

Student Name: _____

Date: _____

PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION
Career Cluster: Information Technology

Program Name: Computer Systems Networking and Telecommunications CIP: 110901
 National Standard: CompTIA A+

Effective 8/09

Competencies (statement that provides the overview and defines the instructional area) Student will:	Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed) Student will:	<u>NH Common Core State Standards</u> – Aligned <ul style="list-style-type: none"> • English/Language Arts/Literacy: E • Mathematics: M • Science: S • Art: A 	Rating Scale -Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency) Student will:				
Understand the basic concepts of PC computer assembly, troubleshooting and repair in order to effectively troubleshoot and repair equipment in a timely manner.	1. Identify basic terms, concepts, and functions of system modules, including how each module works during normal operation. AAI 4. Technical and Production Skills: Identify specific production and technical skills required for this industry.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4
	1	2	3	4			
	2. Identify basic procedures for adding and removing field replaceable modules.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4
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3. Identify the necessary system resources and procedures for configuring them for device installation.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4	
1	2	3	4				
4. Identify common peripheral ports, associated cabling, and their connectors.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4	
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Key: Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4= MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

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	5. Identify ESD (Electrostatic Discharge) precautions and procedures. AAI 8. Health, Safety, and Environment: Explain the health and safety laws and practices affecting the employee, the surrounding community, and the environment in this industry.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	6. Identify the purpose of BIOS, what it contains, and how to change it.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	7. Identify the basic functions, components and interfaces of the major commercial and open source operating systems.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	8. Identify the basic procedure for installing OS software, including DOS and Windows.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	9. Identify the proper procedure for removing and creating partitions on a hard drive.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	10. Identify printer technologies, interfaces, and options/upgrades.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	11. Recognize common printer problems and techniques used to resolve them.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	12. Identify basic concepts and procedures for creating, viewing, and managing disks, directories and files.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	13. Identify techniques of information assurances such as: back-up procedures, data security, storage, offsite and RAID.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	14. Identify the basic system boot sequences and boot methods, including the steps to remedy Boot problems. AAI 4. Technical and Production Skills: Identify specific production and technical skills required for this industry.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	15. Discuss proper disposal of equipment and materials.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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Understand the basic concepts of network construction in order to design, build and connect hardware to allow people to communicate securely in a timely fashion.	16. Demonstrate a basic knowledge of topologies, segments, and backbones.		<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4
	1	2	3	4			
	17. Explain the layers of the OSI and TCP/I Models.		<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4
	1	2	3	4			
	18. Describe the major network operating systems and their similarities and differences. AAI 5. Underlying Principles of Technology: Explain through discussion the technological systems used within this industry.		<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4
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19. Recognize and describe the advantages and disadvantages of various networking media.		<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4	
1	2	3	4				
20. Use TCP/IP troubleshooting utilities such as PING and Tracert/Traceroute to test IP connectivity.		<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td> </tr> </table>	1	2	3	4	
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	21. Select, Terminate and test media		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	22. Describe the components of an effective security policy, including standard password practices.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	23. Describe and contrast LAN and WAN technologies and virtual networks. AAI 5. Underlying Principles of Technology: Explain through discussion the technological systems used within this industry.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	24. Explain the characteristics of networking standards.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	25. Explain the characteristics of various types of malware and the means of prevention.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	26. Identify procedures for establishing Internet connectivity. AAI 5. Underlying Principles of Technology: Explain through discussion the technological systems used within this industry.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4
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	27. Explain network planning and documentation		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4
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Understand the basic concepts of operating a network infrastructure in order to select the proper network protocols to build a secure network.	28. Describe the major advantages and disadvantages of share folder and file level security on a network.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4
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	29. Design and construct a peer-to-peer network.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4
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30. Design a client-server network.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4	
