LEARNING RESOURCES FOR SKILLED TRADES

Automotive Service Technician 2025

First Period Module List

1st PERIOD			
NUMBER	NAME	PAGES	EDITION
090101a	Safety Legislation, Regulations and Industry Policy in the Trades	68	1st Edition
090101b	Lifting, Rigging and Hoisting	40	1st Edition
090101c	Hazardous Materials and Fire Protection	60	1st Edition
090101e	Communication	48	1st Edition
090101f	Measuring Tools	68	1st Edition
090101g	Specialty Hand Tools	48	1st Edition
090101h	Fastening Devices	76	1st Edition
090101i	Electronic Service Information	24	1st Edition
090101j	Air Conditioning Recharging	52	1st Edition
090101k	Hybrid and Electric Vehicle Safety	80	1st Edition
090102a	Frames	48	1st Edition
090102b	Suspension Linkage Systems	88	1st Edition
090102c	Steering Linkage Systems	44	1st Edition
090102d	Wheel Assemblies	84	1st Edition
090102e	Wheel Bearings	40	1st Edition
090102f	Electrically Assisted Steering	36	1st Edition
090102g	Hydraulically Assisted Steering	60	1st Edition
090102hA	Alignment Procedures: Part A	60	1st Edition

1st PERIOD

NUMBER	NAME	PAGES	EDITION
090102hB	Alignment Procedures: Part B	76	1st Edition
090102i	Steering Column	60	1st Edition
090102j	Drive Shafts	36	1st Edition
090103a	Hydraulic Brake Systems	84	1st Edition
090103b	Drum Brake Systems	64	1st Edition
090103c	Disc Brake Systems	48	1st Edition
090103d	Power Assisted Brake Systems	56	1st Edition
090103e	Brake System Service	68	1st Edition
090104a-bA	Magnetism and Electrical Measurement: Part A	80	1st Edition
090104a-bB	Magnetism and Electrical Measurement: Part B	72	1st Edition
090104a-bC	Magnetism and Electrical Measurement: Part C	84	1st Edition
090104a-bD	Magnetism and Electrical Measurement: Part D	52	1st Edition
090104c	Batteries	76	1st Edition
090104dA	Electrical Repairs Diagnosis: Part A	16	1st Edition
090104dB	Electrical Repairs Diagnosis: Part B	88	1st Edition
090104e	Scan Tools	40	1st Edition
090105a	Maintenance	88	1st Edition
090105b	Light Utility Trailer Service	40	1st Edition
TOTAL		**2152**	

Second Period Module List

2nd PERIOD			
NUMBER	NAME	PAGES	EDITION
090201aA	Engines: Part A	88	1st Edition
090201aB	Engines: Part B	92	1st Edition
090201bA	Internal Engine Components: Part A	72	1st Edition
090201bB	Internal Engine Components: Part B	52	1st Edition
090201bC	Internal Engine Components: Part C	64	1st Edition
090201c	Cylinder Head Assemblies	80	1st Edition
090201dA	Valve Trains: Part A	84	1st Edition
090201dB	Valve Trains: Part B	76	1st Edition
090201e	Air Induction Systems	52	1st Edition
090201f	Exhaust Systems	36	1st Edition
090201g	Lubrication Systems	52	1st Edition
090201h	Cooling Systems	84	1st Edition
090201i	Engine Diagnostics	60	1st Edition
090201j	Heating, Cutting, and Gas Metal Arc Welding	64	1st Edition
090202a	Manual Transmissions and Transaxles	88	1st Edition
090202b	Clutches	56	1st Edition
090203a	Four-Wheel Drive Systems	48	1st Edition
090203b	All-Wheel Drive Systems	40	1st Edition

