

Original Research Article

Improving the Quality of the Information Technology Training Program at Hung VUONG University in the Era of Digital Transformation

Nông Thị Lý^{1*}, Nguyễn Trung Kiên², Lê Quang Khải³

¹Department of Examinations and Quality Assurance - Hung Vuong University

²Department of Academic Affairs - Hung Vuong University

³Center for National Defense and Security Education - Hung Vuong University

*Corresponding Author: Nông Thị Lý

Department of Examinations and Quality Assurance - Hung Vuong University

Article History

Received: 26.12.2025

Accepted: 21.02.2026

Published: 26.02.2026

Abstract: This paper examines strategies to enhance the quality of Information Technology (IT) education at Hung Vuong University in the context of digital transformation and rapid technological advancement. Based on document analysis and comparison with contemporary educational trends and labor market demands, the study identifies several limitations in the current curriculum structure, teaching methods, infrastructure, and industry engagement. The findings highlight the urgent need to shift from content-based instruction to competency-based education, emphasizing project-based learning and practical applications. Furthermore, the integration of emerging technologies such as artificial intelligence, big data, and cloud computing is considered essential to align academic training with industry expectations. The paper proposes a set of solutions, including curriculum innovation, professional development for faculty members, strategic investment in digital infrastructure, and strengthened collaboration with enterprises. These measures aim to ensure that IT graduates possess not only solid technical knowledge but also practical skills and adaptability required in a rapidly evolving digital economy. The study contributes to the ongoing discussion on sustainable improvement of IT education in higher education institutions.

Keywords: Information Technology Education, Training Quality, Digital Transformation, Higher Education, Competency-Based Approach.

1. INTRODUCTION

Amid the transformative wave of the Fourth Industrial Revolution, Information Technology (IT) has emerged as a pivotal catalyst for global socio-economic advancement. As articulated by Schwab (2016), the convergence of digital technologies, artificial intelligence, and advanced automation is profoundly reshaping production paradigms, governance structures, and organizational models worldwide. Such unprecedented technological acceleration imposes new and rigorous expectations on higher education institutions to cultivate a workforce endowed with sophisticated digital literacy, innovative mindsets, and agile adaptability in an increasingly volatile and technology-driven environment.

In Vietnam, national digital transformation has been designated as a strategic imperative to stimulate sustainable economic growth and reinforce the country's competitive standing in the global arena (Ministry of Information and Communications, 2021). Within this strategic framework, universities are compelled to recalibrate their academic programs toward a competency-based educational model that prioritizes learner-centered development and practical proficiency (Ministry of Education and Training, 2018). As a regional higher education institution tasked with supplying qualified human resources to the midland and mountainous areas of Northern Vietnam, Hung Vuong University bears a critical responsibility to enhance the academic rigor and relevance of its Information Technology program. Strengthening training quality is not merely an institutional objective; it is an essential prerequisite for aligning educational outcomes with labor market demands and the broader trajectory of international integration and technological innovation.

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CITATION: Nông Thị Lý, Nguyễn Trung Kiên, Lê Quang Khải (2026). Improving the Quality of the Information Technology Training Program at Hung VUONG University in the Era of Digital Transformation. *South Asian Res J Eng Tech*, 8(1): 60-63.

2. RESEARCH METHODOLOGY

This study adopts an analytical–synthetic framework to critically evaluate the current status of the Information Technology (IT) training program at the university. This methodological approach facilitates the systematic consolidation and interpretation of key dimensions, including curriculum architecture, faculty expertise, and institutional infrastructure. As Creswell (2014) emphasizes, rigorous document analysis combined with the examination of empirical evidence constitutes a robust strategy in educational research, enabling scholars to formulate well-substantiated, objective, and multidimensional assessments.

Furthermore, the study incorporates insights from authoritative international reports that examine emerging skill demands and shifting labor market dynamics (OECD, 2019; World Economic Forum [WEF], 2023). By benchmarking institutional practices against global trends, the analysis identifies structural gaps between academic provision and industry expectations. This comparative and evidence-informed approach provides a solid conceptual foundation for developing strategic, context-sensitive recommendations aimed at strengthening the relevance, adaptability, and overall quality of the IT training program.

