

# INFORMATION TECHNOLOGY

## Associate of Applied Science Degree

Science, Technology, Engineering & Math Pathway  
CCD.edu/IT

- Information Technology
- Computer Information Systems
- Cybersecurity

### Information Technology

The Associate of Applied Science in information technology (IT) prepares you to obtain entry-level positions in the IT industry. Upon completing this degree, you will qualify for the CompTIA A+ certification exams and gain experience in networking, computer security and database management. You will enhance your communication skills and obtain exposure to the business environment. You can additionally choose to specialize in a specific IT category by using the nine elective credits to focus on a particular area. Please speak to a faculty member or your academic advisor about this option.

### PROGRAM ADMISSION REQUIREMENTS

Meet minimum assessment scores or prerequisites required for general education courses in the program.

### Credit Transfer Limitations

To ensure success in the program, courses transferred into the computer information systems or the information technology degree/certificate options or previously taken at CCD should have the following time limits:

Application courses – 5 years  
Programming courses – 5 years  
Networking courses – 5 years  
Certification courses – 3 years  
General education courses – 10 years  
Business courses – 10 years

If you are transferring to CCD with current industry experience, the time limit for applicable courses may be waived upon approval of the program chair.

### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
BUS 1015	Introduction to Business	3
CIS 1018	Introduction to PC Applications	3
BUS 2017	Business Communication and Report Writing	3
MAT 1320	Finite Mathematics: GT-MA1	4
ENG 1031	Technical Writing I: GT-CO1	3
<b>Subtotal</b>		<b>16</b>
<b>Second Semester</b>		
COM 1150	Public Speaking	3
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
CIS 2040	Database Design and Development	3
MAR 1060	Customer Service	3
<b>Subtotal</b>		<b>15</b>
<b>Third Semester</b>		
CIS 1024	Introduction to Operating Systems	3
CIS 2067	Management of Information Systems	3
PSY 1001	General Psychology I: GT-SS3	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
Choose One Course		4
CNG 1020	A+ Certification Preparation	
CNG 1022	Computer Technician II: A+	
<b>Subtotal</b>		<b>16-17</b>

### Fourth Semester

CSC 1019	Introduction to Programming	3
CNG 1031	Principles of Information Assurance	3
CNG 1032	Network Security Fundamentals	3
ACC 1021	Accounting Principles I	4
<b>Subtotal</b>		<b>13</b>
<b>Total Credits</b>		<b>60-61</b>

### COMPUTER INFORMATION SYSTEMS

This Associate of Applied Science degree prepares you to obtain entry-level employment in the computer information systems (CIS) industry. The program prepares you both to be current in industry computer information standards and also to have the business foundation necessary to compete in the workforce.

This degree transfers to Metropolitan State University of Denver's Bachelor of Science degree in computer information systems.

### CREDIT TRANSFER LIMITATIONS

To ensure success in the program, courses transferred into the computer information systems or the information technology degree/certificate options or previously taken at CCD should have the following time limits:

- Application courses – 5 years
- Programming courses – 5 years
- Networking courses – 5 years
- Certification courses – 3 years
- General education courses – 10 years
- Business courses – 10 years

If you have current industry experience and plan to transfer, the time limit for applicable courses may be waived upon approval of the program chair.

### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
ENG 1021	English Composition I: GT-CO1	3
ECO 2001	Principles of Macroeconomics: GT-SS1 <sup>1</sup>	3
CIS 1018	Introduction to PC Applications	3
BUS 1015	Introduction to Business	3
Choose One Mathematics Course		4
MAT 1340	College Algebra: GT-MA1	
MAT 1320	Finite Mathematics: GT-MA1	
<b>Subtotal</b>		<b>16</b>
<b>Second Semester</b>		
ENG 1022	English Composition II: GT-CO2	3
ECO 2002	Principles of Microeconomics: GT-SS1	3
ACC 1021	Accounting Principles I	4
CIS 2067	Management of Information Systems	3
Choose One Art Course		3
ART 1111	Art History Ancient to Medieval: GT-AH1	
ART 1112	Art History Renaissance to Modern: GT-AH1	
<b>Subtotal</b>		<b>16</b>
<b>Third Semester</b>		
MAR 2016	Principles of Marketing	3
COM 1150	Public Speaking	3
CNG 1024	Networking I: Network +	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
Choose One Course		4
MAT 1400	Survey of Calculus: GT-MA1	
ACC 1022	Accounting Principles II	
<b>Subtotal</b>		<b>16-17</b>
<b>Fourth Semester</b>		
CNG 1025	Networking II: Network +	3
CSC 1019	Introduction to Programming	3