2nd PERIOD

NUMBER	NAME	PAGES	EDITION
090204a	Axles and Bearings	60	1st Edition
090204bA	Final Drive Assembly: Part A	76	1st Edition
090204bB	Final Drive Assembly: Part B	36	1st Edition
090205a	Electrical System Diagnostics	64	1st Edition
090205b	Charging Systems	88	1st Edition
090205c	Starter Motors	68	1st Edition
TOTAL		**1580**	

LEARNING RESOURCES FOR SKILLED TRADES

Automotive Service Technician (AST)

First Period

Module	Title	Outcome	Objectives
090101a	Safety Legislation, Regulations, and Industry Policy in the Trades	Apply legislation, regulations, and practices ensuring safe work	1. Describe the employer's and employee's role with Occupational Health and Safety (OHS) regulations, Worksite Hazardous Materials Information Systems (WHMIS), fire regulations, Workers Compensation Board regulations, and related advisory bodies and agencies. 2. Describe industry practices for hazard assessment and control procedures. 3. Describe the responsibilities of employees and employers to apply emergency procedures. 4. Describe tradesperson attitudes with respect to housekeeping, personal protective equipment, and emergency procedures. 5. Describe the roles and responsibilities of employers and employees with the selection and use of personal protective equipment (PPE). 6. Maintain required PPE for tasks. 7. Use required PPE for tasks. 8. Demonstrate the application of the Occupational Health and Safety Act, Regulation, and Code.
090101b	Lifting, Rigging, and Hoisting	Use industry standard practices for lifting, rigging, and hoisting	1. Describe manual lifting procedures. 2. Describe the characteristics and applications of vehicle hoists and shop lifting equipment. 3. Identify type and capacity of hoisting and lifting equipment required for vehicle or item to be lifted. 4. Identify vehicle lifting points and required adapters and extensions. 5. Perform pre-operational safety checks on vehicle hoists and shop lifting equipment. 6. Operate vehicle hoists and shop lifting equipment. 7. Use PPE for lifting and load moving equipment.
090101c	Hazardous Materials and Fire Protection	Apply industry standard practices for hazardous materials and fire protection	1. Describe roles, responsibilities, features, and practices related to the Workplace Hazardous Materials Information System (WHMIS) program. 2. Describe three key elements of WHMIS. 3. Describe handling, storing, and transporting procedures for hazardous material. 4. Describe venting procedures when working with hazardous materials. 5. Describe hazards, classes, procedures, and equipment related to fire protection.
090101d	Apprenticeship Training Program		We do not provide this module.

Module	Title	Outcome	Objectives
090101e	Communication	Apply communication techniques	1. Identify standard terms related to the trade. 2. Demonstrate effective communication of trade related information. 3. Demonstrate effective written documentation. 4. Develop a concern, cause, and correction report.
090101f	Measuring Tools	Use measuring tools	1. Identify measuring tools. 2. Maintain measuring tools. 3. Perform linear measurements. 4. Perform torque measurements.
090101g	Specialty Hand Tools	Use specialty hand tools	1. Use thread-forming tools. 2. Perform thread repair. 3. Perform broken fastener removal. 4. Perform tube flaring.
090101h	Fastening Devices	Use fastening devices	1. Describe plastic trim fastener usage. 2. Describe special retaining devices. 3. Explain sealer usage. 4. Explain adhesive usage. 5. Perform torquing procedures using threaded fasteners.
090101i	Electronic Service Information	Use electronic service information	1. Access vehicle repair forums for diagnostic purposes. 2. Use electronic service information to repair vehicles.
090101j	Air Conditioning Recharging	Service air conditioning systems	1. Identify refrigerants. 2. Identify air conditioning components. 3. Explain refrigerant handling. 4. Explain refrigerant regulations. 5. Perform refrigerant recovery. 6. Perform air conditioning system recharge.
090101k	Hybrid and Electric Vehicle Safety	Apply hybrid and electrical vehicle safety procedures	1. Identify hybrid and electric vehicles. 2. Identify safety protocols pertaining to hybrid and electric vehicle systems.
090102a	Frames	Inspect vehicle frame and structure	1. Identify frame and structure damage. 2. Describe frame and structure inspection. 3. Identify hitches. 4. Describe hitch damage.
090102b	Suspension Linkage Systems	Repair suspension systems	1. Describe suspension systems. 2. Describe operating principles of suspension systems. 3. Diagnose suspension systems. 4. Repair suspension systems.
090102c	Steering Linkage Systems	Repair steering systems	1. Describe design features of steering systems. 2. Describe operating principles of steering systems. 3. Diagnose steering systems. 4. Repair steering systems.

