

CompTIA[®]

Apprenticeships for Tech

CONNECTING DIVERSE TECH TALENT FOR EVERY INDUSTRY

Getting Started with CompTIA Apprenticeships for Tech

We are excited you're exploring apprenticeship.

Whether you're a **business** needing a pipeline of skilled workers, an **education provider** looking to bring work-based learning to your students, or a **business-member organization** working to improve the local tech labor market for your members, apprenticeship is a proven path to success for both employers and apprentices. Apprenticeship is an industry-driven, high-quality career pathway where employers can develop and prepare their future workforce and individuals can obtain paid work experience, classroom instruction, and a portable, nationally-recognized credential.

CompTIA is recognized as a premier hub for advancing the tech industry and its workforce through education, training, certifications, advocacy, philanthropy, and market research. A+, one of CompTIA's many certifications, has become a household name in the tech industry. Through a strategic partnership with Maher & Maher, the organization launched *CompTIA Apprenticeships for Tech* to expand registered apprenticeship programs in technology occupations and increase the tech talent pool for employers across the country.

CompTIA Apprenticeships for Tech is founded on three initial target occupations that are in-demand across industry sectors, with more occupations to be added over time:

- Tech Support Specialist
- Network Support Specialist
- Cybersecurity Support Technician

This guide is designed to make it easy for businesses and partners to understand how to get started to quickly implement apprenticeship as a talent development strategy. We invite you to:

- **Partner with us** – Learn how we can help you design and launch a tech apprenticeship.
- **Commit to apprenticeship** – Review the case for apprenticeship as a solution for filling open jobs.
- **Harness the power of *CompTIA Apprenticeships for Tech*** – Explore our approach to accelerating program launch.

PARTNER WITH US

We are here to help.

We are here to help you build an apprenticeship program. Together, CompTIA and Maher & Maher bring deep expertise, networks, and capacity to the table, and because the startup of *CompTIA Apprenticeships for Tech* is federally funded, we are able to partner at no cost to you. We can also use our expertise to help you tap into potential funding from federal or state programs to off-set costs associated with developing and operating a registered apprenticeship program.

The process of launching an apprenticeship program effectively can feel daunting; but our goal is to do whatever we can to streamline and expedite this process for you. Key among our efforts has been the establishment of National Guideline Standards approved by the U.S. Department of Labor. These standards can dramatically simplify the program development process, including registration. As these standards are deployed in programs throughout the country, the completion of an apprenticeship tied to them will be a more recognizable credential, similar to the power of having a CompTIA certification today.

Complete our [request for information form](#).

We are seeking partners.

We seek to partner with organizations that share the same passion for expanding tech talent by developing new apprenticeship programs, such as:

- Employers in any industry seeking sustainable solutions for a diverse pipeline of tech workers.
- Education and Training Providers working with employers to build a robust pool of tech talent.
- Workforce Providers supporting the recruitment and career preparation of job seekers for tech careers.
- Business-Member Associations looking to coalesce and support members to develop a more robust and sustainable local tech talent labor market.
- Non-Profit and Philanthropic Organizations helping their clients who aim to enter tech careers.

We provide a clear and simple approach.

We provide a simple and clear approach to developing apprenticeship programs for tech occupations in any industry. It builds upon the scalability of CompTIA's deep expertise in IT certifications and education and includes:

- An accelerated design process that uses CompTIA's National Guideline Standards.
- Facilitated connections to state and local resources through Maher & Maher's national network.
- Supported registration of programs that partner with state apprenticeship offices.
- Well-crafted strategies to recruit and place a diverse pool of apprentices.

