

**Syracuse City School District
Career and Technical Education Program
Course Syllabus
CFF 100: Computer Forensics 100**



Program Overview

Computer Forensics is the application of investigation and analysis techniques to gather and preserve evidence from computing devices in a way that is suitable for presentation in a court of law. The program is designed to help students on a pathway to careers in local and state police and law enforcement, government agencies, and private corporations. Students who successfully complete the program will earn up to nine college credits and obtain CompTIA A+ Certification, a fundamental accreditation for work in many IT fields.

Course Description

This course will introduce students to the fundamentals of computers and computer systems. Through hands-on experience, students will learn the basics of computers, hardware, peripherals, and networking. This course will give students the foundational knowledge and skills for the Computer Forensics sequence.

Pre-Requisites

N/A

Course Objectives

1. Students will understand the historical and societal context of computer forensics.
2. Students will understand computer operations and how it relates to computer forensics.
3. Students will be able to assemble and troubleshoot computers.
4. Students will understand the relation between the physical and virtual worlds.

Integrated Academics

- **Concurrent Enrollment College Credit:** Upon successful completion of Computer Forensics 100, students who earn a grade of B or higher will earn 3 college credits for CRJ 107 Computer Hardware and Peripherals from Utica College.

Equipment and Supplies

- **School will provide:** All necessary lab and classroom equipment.
- **Student will provide:** N/A

Textbook

TBD

Grading

10%	Class Attendance and Participation
10%	Oral Presentation
25%	Assignments
25%	Mid-Term Exam
30%	Final Exam

All work is due at the time and day specified when the assignment is given. Submission details for work to be graded will be given at the time the work is assigned.

Quizzes will be given throughout the semester. The lowest quiz score (one score only) will be dropped when calculating the final course grade.

Additional Course Policies

Students are required to follow all safety procedures.

Course Calendar

Quarter	Units of Study
1	<ul style="list-style-type: none">• Introduction to Computer Components• Lab Safety and Tools• Computer Memory• Storage Devices• Computer Assembly
2	<ul style="list-style-type: none">• System Configuration• Windows Setup• Windows Operating System• Internet of Things (IoT)• Network Connections
3	<ul style="list-style-type: none">• LAN and WAN• IP Addresses and Network Protocols• Network Media and Cables• Network Security• Computer Security: Threats and Prevention
4	<ul style="list-style-type: none">• Computer Security: Virus Removal• Printers and Scanners• Communication Skills• Review and Final Exam

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CFF 100: Computer Forensics 100



Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Weeks 1-2 Unit 1 Introduction to Computer Components	<ul style="list-style-type: none"> What are the many types of computer hardware involved in a computer? What are motherboards, cases, and power supplies? What is a central processing unit? 	<ul style="list-style-type: none"> Locate the North Bridge and the South Bridge. Explain which motherboards and processors are compatible. Match different form factors together to produce a complete computer system. 	<ul style="list-style-type: none"> Quiz: Computer Components Processor Lab Performance Assessment: Identification of Computer Components 	Career Ready Practices CRP 2,4,7,11,12	ELA RI.9-10.1-4,6,7 W.9-10.1-6,8,9,10
				Cluster Standards IT 2,5,11	Literacy RST.9-10.2,3,4 WHST.9-10.2,4
				Pathway Standards IT-SUP 1,9,10	Math
				Industry Standards	Science
Weeks 3-4 Unit 2 Lab Safety and Tools	<ul style="list-style-type: none"> What are the proper tools needed for working on computer systems? What are the proper safety procedures when working on electronics? 	<ul style="list-style-type: none"> Demonstrate how to properly use different tools that relate to computers. Demonstrate how to prevent electrostatic discharge. 	<ul style="list-style-type: none"> Quiz: Safety and Tools Performance Assessment: Tool Use for Assembling and Disassembling a Computer 	Career Ready Practices CRP 2,4,6,7,11	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,8
				Pathway Standards IT-SUP 3,8	Math
				Industry Standards	Science
Weeks 5-6 Unit 3 Computer Memory	<ul style="list-style-type: none"> What is the function of Random Access Memory (RAM)? What type of RAM should be purchased for a computer? 	<ul style="list-style-type: none"> Understand RAM and how it helps a computer function. Distinguish between volatile and non-volatile memory. Distinguish between the different types of RAM and how they relate to desktops and laptops. 	<ul style="list-style-type: none"> Quiz: RAM 	Career Ready Practices CRP 1,2,3,5,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1,3	Math
				Industry Standards	Science

