



Tech Skills Required

Students and IT pros alike benefit from ongoing, up-to-date technology training for job readiness, development, and risk management.

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Where the Jobs Are

Cybersecurity, artificial intelligence, machine learning, DevOps, and network infrastructure skills are needed *now*. Students and IT teams alike require ongoing training to keep pace with the demand.

THE WIDE VARIETY OF TECHNOLOGY SKILLS

employers now require employees to demonstrate are shifting rapidly in the face of artificial intelligence (AI) and machine learning (ML)'s ongoing evolution. The result? Providing students with greater access to hone and demonstrate those skills is more critical than ever before.

Just two short years ago, in 2022, employers warned of a “chasm” in cloud computing skills versus demand; today, a similar gap in the need for AI/ML skills versus demand is now growing, according to Hannah Aldine, FEDSLED Solutions Consultant for Pluralsight. What skills are most in demand?

“Employees today often lack confidence in skills around **cybersecurity, AI, machine learning, DevOps** and **network infrastructure**,” Aldine said. “These are certainly areas to focus on for upskilling within organizations. On campuses, as well, they’re trying to prepare students for those jobs. Anecdotally, we’re hearing from university partners that their industry advisors often don’t think students are fully tech-ready when they graduate. There’s been a lot of focus on in-demand industry skills lately on campuses.”

More than any other technology, AI has proven the biggest upset to industry as well as higher

education through the last year or more: The **2023 Cengage Group's Employability Report** "found that 52% of graduates say that AI is making them question if they are workforce-ready," Aldine shared. "Even folks who are recent grads, there's already a need for them to start skilling up."

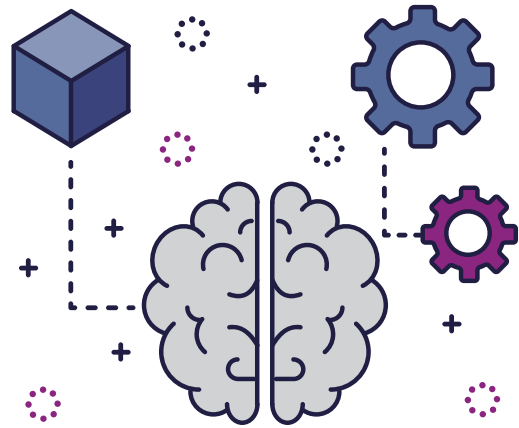
Just a year ago, tech leaders and employees saw cloud security as their top concern as organizations continued their break-neck pace of cloud migration and embracing cloud-native technologies and products. Pluralsight's 2022 State of the Cloud report revealed that while 75% of tech leaders planned to build all new products and features in the cloud, only 8% of technologists had extensive experience working with cloud-related tools.

"Cloud computing is no longer the future of technology," the report warned, "it's the present."

Organizations are making similar strides to embrace AI/ML capabilities and related tools today, despite now falling in the "early adoption" stage, Aldine said.

New **Gartner research reveals** that 90% of companies globally will use generative AI in their day-to-day operations.

"Most organizations are still at that broad level, where people are trying to integrate AI into their workflows," she said. "There's lot of automation, especially in those tedious tasks like analyzing complex data to inform decisions. We're also seeing a lot around prompt engineering, or how to choose the best tool and prompt effectively and then, importantly, evaluate those results. When it comes to tech roles, skills and tools tend to be fairly role-based."



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Students and technologists who can demonstrate competency with assisting tools such as GitHub, Microsoft Copilot, AWS CodeWhisperer — all designed to work alongside technologists — also demonstrate their ability to adapt and embrace tools that are relevant to their roles, Aldine said. Demonstrating adjacent skills such as data hygiene are just as important.

"We surveyed executives and technologists and found that 20% of organizations have formally deployed AI tools, so we're starting to see that uptick. More than half say that they are going to soon. It's certainly not going away," Aldine said. "Last year, there was a lot of momentum to adopt AI tools and now it's moving into optimizing and better integrating those tools so that they actually drive value."



