

A.S. in Automotive Technology: Master Repair Technician, Occupational

College Learning Outcomes Matrix: Rate each course from 1 to 5 with 5 being the most important.

A.S. in Automotive Technology: Master Repair Technician, Occupational	Year of SLO Review	1. Written, Oral and Visual Communication	2. Scientific and Quantitative Reasoning:	3. Critical Thinking 4. Problem Solving:	5. Information Literacy:	DEGREE
ACRT/AUTO 095 Applied Automotive Math	5/2011	3	3	5	3	X
AUTO 112 Automotive Engines	5/2011	3	3	5	3	X
AUTO113 Specialized Electronic Training	5/2011	3	3	5	3	X
AUTO114 Basic Fuel Systems	5/2011	3	4	4	3	X
AUTO 116 Automotive Electrical Systems	5/2011	3	4	4	3	X
AUTO 118 Brakes, Alignment & Suspension	5/2011	3	3	5	3	X
AUTO 225 Careers & Customer Relations	5/2011	3	3	5	3	X
AUTO 228 Automotive Computer Controls	5/2011	3	4	4	3	X
AUTO 229 Automotive Systems Troubleshooting	5/2011	3	4	4	3	X
AUTO 232 Automatic Transmissions & Transaxles	5/2011	3	4	4	3	X
AUTO 233 Manual Drive Trains & Transaxles	5/2011	3	3	5	3	X
AUTO 235 Automotive Air Conditioning	5/2011	3	4	4	3	X
AUTO 244 Smog Check Inspector Level 1 & 2 Training	5/2011	3	3	5	3	X
MACH 120 Machine Technology I	5/2011	3	3	5	3	X
MACH 130 Welding I	5/2011	3	3	5	3	X

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COLLEGE-WIDE SLOS

WHAT ASSIGNMENTS DO YOU GIVE IN THESE CLASSES THAT ASSESS THE FOLLOWING GE SLOS?

What assessment tools do you use? Assess only SLOs that you rated 4 or 5.

A.S. in Automotive Technology: Master Repair Technician, Occupational	1. Written, Oral and Visual Communication	2. Scientific and Quantitative Reasoning	3. Critical Thinking 4. Problem Solving	5. Information Literacy:	DEGREE
ACRT/AUTO 095 Applied Automotive Math			Lab practical		X
AUTO 112 Automotive Engines			Lab practical		X
AUTO113 Specialized Electronic Training			Lab practical		X
AUTO114 Basic Fuel Systems		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Measure and correct idle air by-pass systems	X
AUTO 116 Automotive Electrical Systems		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Remove, replace a distributor and adjust timing	X
AUTO 118 Brakes, Alignment & Suspension			Lab practical		X
AUTO 225 Careers & Customer Relations			Lab practical		X
AUTO 228 Automotive Computer Controls		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Diagnosis and repair an OBDII no start condition	X
AUTO 229 Automotive Systems Troubleshooting		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Design a system fault	X

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AUTO 232 Automatic Transmissions & Transaxles		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Disassemble, inspect, reassemble and measure clearance of a hydraulic clutch	X
AUTO 233 Manual Drive Trains & Transaxles			Lab practical		X
AUTO 235 Automotive Air Conditioning		worksheets that require this type of reasoning	30% of the grade is earned by identifying system faults during a manipulative exam	Complete a performance evaluation of the HVAC system	X
AUTO 244 Smog Check Inspector Level 1 & 2 Training			Lab practical		X
MACH 120 Machine Technology I			Lab practical		X
MACH 130 Welding I			Lab practical		X

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REQUIREMENTS

AUTO 95 Applied Automotive Math
AUTO 112 Automotive Engines
AUTO 113 Specialized Electronics Training
AUTO 114 Automotive Basic Fuel Systems
AUTO 116 Automotive Electrical Systems
AUTO 118 Brakes, Alignment and Suspension
AUTO 225 Automotive Careers and Customer Relations
AUTO 228 Automotive Computer Controls
AUTO 229 Automotive Systems, Troubleshooting and Diagnosis
AUTO 232 Automatic Transmissions/Transaxles
AUTO 233 Manual Drive Trains and Axles
AUTO 235 Automotive Air Conditioning
AUTO 244 Smog Check Inspector Level 1 & 2 Training
MACH 120 Machine Technology I
MACH 130 Welding I

STUDENT LEARNING OUTCOMES

1. The student will demonstrate an understanding of the safety requirements necessary to succeed as a Service and Repair Technician.
2. The student will apply environmentally safe techniques when working with hazardous materials.
3. The Automotive Technology Student who intends to transfer into a CSU Industrial Technology discipline will demonstrate the automotive technology skills equivalent to lower division Industrial Technology Majors.
4. The student will be able to demonstrate the skills required for the Automotive Specialty Areas of Brakes, Suspension, Manual Transmissions/Transaxles and Drive-Trains, Automatic Transmissions/Transaxles, Engine Repair, Heating Ventilation and Air Conditioning, Electrical, Engine Performance, Emissions and Advanced Engine Performance to gain an entry-level position as a General Repair Technician being prepared to service and repair all specialty areas.