For employers , the benefits of partnering with us include:	For partners such as education and training providers, workforce organizations, business-member associations, and non-profit and philanthropic organizations, the benefits include:
<ul style="list-style-type: none">• Developing strategies for recruitment from diverse talent pools.• Supporting federal and/or state registration using CompTIA's National Guideline Standards.• Making connections to training providers and other state or local resources.• Leveraging CompTIA's national marketing efforts to boost local marketing campaigns.• Accessing expert consulting to help guide your work to launch apprenticeship programs.• Navigating the wide choice of program structures to find the right model for your organization.• Joining in a network of participating organizations to connect to peers, information, and ideas.	<ul style="list-style-type: none">• Business engagement support leveraging CompTIA's brand and networks.• Utilization of CompTIA's National Guideline Standards to accelerate and scale new program development.• Technical assistance to support your organization in becoming a sponsoring intermediary.• Access to expert consulting to help you develop strategies for braided funding and to advance alignment to better serve local businesses.

COMMIT TO APPRENTICESHIP

We are true believers in apprenticeship.

We are true believers in the apprenticeship model. For individuals, we've seen how this "earn and learn" model provides people with opportunities for new jobs, increased skills, and higher pay. For businesses, we've seen how apprenticeship is a cost-effective recruitment and training strategy that builds employee satisfaction and loyalty. Apprenticeship is a proven win-win for both the employer and the apprentice.

Highly skilled tech talent is needed to accelerate growth in every industry, and it's critical this talent reflects the diversity of our workforce today. Apprenticeships provide promising pathways for job seekers from diverse backgrounds. Many people learn most effectively by doing, and many need to earn while they learn. By providing the skills and experience needed to secure well-paying jobs, apprenticeships boost economic prosperity for individuals and their families. According to the U.S. Department of Labor, 94 percent of apprentices who complete an apprenticeship program retain employment with an average annual starting salary of \$70,000.

Recognizing the tremendous opportunity to reskill and upskill our workforce, *CompTIA Apprenticeships for Tech* aim to increase and diversify the tech talent pool for employers and connect people to promising careers. Those who are new to apprenticeship or on the fence about building an apprenticeship program should consider the following.

The labor market for tech talent will remain tight.

It's no surprise that the labor market trends for tech occupations anticipate that growth will outpace demand. Looking beyond the overall averages reveals the following occupations are growing at remarkably fast rates :

- Cybersecurity analysts: +37%
- Software developers, applications: +37%
- Data and computer scientists: +31%
- Emerging tech, IT project management, data, and other: +30%
- Web developers: +22%
- CIOs, CTOs, and IT managers: +23%
- IT support specialists: +18%

**source: 2021 Cyberstates, CompTIA*

New talent development approaches are needed to increase the supply of workers to fill these roles, and apprenticeship opportunities can attract a greater number of job seekers who did not previously consider a career in tech.

Common workforce pain points persist.

Apprenticeship is an industry-driven, high-quality career pathway that businesses can use to develop their workforce to their specific needs. Employers find apprenticeship programs are the right fit for their business if they:

- Struggle with recruitment and need to build a talent pool
- Need to better distribute workload to align with the competencies of their staff rather than their titles
- Would like to develop people who are more interested in building a career with their company than finding a job
- Want to increase employee retention
- Seek new ways of addressing the challenges of upskilling existing employees

**Tech occupation
employment projected
to reach 9 million by
2031**

**Tech industry ranks
3rd in projected
growth for 2021**

Inclusive recruiting reaches untapped talent.

Education, particularly a 4-year college degree, has traditionally been used by industry as a proxy for qualifications. However, more and more businesses are finding that this lens unnecessarily limits their recruitment of talent. In apprenticeships, applicants are assessed and qualified on their aptitude to learn the required competencies – and not qualified through traditional experience and education requirements. The apprentice must successfully complete the apprenticeship program before the employer decides whether to offer a regular position. Recruiting for aptitude is a more inclusive approach that will reach untapped talent.

The confidence gap discourages new entrants.

