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Information Technology Career Pathways

Northeast Wisconsin



Regional Collaboration in Northeast Wisconsin

This information was developed in collaboration with the following organizations:



We would like to thank each organization for their time and help in developing these pathways.

Introduction

Are you looking for a career that is creative and allows you to work with a wide variety of people? Or are you looking for a job that allows you solve challenges that will help your neighbors? Then Information Technology (IT) and its related digital careers might be just the field for you! Much like the term Healthcare covers a broad variety of jobs, IT is also an umbrella term covering many different career fields.

Careers in IT can be categorized into a few broad areas, each containing several career fields with similar traits. In addition, IT careers can be combined with skills from other fields which can help you understand a particular business area better, or even to specialize within the IT field. One example combination is cyber security and accounting. These skills combine nicely in a role focused on battling financial fraud and theft.

The skills needed for each career can be obtained in a variety of different types of programs of different length and intensity from 2-week bootcamp training courses to a four-year bachelor's program.

The need for digital skills is growing rapidly and becoming an ever more important part of society. Consider as an example that while in the early 1900's, one sixth of jobs were in agriculture, today one sixth of jobs are digital.

Digital Skills

In addition to careers in IT, more and more job fields require a base set of digital skills to be successful. Digital skills is a broad term which refers to the ability to use digital devices, communication applications, and networks to manage and access information ([Unesco.org](https://www.unesco.org)). Many jobs in the manufacturing and food industries are moving toward the use of virtual reality for onboarding. Healthcare and education positions require the ability to use a computer and navigate videoconference software used in telehealth and classroom content delivery.

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Across the US there are three categories of digitally skilled worker: those with limited or no digital skills, proficient skills, and advanced skills. Knowing where you are today can help you determine where you need to start on your re-skilling pathway.

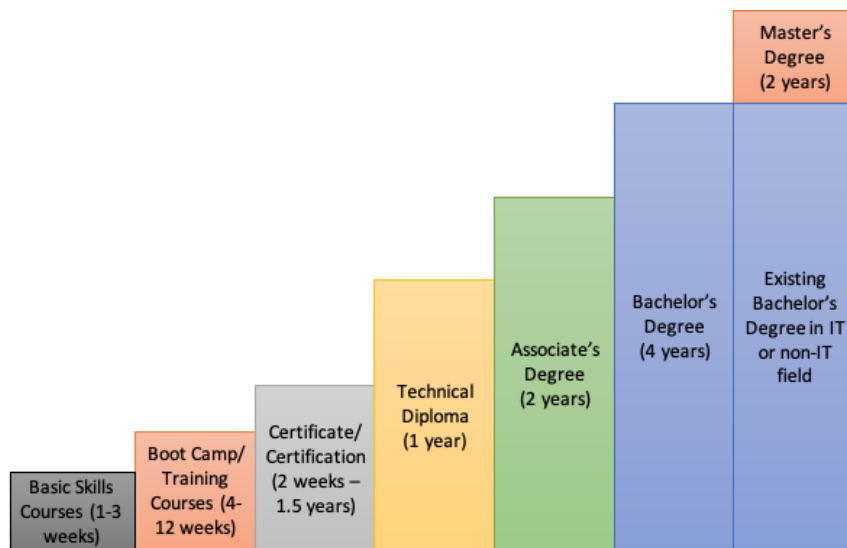
Limited or no digital skills: individuals in this group may have no prior computer use or can complete very simple digital tasks using a generic form with a few steps. These individuals may struggle with being able to sort email responses into folders.

Proficient digital skills: people in this category can carry out simple digital tasks but may struggle with the use of generic and specific technology applications. For example, completing a multi-step task that requires the need to navigate across multiple applications may prove challenging.

Advanced digital skills: individuals with advanced digital skills are comfortable navigating across multiple applications in order to complete multiple steps of a task.

Digital skills level definitions are from “[The New Landscape of Digital Literacy](#)” study done by the National Skills Coalition.