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THESE DEGREE OUTCOMES EQUAL WHICH COURSE OUTCOMES FOR THESE COURSES?

A.S. in Automotive Technology: Master Repair Technician, Occupational	Demonstrate an understanding of the safety requirements necessary to succeed as a Service and Repair Technician .	Apply environmental y safe techniques when working with hazardous materials.	The Automotive Technology Student who intends to transfer into a CSU Industrial Technology discipline will demonstrate the automotive technology skills equivalent to lower division Industrial Technology Majors.	Demonstrate the skills required the skills required for the Automotive Specialty Areas of Brakes, Suspension, Manual Transmissions/Transaxles and Drive-Trains, Automatic Transmissions/Transaxles, Engine Repair, Heating Ventilation and Air Conditioning, Electrical, Engine Performance, Emissions and Advanced Engine Performance to gain an entry-level position as a General Repair Technician being prepared to service and repair all specialty areas.
ACRT/AUTO 095 Applied Automotive Math	1	1	2	2,3
AUTO 112 Automotive Engines	1	1	2	2,3
AUTO113 Specialized Electronic Training	1	1	2,3	3,4,5
AUTO114 Basic Fuel Systems	1	1	2,3	3,4,5
AUTO 116 Automotive Electrical Systems	1	1	2	2,3
AUTO 118 Brakes, Alignment & Suspension	1	1	2,3	3,4,5,6,7
AUTO 225 Careers & Customer Relations	1	2	3,4,5	6,7,8,9,10,11,12,13,14
AUTO 228 Automotive Computer Controls	1	1	2,3	3,4,5
AUTO 229 Automotive Systems Troubleshooting	1	1	2	2,3,4
AUTO 232 Automatic Transmissions & Transaxles	1	1	2	2,3,4
AUTO 233 Manual Drive Trains & Transaxles	1	1	2,3	3,4,5,6
AUTO 235 Automotive Air Conditioning	1	1	2,3	3,4,5,6
AUTO 244 Smog Check Inspector Level 1 & 2 Training	1	2	3,4,5	6,7,8,9,10,11,12,13,14
MACH 120 Machine Technology I	1	1	2	2,3,4
MACH 130 Welding I	1	1	2	2,3

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IN WHICH COURSES ARE THESE DEGREE SLOS ASSESSED? Use “I” for Intro, “P” for Practice and “M” for Mastery.

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ACRT/AUTO 095 Applied Automotive Math	M	M	I	M
AUTO 112 Automotive Engines	M	M	I	M
AUTO113 Specialized Electronic Training	M	M	I	M
AUTO114 Basic Fuel Systems	M	M	I	M
AUTO 116 Automotive Electrical Systems	M	M	I	M
AUTO 118 Brakes, Alignment & Suspension	M	M	I	M
AUTO 225 Careers & Customer Relations	M	M	I	M
AUTO 228 Automotive Computer Controls	M	M	I	M
AUTO 229 Automotive Systems Troubleshooting	M	M	I	M
AUTO 232 Automatic Transmissions & Transaxles	M	M	I	M
AUTO 233 Manual Drive Trains & Transaxles	M	M	I	M
AUTO 235 Automotive Air Conditioning	M	M	I	M
AUTO 244 Smog Check Inspector Level 1 & 2 Training	M	M	I	M
MACH 120 Machine Technology I	M	M	I	M
MACH 130 Welding I	M	M	I	M

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DEGREE SLOS

WHAT ASSIGNMENTS DO YOU GIVE IN THESE CLASSES THAT ASSESS THE FOLLOWING DEGREE SLOS? What assessment tools do you use? Assess only SLOs that you rated 4 or 5.

