REVIEW
to the educational and professional program "Artificial Intelligence. Cognitive technologies"
second (master's) level of higher education
in specialty 126 "Information systems and technologies"
branch of knowledge 12 "Information technologies"
Kyiv National University of Construction and Architecture

The educational and professional program "Artificial Intelligence: Cognitive Technologies" is highly relevant due to the surging interest in AI across various sectors. The 2024 AI Index Report from Stanford University underscores this trend, highlighting a threefold increase in AI-related publications and a 31-fold increase in AI patents since 2010. Moreover, the growing number of AI PhDs employed in industry demonstrates the high demand for AI expertise.

AI's cognitive abilities are advancing rapidly. Recent benchmarks show AI surpassing human performance in tasks like image classification and language comprehension. The emergence of multimodal models like Gemini and GPT-4 further underscores AI's versatility and potential. These models can process both text and images, expanding AI's capabilities and applications.

Technological processes, approaches to business and project management in all sectors of the national economy, attitudes to knowledge and processes of learning and thinking are changing. This poses new challenges and requirements for the competence of AI specialists who directly participate in the creation of new technologies and deal with the problems of integrating existing ones. Modern AI specialists must have a wide range of knowledge not only in the IT field, but also in the applied areas where AI is implemented. But due to the fact that it is impossible to cover all applied areas, at the master's level, more attention should be paid to what is common. And what is common, in my opinion, is precisely the cognitive aspects. A modern AI specialist must know how the processes of decision-making, problem solving, perception and learning, pattern recognition, which is the basis of cognitive models, are organized. Knowledge of these basic aspects of human thinking and cognition will allow future specialists to approach the processes of implementing AI technologies ethically and safely, rationally and justifiably, improving the interaction between man and machine.

Educational and professional program in the specialty "Artificial intelligence. Cognitive technologies" in the specialty 126 "Information systems and technologies" was developed by the project group of the department of project management of the Kyiv National University of Construction and Architecture in accordance with the requirements of the legislation of Ukraine and is aimed at training specialists of the second (master's) level of higher education.

The program provides students with systematic theoretical knowledge in the field of information technologies, development of a basic understanding of artificial intelligence, its business applications based on the application of new technologies based on studies of cognitive and brain processes. Thanks to the emphasis on acquiring practical skills regarding the implementation and application of information systems and technologies in management activities, in particular, with the aim of making rational management decisions based on a cognitive approach, applicants will have the opportunity to apply the acquired knowledge in real cases and develop the skills of integrating AI services into business processes, strategic thinking, planning and decision-making, innovative thinking, etc. This makes the program extremely popular in the labor market, where there is a high demand for qualified IT specialists, information analysts, etc.

Familiarization with the educational and professional program submitted for review proves the focus of its content on the formation and development of higher education applicants, necessary, in our opinion, for a modern specialist of general and professional competencies. Thus, the list of components, the structural and logical scheme of the program, the matrix of correspondence of program competencies to the components of the educational program are clearly reflected in the educational and professional program.

In the context of the above-mentioned program, great attention is paid to educational components that provide integral competence, namely: the ability to solve tasks of a research and innovation nature in the field of information systems and technologies.

Thus, the educational and professional program "Artificial Intelligence. Cognitive technologies" in the specialty 126 "Information systems and technologies" (field of knowledge 12 "Information technologies") training for applicants of the second (master's) level of education is relevant and has significant potential for development, and mastering the educational components specified in the program will make it possible to form a specialist of the new generation, capable of providing innovative development of the activities of any organizational structure.

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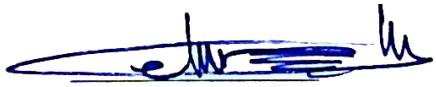

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