3 Big Benefits of Specialized Tech Microcredentials

When entering the job force, two- and four-year degree students who can boast microcredentials may gain an edge on their peers. Here are three key ways microcredentials may help.

HIGHER EDUCATION STUDENTS WHO EARN microcredentials in specialized technology areas supplement their primary degree paths and prove competencies in in-demand skills as they prepare to enter the workforce. As virtually every industry undergoes digital transformation and embraces technology to perform all the duties required within every role or job function, demonstrating technology know-how has never been more important than it is today. Here are three areas

where microcredentials are proving invaluable in students and the higher education institutions that increasingly compete to retain them.



Students prove they have targeted skills that are relevant for their future role.

"Micro credentials are very skills-focused whereas traditional university curriculum can

vary in how skills-based it is, kind of depending on the field,” said Hannah Aldine, FEDSLED Solutions Consultant for Pluralsight. “I think they give employers increased confidence that the candidate is work-force ready. We’ve also been seeing that, as employers move more toward skills-based hiring rather than basing it on having a two- or four-year degree, microcredentials support that skills-based approach.”

2 Employers see that continuous learning is important.

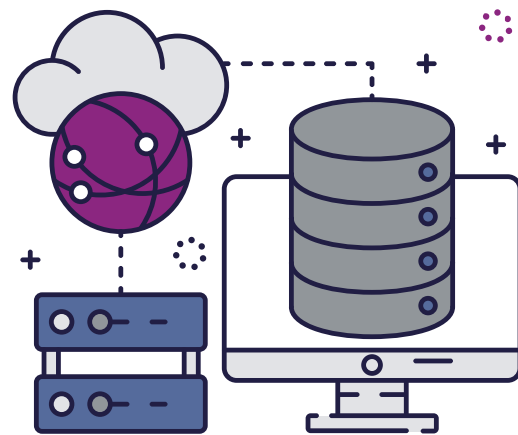
“Indirectly, [microcredentials] also show an employer that a candidate is a continuous learner,” Aldine said. “They can assess their own skills gap, and they have the initiative to go fill it. Essentially every job requires that continuous learning piece. A candidate can pull ahead and show rather than tell that they are ready to learn what they need to be successful in their role.”

3 Students receive immediate value and recognition of skills, along with the motivation to keep going.

For those already in the workforce, microcredentials provide targeted learning opportunities.

“They’re designed to be short, and often they’re also stackable, so they can help someone work toward an immediate project or maybe a future role where they’re looking to stack a few microcredentials to prove they’re ready,” Aldine said.

“More and more, they’re popular with traditional



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students who may want or need a job during their college years. That’s fairly common because college is expensive. Microcredentials can be achieved along the way for jobs that they’re in now, but they also show that they have skills and expertise to get a better job during college.

“And when they do go out into the workforce, these graduates might not have to start at the bottom of the pay scale because they have a degree, but they also have some microcredentials and experience. They’ve learned, potentially, adjacent or niche skills for a role that they want that maybe wasn’t formally baked into their degree,” Aldine said. “They let students get a bit more specialized and they also have some shorter goals to hit along the way, which may help to keep them motivated as they pursue their larger degree.”



Partnerships Bring Job-Ready Curriculum to Students

Hands-on, experiential learning in the very latest technologies is possible without losing time on course and content development.

AT UTAH TECH UNIVERSITY, STUDENTS AND university employees enjoy opportunities to learn the most up-to-date and in-demand technology skills alongside their regular degree or day-to-day work through a technology development series, **Learn and Work in Utah.**

The university partnered with Pluralsight to develop certifications for the program as well as microcredentials, which allowed leadership and faculty to move more quickly than may otherwise be possible to offer courses that help students and IT professionals gain the latest high-demand skills for today's workforce, explained Hannah Aldine,

FEDSLED Solutions Consultant for Pluralsight. Not having to spend time developing the content on their own was just one way the partnership helped the institution speed up its on-demand offerings.

"They're very focused on experiential learning. I think that's going to become more and more the model because more institutions are hearing from employers and from students that they need to be very skills-focused," Aldine said.

