

## ABSTRACT

The explanatory note size is 167 pages, contains 16 illustrations, 23 tables, 6 appendices, 22 references.

**Relevance of the topic.** The paper addresses the problem of unifying user identification in the information environment of higher education institutions. The main features of existing solutions, their advantages and disadvantages in the context of specific university needs are shown. The need to develop a single sign-on system that will provide centralized user authentication management and integration with existing university information systems has been identified.

**Research objective.** The main goal is to develop and implement a unified user identification system to provide a single entry point to university information resources.

**Object of research:** processes of identification and authentication of users in distributed information systems of higher education institutions.

**Subject of research:** methods, tools and technologies for unified identification and authentication of users for integration with university information systems.

To achieve this goal, **the following tasks** were formulated:

- Analysis of existing SSO solutions and system requirements formation
- System architecture design and development of integration mechanisms with AS "Core"
- Development of two-factor authentication system and token management
- Creation of user interface and API for integration with other systems

The **scientific novelty** of the master's thesis results lies in the development of a centralized authentication system architecture for distributed information systems of higher education institutions, which, unlike existing solutions, provides integration with existing systems without compromising their autonomy and specific authorization mechanisms, the possibility of phased implementation of

single sign-on with support for parallel functioning of different authentication mechanisms, as well as flexible user role management based on data from the university's central directory catalog. This approach allows maintaining the operability of existing infrastructure during migration to the new authentication system and ensuring the required level of security when working with distributed information resources of higher education institutions.

The **practical significance** of the obtained results lies in creating a system that provides a single entry point for all university information resources, enhances user account security, and simplifies the authentication process. The system can be adapted for use in other higher education institutions.

**Connection with scientific programs, plans, themes.** The work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" as part of the university digitalization program.

**Approbation.** The main provisions of the work were reported and discussed at the scientific and technical conference "Information Technologies in Education" (Kyiv, 2024). The developed software has been implemented at the Information Systems Design Bureau of Igor Sikorsky Kyiv Polytechnic Institute (implementation act).

**Publications.** The scientific provisions of the dissertation were published in:

1) Finogenov O.D. Problems of person identification in automated systems of higher education institutions / Kovtunets O.V., Babych B.B., Hubskeyi A.M., Romashkevych Ya.O., Finogenov O.D., Miach D.O., Yatsevskyi O.I. // Admission campaign to higher education institutions of Ukraine: problems and prospects: 7th All-Ukrainian Scientific and Practical Conference, June 21, 2024, Kyiv: proceedings. — 2024. — P. 72-74.

2) Finogenov O.D. Peak loads on information systems supporting the university admission process and on information systems for automation of university processes at Igor Sikorsky KPI / Kovtunets O.V., Babych B.B., Hubskeyi A.M., Romashkevych Ya.O., Finogenov O.D., Miach D.O., Yatsevskyi O.I. //

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**Keywords:** SINGLE SIGN-ON, AUTHENTICATION, AUTHORIZATION, OAUTH 2.0, OPENID CONNECT, TWO-FACTOR AUTHENTICATION, UNIVERSITY INFORMATION SYSTEM