A study of the confidence gap suggests it is not an isolated issue, but a factor affecting large segments of young people (aged 18 to 34) who may be considering a career in IT. Seven out of ten individuals who participated in the study cited lack of confidence as a factor that contributes to discouragement, which may hinder or completely stop someone who is taking the first step toward a career in technology. In particular, women, communities of color, and individuals with disabilities may not believe they can succeed in IT occupations, or they may not know how to gain entry to them. At the heart of the apprenticeship model is the recognition that a person needs mentorship and opportunities to learn and apply new skills on-the-job to develop the competencies, and thus confidence, to be successful in a tech career. As a result, the apprenticeship model along with successful strategies for recruiting diverse populations can result in pathways to employment for populations traditionally underrepresented in tech jobs.

Talent development programs can yield a positive ROI.

Employers typically pursue a host of talent recruitment and development programs. For example, early career programs such as internships and co-ops are common. Internships provide job seekers the opportunity to work with a company for a limited time, such as a summer. They are typically generalized positions designed to provide exposure to a specific industry rather than to one particular job. Adding apprenticeship to your portfolio of career programs can yield many positive returns, such as excellent new hire conversion rates, lower program costs, and a broader talent supply chain that improves opportunity for diverse hires.

ROI Comparison: Work Based Learning Options

	Apprenticeship	Internship	Co-op
Active Enrollment in a Degree Pathway Required	NO	YES	YES
Average Length	12-24 months	3 months (1-2 rotations)	6 months (2-3 rotations)
New Hire Conversion Rate	91%	46%	28%
Retention Rate after 1 year	91%	70.6%	47.3%
Talent Aquisition Cost (Campus recruiting, sign-on bonuses, housing, relocation, etc)	\$	\$\$\$	\$\$\$
Talent Supply Chain	Universities, Community Colleges, Bootcamps, Veterans, Career, Re-Inventors, Returnships, Incumbent Workforce, High Schools, NGO's	Universities	Universities
Federal Training and Wage Offsets	YES	NO	NO
Rate of Diverse Hires	41.8%	While diversity hiring data is unavailable, according to NACE Trends and Predictions, 81% of employers have diversity recruiting efforts.	
<p><i>*Source: 2018 Internship & Co-op Survey, National Association of Colleges and Employers</i> <i>**Source: 2016 Urban Institute report on all RAPIDS states illustrates people of color</i></p>			

HARNESS THE POWER OF CompTIA APPRENTICESHIPS FOR TECH

We designed a starting point for you.

CompTIA Apprenticeships for Tech to give businesses and partners the information, tools, and support needed to leverage apprenticeship as a starting point for developing tech talent.

Why are these tech occupations a good place to start an apprenticeship?

CompTIA Apprenticeships for Tech are initially focused on three occupations – tech support, network support, and cybersecurity support – because they are commonly found in all industries and represent a large, broad base from which any tech career pathway is possible.

Tech Support Specialist

Tech Support Specialists are responsible for analyzing, troubleshooting, and rectifying day-to-day technology problems and challenges. This role may support internal clients (employees within the company) or external customers either in-person, on the phone, or via webchat. The specialist may focus on helping individuals and businesses better use or troubleshoot the company's own technical products, or the specialist may offer support to those using third-party hardware and software applications to do business. In the latter role, the Tech Support Specialist is the person one might call to troubleshoot the Wi-Fi router when the internet is down, obtain online permissions to access accounts or files, or to set up a new employee's email and workstation. In short, Tech Support Specialists are the steady and calm go-to people for those of us who pull our hair out when something goes wrong with our computers.

Network Support Specialist

Network Support Specialists analyze, troubleshoot, and evaluate problems with computer networks, which are crucial for keeping information moving safely and securely between everyone who does business with the company, including internal departments, external supply chains, and customers. Network Support Specialists play an important role in maintaining an organization's networks through configuration, monitoring, and proper training of end users. Network Support Specialists are responsible for day-to-day operations, making sure that networks have minimal downtime. They may progress in their knowledge and training to become Network Architects/Engineers who design and build local area networks (LANs), wide area networks (WANs), Intranets, and cloud implementations.

