

Minnesota Articulated College Credit (ACC) Agreement

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Agreement Name: **Small Gas Engines**

Agreement Last Reviewed: Fall 2024

Next Review Date: Fall 2026

College Courses

Class	Title	School	Credits	
AGRI 2222	Current Technical Competencies	Minnesota West Community & Technical College	1.0	of 3.0
AUTO 1114	Engine Repair & Diagnosis	Ridgewater College	1.0	of 4.0
AGRI 2130	Small Engine Repair	Ridgewater College	2.0	of 2.0
AMT 1810	Engine Repair Theory	Rochester Community & Technical College	1.0	of 3.0
AGME 1801	Outdoor Power Equipment	South Central College	2.0	of 3.0
MEAG 1700	Agricultural Industry Machinery Maintenance	South Central College	1.0	of 3.0

Curriculum Content Objectives

To receive credit, students will perform at least 80% of the following content objectives:

1. Identify and demonstrate safety practices (e.g. SP2)
2. Identify four-stroke cycle operating principles
3. Identify two-stroke cycle operating principles
4. Identify and demonstrate special tools and operating equipment (see tool list)
5. Identify small engine parts
6. Describe the manufacturers' engine identification system
7. Use parts/service information
8. Describe flywheel magneto and solid-state ignition systems
9. Describe carburetion theory
10. Introduction to EFI (e.g. video, guest speaker)
11. Describe governing theory
12. Explain fuel systems
13. Disassemble/reassemble a small four-cycle engine
14. Run/adjust engine
15. Measure small engine internal components
16. Describe a small two or four-cycle engine lubrication system
17. Describe small-engine diesel operation
18. Identify environmental practices (oil, anti-freeze, etc.)
19. Systematic troubleshooting

Assessments

Students must achieve no less than 80% or B for a final grade in the high school course to receive ACC.

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 courses. 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.

Tool List

✓	Tool	✓	Tool
	Rolling (lockable) tool box no smaller than 40 inches		4 pc. Plier set (channel lock pliers, standard pliers, side cutters, needle nose)
	Standard/Metric combination wrench sets, standard/metric stubby wrenches, flare wrenches, ignition wrenches		Chrome ¼ inch drive standard/metric socket sets (deep and shallow)
	Chrome 3/8 inch drive standard/metric socket sets (deep and shallow)		Chrome ½ inch drive standard/metric socket sets (deep and shallow)
	4 pieces hammer set (1 med nylon dead blow, 2 ball peen, 1 brass hammer)		1/4, 3/8, 1/2 rachets and breaker bars
	Standard/metric Allen wrenches (ball end)		3 pc. Adjustable wrench set
	9 pc punch and chisel set		Torque wrenches (1/4. 3/8, 1/2)
	10 inch straight jaw locking pliers		6 inch long nose locking pliers
	12 screwdriver set		Rachet screwdriver and bit set
	Hose pinch off pliers		Automatic center punch
	Little mirror		Laser temperature gun
	Master rethreader set		29 piece drill bit set
	½ inch cordless drill/impact driver kit		Basic set of round and flat files
	6 inch steel ruler (combination mm and inch)		Putty knife
	Gasket scraper		25ft. locking tape measure
	Retractable utility knife		Flexible pickup tools – pinchers
	Telescopic magnet		Engine compression tester kit
	Dual gauge leak down tester		“Mighty Vac” Vacuum/Pressure
	Feeler gauges		Impact screwdriver set
	Air chuck and tire pressure gauge (low & high pressure)		3/8 and ½ inch impact air guns
	Automotive wire stripper/crimper		12 volt electrical test light – LED
	Automotive style digital thermometer w/peak reading adapter		Ignition spark tester
	Rechargeable LED tube light		6 in. standard/metric measuring venire caliper
	Propane torch (bottle torch w/easy light)		Jumper wires (qty. 4)
	Ear muffs		Safety glasses
	4 pc. Pick set		Torx screw bit set
	Standard/metric nut driver set		5 pc pry bar set
	Battery terminal cleaner		Handy cuts
	Hacksaw		Small and big wire brush
	5 pc. Feeler/wire style spark plug gapping tool		Short razor blade scraper
	“vacula” blow gun w/removeable rubber tip		Pliers style adjustable filter wrench
	12 pc. Reversible snap ring pliers		Rolling head pry bar

Optional Tools			
✓	Tool	✓	Tool
	Thermo Imaging Camera		Impact Sockets
	Thread pitch gauges (metric/standard)		Spark plug chaser
	Metric/standard tap & die set		Spring puller
	Long needle nose pliers		Die grinder set (angle and straight)
	3 inch reversible cut off tool		Air hammer with bit set
	Otoscope		