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Weeks 7-8 Unit 4 Storage Devices	<ul style="list-style-type: none"> What is the function of different storage devices? What are the differences between hard drives, floppy drives, and removable devices? 	<ul style="list-style-type: none"> Explain the advantages and disadvantages of different storage devices and different storage sizes. Explain the difference between a Hard Disk Drive and a Solid State Drive. 	<ul style="list-style-type: none"> Quiz: Computer Memory Research Paper: Difference Between RAM, ROM, and Hard Drive 	Career Ready Practices CRP 2,4,8,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 1,3,11	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 3,10	Math
				Industry Standards	Science
Weeks 9-10 Unit 5 Computer Assembly	<ul style="list-style-type: none"> How is a computer safely assembled and disassembled? How do all the computer components tie together? 	<ul style="list-style-type: none"> Demonstrate how to successfully assemble and disassemble a computer. Demonstrate how to make proper connections between computer components. 	<ul style="list-style-type: none"> Quiz: Computer Assembly Worksheets Performance Assessment: Computer Assembly 	Career Ready Practices CRP 2,4,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 6,11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,9
				Pathway Standards IT-SUP 2,3	Math
				Industry Standards	Science
Weeks 11-12 Unit 6 System Configuration	<ul style="list-style-type: none"> How is a system configured? What is the BIOS? How are PC cards, USB devices, and other computer peripherals configured? 	<ul style="list-style-type: none"> Demonstrate how to boot a computer into the BIOS. Demonstrate how to create a bootable USB drive. Demonstrate how to change the boot order and other BIOS functions. 	<ul style="list-style-type: none"> Quiz: System Configuration Worksheets Performance Assessment: System Configuration 	Career Ready Practices CRP 2,4,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 6,11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1,3	Math
				Industry Standards	Science
Weeks 13-14 Unit 7	<ul style="list-style-type: none"> What is an operating system (OS)? How is a Windows 	<ul style="list-style-type: none"> Distinguish between Windows, Linux, and Mac OS. Demonstrate how to install 	<ul style="list-style-type: none"> Quiz: Operating Systems Worksheets Performance 	Career Ready Practices CRP 2,4,11,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Windows Setup	Operating System installed on a computer?	Windows on a computer.	Assessment: Windows Setup		L.9-10.1-6
				Cluster Standards IT 6,11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1,3	Math
				Industry Standards	Science
Weeks 15-16 Unit 8 Windows Operating System	<ul style="list-style-type: none"> What are the basics of the Windows operating system? How are user accounts created? What is the function of the Windows Command Prompt? 	<ul style="list-style-type: none"> Demonstrate how to create administrator, standard, and guest accounts. Demonstrate how to use the command prompt to navigate through a computer system. 	<ul style="list-style-type: none"> Quiz: Windows OS Worksheets Performance Assessment: Windows OS 	Career Ready Practices CRP 2,4,11,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 6,10,11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1,3	Math
				Industry Standards	Science
Weeks 17-18 Unit 9 Internet of Things (IoT)	<ul style="list-style-type: none"> What is the internet? How does a computer connect to the internet? What is the internet of things? How do modems connect computers to the internet? 	<ul style="list-style-type: none"> Explain how the internet was created. Explain the evolution of the internet and the progress that has been made. Explain how current devices are interconnected. 	<ul style="list-style-type: none"> Quiz: Internet Worksheets Performance Assessment: Modems and Connecting to the Internet 	Career Ready Practices CRP 1,2,5,11,12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 4,6,9	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 5 IT-NET 1,2,3,4,5	Math
				Industry Standards	Science
Weeks 19-20 Unit 10 Network Connections	<ul style="list-style-type: none"> What are different types of network connectors? Why are Telecommunications Industry Association 	<ul style="list-style-type: none"> Demonstrate how to use different types of network connectors. Explain the differences between TIA and EIA standards. 	<ul style="list-style-type: none"> Quiz: TIA/EIA Standards Worksheets Performance Assessment: Network Connectors 	Career Ready Practices CRP 7,8,11	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 1,3,5,6	Literacy RST.9-10.2,3,4,9