Module	Title	Outcome	Objectives
090102d	Wheel Assemblies	Service wheel assemblies	1. Describe wheel design. 2. Describe tire design. 3. Describe tire pressure monitoring system (TPMS) operation. 4. Diagnose wheel assemblies. 5. Service wheels. 6. Service tires. 7. Service TPMS systems.
090102e	Wheel Bearings	Repair wheel bearings	1. Describe wheel bearing construction. 2. Diagnose problems related to wheel bearings. 3. Service wheel bearings.
090102f	Electrically Assisted Steering	Repair electrically assisted steering systems	1. Describe electrically assisted steering system operation. 2. Repair mechanical problems related to electrically assisted steering gears.
090102g	Hydraulically Assisted Steering	Repair hydraulically assisted steering systems	1. Identify hydraulic assist pumps. 2. Describe the operation of hydraulically assisted steering systems. 3. Diagnose hydraulically assisted steering problems.
090102hA 090102hB	Alignment Procedures: Part A Part B	Perform a wheel alignment.	1. Describe the effects of steering angles on vehicle operation. 2. Describe the measurement procedures for each steering angle. 3. Describe the adjustment procedures for each steering angle. 4. Select the appropriate alignment settings. 5. Perform a pre-alignment inspection. 6. Perform a wheel alignment. 7. Perform a road test procedure.
090102i	Steering Columns	Repair steering columns	1. Describe steering columns operation. 2. Describe steering column replacement. 3. Diagnose steering column problems.
090102j	Drive Shafts	Repair drive shafts	1. Describe drive shaft operation. 2. Describe drive shaft components. 3. Repair drive shaft assemblies.
090103a	Hydraulic Brake Systems	Repair hydraulic brake systems	1. Describe the operating principles of brake systems. 2. Identify brake fluids. 3. Explain Pascal's law and its implications for brake systems. 4. Describe the design features of brake hydraulic systems. 5. Describe the operation of the hydraulic components when used as a system. 6. Repair hydraulic brake components.
090103b	Drum Brake Systems	Repair drum brake systems	1. Describe drum brake system operation. 2. Describe drum brake system components. 3. Describe drum park brake operation. 4. Repair drum brake systems.

Module	Title	Outcome	Objectives
090103c	Disc Brake Systems	Repair disc brake systems	1. Describe disc brake system operation. 2. Describe disc brake system components. 3. Describe disc park brake operation. 4. Describe electric park brakes. 5. Repair disc brake systems.
090103d	Power-Assisted Brake Systems	Repair power-assisted brake systems	1. Describe power-assisted brake operation. 2. Describe hybrid vehicle braking system service precautions. 3. Demonstrate the procedures for testing a power-assisted brake unit. 4. Diagnose power-assisted brake units.
090103e	Brake System Service	Service brake systems	1. Describe bleeding procedure for brake systems. 2. Perform bleeding procedures on brake systems. 3. Diagnose problems related to brake systems.
090104a-bA 090104a-bB 090104a-bC 090104a-bD	Magnetism and Electrical Measurement: Part A Part B Part C Part D	Measure electrical circuits	1. Identify circuit types and their electrical properties. 2. Describe electrical units of measure. 3. Describe physical qualities of electrical components. 4. Explain power requirements in circuit design. 5. Calculate circuit values using Ohm's law. 6. Calculate circuit power. 7. Interpret electrical symbols and wiring diagrams.
		Apply magnetism principles	1. Describe magnetism principles. 2. Describe electromagnetic coil operation. 3. Describe how magnetism can change electrical energy into kinetic energy.
090104c	Batteries	Service batteries	1. Describe battery operation. 2. Describe types and ratings of batteries. 3. Diagnose problems related to batteries. 4. Perform battery service. 5. Perform battery charging. 6. Perform battery boosting.
090104dA 090104dB	Electrical Repairs: Part A Part B	Electrical repairs diagnosis	1. Describe hazards of electrostatic discharge (ESD). 2. Perform circuit tests. 3. Identify types of circuit faults. 4. Perform circuit repairs.
090104e	Scan Tools	Use scan tools.	1. Use scan tools to retrieve diagnostic data. 2. Use scan tools to perform function tests.