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	31. Create and administer groups, users, application and data folders and allocate user system resources. AAI 4. Technical and Production Skills: Identify specific production and technical skills required for this industry.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> </tr> </table>	1	2	3	4
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	32. Install File and folder level security on a network.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	33. Install and share a printing device on a network.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
Understand communication concepts and techniques in order to provide quality customer/client service	34. Identify the principal written, verbal and interpersonal skills required for help desk success.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	35. Describe customer expectations from help desk support.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	36. Identify the elements of proper communications.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	37. Research and identify telephone technologies such as voice mail, fax-on-demand, Automatic Call Direct, Voice Response Unit and remote access.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	38. Describe the basic elements of a comprehensive support center.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
Understand the fundamental concepts of entrepreneurship and how entrepreneurship influences the economy	39. Discuss and assess venture creation possibilities and identify the steps in planning the venture. AAI 1. Planning: Explain the key elements of a long-term plan for a successful company. AAI 2. Management: Discuss the different forms of management and ownership within this industry. AAI 3. Finance: Explain the key components of financial management of a company.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
1	2	3	4				
	40. Identify the resources needed for venture startup and operation.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	41. Discuss the options in planning the venture’s future (growth, development, demise). AAI 6. Labor Issues: Explain the employees’ and employers’ rights and responsibilities in this industry. AAI 7. Community Issues: Discuss the ways a company can impact its community and the ways a community can impact a company.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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	42. Identify and discuss the traits and behaviors of an entrepreneur (leadership, personal assessment, personal management).		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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Understand the importance of personal growth and leadership to enhance career success	43. Demonstrate personal growth, community leadership, democratic principles and social responsibility by participating in activities/events offered through student organizations.		<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>	1	2	3	4
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Understand the necessary employability skills in order to achieve success in today’s workplace	44. Decision-Making & Problem-Solving: Demonstrate and apply good decision-making and problem-solving skills by outlining issues in situations/problems and determining, collecting, and organizing information needed in order to formulate a solution.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> </table> For Example: - create an outline - create a troubleshooting log - make class presentation - develop and test strategies or options that work - provide examples of the strategies or options tested or tried - compare and analyze pros and cons of identified strategies or options - through teamwork, arrive at a decision or determine a solution that is well suited to the task - independently arrive at a decision or determine a solution that is well suited to the task - communicate in a clear format how the solution was formed - justify or describe how and why a particular solution option was chosen	1	2	3	4
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	<p>45. Self-Management: Demonstrate and apply self-management skills by adhering to regulations, being responsible and following through on commitments.</p> <p>AAI 9. Personal Work Habits: Explain the work habits an employer looks for in an employee in this industry.</p>		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> </table> <p>For Example:</p> <ul style="list-style-type: none"> - have a written test on applicable policies and procedures - assess student orientation knowledge through instructor observations and written unit test - review student handbook - adhere to regulations in school, classroom, and everyday settings - build trust by being consistent, dependable, and verbally positive with others - ask questions and listen to others - keep track of assignments and/or responsibilities - have work done on time - respond positively to constructive feedback - show respect for others and their points of view - set individual goals and document progress toward achieving those goals - take initiative to pursue learning - adapt as necessary to create a positive outcome for self and others - advocate appropriately for himself/herself 	1	2	3	4
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	46. Communication Skills: Demonstrate and apply effective communication skills: verbal, written, visual and listening.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> </table> For Example: - be given a work order that contains written instructions of a specific job and complete the work order - create a power point presentation - participate in a debate - perform mock interviews - develop a topic - include details to support a main point - use appropriate grammar and sentence structure - organize writing and/or presentation materials - use constructive feedback to improve skill - participate in discussion and conversation by listening, entering in, taking turns, responding to others' remarks, asking questions, summarizing and closing, as appropriate to the given context - use varied vocabulary for clarity and effectiveness - support his/her ideas in a public forum using the appropriate visual/audio aides - select and use the appropriate media and method(s) to communicate the subject effectively - adapt writing, speaking, and/or visual presentations effectively to a particular audience - act on or respond appropriately to verbal and non-verbal cues from the audience	1	2	3	4
1	2	3	4				

Key: Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4= MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION
Career Cluster: Information Technology