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
	(TIA) and Electronic Industries Alliance (EIA) Standards important?				WHST.9-10.2,4,8
				Pathway Standards IT-SUP 3,4,7	Math
				Industry Standards	Science
Weeks 21-22 Unit 11 LAN and WAN	<ul style="list-style-type: none"> What is the difference between a Local Area Network (LAN) and a Wide Area Network (WAN)? 	<ul style="list-style-type: none"> Explain the difference between a LAN and WAN and where to implement them. 	<ul style="list-style-type: none"> Quiz: LAN and WAN Performance Assessment: LAN and WAN 	Career Ready Practices CRP 2,7,8,10 Cluster Standards IT 7 Pathway Standards IT-SUP 3,4,7 Industry Standards	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8 Math Science
Weeks 23-24 Unit 12 IP Addresses and Network Protocols	<ul style="list-style-type: none"> What is the Open Systems Interconnection (OSI) model? What is involved in setting up IP addresses? 	<ul style="list-style-type: none"> Demonstrate an understanding of the OSI model. Demonstrate the difference between IPV4 and IPV6. 	<ul style="list-style-type: none"> Quiz: IP Addresses and Network Protocols Quiz: OSI Model Performance Assessment: IP Addresses and Network Protocols 	Career Ready Practices CRP 2,7,8 Cluster Standards IT 1,2,5,10,11,12 Pathway Standards IT-SUP 5 IT-NET 1,2,3,4,5 Industry Standards	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8 Math Science
Weeks 25-26 Unit 13 Network Media and Cables	<ul style="list-style-type: none"> What are the different types of networking cables? How does a technician create an Ethernet cable? What are the different network media? 	<ul style="list-style-type: none"> Demonstrate the difference between cat5, cat5e, and cat6 cables. Demonstrate how to successfully create an Ethernet cable. Demonstrate how to test Ethernet cable connectivity. Demonstrate the different network media the internet runs 	<ul style="list-style-type: none"> Quiz: Networking Cables Worksheets Performance Assessment: Creating cat5e Cable 	Career Ready Practices CRP 2,4,7,8 Cluster Standards IT 2,11,12 Pathway Standards IT-SUP 4,5,6,9	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,8 Math

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		on.		IT-NET 1,2,3 Industry Standards	Science
Weeks 27-28 Unit 14 Network Security	<ul style="list-style-type: none"> What are the basics of network security? What is physical security? 	<ul style="list-style-type: none"> Demonstrate the difference between physical security and network security. 	<ul style="list-style-type: none"> Quiz: Network Security and Perimeter Protection Performance Assessment: Securing a Network 	Career Ready Practices CRP 2,8,11 Cluster Standards IT 2,6,11,12 Pathway Standards IT-SUP 1,3,9 IT-NET 1 Industry Standards	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8 Math Science
Weeks 29-30 Unit 15 Computer Security: Threats and Prevention	<ul style="list-style-type: none"> What are some common security threats? What are several important security prevention methods? 	<ul style="list-style-type: none"> Explain the different types of security threats that could affect a computer system. Demonstrate how to analyze and prevent security threats. 	<ul style="list-style-type: none"> Quiz: Computer Threats Performance Assessment: Incident Response 	Career Ready Practices CRP 2,7,11 Cluster Standards IT 4,6,11 Pathway Standards IT-SUP 2,3,5,9 IT-NET 4,5 Industry Standards	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8 Math Science
Weeks 31-32 Unit 16 Computer Security: Virus Removal	<ul style="list-style-type: none"> Why is security awareness important? What are the best practices for virus prevention and removal? 	<ul style="list-style-type: none"> Demonstrate safety and security when working with computers. Explain the function of a firewall. Demonstrate how to identify and remove viruses. 	<ul style="list-style-type: none"> Quiz: Computer Viruses Video/PowerPoint Presentation on Security Awareness Performance Assessment: Firewalls and Viruses 	Career Ready Practices CRP 2,7,11 Cluster Standards IT 2,3,6,11 Pathway Standards IT-SUP 2,3,5,9 IT-NET 4,5	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6 Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8 Math

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				Industry Standards	Science
Weeks 33-34 Unit 17 Printers and Scanners	<ul style="list-style-type: none"> What are the different types of printers? What are the proper ways to setup and maintain a printer? 	<ul style="list-style-type: none"> Demonstrate the difference between inkjet printers and laser printers. Demonstrate how to set up and connect a printer to a computer. 	<ul style="list-style-type: none"> Quiz: Printers and Scanners Performance Assessment: Printer Installation and Repair 	Career Ready Practices CRP 2,8,11	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 2,6,11,12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1,3,9 IT-NET 1,4	Math
				Industry Standards	Science
Weeks 35-36 Unit 18 Communication Skills	<ul style="list-style-type: none"> What are the proper ways to communicate effectively in the technical field? 	<ul style="list-style-type: none"> Demonstrate professional phone etiquette. Demonstrate how to communicate effectively with clients and employees. 	<ul style="list-style-type: none"> Quiz: Professional Communication Skills Performance Assessment: Communication Skills 	Career Ready Practices CRP 2,4,9,11	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 1	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 3,9 IT-NET 1	Math
				Industry Standards	Science
Weeks 37-40 Review and Final Exam	<ul style="list-style-type: none"> How can knowledge and skills be applied? What was the learning outcome of the year? 	<ul style="list-style-type: none"> Review and apply previous learning and skills. 	<ul style="list-style-type: none"> Performance Assessment: Application of Skills to Authentic Tasks Final Exam 	Career Ready Practices CRP 1-12	ELA RI.9-10.2,3,4 W.9-10.2,4 SL.9-10.1-6 L.9-10.1-6
				Cluster Standards IT 1-12	Literacy RST.9-10.2,3,4,9 WHST.9-10.2,4,8
				Pathway Standards IT-SUP 1-10 IT-NET 1-5	Math