Prior to the program's launch, Utah Tech's industry advisory board members had expressed concerns that graduates weren't workforce-ready when it

came to technology, Aldine said, but Utah Tech is not alone in that regard: “We see this with some of the other universities we partner with.”

While such partnerships are by no means new — Harvey Mudd College offered one of the first STEM education partnerships through its **Clinic Program** in 1963 — they are becoming increasingly popular as a way to ensure up-to-date education on technologies that are evolving more rapidly than ever before, such as AI and cybersecurity.

Other Benefits: Adjacent Tech Skills, Hands-On Learning

“Partnerships ensure up-to-date content but also broader reach, which helps students become digitally fluent,” Aldine said.

When college students arrive on campus, they certainly have expertise on their phones; however, they generally aren’t as familiar with enterprise-ready technology, or perhaps even on-the-job tools such as e-mail or Microsoft PowerPoint.

Community and professional partnerships ensure tech training also helps students gain adjacent competencies such as presentation skills, communication with non-technical audiences, or data hygiene.

“Every student needs some degree of tech fluency for whatever role they might move into,” Aldine said, as well as more opportunities for skills-based, hands-on learning.

“Many universities are moving toward projects or portfolio-based outcomes that incorporate practice and theory,” Aldine said. “We can incorporate hands-on labs or sandboxes so that they can send their students into live environments to practice things without worrying about breaking an actual environment, and they can measure that theory and that practice.”



Partnerships ensure up-to-date education on technologies that are evolving more rapidly than ever before, such as AI and cybersecurity.

As skills, experience, and expertise in areas such as AI/ML, cloud computing, and data science stay top-of-mind for industries, more campuses will focus on how to best prepare students for roles that use and advance those skills.

Hands-on programs may also provide institutions with a strong recruiting advantage, for colleges and universities as well as the private sector.

“It’s in students’ best interest to learn some of those common technologies now versus waiting until later. The advantage of industry working with a local university is that it develops that pipeline, and they can have that connection from universities into their industry program or roles. It’s in their interest to make those connections and develop those partnerships so that they have some influence and say in getting people who are more prepared and tailored to meet the specific needs of those roles.”



Risks Grow Without Up-to-Date Training for IT Pros

As technology evolves more rapidly than ever before, higher education IT professionals need more help to keep current on critical skills.

IT PROFESSIONALS IN EVERY INDUSTRY find themselves overwhelmed, understaffed, and often underappreciated despite the sheer volume of work and responsibilities they maintain day to day. In higher education, those realities are compounded by unique and complex systems, all of which make it difficult for institutions to attract and retain IT talent, especially when competing against the private sector.

Helping IT professionals navigate the competing priorities of their role is just one way institutions can alleviate IT's burden.

Supporting ongoing professional development and helping IT teams keep current on the very latest technologies and threats goes a long way in clearing the path for focus, said Hannah Aldine, FEDSLED

Solutions Consultant for Pluralsight. Competing priorities for teams' time is just one challenge IT pros must overcome before clearing their desks for ongoing training and development, she added.

"The average half-life of skills for a lot of technologies is about two-and-a-half years. IBM research has shown that people lose up to 30% of their skills every year if they're not using those skills often and doing them correctly. It's always a challenge, and that means that IT professionals likely need to be learning smaller concepts, such as updates to the technologies they're already working in, on a weekly or monthly basis, to keep up," Aldine said. "When you're looking at moving beyond training to development and career progression, every six months to a year you need to dig into something that's newer.

“There’s a lot of demand for their time and it’s not common that there is an hour or two set aside weekly for them to go learn. And yet if they were to learn skills such as automation, they could carve out that time,” she said.

A Framework for Support and Success

Pluralsight’s **Developer Success Lab** has conducted empirical research on developers and software development teams, and Aldine said its findings and recommendations also apply to IT professionals, from how developers experience their working environments to strategies used to navigate those complexities. The research scientists found evidence of the strong impact that **agency, learning culture, motivation and self-efficacy**, and **support and belonging** have on the thriving of software teams.