Cybersecurity Support Technician

Cybersecurity Support Technicians detect cyber threats and implement changes to protect an organization. A Security Operations Center (SOC) team typically has several tiers of cybersecurity professionals who are responsible for monitoring, directing, containing, and remediating IT threats. Cybersecurity professionals may be tasked with anything from installing, administering, and troubleshooting security solutions to creating security policies and training documents for colleagues. While other IT job roles are responsible for specific parts of the overall system, cybersecurity professionals must be able to take a step back in order to see the big picture and keep every aspect of the system secure from threats. They may progress in their knowledge and training to become security analysts, cloud security engineers, threat hunters, penetration testers, and compliance managers.

What are CompTIA's National Guideline Standards?

CompTIA has established National Guideline Standards (NGS) approved by the U.S. Department of Labor for targeted tech occupations. NGS define:

- The **competencies** the apprentice will be trained on-the-job and expected to learn during the apprenticeship;
- The supplemental or related **coursework** to be completed by the apprentice; and
- The policies and terms that need to be established to submit the program for **registration** with the U.S. Department of Labor or a State Apprenticeship Agency, including items such as wage, duration, mentor ratio, etc.

The competencies gained during the apprenticeship are designed to ensure that apprentices are fully qualified for a regular position in the occupation when they graduate from the program. The competency sets for these three tech occupations – Tech Support Specialist, Network Support Specialist, and Cybersecurity Technician – can provide the foundation for any tech career pathway. The table below outlines the competency set topics and related coursework for each occupation, as well as the estimated hours and months it will take an apprentice to complete the program.

CompTIA Apprenticeships for Tech – NGS Competencies and Related Coursework

	Tech Support Specialist	Network Support Specialist	Cybersecurity Support Technician
Competency Set Topics	Number of individual competencies in set		
Employability Skills	12	12	12
Business Acumen	2	2	2
Basic Hardware	5	5	5
Basic Networking	2	2	2
Cloud and Virtualization Technologies	2	2	2
Operating System Basics	6	6	6
IT Security Basics	4	4	4
General IT Operations	4	4	4
Network Fundamentals		7	7
Network Implementations		4	4
Network Operations		3	3
Network Security		5	4
Network Troubleshooting		4	4
Threats, Attacks, and Vulnerabilities			6
Architecture and Design			8
Implementation			6
Operations and Incident Response			4
Governance, Risk, and Compliance			3
Total Number of Competencies to Gain	37	60	86
Related Coursework	Recommended Minimum Hours		
New Employee Skills	15	15	15
Business Acumen	3	3	3
Employability Skills	60	60	60
Technical and Professional Skills - CompTIA A+ Coursework and Certification	220	220	220
Customer Engagement Skills - IBM Professional Certificate (or similar training)	25	25	25
Help Desk Ticketing	5		
Technical and Professional Skills - CompTIA Network+ Coursework and Certification		158	158
Technical and Professional Skills - CompTIA Security+ Coursework and Certification		110	176
Cybersecurity Risk Management - edX Cybersecurity Risk Management Certificate (or similar training)			96
Related Coursework Hours - Total Recommended	328	591	753
On-the-Job Learning Hours - Total Required	2,000	2,000	2,000
Total Hours	2,328	2,591	2,753
Total estimated months (based on 160-hour month)	15 months	16 months	17 months

*Minimum duration of programs are 12 months, however apprentices can "test out" of competencies by exam allowing faster completion for accelerated apprentices.

The NGS were developed based on CompTIA's extensive knowledge about the competencies needed for tech occupations and extensive experience developing IT certifications and curriculum. See the Appendix for additional details for each occupation.

How can CompTIA's National Guideline Standards help me develop apprenticeship programs?

Businesses and partners can use the NGS as a starting point to accelerate program development and launch registered apprenticeship programs more quickly. The NGS are:

- Designed to be customizable to meet the needs of each employer;
- Competency-based which provides more program flexibility;
- Complete with recommended minimum coursework; and
- Complementary and stackable.