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Career and Technical Education Program
Course Syllabus
CFF 100: Computer Forensics 100**



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1. Students will understand the historical and societal context of computer forensics.
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3	<ul style="list-style-type: none">• LAN and WAN• IP Addresses and Network Protocols• Network Media and Cables• Network Security• Computer Security: Threats and Prevention
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Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CFF 200: Computer Forensics 200



Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Weeks 1-2 Unit 1 Course Introduction Computer System and Network Fundamentals	<ul style="list-style-type: none"> What knowledge and skills are developed in this course? What is a computer system and how does it relate to a network? 	<ul style="list-style-type: none"> Configure a computer system and its software. Explain how a computer is attached to the network. Define and explain the Internet of Things (IoT). 	<ul style="list-style-type: none"> Computer System Review Lab: IoT 	Career Ready Practices CRP 1,2,3,4,8,9	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 1,2,3,4	Literacy RST.11-12.1,2,3,4 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 1,2,3,5 IT-NET 1,2,3,4,5 IT-PRG 3,7,9	Math
				Industry Standards	Science
Weeks 3-6 Unit 2 Computer Math and Computer Number Systems	<ul style="list-style-type: none"> How do computers store data? How are numbers converted between binary and decimal systems? 	<ul style="list-style-type: none"> Describe how computers store data. Explain decimal, binary, octal, and hexadecimal number systems. Perform binary addition. Convert numbers from binary to decimal and decimal to binary forms. 	<ul style="list-style-type: none"> Assignment #2: Computer Math and Computer Number Systems Quiz: Number Systems 	Career Ready Practices CRP 2,4,8,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 12	Literacy RST.11-12.1,2,3,4 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 6,9	Math
				Industry Standards	Science
Weeks 7-8 Unit 3 Virtual Machines: VMware, VirtualBox, Kali Linux	<ul style="list-style-type: none"> What is a virtual machine? How is a virtual machine implemented? 	<ul style="list-style-type: none"> Define a virtual machine and describe its function. Set up and maintain a virtual machine. Compare and contrast different virtualization software. Install Windows and Kali VM software. 	<ul style="list-style-type: none"> Assignment #3: Virtual Machines Quiz: Virtual Machine Functions Lab: VMware 	Career Ready Practices CRP 2,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 4,5,7,12	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6

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				Pathway Standards IT-SUP 1,2,4,7,8,9 IT-NET 3,4 IT-PRG 1,3,7,9	Math
				Industry Standards	Science
Weeks 9-10 Unit 4 Command Line Interface: Windows	<ul style="list-style-type: none"> What is the Windows Command line (CMD)? What are the advantages of the CMD? 	<ul style="list-style-type: none"> Explain and use basic Windows commands. Navigate through a Windows system via CMD. 	<ul style="list-style-type: none"> Assignment #4: Windows CMD Lab: Navigating Through Windows CMD 	Career Ready Practices CRP 2,4,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 1	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 1,2,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 11-12 Unit 5 Command Line Interface: Linux	<ul style="list-style-type: none"> What is the Linux Terminal? What are the advantages of the Terminal? 	<ul style="list-style-type: none"> Explain and use basic Linux commands. Navigate through a Linux system via Terminal. 	<ul style="list-style-type: none"> Assignment #5: Linux Terminal Lab: Navigating Through Terminal 	Career Ready Practices CRP 2,4,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 12	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 1,2,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 13-15 Unit 6 File System Management	<ul style="list-style-type: none"> Why are different file system structures used to manage files? What is open source software? 	<ul style="list-style-type: none"> Compare and contrast different file types. Explain how files are saved using different file systems including Fat32, NTFS, and EXT. 	<ul style="list-style-type: none"> Assignment #6: File Structures Lab: Viewing File Structures 	Career Ready Practices CRP 2,4,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards	Literacy