In order to gain the skills you need, you can choose from a variety of starting points including basic skills courses to gain foundations skills needed for more advanced work opportunities. Reskilling options range from specific skills taught in boot camps and technical college courses to full Master’s Degrees. Regardless of where you are and where you want to go, there’s a pathway into IT for you. For more detail, [explore the IT programs](#) available in Northeast Wisconsin.



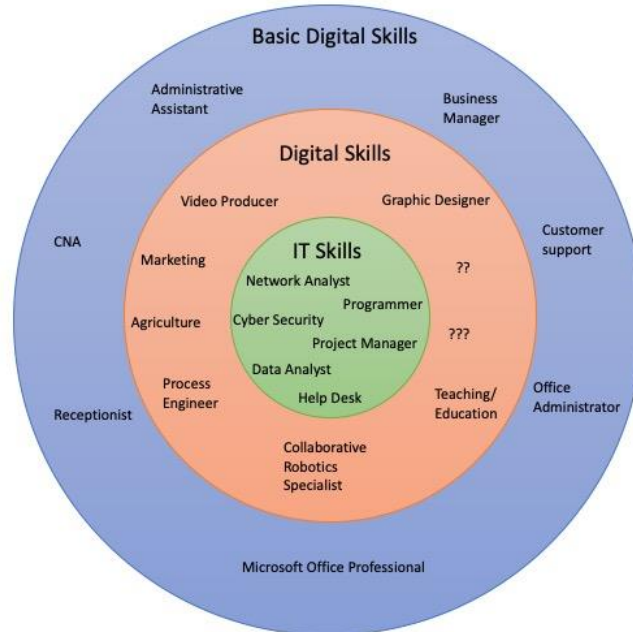
As you gain skills, different kinds of IT-related jobs and careers become available to you. Most jobs today require basic digital skills, but many jobs also require specific digital skills such as the ability to edit videos or use specialized software. Traditional IT roles typically require training and education on the specific IT skills needed for IT careers. For example, programmers will need to learn one or more

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programming languages. Explore the [Digital Careers](#) and [IT Career Descriptions](#) sections to learn more about these career areas.



“I was an HVAC Automation Control Specialist (\$26,000/yr) and knew I wanted to move into IT when I was laid off. Certification training was the quickest way to do that. I’m now a Data Center Technician (\$33,000/yr) and love what I do.” **Jacob McGuire, New Horizons Student**

Digital Careers

Digital careers encompass a growing group of job areas which require more than basic digital skills, but do not require as intensive technical training as an IT career. Many digital careers require some skills that may overlap with those found in a traditional IT career, but where the skills used are not traditionally associated with that field and may be considered as secondary to the primary knowledge needed for that role.

One example of such a field is agriculture. In the dairy industry alone we are seeing an increase usage of technology to maintain the health of the herd. In the not so distant past, a dairy farmer would manually attach the milking machines to each cow and as a result would become very aware of her health through this constant contact. Now, milking machines are more automated and are often attached via robotic arms. Many cows now wear a transmitter collar which sends data back to the farmhouse so the farmer can keep track of the health of each individual cow. The collars track which cows are in heat, off their feed, possibly even running a fever. With all of this data coming in, today’s farmers need to leverage skill much in line with those of a data analyst.

Manufacturing is also seeing an increase in digital skills needs. One specific career is that of Collaboration Robotics Specialist. This role, and ones like it, requires you to oversee a team of

manufacturing robots, monitoring their performance both via a computer as well as visually, and providing simple daily maintenance and programming. The [Manufacturing Personas Interactive PDF](#) provides an overview of additional digital manufacturing roles.

Digital skills are found in every sector, and are growing in fields such as:

- Agriculture
- Manufacturing
- Healthcare
- Health information technology
- Construction
- Architecture
- Digital marketing/ Graphic Design/User Experience (UI/UX)
- Technical Writing
- Supply chain management
- Interior design
- Engineering
- Sales
- Mechanics
- Trucking

While a great deal of the need for digital skills may seem like a need far off in the future, the need is here today and growing rapidly.

Basic Computer Skills Training

Individuals who have little to no hands-on computer experience will find it helpful to take some basic computer skills training. This can be taken at a variety of locations throughout Northeast Wisconsin. Our four regional Technical Colleges ([NWTC](#), [FVTC](#), [MPTC](#), and [LTC](#)), and [New Horizons](#), a private technology training company, all provide basic skills courses.