Module	Title	Outcome	Objectives
090105a	Maintenance	Perform scheduled maintenance	1. Identify oils used in automotive applications. 2. Describe the characteristics of oils used in automotive applications. 3. Describe handling practices for all vehicle fluids. 4. Describe the characteristics of engine coolants. 5. Explain maintenance schedules. 6. Identify an appropriate preventative maintenance schedule. 7. Inspect vehicle fluids. 8. Replace accessory drive belts. 9. Service vehicle filters.
090105b	Light Utility Trailer Service	Service light utility trailers	1. Describe trailer brake operation. 2. Perform trailer brake service. 3. Perform light utility trailer service.

LEARNING RESOURCES FOR SKILLED TRADES

Automotive Service Technician (AST)

Second Period

Module	Title	Outcome	Objectives
090201aA **090201aB**	Engines: Part A Part B	Repair engines	1. Identify internal combustion engine types. 2. Describe the principles of engine operation. 3. Describe design features of automotive engines. 4. Describe service options for damaged engine components. 5. Inspect engine block. 6. Disassemble an engine. 7. Assemble an engine.
090201bA **090201bB**	Internal Engine Components: Part A Part B	Inspect internal engine components	1. Describe design features of crankshaft components. 2. Describe service options to repair damaged crankshaft components. 3. Describe the design features of piston assemblies. 4. Describe the design features of connecting rods. 5. Describe piston assembly fitting procedure. 6. Describe engine balance. 7. Describe service options for piston assemblies. 8. Inspect piston assemblies. 9. Inspect crankshaft.
090201c	Cylinder Head Assemblies	Repair cylinder head assemblies	1. Describe combustion chamber designs. 2. Describe cylinder head design. 3. Describe valve design. 4. Perform cylinder head assembly inspection.
090201dA **090201dB**	Valve Trains: Part A Part B	Repair valve train components	1. Describe valve train component design. 2. Describe valve train operation. 3. Describe valve train lubrication. 4. Describe valve train drive mechanisms. 5. Describe variable valve timing mechanisms. 6. Describe cylinder deactivation. 7. Inspect camshafts and lifters. 8. Inspect valve train drive mechanisms. 9. Inspect valve train components. 10. Diagnose variable valve timing systems.

Module	Title	Outcome	Objectives
090201e	Air Induction Systems	Repair air induction systems	1. Identify the types of induction systems. 2. Describe intake manifolds design. 3. Describe the construction of forced air induction systems. 4. Describe forced air induction system maintenance and repair. 5. Diagnose forced air induction systems.
090201f	Exhaust Systems	Repair exhaust systems	1. Describe exhaust components. 2. Describe exhaust system diagnostics. 3. Describe exhaust component replacement.
090201g	Lubrication Systems	Repair lubrication systems	1. Describe lubrication systems. 2. Describe lubrication system components. 3. Describe positive crankcase ventilation (PCV) operation. 4. Diagnose PCV systems. 5. Service PCV systems. 6. Repair lubrication systems.
090201hA **090201hB**	Cooling Systems: Part A Part B	Repair cooling systems	1. Describe heat transfer. 2. Describe cooling system operation. 3. Describe cooling system components. 4. Diagnose cooling systems.
090201i	Engine Diagnostics	Diagnose engine mechanical problems	1. Diagnose engine mechanical problems using physical senses. 2. Diagnose engine mechanical problems using engine test equipment.
090201j	Heating, Cutting, and Gas Metal Arc Welding	Use oxy-fuel and gas metal arc welding (GMAW) equipment	1. Describe characteristics of welding equipment. 2. Describe handling procedures for using welding equipment. 3. Describe oxy-fuel and GMAW equipment. 4. Use PPE when using oxy-fuel and GMAW equipment. 5. Demonstrate handling procedures for oxy-fuel and GMAW equipment. 6. Demonstrate the use of oxy-fuel and GMAW equipment. 7. Perform cutting operations. 8. Perform GMAW procedures.