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Open-Source Software Management		<ul style="list-style-type: none"> • Use different file systems to manage files. • Describe open source software and its uses. 		IT 7,9	RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 2,4,9,10 IT-NET 1	Math
				Industry Standards	Science
Weeks 16-18 Unit 7 Host-Based Security Tools	<ul style="list-style-type: none"> • How can security measures be implemented on a computer? 	<ul style="list-style-type: none"> • Describe host-based security tools including antivirus software and firewalls. • Use host-based security tools to improve computer security. 	<ul style="list-style-type: none"> • Assignment #7: Antivirus Setup • Lab: Firewall • Quiz: Types of Malware 	Career Ready Practices CRP 2,3,4,5,7,8,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 5,8,9	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6,9,8	Math
				Industry Standards	Science
Weeks 19-20 Unit 8 Network-Based Security Tools	<ul style="list-style-type: none"> • How do network-based security tools protect computer systems? • How are network security tools implemented on a system? 	<ul style="list-style-type: none"> • Describe network-based security tools including intrusion detection systems (IDS) and intrusion prevention systems (IPS). • Explain the function of Network Access Controls and Demilitarized Zone (DMZ) in computer security. 	<ul style="list-style-type: none"> • Assignment #8: Intrusion Detection • Lab: IDS and IPS • Quiz: Network Security Functions 	Career Ready Practices CRP 2,4,7,8,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 5,8,9	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6,8,9 IT-NET 1,4,5	Math
				Industry Standards	Science
Weeks 21-24 Unit 9 Penetration	<ul style="list-style-type: none"> • What is penetration testing (pentesting)? • What are the benefits of conducting a 	<ul style="list-style-type: none"> • Describe penetration testing tools. • Use penetration testing to find vulnerabilities in a computer 	<ul style="list-style-type: none"> • Assignment #9: Linux Pentesting • Lab: Vulnerable Mary 	Career Ready Practices CRP 1,2,4,5,7,8,9,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Testing	penetration test?	system.		Cluster Standards IT 5,8,9	Literacy RST.11- 12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 2,5,6,9,10 IT-NET 1,4,5	Math
				Industry Standards	Science
Weeks 25-28 Unit 10 Reconnaissance	<ul style="list-style-type: none"> How can outsiders obtain information about a computer system? 	<ul style="list-style-type: none"> Define reconnaissance. Explain the connection between reconnaissance and control panel. Explain the connection between reconnaissance and computer systems information. 	<ul style="list-style-type: none"> Assignment #10: Source Code Lab: HTML View 	Career Ready Practices CRP 2,4,7,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 9,10	Literacy RST.11- 12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 29-30 Unit 11 Scanning	<ul style="list-style-type: none"> What is the purpose of doing a port scan? What information does a port scan reveal? 	<ul style="list-style-type: none"> Define open ports in a computer system. Check for open ports in a computer system using the Command line. 	<ul style="list-style-type: none"> Assignment #11: Nmap Lab: Nmap Linux 	Career Ready Practices CRP 1,2,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 5,8,9	Literacy RST.11- 12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 31-33 Unit 12	<ul style="list-style-type: none"> How can a computer system be exploited? 	<ul style="list-style-type: none"> Define exploitation of a computer system. 	<ul style="list-style-type: none"> Assignment #12: Open Ports 	Career Ready Practices CRP 1,2,3,5,7,8,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Exploitation		<ul style="list-style-type: none"> Gain access into a computer system. 	<ul style="list-style-type: none"> Lab: Exploitation 		SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 5,8,9,10	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 34-36 Unit 13 Social Engineering Web-Based Exploitation	<ul style="list-style-type: none"> How can someone use social engineering to exploit a computer user? 	<ul style="list-style-type: none"> Define social engineering and explain methods for preventing it. Compare and contrast exploitation and social engineering. 	<ul style="list-style-type: none"> Assignment #13: Social Engineering Lab: Methods of Social Engineering 	Career Ready Practices CRP 1,2,3,5,7,8,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 4,5,8,9,10	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 5,6 IT-NET 2	Math
				Industry Standards	Science
Weeks 37-39 Unit 14 Post Exploitation and Maintaining Access Penetration Testing Wrap-Up	<ul style="list-style-type: none"> What is a backdoor and how is it used to access computer information? 	<ul style="list-style-type: none"> Explain how access into a system is maintained after exploitation. Describe and use Backdoor Trojan software. 	<ul style="list-style-type: none"> Assignment #14: Maintaining Access Lab: Backdoor Access 	Career Ready Practices CRP 1,2,3,5,7,8,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 5,8,9	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 1,2,3,4,9,10 IT-NET 1,5 IT-PRG 3	Math
				Industry Standards	Science