A.S. in Automotive Technology: Master Repair Technician, Occupational	Demonstrate an understanding of the safety requirements necessary to succeed as a Service and Repair Technician .	Apply environmental safety safe techniques when working with hazardous materials.	The Automotive Technology Student who intends to transfer into a CSU Industrial Technology discipline will demonstrate the automotive technology skills equivalent to lower division Industrial Technology Majors.	Demonstrate the skills required for the Automotive Specialty Areas of Brakes, Suspension, Manual Transmissions/Transaxles and Drive-Trains, Automatic Transmissions/Transaxles, Engine Repair, Heating Ventilation and Air Conditioning, Electrical, Engine Performance, Emissions and Advanced Engine Performance to gain an entry-level position as a General Repair Technician being prepared to service and repair all specialty areas.
ACRT/AUTO 095 Applied Automotive Math	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Math)
AUTO 112 Automotive Engines	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Engines)
AUTO113 Specialized Electronic Training	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Electronic Training)
AUTO114 Basic Fuel Systems	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Fuel Systems)
AUTO 116 Automotive Electrical Systems	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Electrical Systems)
AUTO 118 Brakes, Alignment & Suspension	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Alignment & Suspension)
AUTO 225 Careers & Customer Relations	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Careers & Customer Relations)
AUTO 228 Automotive Computer Controls	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Computer Controls)
AUTO 229 Automotive Systems Troubleshooting	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Systems Troubleshooting)
AUTO 232 Automatic Transmissions & Transaxles	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automatic Transmissions & Transaxle)
AUTO 233 Manual Drive Trains & Transaxles	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Manual Drive Trains & Transaxles)

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AUTO 235 Automotive Air Conditioning	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Automotive Air Conditioning)
AUTO 244 Smog Check Inspector Level 1 & 2 Training	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Smog Check Inspector Level 1 & 2 Training)
MACH 120 Machine Technology I	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Machine Technology)
MACH 130 Welding I	Unit 1 Safety test	Unit 1 Safety test		Lab practical Final (Emphasis on Welding)

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ACRT_095	Applied Automotive Math	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Use basic math skills to solve Automotive Repair problems. 2. Complete work orders accurately. 3. Calculate paint formulas. 4. Demonstrate the importance of accuracy of paint formulas and repair orders.		

AUTO_112	Automotive Engines	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Develop safe work habits 2. Develop student skills necessary to gain Technician positions, which require minimum supervision upon employment in the Automotive Repair Service Industry 3. Develop an understanding of the parts and operation of the automotive engine, including the intake manifold, cylinder heads, cylinder block, pistons, rings, connecting rods, crankshaft, camshaft, lubrication system and cooling system.		

AUTO_113	Specialized Electronic Training	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate safe work habits. 2. Demonstrate an understanding of the structure of matter and basic electricity. 3. Calculate Ohm's Law and explain how it applies to electrical circuits. 4. Demonstrate the use of a DVOM. 5. Demonstrate the skills necessary to read a wiring diagram or schematic.		

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AUTO_114	Automotive Basic Fuel Systems	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Develop the students safe work habits. 2. Develop student skills necessary to gain an entry level technician position in Automotive Repair Service industry. 3. Develop student skills necessary repair fuel systems. 4. Develop student skills necessary to diagnose the engine's mechanical condition. 5. Develop student skills necessary to test and evaluate fuel control systems.		

AUTO_116	Automotive Electrical Systems	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Develop the student's safe work habits. 2. Develop the student's skills necessary to gain Technician position which require minimum supervision upon employment in the automotive repair service industry. 3. Develop the student's skills necessary to test and repair Automotive Cranking, Charging, Ignition and Accessory Systems.		

AUTO_118	Brakes, Alignment and Suspension	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate skills necessary for job-entry employment in the areas of suspension, alignment and brake system repair, which require minimal supervision upon employment. 2. Demonstrate desirable attitudes towards work and the quality of performance and craftsmanship. 3. Demonstrate an understanding of brake fundamentals, basic hydraulics and brake system components. 4. Demonstrate the proper use of scan tools to diagnose antilock brake systems. 5. Demonstrate an understanding of suspension and steering systems. 6. Demonstrate the proper use of wheel balancers and computerized wheel alignment equipment. 7. Demonstrate safe work habits and promote safety consciousness.		

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AUTO_225	Automotive Careers and Customer Relations	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to:		
1. Write a resume 2. Organize a work portfolio 3. Complete a 1040 easy tax form 4. Complete a job application 5. Recognize desirable attitudes toward work and the quality of performance 6. Recognize desirable attitudes towards good customer and employee relations 7. Demonstrate basic skills and knowledge sufficient for job entry performance in bookkeeping, keeping inventory and tax records, and other written duties. 8. Recognize desirable attitudes towards the Bureau of Automotive Repair and other government regulatory agencies. 9. Demonstrate basic skills in selling automotive repair facilities, including service stations, independent repair shops, and dealership operations 10. Evaluate possible careers in the automotive industry and show what qualifications will be required of them 11. Describe the process of equipping an automotive repair facility 12. Demonstrate environmental safety in relationship to hazardous materials. 13. Demonstrate personal safety in the workplace. 14. Describe insurance as it applies to the automotive industry.		