Alternatively, [Interapt](#) and the [Department of Workforce Development](#) both offer Apprenticeship Programs which provide basic skills training as part of the apprenticeship. Apprenticeships offer a form of work-based learning combining instruction-based learning with practical application of newly learned skills. Apprenticeship positions are limited by the number of employers able to take on new apprentices.

Dual Credit Options

Many local high schools collaborate with local colleges to offer college credit while in high school. This allows students to earn credit at both levels and to get a head-start on their college degree, including in IT. Check with your local high school counselor on options available to you for dual credit in IT. See [here](#) for examples of courses.

IT Educational Pathways

For each of the IT career pathways, there are multiple ways to obtain a job in that area. Each of our local education providers has options available to help you out.

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More information about IT careers and salaries can be found at the U. S. Bureau of Labor Statistics [Occupation Outlook Handbook](#).

Networking Opportunities and Next Steps

The NEW Digital Alliance provides resources you may wish to explore to learn more about IT Careers. Our [Explore IT Digital Careers](#) page offers several videos of area professionals describing their jobs and what they enjoy about them. On the [IT Professionals](#) page you will find links to networking organizations you can connect with to talk to professionals in the field. There are also numerous [events](#) which you can attend in Northeast Wisconsin to learn more about the field. Our [job board](#) connects you with our member organizations who are looking for digitally skilled workers. And our [Resources](#) page provides links to more information about careers, job boards, free tools to learn how to code, and much more.

In order to enroll in an educational program, we encourage you to reach out to our partner organizations using the program links provided above.

Business Analyst

Job Examples: Business Analyst, Functional Analyst, Business Systems Analyst, Enterprise Analyst, Project Coordinator

<p>Works directly with many different people in the organization to understand the company’s technologies and find out what the problems are and how they can be solved.</p> <p>Helps translate the requirements (in other words, what other employees want) into technical specifications that can be implemented by IT.</p> <p>Also helps customers understand technical possibilities and limitations of different ways to solve problems.</p>
<p>Skills include:</p> <ul style="list-style-type: none"> • Inquisitive • Detail-oriented • Strong communicator • Able to translate business ideas into technical speak • Not necessarily “technical”
<p>Salary: Typically starts around \$45,000 and can increase up to \$110,000.</p>
<p>Demand: Typically hired in larger companies.</p>

Business Analyst	Educational Pathway Options
Training Courses/Boot Camp	Business Analysis (New Horizons)
Pathway Certificate	Business Requirements Specialist (NWTC) Business Analyst Certificate (UWO) Information Systems Certificate (UWO) Certified Business Analysis Professional (CBAP®) (New Horizons)
Technical Diploma	
Apprenticeship	
Associate Degree	Business Analyst (NWTC) Business Analyst (FVTC)
Bachelor’s Degree	Business Administration with an emphasis in Business Analysis (UWGB) BBA Information Systems with Business Analysis Emphasis (UWO)

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	BBA Information Systems with Enterprise Systems (ERP) Technology Management Emphasis (UWO) Management Information Systems (Lakeland)
Minor	Information Systems Minor (UWO)
Transfer Agreement	
Master's Degree	

Digital Marketing	Educational Pathway Options
Training Courses/Boot Camp	
Pathway Certificate	Digital Marketing Certificate (UWO)
Technical Diploma	
Apprenticeship	
Associate Degree	
Bachelor's Degree	BBA/BA/BS Interactive Web Management (UWO) BBA Marketing with Digital Marketing Emphasis (UWO)
Minor	
Transfer Agreement	
Master's Degree	

Project Manager

In charge of working with all the people involved with a project and communicating to those who will be impacted by the changes.

Responsible for making sure projects are delivered on time, in scope (the employees get what they need), and within budget.

This is a job that requires good people skills.

Skills include:

- Good at coordinating and managing groups of people
- Enjoys planning
- Very organized
- Works well with a variety of people
- Likes to get things done

Salary:

Typically starts around \$45,000 and can increase up to \$136,000.