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Week 40 Unit 15 Review CompTIA A+ Certification Exam Final Examination	<ul style="list-style-type: none"> How can the knowledge and skills learned in this course be applied? 	<ul style="list-style-type: none"> Apply knowledge and skills to solve problems. Complete the CompTIA A+ Certification Exam, if eligible. Complete the Final Examination. 	<ul style="list-style-type: none"> Assignment #15: Review CompTIA A+ Certification Exam (if eligible) Final Examination: NOCTI 	Career Ready Practices CRP 1,2,4,5,6,10,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 1-12	Literacy RST.11-12.1,2,3,4,7 WHST.11-12.2,4,6
				Pathway Standards IT-SUP 9	Math
				Industry Standards	Science

**Syracuse City School District
Career and Technical Education Program
Course Syllabus
CFF 300: Computer Forensics 300**



Program Overview

Computer Forensics is the application of investigation and analysis techniques to gather and preserve evidence from computing devices in a way that is suitable for presentation in a court of law. The program is designed to help students on a pathway to careers in local and state police and law enforcement, government agencies, and private corporations. Students who successfully complete the program will earn up to nine college credits and obtain CompTIA A+ Certification, a fundamental accreditation for work in many IT fields.

Course Description

This course will introduce students to the fundamentals of computer forensic investigations and will build on the knowledge and skills developed in CFF 100 and 200. Through hands-on experience, students will learn the process of a computer forensic investigation. By writing lab reports that document their findings and results, students will implement knowledge and skills in authentic situations. Students who successfully complete the course will have the opportunity to obtain CompTIA A+ Certification.

Pre-Requisites

CFF 100: Computer Forensics 100 and CFF 200: Computer Forensics 200

Course Objectives

1. Students will know and understand computers and how this information relates to computer forensics.
2. Students will be able to use computer forensics techniques.
3. Students will understand the historical and societal context of computer forensics.
4. Students will understand the chain of custody in a computer forensics investigation.

Integrated Academics

- 1 Integrated ELA Credit
- **Concurrent Enrollment College Credit:** Upon successful completion of Computer Forensics 300, students who earn a grade of B or higher will earn 3 college credits for CRJ 355 Cyber Crime Investigations and Forensics I at Utica College

Equipment and Supplies

- **School will provide:** All necessary lab and classroom equipment.
- **Student will provide:** N/A

Textbook

TBD

Grading

10%	Class attendance/ Participation
10%	Oral Presentation
25%	Assignments
25%	Mid-Term Exam
30%	Final Exam

All work is due at the time and day specified when the assignment is given. Submission details for work to be graded will be given at the time the work is assigned.

Quizzes will be given throughout the semester. The lowest quiz score (one score only) will be dropped when calculating the final course grade.

Additional Course Policies

Students are required to follow all safety procedures.

Course Calendar

Quarter	Units of Study
1	<ul style="list-style-type: none">• Report Writing• Identification of Digital Evidence• Securing a Crime Scene• Handling Evidence• Wireless Technologies
2	<ul style="list-style-type: none">• File Systems• File Signatures and File Extensions• Hex Viewer• Forensics Toolkit (FTK) Imager• Forensic Bridges, Write Blockers, and Duplicators
3	<ul style="list-style-type: none">• File Hashing• Forensics Toolkit (FTK)• ProDiscover
4	<ul style="list-style-type: none">• Data Destruction• Anti-Forensics• Internships and Project Based Learning• CompTIA A+ Certification Exam• Final Exam

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CFF 300: Computer Forensics 300



Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Weeks 1-2 Unit 1 Report Writing	<ul style="list-style-type: none"> How is a technical report written? What should a Computer Forensics report look like? 	<ul style="list-style-type: none"> Apply writing techniques to technical report writing. Use technical report writing formats to write Computer Forensics reports. 	<ul style="list-style-type: none"> Lab Report "Replace Remote Control Batteries" Report 	Career Ready Practices CRP 1,2,4,6,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 1,9	Literacy RST.11-12. 1,3,4,7,9 WHST.11- 12.1,2,4,5,6,9
				Pathway Standards IT-SUP 9	Math
				Industry Standards	Science
Weeks 3-4 Unit 2 Identification of Digital Evidence	<ul style="list-style-type: none"> What is classified as digital evidence? How has technology changed over the last 20 years? What purpose does the hard drive have in an investigation? 	<ul style="list-style-type: none"> Identify various technologies and peripherals. Explain what electronics should be taken during a computer forensics investigation. Identify all parts of a hard drive. 	<ul style="list-style-type: none"> Quiz: Digital Evidence Quiz: Hard Drive Performance Assessment: Identify Digital Evidence 	Career Ready Practices CRP 2,7,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 2,6,11	Literacy RST.11-12. 1,3,4,7,9 WHST.11- 12.1,2,4,6,8,9
				Pathway Standards IT-SUP 3,6,9	Math
				Industry Standards	Science
Weeks 5-6 Unit 3 Securing a Crime Scene	<ul style="list-style-type: none"> How is a crime scene secured? How does an investigator enter a crime scene safely? What is the proper way 	<ul style="list-style-type: none"> Photograph a crime scene. Enter a crime scene safely. Document a crime scene using proper documentation procedures. 	<ul style="list-style-type: none"> Quiz: Securing a Crime Scene Performance Assessment: Arriving at the Scene Lab: Crime Scene 	Career Ready Practices CRP 1,2,3,4,5,7,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 9,10	Literacy RST.11-12.

