

# Minnesota

## Articulated College Credit Agreement

[www.CTEcreditMn.com](http://www.CTEcreditMn.com)

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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:** Fundamentals of Programming with Python  
**Agreement Created:** 2023 -24

**These credits are valid for students in grades 10-12 for 3 years from the completion of this course.**

Colleges	College Courses	College Programs	Articulated College Credit
Hennepin Technical College	ITEC 1505 - Fundamentals of Programming with Python	*SQL Software Developer (A.A.S. – 60 cr.) *SQL Software Developer (Diploma – 43 cr.) *Software Developer (Adv. Tech. Cert. – 25 cr.) *Network Administrator/Analyst (A.A.S. – 60 cr.); *Network Support Specialist (Diploma – 44 cr.)	4 credits of 4 total credits

### **Course Description:**

This course is the first course for a student planning to study computer programming. The course content introduces the student to both procedural and object-oriented programming. Emphasis will be placed on procedural programming, computational thinking and problem solving. Topics will include flowcharting, pseudocode, program design, data types including arrays and objects, conditional boolean logic, program structures for branching and iteration, functions, and basic data structures.

**Learning Outcomes:**

100% of the curriculum 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:

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- ☐ Apply computational thinking concepts such as abstraction, generalization and composition/decomposition
- ☐ Diagram program logic flow
- ☐ Solve problems using sequences, decisions and iteration in program flow
- ☐ Solve problems using arrays and common data structures
- ☐ Build procedural programs using stateless functions
- ☐ Develop programs to solve real-world problems
- ☐ Use appropriate program documentation, programming style and language conventions
- ☐ Create appropriate test cases with good test data
- ☐ Apply program debugging techniques and methods
- ☐ Identify the core features of object-oriented programming
- ☐ Compare and contrast procedural and object-oriented programming
- ☐ Apply object-oriented programming techniques in program development

**Reference Text:**

Please visit the [www.hennepintech.edu](http://www.hennepintech.edu) bookstore for up-to-date text information.

**Course Assessments:**

Students must achieve an **80% or better** in the high school course to be eligible for articulated college credits.

**Recommended Industry-Recognized Certification  
Or Comprehensive Assessment – High School**

Certification or Assessment	Vendor	Other Information
*AP Computer Science A	Advanced Placement	