Demand:

Most IT employees will manage a project at some point in their job. Larger companies often have a team of dedicated project managers.

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Project Manager	Educational Pathway Options
Training Courses/Boot Camp	Project Management (New Horizons) Information Technology Project Management class (Lakeland)
Pathway Certificate	Quality Improvement & Innovation (NWTC) Business Requirements Specialist (NWTC) Certified Associate in Project Management (CAPM) (New Horizons)
Technical Diploma	Project Management (NWTC)
Apprenticeship	
Associate Degree	Business Analyst (NWTC) Leadership Development (NWTC) Manufacturing Operations Management (NWTC)
Bachelor's Degree	BBA Information Systems with Enterprise Systems (ERP) Technology Management Emphasis (UWO) BBA Management with Project Management Concentration (UWO)
Minor	Information Systems Minor (UWO)
Transfer Agreement	
Master's Degree	MS IT Management (UWO) MBA (UWO)

Software Developer

Job Examples: Programmer, Web Developer, Software Engineer, Application Developer, Software Tester.

Works with a variety of languages and tools (like python, HTML, C#, or Java) to create software programs, websites, mobile apps, video games, or business systems.

May work alone to complete work assignment, but often works in teams.

Also works closely with the employees, also known as the customer, to ensure the software meets their needs.

Skills include:

- Logical thinker
- Creative problem solver
- Enjoys building things

Likes solving puzzles

Salary:

Typically starts around \$50,000 and can increase up to \$163,000.

Demand:

Every company (large and small) needs software created or updated - whether it's their website, core programs that run the company, or something that they sell for a profit.

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Educational Pathway Options	Software Developer	Web Developer
Training Courses/Boot Camp	Developer (New Horizons) Programming classes (Lakeland)	Web Developer (New Horizons)
Pathway Certificate	IT Development (FVTC) Computer Programming Certificate (Fall 2020) (UWO)	Web Programmer Certificate (NWTC) Mobile Application Development (FVTC) Web Design Certificate (NWTC) Web Design Certificate (Fall 2020) (UWO)
Technical Diploma		IT-Web Programmer (NWTC) Web Design Technician (NWTC) Web Design (FVTC)
Apprenticeship	Software Developer (DWD)	
Associate Degree	Software Developer (NWTC) Software Developer (FVTC)	Web Development (NWTC) Web Development & Design Specialist (FVTC)
Bachelor's Degree	BS Computer Science (UWO) BS Computer Science with Systems and Theory emphasis (UWO) BS Software Technology (UWO) BBA Information Systems with Web & Mobile Emphasis (UWO) BBA Information Systems with Computer Science Emphasis (UWO) BS Applied Computing (UWO) Computer Science major with Software Design emphasis (Lakeland)	BBA/BA/BS Interactive Web Management (UWO) BS Computer Science (UWO) BS Software Technology (UWO) BBA Information Systems with Web & Mobile Emphasis (UWO) BBA Information Systems with Computer Science Emphasis (UWO) BS Applied Computing (UWO) Computer Science major with Software Design emphasis (Lakeland)
Minor	Computer Science Minor (UWO) Computer Science Minor (Lakeland)	Web and Mobile Development Minor (pending fall 2020) (UWO)
Transfer Agreement	UWGB – Computer Science & UW O – Leadership Program (NWTC)	UWGB – Computer Science & UW O – Leadership Program (NWTC)
Master's Degree		

Data Analyst / Data Science

Job Examples: Database Developer, Database Administrator, Data Analyst.

Responsible for organizing a company's data in a way that can be easily accessed and searched, and for using it to help make better business decisions.

The data team often manages the databases, works with the cybersecurity team to ensure the data is protected from theft, and helps build queries so business users can run reports and analyze the data.

Skills include:

- Likes structure and organization
- Analytical thinker
- Inquisitive

VERY detailed

Salary:

Typically starts around \$60,000 and can increase up to \$150,000.

Demand:

As the amount of data companies collect increases, so is the demand for data analysts. More and more medium and larger companies are developing dedicated data analytics teams.