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
	to document a crime scene?				1,3,4,7,9 WHST.11-12.1,2,4,6,9
				Pathway Standards IT-SUP 6,9	Math
				Industry Standards	Science
Weeks 7-8	<ul style="list-style-type: none"> How should evidence be handled? What does chain of custody mean? Why is labeling and documenting all evidence important? 	<ul style="list-style-type: none"> Handle evidence using proper procedures. Explain how to maintain chain of custody. Document serial numbers of evidence. 	<ul style="list-style-type: none"> Quiz: Handling Evidence Performance Assessment: Proper Evidence Handling Lab: Handling Evidence 	Career Ready Practices CRP 1,2,3,4,5,7,9,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
Unit 4				Cluster Standards IT 9,10	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
Handling Evidence				Pathway Standards IT-SUP 6,9	Math
				Industry Standards	Science
Weeks 9-10	<ul style="list-style-type: none"> What are different wireless technologies that can be present in a computer forensics case? What is a faraday box/bag? 	<ul style="list-style-type: none"> Use a faraday box or bag to help preserve wireless evidence. 	<ul style="list-style-type: none"> Performance Assessment: Android vs iPhone Lab: Faraday 	Career Ready Practices CRP 2,5,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
Unit 5				Cluster Standards IT 6,8,10	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
Wireless Technologies				Pathway Standards IT-SUP 5,9	Math
				Industry Standards	Science
Weeks 11-12	<ul style="list-style-type: none"> How do file systems relate to computer forensics? What is the relationship 	<ul style="list-style-type: none"> Distinguish the difference between FAT, NTFS, and Ext File Systems. Explain the relationship between 	<ul style="list-style-type: none"> Quiz File Systems Lab: File Systems 	Career Ready Practices CRP 2,6,8,11,12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
Unit 6					
File Systems					

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
	between different types of file systems and different operating systems?	different file systems and different operating systems.		Cluster Standards IT 10,11 Pathway Standards IT-SUP 1,2,3,6 Industry Standards	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9 Math Science
Weeks 13-14 Unit 7 File Signatures and File Extensions	<ul style="list-style-type: none"> What are different file signatures? What are different file extensions? Where is the location of a file signature? 	<ul style="list-style-type: none"> Identify different file signatures. Modify file extensions. 	<ul style="list-style-type: none"> Lab: File Signatures Lab: File Extensions Performance Assessments: Viewing Windows File Extensions 	Career Ready Practices CRP 2,6,8,11,12 Cluster Standards IT 10,11 Pathway Standards IT-SUP 1,2,3,6 Industry Standards	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6 Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9 Math Science
Weeks 15-16 Unit 8 Hex Viewer	<ul style="list-style-type: none"> What is Hexadecimal notation? What is a hex viewer? How does a hex viewer apply to computer forensics? 	<ul style="list-style-type: none"> Use a hex viewer. Convert hexadecimal notation. 	<ul style="list-style-type: none"> Lab: WinHex Performance Assessment: Hex Viewer 	Career Ready Practices CRP 2,6,8,11,12 Cluster Standards IT 10,11 Pathway Standards IT-SUP 1,2,3,6 Industry Standards	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6 Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9 Math Science
Weeks 17-18 Unit 9	<ul style="list-style-type: none"> What is a forensics image? 	<ul style="list-style-type: none"> Create a forensics image with FTK Imager. 	<ul style="list-style-type: none"> Lab: FTK Images Performance 	Career Ready Practices CRP 2,4,5,6,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Forensics Toolkit (FTK) Imager	<ul style="list-style-type: none"> What is the purpose of FTK Imager? 	<ul style="list-style-type: none"> Explain how an image applies to computer forensics. Navigate through FTK Imager. 	Assessments: Create an E01 Image		SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 6,7,10,12	Literacy RST.11-12. 1,3,4,7,9 WHST.11- 12.1,2,4,6,9
				Pathway Standards IT-SUP 6,8,9	Math
				Industry Standards	Science
Weeks 19-20 Unit 10 Forensic Bridges, Write Blockers, and Duplicators	<ul style="list-style-type: none"> What is a forensics bridge? What is a forensics write blocker? What is a forensics duplicator? 	<ul style="list-style-type: none"> Use a bridge and a write blocker in an investigation. Create a forensics image with a duplicator. 	<ul style="list-style-type: none"> Lab: Write Blocker Lab: Duplicator Performance Assessment: Computer Forensic Tools 	Career Ready Practices CRP 2,4,5,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 10	Literacy RST.11-12. 1,3,4,7,9 WHST.11- 12.1,2,4,6,9
				Pathway Standards IT-SUP 9,10	Math
				Industry Standards	Science
Week 21-22 Unit 11 File Hashing	<ul style="list-style-type: none"> What is a file hash? How does a file hash relate to computer forensics? 	<ul style="list-style-type: none"> Distinguish an MD5 hash. Distinguish a sha1 hash. 	<ul style="list-style-type: none"> Lab: File Verification Performance Assessment: Compare File Hashes 	Career Ready Practices CRP 2,4,5,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 10	Literacy RST.11-12. 1,3,4,7,9 WHST.11- 12.1,2,4,6,9
				Pathway Standards IT-SUP 9,10	Math
				Industry Standards	Science

