DEVELOPMENT OF AN INFORMATION SYSTEM FOR SUPPORTING PART-TIME AND DISTANCE LEARNING PROCESSES

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In the current conditions of digitalization of education, part-time and distance learning have become an integral part of the educational process in higher education institutions. The quarantine restrictions caused by the COVID-19 pandemic significantly accelerated the implementation of distance learning technologies, which led to their widespread use in higher education institutions worldwide [1]. In Ukraine, starting from 2022, part-time and distance education have gained particular importance due to the introduction of martial law, which has necessitated ensuring the continuity of the educational process regardless of the location of students and teachers. Under these conditions, higher education institutions actively use various digital platforms and services, including Moodle, Google Classroom, Zoom, and Microsoft Teams.

At the same time, practical experience with these solutions has revealed several organizational and technological problems related to supporting part-time and distance learning. Difficulties arise in managing student enrollment, monitoring the implementation of curriculum, tracking academic progress, organizing examination sessions, and accounting for academic arrears. This is because traditional Learning Management Systems (LMS) are primarily focused on synchronous interaction and do not always consider the specifics of part-time education, which requires flexible schedules, student autonomy, and asynchronous access to learning materials [2].

As a result, to ensure comprehensive support for part-time and distance learning, higher education institutions are forced to use a combination of several disparate information systems and services. This complicates administration, increases the risk of errors, and requires additional time and human resources. These problems arise due to the lack of integrated automated solutions that could, at a minimum, facilitate the support of educational processes and, at the maximum, fully optimize them by reducing staff workload and improving learning efficiency.

The aim of this work is to develop an information system to support part-time and distance learning processes that integrate functionality for the effective support of both forms of education, considering the specific needs of students. This aim is achieved through the development of a multi-module web application which, unlike classical LMS solutions, is oriented not only toward learning content but toward the full cycle of part-time student support-from enrollment to the completion of examination sessions and the processing of academic documentation.

The scientific novelty of this work lies in the development of an approach to designing an information system focused on the comprehensive support of part-time and distance learning, covering not only educational content but also administrative, organizational, and analytical processes of a higher education institution within a unified information environment.

The practical value of the work consists in the possibility of using the developed system in the activities of higher education institutions to reduce the administrative workload on dean's offices and teaching staff, increase transparency and manageability of the educational process, and improve access to educational and organizational resources for part-time and distance learning students.

Thus, the future system is designed as a modular solution comprising the following components: a student enrollment and curricula module; a courses and learning content module; an assignments and assessment module; a communication and support module; a schedule and events module; an examination sessions and academic arrears module; a documents and applications module; an analytics and reporting module; as well as an administrative module.

The modular architecture of the system enables the integration of new subsystems with the existing information system of the university, ensuring continuity of operation and minimizing risks during implementation.

The server-side component is developed with consideration of the software solutions already used to support the educational process, using the PHP programming language. This approach allows the expansion of the functionality of the existing system by adding new modules without the need for its complete redesign. For data storage and processing, the PostgreSQL database management system is used, which is already employed at the university and has proven to be a reliable and productive solution for handling large volumes of structured information. The use of a unified DBMS ensures compatibility with new modules with existing data and simplifies their integration.

The selected technological solutions also consider the availability of specialists responsible for maintaining and developing the university's current information systems, which helps reduce the costs of implementation, maintenance, and further scalability of the developed system.

An important aspect considered in the development of the system is the need for its integration with other information systems of the university, including electronic databases and library systems. This ensures a unified information space and reduces the administrative burden for both students and teachers [3].

The system is primarily intended for use at the National Technical University «Kharkiv Polytechnic Institute» to improve the quality of support for part-time and distance learning students. As a result of this work, an improvement in the quality of educational services for part-time and distance learning students is expected, contributing to the competitiveness of the university in the context of education digitalization.

References: **1**. UNESCO. COVID-19 Educational Disruption and Response. 2020. URL: https://en.unesco.org/covid19/educationresponse (дата звернення: 15.01.2026). **2**. Keegan D. Foundations of distance education. 3rd ed. London: Routledge, 2002. 224 p. **3**. Babo R., Azevedo A. Higher Education Institutions and Learning Management Systems: Adoption and Standardization. Hershey: IGI Global, 2012. 410 p. DOI: 10.4018/978-1-4666-1851-9.