AUTO_228	Automotive Computer Controls	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to:		
1. Demonstrate safe work habits. 2. Demonstrate the skills necessary to use scan tools, digital multimeters and digital storage oscilloscopes. 3. Demonstrate the skills necessary to use wiring schematics and flow charts for fault evaluation. 4. Demonstrate the skills necessary to test an oxygen sensor. 5. Demonstrate the skills necessary to gain an entry-level technician position in the Automotive Repair Service Industry.		

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AUTO_229	Automotive Systems, Troubleshooting and Diagnosis	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate safe work habits 2. Demonstrate the diagnostic thought process 3. Demonstrate an understanding of testing and repair procedures 4. Demonstrate the skills necessary to gain entry-level technician position in the Automotive Repair Service Industry.		

AUTO_232	Automatic Transmission/Transaxles	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate safe work habits and promote safety consciousness. 2. Demonstrate the skills necessary to perform "in the vehicle" repairs to an automatic transmission/transaxle. 3. Demonstrate the skills necessary to perform "out of the vehicle" repairs to an automatic transmission/transaxle. 4. Demonstrate the skills necessary to gain entry-level technician positions in the Automotive Repair Service Industry.		

AUTO_233	Manual Drive Trains and Axles	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate safe work habits and promote safety consciousness. 2. Perform "in the vehicle" repairs to a manual transmission/transaxle. 3. Perform "out of the vehicle" repairs to a manual transmission/transaxle. 4. Perform manual clutch repairs. 5. Measure gear lash and mesh diagnosis. 6. Gain entry-level technician positions in the Automotive Repair Service Industry.		

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AUTO_235	Automotive Air Conditioning	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate safe work habits and promote safety consciousness. 2. Demonstrate the skills necessary to perform an A/C system inspection and diagnosis. 3. Demonstrate the skills necessary to perform heating and air management system and diagnosis. 4. Demonstrate the skills necessary to perform refrigerant service operations. 5. Demonstrate the skills necessary to perform A/C system repairs. 6. Demonstrate the skills necessary to gain entry-level technician positions in the Automotive Repair Service Industry.		
AUTO_244	Smog Check Inspector Level 1 & 2 Training	New Course
Expected Outcomes for Student:		
Describe and demonstrate personal, shop, equipment and vehicle safety practices. Describe engine theory, design and operation for both gasoline and diesel vehicles. Demonstrate their knowledge, skills and abilities in identifying engine systems, parts and components. Describe emission control systems theory, design and operation for both gasoline and diesel vehicles. Demonstrate their knowledge, skills and abilities in identifying emission control systems on various vehicles. Demonstrate their knowledge, skills and abilities in checking ignition timing on various vehicles. Demonstrate their knowledge, skills and abilities in checking the operation of exhaust gas recirculation systems on various vehicles. Demonstrate their knowledge, skills and abilities in checking monitor readiness on vehicles equipped with second generation on-board diagnostics systems (OBDII). Describe the laws, regulations and procedures associated with consumer authorization of inspections and the overall administration of the Smog Check Program. Describe the standards of practice expected of Smog Check Inspectors. Demonstrate their abilities to calibrate an emission inspection system. Demonstrate their knowledge, skills and abilities in performing Smog Check emission tests on various vehicle designs. Demonstrate their knowledge, skills and abilities in performing Smog Check visual inspections on various vehicle designs. Describe and demonstrate they have the knowledge, skills and abilities to perform Smog Check functional test on various vehicle designs.		

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MACH_120	Machine Technology 1	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: Identify and use common shop safety practices and equipment to complete required tasks and assignments Locate appropriate tools in shop and use them to complete assigned projects Calculate cutting speeds and feeds for a variety of machining processes.		

MACH_130	Welding I	Revise Course
Expected Outcomes for Student:		
Identify and use common shop safety practices and equipment to complete required tasks and assignments Demonstrate basic use of oxy-fuel welding according to industry standards in the flat and horizontal positions Demonstrate basic use and operation of shielded metal arc welding equipment according to industry standards in the flat and horizontal positions		