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
Weeks 23-26 Unit 12 Forensics Toolkit (FTK)	<ul style="list-style-type: none"> What is Forensics ToolKit? How does an investigator utilize FTK? 	<ul style="list-style-type: none"> Navigate through FTK. Use FTK to find evidence on a computer system. 	<ul style="list-style-type: none"> Labs: Computer Forensic Cases Performance Assessments: Finding Evidence that Pertains to Cases 	Career Ready Practices CRP 2,4,5,6,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 6,7,10,12	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
				Pathway Standards IT-SUP 6,8,9	Math
				Industry Standards	Science
Weeks 27-30 Unit 13 ProDiscover	<ul style="list-style-type: none"> What is ProDiscover? How does an investigator utilize ProDiscover? 	<ul style="list-style-type: none"> Navigate through ProDiscover. Use ProDiscover to find evidence on a computer system. 	<ul style="list-style-type: none"> Labs: Computer Forensic Cases Performance Assessments: Finding Evidence that Pertains to Cases 	Career Ready Practices CRP 2,4,5,6,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 6,7,10,12	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
				Pathway Standards IT-SUP 6,8,9	Math
				Industry Standards	Science
Weeks 31-32 Unit 14 Data Destruction	<ul style="list-style-type: none"> What is data destruction? Can data still be retrieved if deleted? 	<ul style="list-style-type: none"> Destroy electronic data properly. Retrieve deleted files. 	<ul style="list-style-type: none"> Lab: Data Destruction Performance Assessment: DoD 7 Pass Wipe 	Career Ready Practices CRP 2,4,5,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 10	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
				Pathway Standards IT-SUP 9,10	Math

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS ELA, Literacy, Math, Science
				Industry Standards	Science
Weeks 33-34 Unit 15 Anti-Forensics	<ul style="list-style-type: none"> What is anti-forensics and how is it used? 	<ul style="list-style-type: none"> Compare different methods of hiding data. Find hidden files in a system. 	<ul style="list-style-type: none"> Lab: Anti-Forensics Performance Assessments: Steganography 	Career Ready Practices CRP 2,4,5,7,8,11	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 4,8,10	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,6,9
				Pathway Standards IT-SUP 9,10	Math
				Industry Standards	Science
Weeks 35-40 Unit 16 Internships and Project Based Learning CompTIA A+ Certification Exam Final Exam	<ul style="list-style-type: none"> How can the knowledge and skills learned in this course be applied? How does an employee convey professionalism in the workplace? How do professionals work together to solve problems? 	<ul style="list-style-type: none"> Apply the knowledge and skills learned in the classroom to working in a professional setting. Explain how various professionals work together toward the common goal of solving problems. Explain how the demands of a job can change according to the setting and the needs of the employer or client. Explain and demonstrate professionalism and ethics in the workplace. Complete the CompTIA A+ Certification Exam, if eligible. Complete the Final Examination 	<ul style="list-style-type: none"> Internship Report Self-Assessment Project Rubrics and Evaluation CompTIA A+ Certification Exam (if eligible) Final Exam 	Career Ready Practices CRP 1-12	ELA RI.11-12.2,3,4 W.11-12.2,4 SL.11-12.1,2,4,5,6 L.11-12.1-6
				Cluster Standards IT 1-12	Literacy RST.11-12.1,3,4,7,9 WHST.11-12.1,2,4,5,6,9
				Pathway Standards IT-SUP 1-10	Math
				Industry Standards	Science