomosti Verkhovnoi Rady (VVR), 2017, No. 38-39, p. 380. <https://zakon.rada.gov.ua/laws/show/2145-19#Text>
2. On the National Doctrine of Education Development. Document 347/2002, from 17.04.2002. <https://zakon.rada.gov.ua/laws/show/347/2002#Text>  
Kukharenko V.M., Bondarenko V.V. External distance learning in Ukraine: Monograph / edited by V.M. Kukharenko, V.V. Bondarenko – Kharkiv: Municipal Printing House, 2020. 409 p.
3. Shakhova G.A., Demydova Y.E., Kvasnyk O.V. Fundamentals of computer science, information technology and computer ergonomics for the humanities: a textbook. Kharkiv: Panov A.M., 2019. 118 p.
4. Sereda N.V., Kvasnyk O.V. Fundamentals of public speaking: a textbook. Kharkiv: NTU "KHPI", 2020. 304 p.
5. Information technologies and technical means of teaching: a textbook for university students: Borys Grinchenko Kyiv University. K. : Center for Educational Literature, 2018. 240 p.
6. Buynytska O. P. Information technologies and technical means of teaching: a textbook – K.: Center for Educational Literature, 2012. 240 p.
7. Computer technologies in education: a textbook / Y. S. Zharkikh, S. V. Lysochenko, B. B. Sus, O. V. Tretiak. Kyiv: Kyiv University Publishing and Printing Center, 2012. 239 p.
8. Organization of pedagogical interaction of participants in the educational process in the computer-oriented learning environment of a higher education institution. Information Technologies and Learning Tools, 2018, Vol. 67, No. 5. Kyiv, pp. 199-212.

9. Poyasok TB, Bespartochna OI, Kostenko OV. Modern technologies of the educational process: an interactive textbook. Kremenchuk: PE Shcherbatykh O.V., 2020. 228 p.

10. Sysoieva S.O. Interactive technologies for adult learning: a study guide. KYIV: EKMO PUBLISHING HOUSE, 2011. 324 p.

### **Supplementary**

1. Kalinina L.M., Noskova M.V. Google services for teachers. First steps of a beginner / L.M. Kalinina, M.V. Noskova: Study guide – Lviv, ZUKC, 2013. 182 c.

2. Phenomenon of innovations: education, society, culture: monograph; edited by V. Kremen. K.: Pedagogical thought, 2008. 472 c.

3. Gurevych R.S. Information technologies of education: innovative approach: a textbook / edited by R.S. Gurevych Vinnytsia: LLC firm "Planer", 2012. 348 c.

4. Hamburg Declaration on Adult Learning. The Fifth International Conference, on Adult Education. – Hamburg. – Access mode: <http://www.unesco.org/education/uie/confintea/declaeng.htm>.

5. Loginov S.P. Foreign experience in the use of information and communication technologies in distance learning. History and 10 prospects – [Electronic resource]. – Access mode: <http://ito.edu.ru/2008/Kursk/II/II-0-25.html>.

6. Zabolotnyi V.F. Didactic principles of multimedia application in the formation of methodological competence of future physics teachers: PhD thesis for the degree of Doctor of Pedagogical Sciences: specialty 13.00.02 "Theory and methods of teaching (physics)" / V.F. Zabolotnyi. Kyiv, 2010. 38 c.

7. Law of Ukraine "On the National Program of Informatization" No. 554-IX of 13.04.2020, VVR, 2020, No. 37, p. 277 – comes into force on January 1, 2021

8. Free Tools for Teachers – Free Educational Technology –

[Electronic resource]. – Access mode: <http://www.elearningindustry.com/321-free-tools-for-teachers-free-educational-technology>

9. Using Technology to Enhance Teaching & Learning – SMU – [Electronic resource]. – Access mode: <https://www.smu.edu/Provost/CTE/Resources/Technology>.

10. <https://tech.ed.gov/files/2017/01/NETP17.pdf> – [Electronic resource]. – Access mode: Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update.

### **Media resources**

1. <https://zakon.rada.gov.ua>
2. <https://www.coursera.org/learn/being-researcher>
3. <https://www.coursera.org/lecture/scientist/on-being-a-scientist>

Навчальне видання

Методичні вказівки до самостійної роботи з навчальної дисципліни  
«Інформаційні технології в освіті»  
для студентів денної форми навчання другого (магістерського) рівня вищої освіти  
за спеціальністю А1 «Освітні науки», освітня програма «Педагогіка вищої школи»

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