“Learning culture is key not only for productivity but also for simply having a healthy environment and ensuring technologists are current and ready to deliver projects more quickly,” Aldine said. “It also ensures they have the space to innovate as well.”

Showing Progress and Impact

As emerging technologies come online, that ongoing education ensures teams upskill and reskill, and stay relevant in their current role, Aldine said. Ongoing and constant IT training also helps IT professionals expand their personal experience while boosting their portfolio to prepare for promotion into new leadership roles or work on pilot teams exploring AI/ML use cases and deployments, for example. “Professional development and career progression opportunities are really key to keeping people when higher ed can’t afford to lose IT talent,” Aldine said.

Pluralsight’s Role IQ tool assigns essential knowledge and skills to specific roles, as well as the means for team members to complete



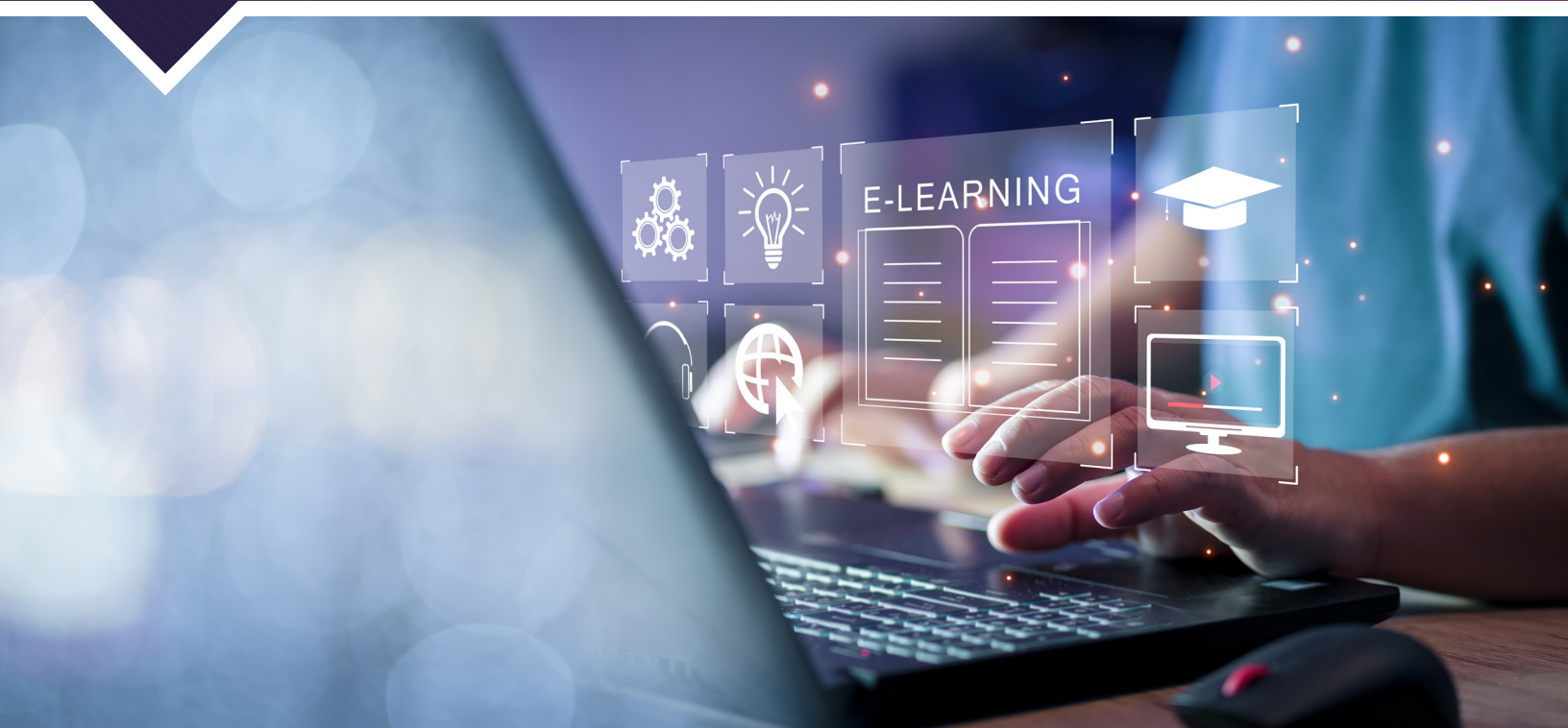
Ongoing education ensures teams upskill and reskill and stay relevant.

trainings and assessments to show preparedness to eventually fill those roles.

