

ELECTRONIC LEARNING TOOLS, BASIC CONCEPTS, TERMS, ABBREVIATIONS, UNITS, AND CONDITIONAL SYMBOLS

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Abstract

An electronic textbook (ET) is designed to apply a learning methodology based on computer technology, promote independent learning, and ensure the comprehensive and effective assimilation of academic materials and scientific information. It can take several forms:

Educational and scientific materials presented only in verbal (text) form;

Educational materials in verbal (text) and two-dimensional graphic formats;

Multimedia manuals, meaning information presented in three-dimensional graphic, audio, video, animation, and partially verbal (text) formats;

Tactile features, allowing learners to enter a virtual world on the computer screen and interact with a model of the real world, which creates an immersive experience.

The electronic textbook is universal software that automates the processing of specific professional activities, study types, or information types.

Keywords: Essence of the system, teacher-organizer, didactic equipment, didactic labor tool, collaborative activities.

Introduction

Electronic Learning Materials - Electronic learning materials, based on modern information technologies, provide a platform for compiling, depicting, updating, storing, presenting knowledge interactively, and monitoring learning progress. With the continuous development of science and technology, these materials are used effectively in fields where content changes rapidly and is studied in-depth, especially for specialized and general subjects.

Electronic learning materials aim to broaden students' perspectives, enhance their foundational knowledge, and provide additional information. Educational reforms demand the creation of such materials that ensure a uniform computer-based environment for learners and instructors both in educational institutions and home settings.

As information technologies and computer development continue, many concepts related to electronic learning materials have expanded with detailed explanations. Therefore, it is essential to clarify and define the main concepts related to the creation of electronic learning materials:



Electronic Publication (EP)

An electronic publication is a collection of graphical, textual, digital, speech, musical, video-photo, and other types of information objects. EP can be distributed on magnetic (magnetic tapes, magnetic disks), optical (CD-ROM, CD-I, CDq, CD-R, CD-RW, DVD) media, or over computer networks.

Electronic Educational Publication (EEP) - An electronic educational publication is an educational material system that ensures the creative and active mastery of knowledge, skills, and competencies by students. It is aligned with the scientific and practical field.

Author of the EEP - The author of an EEP is a person who creates it through their creative activities. If the EEP is created through collaborative efforts, each participant is considered an author.

Alpha Version (α) - The alpha version of an EEP is designed for testing by industry specialists and is considered a completed version of the material.

Approval - Approval is the process of testing and validating a product, object, or technology through scientific, educational, and methodological work.

Beta Version (β) - The beta version of an EEP is a completed version, tested and reviewed by industry specialists, and designed for evaluation by independent experts.

Visual Environment - The visual environment is the information flow received by human visual organs. It can have comfortable, normative, homogeneous, or aggressive types depending on its psychological impact.

Virtual Objects or Processes - These are the electronic models of real or imagined objects or processes. The term "virtual" is used to describe the electronic analogs of teaching or other objects represented on digital media. It refers to the quantity of multimedia-based technologies in an interface that continues the real spatial metaphor.

Gamma Version (γ) - The gamma version of an EEP is fully tested by specialists and independent experts and is ready for widespread promotion and use.

Hypertext - Hypertext is a form of text presented in an electronic format with a system of interconnected links that allows the reader to jump from one fragment to another immediately.

Hypermedia - Hypermedia refers to hypertext that incorporates various types of media such as text, illustrations, sound, video, and more.

Hyperlink - A hyperlink is a reference from one electronic information object to another (e.g., from a text to a reference, glossary, or bibliography).

Global Criteria - Global criteria are factors that significantly influence the quality evaluation system. Failure to meet these criteria generally leads to a negative assessment by the experts.



A remote computer program - is an automated experimental-practical movement system where the operation with the physical object is carried out remotely through a computer from a large distance, while the object of work is located in another place.

An electronic chrestomathy - is an important type of electronic informational educational publication that demonstrates the organized process of hypermedia objects. In the content of the chrestomathy, there are search mechanisms for guidelines, authors, titles, sentences, and others.

An electronic library - is a software system that ensures full-text electronic information resources, with a specialized system for documentation and security, and provides the possibility to collect and deliver information via telecommunication tools for students and educators.

An electronic publication - is a collection of information objects such as graphical, text, digital, speech, music, video-photo, and others. In a single electronic publication, information sources, data processing, and management structures may be separated. An electronic publication can be executed on any electronic medium and can also be published on an electronic computer network.

An electronic experiment - is an electronic environment that allows the creation of demonstration models of real objects, products, and living organisms, and provides the opportunity for research.

An electronic methodological guide - is a form of summarizing and transferring pedagogical experience, as well as creating and disseminating new models of teaching activities. The guide includes digitized video clips of teaching sessions, student work created in electronic or converted forms, and lessons in a planned format. The electronic methodological guide may also include paper components.

An electronic dictionary - is an electronic informational source corresponding to a traditional "paper" dictionary. It can be called from any program with a special command dedicated to a word or group of words in the computer version. Unlike traditional dictionaries, an electronic dictionary may include a full spectrum of media objects such as text, graphics, video and animation clips, sound, music, and more.

Electronic testing (testification) - is a component of an EO'N, serving as the analog of traditional non-computerized testing. In electronic testing, the computer displays the test and its results, applying relevant algorithms (such as whether there is an option to revisit completed or skipped tasks, time limits for a test, etc.).



An electronic editor - is an electronic environment that enables the creation, modification, merging, separation, saving, visualizing, and processing of virtual objects. Text, graphics, video, animation, photos, sound, music, hypermedia, etc., are widely used in editors.

Network tools - are used to support the telecommunication components of the educational process and ensure the use of telecommunication technologies in the creation of EO'N. The network tools include standard telecommunication tools that enable the use of information resources from local and global computer networks as educational material by indicating their location.

A unified informational education phase - is a program-based telecommunication environment that provides a unified technological means for ensuring the informational needs of students, teachers, educational institutions, and society. This environment is designed to support the educational process and the management of educational institutions with information, focusing on the process and results of education, as well as the informatization of extracurricular ceremonies.

The informational article title of hypertext - is provided with a title corresponding to the name of the information object written in the article.

Electronic assignments - are an important form of information source that reflects a set of tasks for independent and controlled activities, taking into account the individual capabilities of learners. The created assignments can be presented to students in both traditional "paper" and electronic forms.

Illustration - refers to pictures, diagrams, charts, photographs, and other graphic representations that help in understanding the text and describing the object or process being studied.

An electronic tool is a tool that allows participants in the educational process to create, modify, link, transmit, remote, store, and perform other active actions on informational agents.

Information technology in education - refers to the process of developing and using modern information technologies in the field of education to implement psychological-pedagogical goals for teaching and upbringing.

The informational education environment - is a combination of computer tools and their operational methods used to implement educational activities.

An information system - is a system for transmitting and receiving information, consisting of an information source, transmission channel, and information receivers.



Information and communication technologies - are generalized concepts that describe various devices, mechanisms, methods, and algorithms for processing information. The important modern devices of information and telecommunication technologies are computers equipped with the relevant educational content and telecommunication tools that include embedded information.

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