3. FINDINGS AND DISCUSSION

3.1. Current Status of the Information Technology Training Program

The Information Technology (IT) program at Hung Vuong University is presently structured in alignment with the national higher education curriculum framework promulgated by the Ministry of Education and Training (2018). The curriculum encompasses a comprehensive system of foundational and specialized modules, including programming, data structures and algorithms, database systems, computer networks, operating systems, and software engineering. Collectively, these courses establish a solid intellectual foundation, fostering logical reasoning, analytical thinking, and the capacity to design and implement technical solutions. In this regard, the program satisfies the essential academic standards and learning outcomes expected at the undergraduate level.

Nevertheless, the rapid advancement of science and technology—particularly within the broader trajectory of the Fourth Industrial Revolution—necessitates more frequent and systematic curriculum review. Schwab (2016) argues that breakthroughs in artificial intelligence, big data analytics, and cloud computing are reshaping occupational structures and redefining workforce competencies. Correspondingly, the World Economic Forum (2023) identifies digital proficiency, complex problem-solving, and advanced analytical capabilities as core competencies in the contemporary labor market. These developments underscore the risk that, without the timely integration of emerging technological domains and expanded opportunities for experiential learning, graduates may encounter challenges in transitioning effectively into professional environments.

Beyond disciplinary expertise, contemporary higher education increasingly emphasizes holistic learner development. According to OECD (2019), competencies such as collaboration, critical thinking, and lifelong learning are indispensable for navigating the uncertainties of a knowledge-based economy. Empirical observations indicate that while many IT students demonstrate adequate technical foundations, they often exhibit limitations in communication, teamwork, and project management skills. This imbalance suggests the need for a more integrated curricular design that harmonizes specialized knowledge with transferable skills. Embedding structured discussions, presentations, collaborative projects, and product-oriented assignments into the program would not only reinforce technical mastery but also cultivate professional competencies essential for long-term career sustainability.

Overall, although the IT program at the university provides a relatively comprehensive academic foundation, continuous innovation and strategic refinement remain imperative to ensure alignment with technological evolution and the dynamic demands of the labor market.

3.2. Imperatives for Innovation in the Current Context

Amid the profound transformation of higher education, the conventional content-based instructional model—primarily centered on knowledge transmission—has become increasingly inadequate. In its place, a competency-oriented paradigm has gained prominence, emphasizing learner autonomy, creativity, and the practical application of knowledge (Ministry of Education and Training, 2018). For the field of Information Technology, this pedagogical shift is particularly urgent due to the discipline’s dynamic nature and its intrinsic connection to real-world technological innovation. Consequently, instructional practices must evolve from a passive “lecture-and-note-taking” format toward an active learning model in which students engage directly in inquiry, experimentation, and problem-solving processes.

One viable approach involves the systematic implementation of project-based and problem-based learning methodologies. By developing tangible products or addressing simulated scenarios reflective of enterprise environments, students are afforded opportunities to cultivate analytical reasoning, programming proficiency, and collaborative competence. Such experiential learning strategies not only reinforce theoretical understanding but also enhance practical

applicability and professional adaptability. Through sustained engagement with authentic tasks, learners are better positioned to internalize disciplinary knowledge and translate it into functional expertise.

Moreover, the World Economic Forum (2023) underscores that the capacity to continuously update technological skills and collaborate effectively within diverse professional settings constitutes a decisive factor in workforce competitiveness. This perspective necessitates stronger institutional–industry linkages, expanded internship programs, field exposure initiatives, and demand-driven training models. Aligning academic instruction with industrial practice ensures that students acquire industry-relevant competencies, hands-on experience, and a nuanced understanding of workplace expectations. Ultimately, bridging the gap between academic preparation and labor market requirements is essential for fostering graduates who are not only technically competent but also resilient and adaptable in an increasingly complex digital economy.