BUS 2016	Legal Environment of Business	3
BUS 2017	Business Communication and Report Writing	3
<b>Subtotal</b>		<b>12</b>
<b>Total Credits</b>		<b>60-61</b>

MUS 1025	History of Jazz: GT-AH1	
<b>Subtotal</b>		<b>13</b>
<b>Total Credits</b>		<b>61</b>

**CYBERSECURITY**

The Cybersecurity AAS degree program at Community College of Denver is designed to prepare students for a rewarding career in Cybersecurity. Network and security professionals are in high demand to protect every industry from the threat of cyber criminals who are actively conducting attacks on networks, applications, hardware, and software utilizing both electronic and physical means. The Community College of Denver provides a robust AAS degree to help realize students goals in becoming a Cybersecurity professional.

**COURSE MAP**

Course	Title	Credits
<b>First Semester</b>		
ENG 1021	English Composition I: GT-CO1	3
CRJ 1010	Introduction to Criminal Justice: GT-SS3	3
CIS 1018	Introduction to PC Applications	3
COM 1150	Public Speaking	3
Choose One Mathematics Course		4
MAT 1340	College Algebra: GT-MA1	
MAT 1320	Finite Mathematics: GT-MA1	
<b>Subtotal</b>		<b>16</b>
<b>Second Semester</b>		
ENG 1022	English Composition II: GT-CO2	3
BIO 1005	Science of Biology with Lab: GT-SC1	4
PSM 2004	Terrorism, Intelligence, and Justice	3
CIS 2067	Management of Information Systems	3
Choose One History and Global Diversity Course (GT-HI1)		3
HIS 1310	Western Civilization: Antiquity-1650: GT-HI1	
HIS 1320	Western Civilization: 1650-Present: GT-HI1	
HIS 1110	The World: Antiquity-1500: GT-HI1	
HIS 1120	The World: 1500-Present: GT-HI1	
HIS 2610	History of Modern China: GT-HI1	
HIS 2200	History of Latin America: GT-HI1	
<b>Subtotal</b>		<b>16</b>
<b>Third Semester</b>		
CNG 1031	Principles of Information Assurance	3
CNG 1032	Network Security Fundamentals	3
CSC 1060	Computer Science I: (Language)	4
CRJ 1027	Crime Scene Investigation	3
Choose One Course		3
ANT 2115	Native Peoples of North America: GT-SS3	
ETH 2000	Introduction to Ethnic Studies: GT-SS3	
LIT 2005	Race, Ethnicity, and Culture in U.S. Literature: GT-AH2	
LIT 2059	Survey of African American Literature: GT-AH2	
MUS 1025	History of Jazz: GT-AH1	
<b>Subtotal</b>		<b>16</b>
<b>Fourth Semester</b>		
PSY 1001	General Psychology I: GT-SS3	3
PSY 1002	General Psychology II: GT-SS3	3
Choose One Geology or Astronomy course		4
GEY 1111	Physical Geology with Lab: GT-SC1	
GEY 1112	Historical Geology with Lab: GT-SC1	
AST 1110	Astronomy with Lab: Planetary Systems: GT-SC1	
AST 1120	Astronomy II with Lab: GT-SC1	
Choose One Multicultural Course		3
ANT 2115	Native Peoples of North America: GT-SS3	
COM 2300	Intercultural Communication: GT-SS3	
ETH 2000	Introduction to Ethnic Studies: GT-SS3	
LIT 2005	Race, Ethnicity, and Culture in U.S. Literature: GT-AH2	
LIT 2059	Survey of African American Literature: GT-AH2	

**Associate of Science**

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**COMPUTER SCIENCE TRANSFER MAJOR**

This program provides a foundation in algorithm development, programming techniques, data structures, and structured problem solving. This AS degree is designed to transfer to any Colorado public, bachelor's degree awarding institution that offers a degree in Computer Science.

