

CYBERSECURITY AND NETWORKING

Associate in Applied Science Degree | Career Program
Department of Engineering, Physics and Technology

Program Description

Cybersecurity presents a unique challenge in this era, stimulated by the multifaceted technological boom expressed in accelerated globalization, digital transformation, the cloud, mobile access apps and the Internet of Things (IoT)—where more and more everyday devices are connected to the internet.

As the use of new Internet-based technologies increase so does the risk of theft and misuse of sensitive information. This demands the awareness of cyber-criminality and the need for cyber hygiene in corporations, small businesses, and government.

Therefore, the Department of Engineering, Physics and Technology of Bronx Community College offers an A.A.S. in Cybersecurity and Networking. This A.A.S. program will graduate students who will be employable as entry-level networking technicians with introductory skills in cybersecurity. Moreover, the graduates will have the opportunity to earn industry certifications during the course of the degree program, or earn college credit for those they may already hold. Graduates will also attain the academic foundation necessary to advance to a baccalaureate degree. The Cybersecurity and Networking A.A.S Degree articulates with the Bachelor of Technology in Computer Systems at New York City College of Technology.

Program Goals

The goals of the AAS in Cybersecurity and Networking are:

- To provide students with conceptual and practical aspects of cybersecurity.
- To deliver the essential techniques to identify the security issues within a given network and secure the network from the cyber threats.
- To provide an opportunity to obtain industry certifications (e.g., A+, Security+, etc.) en route to obtaining the A.A.S. Degree in Cybersecurity and Networking.
- To provide students with career counseling and exploration in cybersecurity and networking technology, as well as related fields.
- To provide guidance and transfer opportunities in cybersecurity, as well as related fields, to four-year colleges.

Learning Outcomes

Upon successful completion of the Cybersecurity and Networking program requirements, students will be able to:

1. Plan, install, and configure computer hardware, firewalls, networking software and operating system software.
2. Read and interpret technical literature and convey technical information through verbal and written communication.
3. Analyze and solve real-world security issues while understanding the legal and ethical concerns.
4. Demonstrate security awareness in order to react to new developments in their field.
5. Perform user accounts management and implement security groups.
6. Utilize critical thinking skills to collect, analyze and interpret technical data collected through investigation and experimentation.

CYBERSECURITY AND NETWORKING CURRICULUM (PATHWAYS)

60 Credits required for AAS Degree

Curriculum Coordinator: Dr. Syed Rashid Zaidi

Required Core

- A. English Composition (6 credits)
- B. Mathematical and Quantitative Reasoning (3-4 Credits)
 - Required: MTH 30 Pre-Calculus Mathematics *OR* MTH 23^{1,2} Probability and Statistics
- C. Life and Physical Sciences (4 Credits)
 - Required: PHY 11² College Physics I

Flexible Core

- D. Individual and Society
 - Required: COMM 11² Fundamentals of Interpersonal Communications (3 Credits)
 - E. Scientific World
 - Required: PHY 12² College Physics II (4 Credits)
- A-E: Select one course from flex core areas A, B, C, D, or E
- Strongly Recommended: HIS 10 History of the Modern World *OR* HIS 11 Introduction to the Modern World (3 Credits)

SUBTOTAL 23-24

Major Requirements

- ART 10 Art Survey *OR*
MUS 10 Music Survey (1 Credit)
- FYS 11 First Year Seminar³ (1 Credit)
- PEA Physical Education Activity Course (1 Credit)
- MTH 30/23, PHY 11, COMM 11, PHY 12 (must be completed in the core areas²)

Networking/Cybersecurity Requirements

- CSN 100 Introduction to Cybersecurity (3 Credits)
- CSN 105 Computer Hardware and Software (3 Credits)
- CSN 110 Network Fundamentals (3 Credits)
- CSN 120 Network Switching and Routing (3 Credits)
- CSN 130 Network Operating Systems I (3 Credits)
- CSN 132 Network Operating Systems II (3 Credits)
- CSN 140 Network Scripting (4 Credits)
- CSN 150 Cybersecurity (4 Credits)
- CSN 160 Ethical Hacking and Network Penetration Testing (3 Credits)

- CSN 170 Internet and Cloud Computing (3 Credits)
- CSN 190 Cybersecurity Project (1 Credits)

SUBTOTAL 36

Free Electives

- Free Elective¹ (0-1 Credit)

TOTAL 60

¹ Students planning to transfer to a four-year degree program are encouraged to take MTH 30 Precalculus. Students who take MTH 23 must also complete a one credit elective course.

² Students must select the following courses, MTH 30/23, PHY 11, COMM 11, PHY 12, in the core areas noted as they are required for the major and will allow a student to graduate without exceeding 60 credits.

³ Students must take FYS 11 prior to earning 24 equated or degree credits. Students who have earned 24 or more equated or degree credits are permitted to use the one credit as a free elective. It is highly recommended that students take FYS 11 in their first or second semester.

