

Networking/Cybersecurity Program of Study

Information Technology



A program of study serves as a guide, along with other career planning materials, as learners continue along a career path. Courses listed are only recommended coursework and should be individualized to meet each learner's educational and career goals.

Ultimately, a program of study should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements. Additional career exploration opportunities should also be offered at upper elementary grade levels to promote higher engagement and learner focus in subsequent years. Student Success Plans outlining career goals should be utilized through the advisement process.

Requires on-the-job training or industry-recognized credential

- Computer Operator
- Computer Repair Technician

Requires an associate degree

- Computer User Support Specialist
- Web Developer
- Computer Network Specialist

Requires a bachelor's degree

- Computer Systems Analyst
- Computer Programmer
- Cryptanalyst
- Cryptographer
- Hardware Engineer
- Information Security Analyst
- Network Systems Administrator
- Software Developer
- Security Architect
- Security Engineer
- Security Administrator

Requires an advanced degree

- Database Administrator
- Computer Science Teacher, Postsecondary
- Computer Research Scientist

Sample occupations



Course examples

Career Exploration (22151A001)

Career Exploration courses help students identify and evaluate personal goals, priorities, aptitudes, and interests with the goal of helping them make informed decisions about their careers. These courses expose students to various sources of information on career and training options and may also assist them in developing job search and employability skills.

Computer Networking I (10102A001)

Computer Networking I is a skill-level course designed to provide students with the skills needed to set up, configure, test, troubleshoot, maintain, and administer a data network using various network operating systems, such as Novell, Windows, and Linux. Instruction will include network planning decisions, such as choosing an appropriate network configuration, determining the performance level requirements considering the differences among operating systems, and recommending network interface cards and cabling. Students will also learn how to set up and manage file systems and resources, and network topologies, protocols, and system utilities to efficiently run software applications a network. Students will learn to use basic operating system commands, install and configure networks, set up user accounts and rights, and establish user security and permissions.

Computer Science Principles (10102A002)

Computer Science Principles courses provide students the opportunity to use programming, computational thinking, and data analytics to create digital artifacts and documents representing design and analysis in certain areas, including the internet and algorithms, and the impact that these have on science, business, and society. Computer Science Principles courses teach students to use computational tools and techniques, including abstraction, modeling, and simulation, to collaborate in solving problems that connect computation to their lives.

Cybersecurity (10011A001)

Cybersecurity courses introduce students to the concepts of cybersecurity. These courses provide students with the knowledge and skills to assess cyber risks to computers, networks, and software programs. Students will learn how to create solutions to mitigate cybersecurity risks. These courses may also cover the legal environment and ethical computing behavior related to cybersecurity.

Exploring Computer Science (10012A001)

Exploring Computer Science courses present students with the conceptual underpinnings of computer science through an exploration of human computer interaction, web design, computer programming, data modeling, and robotics. While these courses include programming, the focus is on the computational practices associated with doing computer science, rather than just a narrow focus on coding, syntax, or tools. Exploring Computer Science courses teach students the computational practices of algorithm design, problem-solving, and programming within a context that is relevant to their lives.

Introduction to Computer Technology (10001A001)

Introduction to Computer Technology courses introduce students to computers, including peripheral and mobile devices; the functions and uses of computer technology; the language used in the industry; possible applications of various computer-based technologies; and occupations related to computer technology hardware and software industries. These courses typically explore legal and ethical issues associated with computer technology use, as well as how changes influence modern society. Students may also be required to perform some computer technology operations.

Networking Systems Workplace Experience (10148A001)

Networking Systems Workplace Experience courses provide students with work experience in fields related to networking systems. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace.

Full sequence

	Grade	English	Math	Science	Social Studies	Required Courses, Electives, and Learner Activities	Career and Technical Courses
Middle School	7	ELA 7	Math 7	Science 7	Social Studies 7		Career Exploration
	8	ELA 8	Math 8	Science 8	Social Studies 8		Introduction to Computer Technology
Secondary	9	ELA 9	Algebra I	NGSS-Aligned Science 9	U.S. History	All programs of study should meet local and state high school graduation requirements and college entrance requirements. Participation in a Career and Technical Student Organization is also important for developing appropriate skills and competencies.	Exploring Computer Science
	10	ELA 10	Geometry	NGSS-Aligned Science 10	World History or Economics		Computer Networking I*
	11	ELA 11	Algebra II	Biology* or AP Biology	U.S. Government* or AP Government		Computer Science Principles* or AP Computer Science
	12	Transitional English or English Composition*	TM STEM, College Algebra*, Calculus*†, or Statistics*†	Anatomy & Physiology* or Chemistry*	Psychology*		Cybersecurity or Networking Systems Workplace Experience
Postsecondary	13	English Composition† or Oral Communication†	College Algebra** or Calculus**† or Statistics**†	Science†	Social Science†	All programs of study should meet learner's career goals with regard to required degrees, licenses, certifications, or journey worker status. Participation in appropriate student organizations is also important for developing appropriate skills and competencies.	Continue required courses in learner's chosen area of specialization to complete the desired certification and/or credential.
	14						
	15	Continue courses in learner's chosen area of specialization.					
	16	Continue courses in learner's chosen area of specialization.					

* AP/Dual Credit Opportunities

** May have already been met with an appropriate dual credit agreement

† Postsecondary course affiliated with Illinois Articulation Initiative Code

Additional opportunities

Early career opportunities learning about work

- Career Planning
- Career Fairs
- Industry Speakers
- Informational Interviews
- Career Presentations
- Worksite Tours
- Cooperative Education
- Job Shadow
- Simulated Skill Development
- Other

Credit Transfer and WBL opportunities

- Dual Enrollment/Dual Credit
- Advanced Placement
- Articulated Credit
- Career-Related Service Learning
- School-Based Enterprise
- Student-Led Enterprise
- Project-Based Learning
- Internships
- Apprenticeships (i.e., youth, pre-registered, non-registered, research)
- Other

Industry-recognized credentials

- Certification
- License
- Other

Student organizations

- Business Professionals of America
- Educators Rising
- Future Business Leaders of America
- Family, Career and Community Leaders of America
- National FFA Organization (Illinois Association FFA)
- Future Health Professionals
- Illinois Distributive Education Clubs of America
- Science Olympiad
- Skills USA Illinois
- Technology Student Association
- Other
- Team-Based Challenge