Program Name: Computer Systems Networking and Telecommunications CIP: 110901

Effective 8/09

National Standard: CompTIA A+

<p>Competencies (statement that provides the overview and defines the instructional area) Student will:</p>	<p>Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed) Student will:</p>	<p><u>NH Common Core State Standards</u> – Aligned</p> <ul style="list-style-type: none"> • English/Language Arts/Literacy: E • Mathematics: M • Science: S • Art: A 	<p>Rating Scale -Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency) Student will:</p>				
	<p>47. Ability to Work with Others: Demonstrate and apply the necessary skills in order to work effectively with others.</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">1</td> <td style="width: 25%; text-align: center;">2</td> <td style="width: 25%; text-align: center;">3</td> <td style="width: 25%; text-align: center;">4</td> </tr> </table> <p>For Example:</p> <ul style="list-style-type: none"> - role play a situation in which there is a conflict which must be resolved - compose a list of what she/he believes to be the most common problems within that profession after reviewing appropriate work ethics standards - conduct an interview with a manager and share report with classmates - demonstrate knowledge of individual strengths he/she brings to a group - demonstrate knowledge of and respect for cultural and individual differences - demonstrate beginning skills in conflict management by outlining the issues involved and others' points of view - demonstrate knowledge of the possible roles and responsibilities that individuals assume while working with others - demonstrate knowledge of group skills: listening, brainstorming, clarifying information, showing initiative, acknowledging contributions, defining group tasks, and responding positively to constructive feedback - demonstrate increasing skills in conflict management by brainstorming a variety of solutions and their possible outcomes - assume responsibilities within a group - demonstrate the use of group skills in a way that enhances a group's performance - demonstrate skills in conflict management by describing, justifying, and applying a resolution process, and reflecting on the outcome 	1	2	3	4
1	2	3	4				

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	<p>48. Information Use - Research, Analysis, Technology: Demonstrate and apply the use of information through research, analysis, and technology.</p>		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> </table> <p>For Example:</p> <ul style="list-style-type: none"> - do a research project and develop a presentation for the class - keep a daily notebook - show use of a plan for gathering information - gather information from a variety of sources, using a variety of technologies - use sources that are current and appropriate to the topic - evaluate sources for correct and trustworthy information - document sources of information appropriately - demonstrate and apply the skills in using software applications (MS Office) - use a filing/organization system for information, such as notebook, disk, etc. - justify the use of a particular organizational system for a particular product - demonstrate effective communication skills (written, oral, listening) - effectively present a thesis, supporting evidence, and a conclusion using a variety of media 	1	2	3	4
1	2	3	4				

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	49. Mathematical Concepts: Demonstrate mathematical and computation skills as applied to real world situations.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> </table> <p>For Example:</p> <ul style="list-style-type: none"> - keep a log of all possible uses of mathematics noticed throughout the class/lab/worksite - compute accurately, applying addition, subtraction, multiplication, and division on real numbers, fractions, percents, and decimals - collect, interpret, organize and display relevant data for solving a mathematics problem - translate real world problems into mathematical representations - express and present mathematical ideas clearly in everyday written and oral language - express in written and oral language how mathematics connects to other contexts outside the mathematics classroom - use basic numerical concepts such as whole numbers and percentages in practical situations; make reasonable estimates of arithmetic results without a calculator; and use tables, graphs, diagrams, and charts to obtain or convey quantitative information - approach practical problems by choosing appropriately from a variety of mathematical techniques; use quantitative data to construct logical explanations for real world situations; express mathematical ideas and concepts orally and in writing; and understand the role of chance in the occurrence and prediction of events 	1	2	3	4
1	2	3	4				

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	50. General Safety: Demonstrate and apply safe practices and procedures in the workplace.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table> For Example: - develop scenarios of hazards and accidents using publications and the internet - be observed by teacher - take written quizzes/written tests - demonstrate knowledge of safety and sanitation practices and procedures - identify and report hazardous conditions and safe working procedures - use personal protective equipment and clothing	1	2	3	4
1	2	3	4				
	51. Career Development: Demonstrate personal/career development skills by completing a career plan.		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table> For Example: - complete a self-awareness inventory - develop a career portfolio - use a career software, such as Choices, to measure their aptitudes and abilities for particular careers - use available resources (college catalogs and websites) to research information about postsecondary educational opportunities - select a career in the field and outline educational and skill requirements, expected job growth, and salaries - review with teacher software printout to assess their aptitudes and abilities - make appropriate choices in pursuit of postsecondary education or training and/or direct entry into the world of work - plan a senior experiential project to review and evaluate a variety of career choices	1	2	3	4
1	2	3	4				

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