3.3. Strategic Solutions for Enhancing Training Quality

To elevate the quality of the Information Technology (IT) program amid rapid technological disruption, the foremost priority is to recalibrate the curriculum toward greater flexibility, responsiveness, and innovation. Instructional content should extend beyond foundational theories to systematically incorporate emerging domains such as artificial intelligence, data analytics, cybersecurity, and cloud computing. As Schwab (2016) asserts, the Fourth Industrial Revolution compels educational systems to adapt swiftly to technological breakthroughs. Accordingly, embedding project-oriented modules, expanding hands-on laboratory components, and requiring the development of tangible products can significantly strengthen students' capacity to translate theoretical knowledge into applied competence. Experiential learning environments that simulate authentic professional contexts enable learners to cultivate robust problem-solving abilities and sustainable occupational skills.

In addition to curricular reform, reinforcing partnerships with industry stakeholders is instrumental in narrowing the persistent gap between academic instruction and workplace realities. The World Economic Forum (2023) emphasizes that strong alignment between educational institutions and labor market demands is fundamental to building a competitive workforce. Through structured internships, industry-sponsored training programs, expert-led seminars, and collaborative capstone projects, students gain invaluable exposure to professional standards, organizational culture, and real-world technological challenges. Simultaneously, continuous feedback from employers provides critical insights that allow the university to refine program content and ensure its relevance to evolving societal and economic needs.

Another pivotal dimension involves strengthening the academic and professional capacity of the teaching staff. According to OECD (2019), educator expertise and pedagogical effectiveness are decisive determinants of educational quality. It is therefore essential to facilitate faculty participation in advanced training programs, technological upskilling initiatives, scholarly research, and industry-based projects. When lecturers remain actively engaged with current technological practices and research developments, their instruction becomes more dynamic, contextually grounded, and aligned with industry standards.

Finally, the establishment of a systematic monitoring and continuous improvement mechanism is indispensable. The university should implement comprehensive evaluation frameworks incorporating feedback from students, alumni, and industry partners to assess the program's alignment with national digital transformation objectives (Ministry of Information and Communications, 2021). Such evidence-based review processes will enable timely curriculum adjustments, ensuring sustained relevance, adaptability, and long-term educational excellence.

4. CONCLUSION AND RECOMMENDATIONS

In the era of profound digital transformation and accelerating global integration, enhancing the quality of the Information Technology (IT) program at Hung Vuong University represents not merely an immediate institutional priority but a long-term strategic imperative. The rapid evolution of technological innovation, coupled with increasingly sophisticated labor market expectations, necessitates timely, comprehensive, and systemic adjustments in higher education. OECD (2019) underscores that contemporary universities must foster adaptability and lifelong learning capacities among students, while the World Economic Forum (2023) highlights the critical importance of advanced technological proficiency and collaborative competence in modern workplaces. These perspectives collectively indicate that improving training quality requires a coordinated, multi-dimensional strategy rather than isolated or incremental reforms.

First and foremost, the university should formulate a clearly defined roadmap for curriculum enhancement, ensuring that course content is periodically updated to reflect emerging technological trends and industry standards. Continuous curricular renewal is essential to maintain academic relevance and sustain competitive program outcomes. Concurrently, sustained investment in faculty development is indispensable. Strengthening both disciplinary expertise and pedagogical innovation will enable lecturers to deliver instruction that is intellectually rigorous, practically oriented, and

aligned with professional realities. Encouraging faculty engagement in applied research and industry collaboration will further enrich the academic environment and bridge theory–practice gaps.

Moreover, expanding strategic partnerships with technology enterprises should be prioritized to provide students with structured internship opportunities, authentic workplace exposure, and experiential learning pathways. Such collaboration not only enhances employability but also reinforces the alignment between educational objectives and labor market demands.

Additionally, establishing a systematic and periodic evaluation mechanism grounded in feedback from students, alumni, and employers is essential for evidence-based improvement. These evaluative processes should be closely aligned with Vietnam’s national digital transformation agenda (Ministry of Information and Communications, 2021) to ensure coherence with broader socio-economic development strategies.

If implemented consistently and effectively, these strategic measures will enable the university’s IT program to strengthen its academic reputation, consolidate its institutional standing, and make a substantive contribution to the cultivation of high-quality human resources in the digital age.

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