CompTIA has not only established these NGS, but also committed to updating them periodically to ensure they stay relevant to the occupations and technologies that change rapidly in the world of tech. Knowing your apprenticeship program is based on a CompTIA's consistently maintained NGS will save you time from having to implement these updates yourself. CompTIA is making this investment to drive apprenticeship expansion in tech throughout the U.S. – which will ultimately help companies thrive with a diverse, qualified workforce and help people find opportunities to gain the skills they need to enter and advance in a tech career.

How can National Guideline Standards streamline program registration?

Businesses or other operators of apprenticeship programs have the opportunity to register their program with the U.S. Department of Labor or a State Apprenticeship Agency. We recommend program registration in order to demonstrate that the program meets standards for quality and rigor, and to gain benefits available to registered apprenticeship programs, such as access to certain federal and state resources.

CompTIA's NGS can simplify registration with the U.S Department of Labor or a State Apprenticeship Agency. Specific requirements for an apprenticeship program must be documented and submitted during registration to show the program meets requirements for a high-quality apprenticeship program. The NGS outlines all of these requirements and includes the documents needed to register an apprenticeship.

LET'S GET STARTED

We are seeking partners.

We look forward to connecting with you and helping you use *CompTIA Apprenticeships for Tech* to design and launch your apprenticeship program. Through this initiative, we are developing a network to expose more individuals and employers to the value and opportunity of apprenticeships and widen the talent pool of women, communities of color, and individuals with disabilities for apprenticeship positions. Businesses and other organizations that join this initiative will be able to tap into both Maher & Maher's expertise in developing high-quality apprenticeship programs and CompTIA's expertise in IT education and certification.

To learn more...

- Visit *CompTIA Apprenticeships for Tech* website at www.comptia.org/content/lp/apprenticeships-for-tech
- Contact us at apprenticeshipsinit@mahernet.com
- Complete our [request for information form](#)

About CompTIA: The Computing Technology Industry Association (CompTIA) is a leading voice and advocate for the \$5.2 trillion global information technology ecosystem; and the estimated 75 million industry and tech professionals who design, implement, manage, and safeguard the technology that powers the world's economy. Through education, training, certifications, advocacy, philanthropy, and market research, CompTIA is the hub for advancing the tech industry and its workforce. **Visit CompTIA.org.**

About Maher & Maher: Maher & Maher, a wholly owned affiliate of the American Institutes for Research® (AIR®), is a talent development firm that helps organizations view their work through the eye of their "customer." We partner with our clients in identifying ways to improve workflows, align resources, and develop people to excel at fulfilling the needs of the customers they serve. Maher & Maher provides key services essential to organizational success, including business integration, change management, performance management, continuous improvement, and workforce and talent development. In combination, these help organizations work in an aligned fashion, producing efficiency, increasing workforce capacity and engagement, and achieving desired outcomes. We go one step further by assisting in the creation of a talent pipeline prepared to do the work using proven skill development strategies, work-based learning, and formal and informal training solutions. **Visit mahernet.com.**

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Maher & Maher was awarded an **Industry Intermediary** contract by the U.S. Department of Labor's Office of Apprenticeship to expand access to apprenticeships in the field of Information Technology – specifically tech occupations in any industry. Maher & Maher, a wholly owned affiliate of the **American Institutes for Research® (AIR®)**, is partnering with **CompTIA**, the world's leading technology trade association, to drive new **registered apprenticeship programs** that will increase the tech talent pool for employers across the country. Additionally, this initiative focuses on increasing opportunities and pathways to employment for populations traditionally underrepresented in tech, including individuals with disabilities, women, and communities of color.

ⁱhttps://www.apprenticeship.gov/sites/default/files/Apprenticeship_Fact_Sheet.pdf

ⁱⁱ<https://www.cyberstates.org/>

^{iv}<https://www.comptia.org/content/research/role-of-confidence-gap-in-tech-career-development>