**COURSE MAP**

Course	Title	Credits
<b>First Semester</b>		
MAT 2410	Calculus I: GT-MA1	5
ENG 1021	English Composition I: GT-CO1	3
Choose One Arts & Humanities Course (GTAH1~GT-AH4)		3
PHI 2018	Environmental Ethics: GT-AH3	
PHI 1013	Logic: GT-AH3	
ART 1111	Art History Ancient to Medieval: GT-AH1	
ART 1112	Art History Renaissance to Modern: GT-AH1	
PHI 1011	Intro to Philosophy: GT-AH3	
Choose One History Course (GT-HI1)		3
HIS 2015	20th Century World History: GT-HI1	
HIS 1310	Western Civilization: Antiquity-1650: GT-HI1	
HIS 1320	Western Civilization: 1650-Present: GT-HI1	
HIS 1110	The World: Antiquity-1500: GT-HI1	
HIS 1120	The World: 1500-Present: GT-HI1	
<b>Subtotal</b>		<b>14</b>
<b>Second Semester</b>		
ENG 1022	English Composition II: GT-CO2	3
CSC 1060	Computer Science I: (Language)	4
MAT 2420	Calculus II: GT-MA1	5
Choose One Social & Behavioral Science Course (GT-SS1~GT-SS4)		3
ECO 2001	Principles of Macroeconomics: GT-SS1	
ECO 2002	Principles of Microeconomics: GT-SS1	
GEO 1005	World Regional Geography: GT-SS2	
GEO 1006	Human Geography: GT-SS2	
PSC 2020	Intro to Political Science: GT-SS1	
PSC 2005	International Relations: GT-SS1	
<b>Subtotal</b>		<b>15</b>
<b>Third Semester</b>		
CSC 1061	Computer Science II: (Language)	4
Choose One Natural Science Course (GT-SC1~GTSC2)		5
PHY 2111	Physics Calculus Based I with Lab: GT-SC1	
BIO 1111	General College Biology I with Lab: GT-SC1	
CHE 1111	General College Chemistry I with Lab: GT-SC1	
Choose One Course (Depending on Transfer Institution)		4
CSC 1065	Discrete Structures	
MAT 2430	Calculus III: GT-MA1	
Choose One Arts & Humanities Course (GT-AH1~GT-AH4)		3
PHI 2018	Environmental Ethics: GT-AH3	
PHI 1013	Logic: GT-AH3	
ART 1111	Art History Ancient to Medieval: GT-AH1	
ART 1112	Art History Renaissance to Modern: GT-AH1	
PHI 1011	Intro to Philosophy: GT-AH3	
<b>Subtotal</b>		<b>16</b>
<b>Fourth Semester</b>		
CSC 2025	Computer Architecture/Assembly Language Programming	4
Please Choose One Course (Depending on Transfer Institution)		3-5

CHE 1111	General College Chemistry I with Lab: GT-SC1	
CSC 2034	C++ Programming	
MAT 2540	Linear Algebra	
Choose One Natural Science Course (GT-SC1~GT-SC2)		5
PHY 2112	Physics Calculus-Based II with Lab: GT-SC1	
BIO 1112	Gen College Biology II with Lab: GT-SC1	
CHE 1112	General College Chemistry II with Lab: GT-SC1	
Choose One Social & Behavioral Science Course (GT-SS1~GT-SS4)		3
ECO 2001	Principles of Macroeconomics: GT-SS1	
ECO 2002	Principles of Microeconomics: GT-SS1	
GEO 1005	World Regional Geography: GT-SS2	
GEO 1006	Human Geography: GT-SS2	
PSC 2020	Intro to Political Science: GT-SS1	
PSC 2005	International Relations: GT-SS1	
<b>Subtotal</b>		<b>15-17</b>
<b>Total Credits</b>		<b>60-62</b>

### Certificates

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Community College of Denver currently offers five certificates in information technology.

- Cybersecurity
- Computer Technology
- Computer Service & Support
- Data Analytics
- Healthcare
- Network Security

### CYBERSECURITY

Upon completing this certificate, you will be prepared for the Network+ and Security+ certification exams. In this program, you will obtain the skills necessary to work in an entry-level position in information security and computer networking. Emphasis is placed on networking security skills and the interplay of ethics and law within the Information Technology (IT) field.

#### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
PHI 2005	Business Ethics: GT-AH3	3
PSM 2004	Terrorism, Intelligence, and Justice	3
<b>Subtotal</b>		<b>9</b>
<b>Second Semester</b>		
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
CRJ 1010	Introduction to Criminal Justice: GT-SS3	3
<b>Subtotal</b>		<b>9</b>
<b>Third Semester</b>		
CNG 1031	Principles of Information Assurance	3
CNG 1032	Network Security Fundamentals	3
<b>Subtotal</b>		<b>6</b>
<b>Fourth Semester</b>		
CNG 2056	Vulnerability Assessment I	3
CNG 2057	Network Defense and Counter Measures	3
<b>Subtotal</b>		<b>6</b>
<b>Total Credits</b>		<b>30</b>

### COMPUTER TECHNOLOGY

This certificate prepares you for employment as a computer technician. Upon completing this certificate, you will be prepared to take the CompTIA A+ certification examinations.

#### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
Choose One Course		4
CNG 1020	A+ Certification Preparation	
CNG 1022	Computer Technician II: A+	
<b>Subtotal</b>		<b>10-11</b>
<b>Second Semester</b>		
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
<b>Subtotal</b>		<b>6</b>
<b>Total Credits</b>		<b>16-17</b>

### COMPUTER SERVICE & SUPPORT

This certificate prepares you to obtain entry-level positions in the IT industry. Upon completing this degree, you will qualify for the CompTIA A+ certification exams and gain experience in networking, computer security and database management. Additionally, you can choose to specialize in a specific IT category by using the nine elective credits to focus on a particular area. Please speak to a faculty member or your academic advisor about this option.

#### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
<b>Subtotal</b>		<b>9</b>
<b>Second Semester</b>		
CIS 2040	Database Design and Development	3
CIS 2067	Management of Information Systems	3
<b>Subtotal</b>		<b>6</b>
<b>Third Semester</b>		
CIS 1024	Introduction to Operating Systems	3
CNG 2011	Windows Configuration: (OS)	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
Choose One Course		4
CNG 1020	A+ Certification Preparation	
CNG 1022	Computer Technician II: A+	
<b>Subtotal</b>		<b>13-14</b>
<b>Total Credits</b>		<b>28-29</b>

### DATA ANALYTICS

This certificate opens the door for you to have an opportunity to be a part of work force in the area of data analytics. Established business managers and supervisors can use this certificate to expand their knowledge base of where data comes from, how it is organized and how they can use it. There are many advantages for all students, not just CIS or business students, in completing this certificate.

#### COURSE MAP

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
MAT 1260	Intro to Statistics: GT-MA1	3
<b>Subtotal</b>		<b>6</b>
<b>Second Semester</b>		
CIS 1055	PC Spreadsheet Concepts: Excel	3
CIS 2040	Database Design and Development	3

CSC 1019	Introduction to Programming	3
<b>Subtotal</b>		<b>9</b>
<b>Third Semester</b>		
CIS 1059	Microsoft Office Specialist Certification Prep: Excel	1
Choose One Course		3
CIS 2067	Management of Information Systems	
CSC 2017	Advanced Python Programming	
<b>Subtotal</b>		<b>4</b>
<b>Total Credits</b>		<b>19</b>

**Healthcare**

This program prepares you as help desk support in an entry-level healthcare environment. Upon completing this certificate, you will be prepared for the CompTIA A+ certification examinations and the CompTIA Network+ certification examinations and the Certified Healthcare Technology Specialist (CHTS) certification.

**COURSE MAP**

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
HPR 1039	Medical Terminology	2
MAP 1010	Medical Office Administration	4
<b>Subtotal</b>		<b>9</b>
<b>Second Semester</b>		
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
CNG 2089	Capstone	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
Choose One Course		4
CNG 1020	A+ Certification Preparation	
CNG 1022	Computer Technician II: A+	
<b>Subtotal</b>		<b>16-17</b>
<b>Total Credits</b>		<b>25-26</b>

**Network Security**

This program prepares you to be entry-level network security specialists. You will be trained in state-of-the-art security practices that will provide you with the skills necessary to maintain a network and protect the network from internal and external security threats. Upon completing this certificate, you will be prepared for the CompTIA Network+ and the CompTIA Security+ certification examinations.

**PROGRAM ADMISSION REQUIREMENTS**

Meet minimum assessment scores or prerequisites required for general education courses in the program.

**COURSE MAP**

Course	Title	Credits
<b>First Semester</b>		
CIS 1018	Introduction to PC Applications	3
CNG 1024	Networking I: Network +	3
CNG 1025	Networking II: Network +	3
Choose One Course		3-4
CNG 1016	Microcomputer Hardware	
CNG 1021	Computer Technician I: A+	
<b>Subtotal</b>		<b>12-13</b>
<b>Second Semester</b>		
CNG 1031	Principles of Information Assurance	3
CNG 1032	Network Security Fundamentals	3
CNG 2009	MS Server Active Directory Configuration	4
CNG 2011	Windows Configuration: (OS)	3
<b>Subtotal</b>		<b>13</b>
<b>Total Credits</b>		<b>25-26</b>