

Adapting to the Future: Why Colleges Should Integrate AI into IT and Coding

Curricula

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As a cybersecurity student who is close to finishing a degree, the job market has been a growing concern. After researching work opportunities in the tech industry, a pattern has become clear: companies are cutting IT positions because AI tools can now automate tasks that used to require entire teams. According to a Harvard Business School study, the public supports automating roughly 30 percent of jobs based on current AI capabilities, and that number nearly doubles when people imagine a more advanced version of AI in the future (Jette, 2026). Some workers have accepted this shift and moved on, while others are struggling to compete in a market that is shrinking. For IT and coding students, the pressure is even greater because the field they are entering is changing faster than the education they are receiving. Every day, the chance to get hired becomes harder as employers look for candidates who already know how to work alongside AI, not just do the work AI can replace. But this is not the first time technology has disrupted the workforce. When automation entered manufacturing, it caused massive unemployment because machines took over jobs that people used to do by hand. Many workers feared the change and resisted it. But the ones who learned how to operate and control those machines ended up working more efficiently, faster, and with greater accuracy than before. The same thing is happening now with AI in the tech industry. The world is changing and it will continue to change every day. The choice is not whether to accept it or fight it. The choice is whether to adapt or fall behind. Rather than banning AI tools or ignoring them, colleges should integrate AI into IT and coding curricula so that students graduate with the skills employers are actually looking for. Teaching students to work with AI is no longer optional. It is the difference

between being prepared for the workforce and being left behind.

Background

AI tools have already transformed how the tech industry works. Coding assistants like GitHub Copilot and ChatGPT are no longer experimental. They are part of daily workflows at major companies around the world. At AMD, one of the largest chipmakers in the industry, about half of their engineers are software engineers, and the company has fully integrated AI into their software development process (Zdravkovic, 2025). GitHub's own research suggests that developers can double their productivity by using GitHub Copilot (Zdravkovic, 2025). When AMD made Copilot available to their developers in September 2023, they found that AI provided a measurable increase in productivity for junior developers performing simpler programming tasks (Zdravkovic, 2025). However, they also found that senior developers working on specialized tasks saw much lower productivity gains. This was not because senior developers lacked skill, but because AI coding assistants are trained on publicly available code and struggle with the highly specialized, company-specific software that experienced developers work on daily (Zdravkovic, 2025). This finding shows that AI does not replace the need for deep knowledge. It is a tool that works best alongside human skill, not in place of it.

This shift is not limited to one company. Across the industry, AI coding assistants are being used for real-time feedback, debugging code, and guiding developers through complex problems (Ali et al., 2025). Research shows that these tools can enhance the programming learning experience by providing personalized assistance, reducing the mental workload, and

improving student performance in tasks like code generation and debugging (Ali et al., 2025). Studies have also found that students who use AI coding tools show increased self-confidence, motivation, and academic success in their programming courses (Ali et al., 2025). At the same time, the integration of AI in education raises ethical concerns around transparency, accountability, and fairness that schools need to address (Küçük et al., 2025). The technology is moving fast, and the question is no longer whether AI belongs in the workplace. The question is whether schools are preparing students to use it when they get there.

The Problem

Despite how quickly AI has changed the tech industry, most colleges have been slow to adapt. Many IT and coding programs still teach the same way they did before AI tools existed. Some schools have banned AI entirely from the classroom, treating it as a form of cheating rather than a skill worth learning. A systematic review of AI in education found that while AI tools provide many benefits to both teachers and students, schools are still focused on the ethical risks rather than finding ways to use these tools responsibly (Küçük et al., 2025). This means students are being kept away from the very technology they will be expected to use the moment they enter the workforce.

Even within individual courses, the resistance is clear. Over the past couple of semesters, some professors have banned AI from coding assignments because they believe it will make students lazy, kill creativity, and cause them to lose the foundation of how to code. On the surface, that concern makes sense. But in the real world, employers are not testing whether a new hire can write basic code from scratch on a blank screen. They want to know if that person can

meet their needs and get the job done efficiently. Companies care about results, not whether someone memorized the fundamentals without any help. If AI can help a developer work faster and produce better results, then knowing how to use it is the skill that matters most.

The result is a growing gap between what students learn in school and what employers expect them to know. Companies like AMD are already using AI across their entire software development process, from writing code to reviewing it to testing it (Zdravkovic, 2025).

Employers are looking for graduates who can work alongside AI, use it to solve problems faster, and understand its strengths and limitations. But if students never get the chance to practice with these tools during their education, they will graduate unprepared. A study by Ali et al. (2025) surveyed 311 computer science students across multiple semesters to examine how students perceive and accept AI coding assistants in their programming courses. Their findings showed that students with less programming experience had a harder time interacting with these tools, which means the earlier students are introduced to AI, the better they will be at using it effectively.