Data Analyst / Data Science	Educational Pathway Options
Training Courses/Boot Camp	Data Science (New Horizons)
Pathway Certificate	Data Analytics (UWGB) Data Analytics (grad) (UWO) Business Analytics (undergrad) (UWO)
Technical Diploma	
Apprenticeship	Data Analyst (DWD)
Associate Degree	Data Specialist (Awaiting State Approval July 2020) (FVTC)
Bachelor's Degree	BS in Mathematics and Statistics – Actuarial Science Minor (UWGB) BBA Information Systems (UWO) BBA Marketing with Analysis and Insights Emphasis (UWO) BS Computer Science (UWO) Industrial Systems Analytics (Lakeland)
Minor	Analytics Minor (UWO)
Transfer Agreement	
Master's Degree	MS Data Science (UWGB & UWO Collaborative)

Network and Systems Administrator

Job Examples: [Network Administrator](#), [Network and Systems Administrator](#), [Network Support and Admin](#), [Network Support Technician](#), [Network Technician](#), [Infrastructure Administrator](#).

A network is a system of computers, phones, servers connected by physical or wireless connection so they can communicate with one another.

The network team is responsible for designing, testing, and evaluating the network which connects a company's computers to one another and to the internet.

They do everything from ensuring the network is secure from attack to making sure data flows between the systems in a timely manner.

Skills include:

- Likes to work with machines
- Thinks big picture
- Likes tough precise challenges

Enjoys playing (electronic) traffic cop

Salary:

Typically starts around \$50,000 and that can increase up to \$111,000.

Demand:

Every company (large and small) needs a network administrator to ensure that information can flow safely and securely across their systems and across the internet.

Network and Systems Administrator	Educational Pathway Options
Training Courses/Boot Camp	Networking + (New Horizons) Networking class (Lakeland)
Pathway Certificate	Networking Pathway Certificate (NWTC) IT Infrastructure (FVTC) Virtualization and Network Hardware Technologies Certificate (collaboration with FVTC) (UWO) Networking + (New Horizons)
Technical Diploma	IT-Virtualization System Administrator (NWTC) Microsoft System Administrator (NWTC) Cisco System Administrator (NWTC)
Apprenticeship	
Associate Degree	IT Systems Administrator (NWTC) Network Specialist (FVTC)

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	Network Systems Administration (FVTC)
Bachelor's Degree	BS in Computer Science – Software Engineering (UWGB) BBA Information Systems (UWO)
Minor	
Transfer Agreement	UWGB & UWO – Leadership Programs (NWTC)
Master's Degree	

Cloud Technologies	Educational Pathway Options
Training Courses/Boot Camp	Cloud Technologies (New Horizons)
Pathway Certificate	Cloud+ Certification (New Horizons)
Technical Diploma	
Apprenticeship	
Associate Degree	
Bachelor's Degree	BBA Information Systems (UWO)
Minor	
Transfer Agreement	
Master's Degree	

Cyber Security

Job Examples: [Information Security Analyst](#), [Forensic Computer Analyst](#), [Cyber Security Senior Professional](#), [Chief Information Security Officer](#).

<p>Ensures that a company’s networks, systems, and data are secure from break-in and theft.</p> <p>Research, plan, implement, and upgrade security measures to ensure the protection of the computers and data.</p> <p>This may include training of employees on cybersecurity procedures like good password protocols and responding to security breaches – often working with local and federal law enforcement agencies if an attack occurs.</p>
<p>Skills include:</p> <ul style="list-style-type: none"> • Into detection and monitoring • Likes forensic work (think CSI) • Likes to “outsmart” the bad guy and prevent cybercrime <p>Likes learning about hacking</p>
<p>Salary:</p> <p>Typically starts around \$55,000 and that can increase up to \$140,000.</p>
<p>Demand:</p> <p>With the growing number of attacks and impact to companies, the need for cyber security analysts is increasing faster than new cyber security analysts can be educated.</p>

