

# Minnesota

## Articulated College Credit Agreement

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### Articulated College Credit Agreement:

Through Articulated College Credit (ACC), specific college curriculum learning outcomes and assessments are embedded in participating high school career and technical education (CTE) programs as specified in this agreement. Relevant knowledge, skills, and standards are taught by qualified CTE high school instructor(s) in one or more high school course. ACC is awarded if the student meets the college equivalency standards and later enrolls in the college(s) listed below requiring the course in a specific program.

**Agreement Name:** **A+ Hardware Support**  
**Agreement Reviewed/Revised:** **2023 -24**

**These credits are valid for students in grades 10-12 for 5 years from completion of the course(s).**

Colleges	College Courses	College Programs	Articulated College Credit
Hennepin Technical College	ITEC 2675 – A+ Hardware Support	*IT Support (A.A.S. – 60 cr.) *IT Support Specialist (Diploma – 46 cr.) *IT Service Desk Technician (Occ. Cert.- 30 cr.) *Network Administrator/Analyst (A.A.S.- 60 cr.) *Network Support Specialist (Diploma – 44 cr.)	3 credits of 3 total credits
Anoka Ramsey Community College	CNET 1100 – Introduction to Information Technology	*Computer Networking (A.S. – 60 cr.) *Cybersecurity (A.S. – 60 cr.) *System Administration (A.A.S. – 60 cr.) *Computer Network Security (Cert. – 30 cr.) *Network Support & Administration (Cert. – 30 cr.) *IT Support Specialist (Cert. 16 cr.)	3 credits of 3 total credits

### Course Description:

This advanced course will provide practical knowledge of the Personal Computer (PC) hardware and printers needed to provide technical support to computer users. Students will acquire many of the hardware skills necessary for the CompTIA A+ certification.

## **Learning Outcomes:**

100% of the course learning outcomes will be covered in the high school course(s) by qualified CTE high school instructor(s). The following outcomes will be addressed in the course:

- Install personal computer (PC) hardware
- Troubleshoot PC hardware problems
- Describe electrical concepts
- Manage hardware device drivers
- Troubleshoot printer issues
- Resolve PC networking issues
- Install end-to-end network cabling
- Perform hardware preventative maintenance tasks
  1. Describe how hardware components function together.
  2. Describe how software interacts with hardware.
  3. Describe how operating systems and application software interact.
  4. Describe how software manages hardware resources.
  5. Describe a business needs (technology) assessment.
  6. Examine physical components on the system board (motherboard).
  7. Describe how data is stored on removable media.
  8. Describe how data is stored on a hard drive.
  9. Demonstrate hardware evaluation.
  10. Demonstrate command line and Windows commands to manage disks and drives.
  11. Explore hard drive troubleshooting skills.
  12. Identify tools used to support personal computers.
  13. Describe how memory is used by operating system.
  14. Demonstrate how to manage memory.
  15. Explain memory upgrading.
  16. Explore the electrical power protection.
  17. Explore the fundamentals of multimedia technology.
  18. Describe requirements for multimedia PC.
  19. Explain guidelines to use when purchasing PC.
  20. Describe how networks function.
  21. Explain how to develop a preventive maintenance plan.
  22. Describe how viruses (malware) work.
  23. Demonstrate virus (malware) protection.
  24. Examine backup procedures.
  25. Explain how to develop a disaster recovery plan.
  26. Configure IEEE 802.11X client.
  27. Understand customer interaction and best practices.

## Course Assessments:

To obtain Articulated College Credit, students will complete the following:

1. Successful completion of the course meeting the core A+ learning objectives set forth by CompTIA with an **80% or higher**.
2. Project-based assessments throughout course with **80% or higher** including:
  - a) Perform security and encryption tasks;
  - b) Perform remote troubleshooting;
  - c) Simulate call center operations.
3. Pass written unit tests with an **80% or higher**.
4. End-of-course assessment(s) or technical skill assessment(s) completed with an **80% or higher**. Teachers/faculty may use one of the recommended technical skill assessments listed below to achieve assessing student learning in the course outcomes.

### Recommended Industry-Recognized Certifications or Comprehensive Assessments – College/ High School

Certifications or Assessments	Vendor	Other Information
A+ Certification 220 - 901	CompTIA	<a href="http://www.comptia.org">www.comptia.org</a>
Computer Maintenance & Repair (884)	Precision Exams	<a href="http://www.precisionexams.com">www.precisionexams.com</a>
Computer Maintenance & Repair	NOCTI	<a href="http://www.nocti.org">www.nocti.org</a>