

Minnesota Articulated College Credit (ACC) Agreement

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Agreement Name: **Starting and Charging Systems**

Agreement Last Reviewed: **October 2022**

Next Review Date: **October 2024**

College Courses

Class	Title	School	Credits	
TRAN 1111	Electrical Fundamentals	Minnesota West Community & Technical College	1.0	of 3.0
AUTO 1364	Electrical Systems 2	Ridgewater College	2.0	of 4.0
AST 1233	Starting & Charging Systems - Regional	South Central College	1.0	of 3.0
AMT 1725	Service & Electrical Lab	Rochester Community & Technical College	1.0	of 3.0

Curriculum Content Objectives

To receive credit, students will perform each of the following content objectives:

General Requirements

1. Demonstrate professional automotive technician behavior, acceptable attendance and participation.
2. Explain and demonstrate electrical and shop safety procedures.

Starting Systems

1. Identify starting system components and principles of operation
2. Connect and operate remote starter switch
3. Trace starter motor circuits
4. Describe and perform starter motor control circuit tests
5. Perform starter draw tests
6. Inspect various starter motors
7. Remove and replace one type of starter
8. Explain neutral safety switch operation
9. Measure insulated circuit voltage drop
10. Measure ground circuit voltage drop

Charging Systems

1. Identify and explain alternator/generator operation principles
2. Explain voltage regulator operation
3. Test alternator/generator output
4. Remove and install various alternators/generators
5. Test regulator operation
6. Test parasitic drain
7. Measure insulated circuit voltage drop
8. Measure ground circuit voltage drop
9. Explain battery overcharge
10. Inspect and explain charging system protection
11. Perform battery safety, testing, diagnostics and charging

Assessment

Students must achieve no less than 80% or B for a final grade in the high school course to receive ACC. For partial earned college credits, students must take the course at the college with a tuition discount.

ACC Concept

Through Articulated College Credit (ACC), specific college curriculum content goals 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.