Cyber Security	Educational Pathway Options
Training Courses/Boot Camp	Cybersecurity Training (New Horizons) Cybersecurity I & Cybersecurity II class (Lakeland)
Pathway Certificate	Cybersecurity Certificate (pending – fall 2020) (UWO) Security+ Certification (New Horizons) Advanced Security Practitioner (CASP+) (New Horizons)
Technical Diploma	
Apprenticeship	
Associate Degree	IT-Security Technologist (NWTC) Information Systems Security Specialist (FVTC)
Bachelor’s Degree	BS in Computer Science – Information Assurance and Security (UWGB) BBA Information Systems with Cybersecurity Emphasis (pending – fall 2020) (UWO) BS Computer Science (UWO)

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	BS Computer Science with Systems and Theory emphasis (UWO)
Minor	
Transfer Agreement	
Master's Degree	MS Cybersecurity – UW Collaborative (UWGB & UWO)

Software Tester / Quality Assurance

Job Examples: Software Tester, QA Specialist

Works with employees and customers to understand what the system is supposed to do, and then devise tests to check if the system actually does it.

Skills include:

- Enjoys breaking things so they can be fixed
- Good problem solver
- Creative thinker

Puts themselves in the shoes of those who will use the technology

Salary:

Typically starts around \$55,000 and that can increase up to \$93,000.

Demand:

Anywhere that new software or technologies are implemented, testing needs to be done. Sometimes this is one of the responsibilities of the other IT roles, and sometimes a company has a dedicated testing team.

Education: See [Software Developer](#)

Software Tester / Quality Assurance	Educational Pathway Options
Training Courses/Boot Camp	
Pathway Certificate	
Technical Diploma	
Apprenticeship	
Associate Degree	
Bachelor's Degree	
Minor	
Transfer Agreement	
Master's Degree	

User/Computer Support

Job Examples: [Entry-Level Help Desk](#), [Computer Specialist](#), [Help Desk Analyst](#), [Help Desk Technician](#), [IT Support Specialist](#).

Helps employees resolve issues and challenges with their software or equipment when things don't work as planned. Often gains a wide variety of knowledge about the company's systems and business processes.

Skills include:

- Enjoys solving problems and working with people
- Likes to teach and help others

Thinks about challenges employees may face, and creates help documents

Salary:

Typically starts around \$36,000 and increases up to \$61,500.

Demand:

This may be part of another role's responsibilities, or be a dedicated team depending on the company.

User/Computer Support	Educational Pathway Options
Training Courses/Boot Camp	CompTIA IT Fundamentals+ (New Horizons)
Pathway Certificate	Computer Support (NWTC) CompTIA A+ Certification (New Horizons)
Technical Diploma	Computer Support Technician (NWTC) Helpdesk Support Specialist (FVTC)
Apprenticeship	IT Service Desk Technician (DWD)
Associate Degree	Computer Support Specialist (NWTC) Computer Support Specialist (FVTC)
Bachelor's Degree	BBA Information Systems (UWO)
Minor	Information Systems Minor (UWO)
Transfer Agreement	UWGB and UWO in Leadership Programs (NWTC)
Master's Degree	

IT Management

Job Examples: IT Manager, Chief Information Officer, Vice President of IT, Director of IT.

Responsible for coordinating, planning, and leading computer-related activities in an organization. They help determine the IT needs of an organization and are responsible for implementing computer systems to fulfill the organization's information systems requirements. They manage teams and budgets and set strategy for the IT department.

Skills include:

- Collaborative
- Leads others
- Likes to make decisions
- Enjoys solving problems

This role typically requires significant experience beyond a college degree.

Salary:

Typically starts around \$60,000 and increases up to \$180,000+.

Demand:

Every company (large and small) needs a leadership team. As the number of leadership positions is smaller than that of line workers, there will generally be fewer opportunities at this level.

IT Management	Educational Pathway Options
Training Courses/Boot Camp	Productivity Tools Collection (New Horizons)
Pathway Certificate	IT Manager Certificate (New Horizons)
Technical Diploma	
Apprenticeship	
Associate Degree	
Bachelor's Degree	BBA Information Systems (UWO)
Minor	
Transfer Agreement	
Master's Degree	MS IT Management (UWO) MBA (UWO)