The Solution

The answer is not to keep banning AI or to let students use it with no guidance. The answer is to build AI into IT and coding curricula in a structured, responsible way. Research has already laid out frameworks for how to do this. A systematic review by Küçük et al. (2025) identified key ethical principles that should guide how AI is used in education, including transparency, trust, fairness, and responsibility. Transparency means that students and teachers should clearly understand how AI tools work and what they are designed to do. Trust means that

schools need to prove these tools are reliable before asking students to depend on them. Fairness means AI should be accessible to all students equally, and responsibility means there should be clear guidelines on who is accountable for how AI is used in the classroom. These principles already exist. Schools just need to apply them.

In practice, this could look like professors allowing students to use AI coding assistants on assignments while requiring them to explain and document the process. Instead of letting AI do the thinking for them, students would learn how to review AI-generated code, identify errors, and understand why the code works the way it does. This approach builds both AI skills and foundational knowledge at the same time. Research by Mumtaz et al. (2025) found that students who are trained on ethical AI use during their education are better prepared to apply those same principles in the workplace. If schools wait until after graduation to address this, students will enter the workforce without knowing how to use AI responsibly, which creates bigger problems down the road.

AMD's experience also supports this approach. When the company introduced GitHub Copilot to their developers, they found that the tool was most helpful for junior developers working on basic tasks (Zdravkovic, 2025). This is exactly the kind of benefit students would see in the classroom. AI can help beginners get through the early struggles of learning to code, while professors focus their teaching on the deeper, more complex skills that AI cannot handle. The study by Ali et al. (2025) confirmed this, finding that when AI coding assistants are introduced properly, students show increased motivation, confidence, and engagement in their programming courses. The key word is "properly." AI should not be thrown into the classroom without

structure. It should be integrated with clear guidelines, ethical training, and a focus on using it as a learning tool rather than a shortcut.

Schools should also invest in improving AI literacy for both students and professors. Küçük et al. (2025) recommended that before any AI tool is used in education, pilot programs should be carried out that introduce the tool to both students and teachers so that everyone understands how it works and what the boundaries are. This means training professors to teach with AI, not just telling students they can use it. When both sides understand the tool, the classroom becomes a space where AI supports learning instead of replacing it.

Counterargument

The most common argument against integrating AI into college curricula is that it will make students dependent on technology and cause them to lose fundamental coding skills. If students can just ask an AI to write their code, why would they bother learning how to do it themselves? This is a fair concern, and it should not be ignored. However, the evidence suggests that AI does not replace foundational learning when it is used correctly. AMD found that while AI coding assistants helped junior developers with basic tasks, senior developers working on complex and specialized problems saw much lower productivity gains from the same tools (Zdravkovic, 2025). This means AI is not a replacement for deep knowledge. The developers who understood their craft at a high level still needed that expertise regardless of what AI could do. AI helped with the simple stuff, but the hard work still required a human brain. This actually supports the argument for teaching AI in school, because students need to learn where AI is useful and where it falls short before they enter the workforce.

Another concern is that AI will eventually replace workers entirely, making it pointless to train students for jobs that may not exist in the future. The Harvard Business School study found that while people support using AI as a performance tool, with 94 percent of respondents favoring AI to assist human work, there is still strong resistance to AI fully replacing people in many roles (Jette, 2026). The study also found that when people were asked about AI as a collaborative tool rather than a replacement, support was nearly universal. This suggests that the future of AI in the workplace is not about machines taking over. It is about humans and machines working together. As the study's lead researcher stated, the question is not whether people will be replaced, but whether they can do even more at their jobs with these tools than they could have in the past (Jette, 2026). If that is where the industry is headed, then colleges have a responsibility to prepare students for that reality.

There are also valid ethical concerns about AI in education, including data privacy, algorithmic bias, and fairness. Küçük et al. (2025) found that both teachers and students worry about who owns the data AI collects, who can access it, and how long it is kept. These concerns are real, but they are not reasons to ban AI from the classroom. They are reasons to teach students how to navigate these issues. If students graduate without understanding AI ethics, they will face these same problems in the workplace with no preparation. It is better to address these challenges in a controlled educational environment where professors can guide the conversation than to leave students to figure it out on their own.

Conclusion

The tech industry is not slowing down for anyone. AI tools are already embedded in how

companies develop software, manage data, and solve problems. Every day that colleges avoid integrating AI into their curricula is another day that students fall further behind what employers expect. The evidence throughout this paper points in one direction: AI is here to stay, and the sooner schools accept that, the better off their students will be. The tools are there. The research supports it. The only thing missing is the willingness of schools to catch up.

That said, integrating AI into education does not mean handing students a tool and letting them stop thinking. AI should be treated as an assistant, not a tool for cheating. A calculator does not make a math student lazy if the student still understands the math behind the numbers. AI works the same way. It should help students work smarter and more efficiently, but the understanding, the problem-solving, and the critical thinking still have to come from the student. The goal is not to depend on AI. The goal is to learn how to use it in a way that makes the work better without losing the ability to do the work independently.

The world is going to keep changing whether colleges adapt or not. Students who graduate knowing how to work alongside AI will have an advantage. Students who graduate having never touched these tools will spend their first months on the job learning what they should have learned in school. Colleges have a choice: prepare students for the world that exists right now, or keep teaching for a world that has already moved on.

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