Module	Title	Outcome	Objectives
090202a	Manual Transmissions and Transaxles	Repair manual transmissions and transaxles	1. Identify gear designs. 2. Identify types of bearings and seals in manual transmissions and transaxles. 3. Identify the path of power through a manual transmission and transaxle. 4. Describe operating principles of a manual transmission and transaxle. 5. Describe manual transmission and transaxle lubrication requirements. 6. Describe shift mechanism operation. 7. Describe synchromesh operation. 8. Describe the adjustment of manual transaxle linkages. 9. Describe internal manual transmission component lubrication. 10. Diagnose manual transmissions. 11. Diagnose manual transaxles. 12. Disassemble a manual transmission. 13. Assemble a manual transmission. 14. Disassemble a manual transaxle. 15. Assemble a manual transaxle.
090202b	Clutches	Repair automotive clutches	1. Describe clutch operation. 2. Describe clutches. 3. Describe clutch service. 4. Diagnose a clutch assembly.
090203a	Four-Wheel Drive Systems	Repair four-wheel drive (4WD) systems	1. Describe transfer case operation. 2. Describe 4WD hubs and axle operation. 3. Diagnose transfer cases. 4. Diagnose 4WD hubs and axles.
090203b	All-Wheel Drive Systems	Repair all-wheel drive (AWD) systems	1. Describe AWD system operation. 2. Diagnose AWD systems.
090204a	Axles and Bearings	Repair axle shafts and bearings	1. Identify axle shaft types. 2. Describe drive axle assembly components. 3. Describe bearing maintenance. 4. Diagnose axle shafts. 5. Diagnose axle bearings.

Module	Title	Outcome	Objectives
090204b	Final Drive Assembly	Repair drive axle assembly	1. Identify differential types. 2. Describe the operation of differentials. 3. Describe the lubrication requirements for differentials. 4. Describe the procedure to test a traction-enhancing differential. 5. Identify the path of power from the drive pinion gear to the axle. 6. Describe the operation of final drive gear sets. 7. Describe how the final drive gear set support bearings are lubricated. 8. Describe final drive gear sets. 9. Demonstrate the effect of gear position on contact pattern. 10. Diagnose drive axle assembly. 11. Perform final drive gear set disassembly. 12. Perform final drive gear set reassembly.
090205a	Electrical System Diagnostics	Diagnose electrical systems	1. Interpret electrical circuit diagrams. 2. Connect scan tools to vehicles and monitor scan data on applicable second period automotive systems. 3. Use diagnostic strategies to locate circuit faults. 4. Diagnose circuit faults.
090205b	Charging Systems	Repair charging systems	1. Describe generator operating principles. 2. Describe charging system operation. 3. Describe charging system-warning indicator operation. 4. Describe computer-controlled charging systems. 5. Describe dual generator systems. 6. Perform charging system diagnostics.
090205c	Starter Motors	Repair starting systems	1. Describe the operating principles of direct current (DC) motors. 2. Describe starting system operation. 3. Describe electronically controlled starting systems. 4. Perform starter system diagnostics.