“As they advance levels, they’re ready to get promoted or reskill into a new role. That provides the IT org with visibility and the confidence to hire someone into that new role,” she said.

“Look at how campus systems store PII. Cybersecurity risks are huge and we’ve seen, for all the good AI can do, it’s also increasing cybersecurity risks,” Aldine said. “When teams can’t keep things running smoothly, the teaching and the research that is so central to the university’s mission is impacted. On the flip side, skilled IT teams that can minimize the security risks and adapt to changing technologies can support a more innovative and thriving campus.”

Learn how Pluralsight can help upskill and reskill higher ed IT teams and improve development processes to help them meet today’s technology challenges at www.pluralsight.com.



Online Learning Is Here to Stay, Despite Objections from Reluctant Adopters

Start small, then test and iterate to gain acceptance of modern curriculum development and new teaching technologies.

MUCH OF HIGHER EDUCATION'S PROGRESS during COVID-19 to shift to online learning and more robust, tech-enabled online teaching continues, albeit somewhat more slowly than some may like.

That period found many of the more hesitant technology adopters forced to adapt to new approaches and virtual or online instruction. Today's students fully expect to interact online and supplement classroom learning through online tools, communities, assessments, and more. Colleges and universities can help faculty

meld modern and traditional approaches to curriculum development and instruction by ensuring all perspectives are brought to the table to develop, test, and iterate new models for learning.

"It's important to get input early from faculty, from a few who are trusted by their peers, to fully understand a department's unique context and the needs of faculty and students, so that when an approach is rolled out, it's really been tailored to that department or program," said Hannah Aldine, FEDSLED Solutions Consultant for Pluralsight.

Pilots offer opportunities to test and iterate new approaches with help from a smaller group of more agile and adaptable faculty and students, who later also serve as valuable advocates for more widespread adoption as the pilot is rolled out more broadly across a department or campus.

“We do this with a lot of the universities we work with,” Aldine said. “A faculty member may incorporate Pluralsight into their syllabus for one course. They will bring our subject-matter experts in to help align that content to the syllabus and test it. They get feedback from students before rolling it out across more of their courses. At the same time, they’re providing feedback to their department and chairs, and that sets everyone up for success, as well as smoother transition or adoption.”

Measure What Matters

A **McKinsey & Company study of higher education professionals in late 2021** found that institutions that deployed new learning technologies successfully during the pandemic provided appropriate levels of technical support and training for students and faculty “on how to adapt their course content and delivery.” Agreement on impact metrics and how to measure student success are also essential, McKinsey’s report pointed out.

“Institutions often don’t have the means to measure the impact of their investment in learning technologies, yet it’s essential for maximizing returns. Attributing student outcomes to a specific technology can be complex due to the number of variables involved in academic performance; however, prior to investing in learning technologies, the institution and its faculty members can align on a core set of metrics to quantify and measure their impact,” the report added.



Today’s students fully expect to interact online and supplement classroom learning through online tools, communities, assessments, and more.

Broader success indicators such as tool use, student satisfaction, grades, and withdraw rates can be measured and then correlated by online versus hybrid or in-class instruction methods, to start.

Pluralsight’s Skill IQ provides “visibility into students’ skills,” Aldine said. “It’s valuable for students going out into the workforce but it’s also valuable for the instructor or the department chair to see how everyone is doing. They can see what skills students have coming into a program or a course, and then what skills they have coming out of it. ... And from a leader’s perspective, that visibility into skill proficiency and progress is also valuable to informing curriculum development. They can show through the data those proficiencies and growth, and it makes evaluation less subjective.”