Module 1: INTRODUCTION TO AUTOMOTIVE TECHNOLOGY (NATEF 0)

Module 2: ELECTRICAL/ELECTRONICS (NATEF 6)
Module 3: ENGINE PERFORMANCE (NATEF 8)

Module 4: ENGINE REPAIR (NATEF 1)

Module 5: STEERING AND SUSPENSION (NATEF 4)

Module 6: BRAKES (NATEF 5)

Module 7: MANUAL DRIVE TRAIN/AXLE (NATEF 3)
Module 8: AUTOMATIC TRANSMISSION (NATEF 2)
Module 9: HEATING AND AIR CONDITIONING (NATEF 7)

INTRODUCTION TO AUTOMOTIVE TECHNOLOGY (Module 1)

UNIT 1: Careers in the Automotive Field

Lesson 1: The Automotive Technology

UNIT 2: Safety

LESSON 1: Protecting Yourself and Others in the Shop

LESSON 2: Shop Safety Features and Emergency Procedures

LESSON 3: Raising and Supporting Vehicles Safety

LESSON 4: Federal and State Hazardous Material Regulations

UNIT 3: Chemicals and Their Use

LESSON 1: Solvents, Soaps, and Cleaning Solutions

LESSON 2: Lubricants and Specialty Chemicals

LESSON 3: Gases, Asbestos, Dust, and Battery Acid

UNIT 4: Hand Tools

LESSON 1: Types of Wrenches

LESSON 2: Types of Screwdrivers and Pliers

LESSON 3: Types of Hammers, Punches, and Chisels

UNIT 5: Specialty Tools, Fasteners, and Measuring Tools

LESSON 1: Specialty Tools

LESSON 2: Fasteners

LESSON 3: Measuring Tools

UNIT 6: Power Tools and Shop Equipment

LESSON 1: Power Tools

LESSON 2: Shop Equipment

UNIT 7: Vehicle Information

LESSON 1: Service Information and Vehicle Identification

UNIT 8: Customer Servicer

LESSON 1: Customer Service, Work Orders, and Vehicle Preparation

ELECTRICAL/ELECTRONICS (Module 2)

UNIT 1: Fundamental Principles of Electricity

LESSON 1: Basic Electrical Theory

LESSON 2: Electrical Measurement and Ohm's Law

UNIT 2: Electrical Circuits

LESSON 1: Components of an Electrical Circuit

UNIT 3: General Electrical Systems Diagnosis

LESSON 1: Basic Testing Information

LESSON 2: Preliminary Electrical/Electronic System Diagnosis

LESSON 3: Test Electrical Circuits

LESSON 4: Wire and Connector Repairs

UNIT 4: Battery Diagnosis and Service

LESSON 1: The Basics of the Battery

LESSON 2: Test and Service the Battery

UNIT 5: Starting System Diagnosis and Repair

LESSON 1: Starting System Components and Operation

LESSON 2: Test the Starting System

LESSON 3: Service the Starter

UNIT 6: Charging System Diagnosis and Repair

LESSON 1: Charging System Components and Operation

LESSON 2: Inspect and Test the Charging System

LESSON 3: Service the Charging Systems

UNIT 7: Lighting Systems Diagnosis and Repair

LESSON 1: Lighting Systems and Components

LESSON 2: Test and Diagnose the Lighting System

LESSON 3: Service the Lighting System

UNIT 8: Gauges, Warning Devices, and Driver Information Systems Diagnosis and Repair

LESSON 1: Test and Service Gauges, Warning Devices, and Driver Information Systems

UNIT 9: Horn and Wiper/Washer Diagnosis and Repair

LESSON 1: Test and Service the Horn and Windshield Wiper/Washer Systems

UNIT 10: Accessories Diagnosis and Repair

LESSON 1: Accessory Systems Components and Operation

LESSON 2: Test and Service the Accessories

ENGINE PERFORMANCE – IGNITION SYSTEMS (Module 3.1)

UNIT 1: Introduction to Ignition Systems

LESSON 1: Overview of Ignition Systems

UNIT 2: General Engine Diagnosis

LESSON 1: Performing Preliminary Engine Diagnosis

LESSON 2: Performing Engine Diagnostic Tests

LESSON 3: Performing Engine System Diagnostic Tests

UNIT 3: Computerized Engine Controls Diagnosis and Repair

LESSON 1: Introduction to Computerized Engine Controls

LESSON 2: On-Board Diagnostics and Driveability

LESSON 3: Test and Service Computerized Engine Controls Components

UNIT 4: Distributor Ignition (DI) Systems

LESSON 1: Overview and Theory of Distributor Ignition Systems

LESSON 2: Diagnosing and Service Distributor Ignition Systems

UNIT 5: Electronic Ignition (EI) Systems

LESSON 1: Overview and Theory of Electronic Ignition Systems

LESSON 2: Diagnosing and Servicing Electronic Ignition Systems

UNIT 6: Engine Related Service

LESSON 1: Engine Related Service LESSON 2: Oxyfuel Heating and Cutting

ENGINE PERFORMANCE – FUEL AND EXHAUST SYSTEMS (Module 3.2)

UNIT 1: Introduction to Fuels

LESSON 1: Fuels and Fuel Specifications

UNIT 2: General Engine Diagnosis

LESSON 1: Performing Preliminary Engine Diagnosis

LESSON 2: Performing Engine Diagnostic Tests

LESSON 3: Performing Engine System Diagnostic Tests

UNIT 3: Computerized Engine Controls Diagnosis and Repair

LESSON 1: Introduction to Computerized Engine Controls

LESSON 2: On-Board Diagnostics and Driveability

LESSON 3: Test and Service Computerized Engine Controls Components

UNIT 4: Fuel Supply Systems

LESSON 1: Overview of Fuel Supply Systems

LESSON 2: Test and Service Fuel Supply Systems

UNIT 5: Electronic Fuel Injection Systems

LESSON 1: Overview of Electronic Fuel Injection Systems

LESSON 2: Diagnose and Service Electronic Fuel Injection Systems

UNIT 6: Turbochargers and Superchargers

LESSON 1: Turbochargers and Superchargers

UNIT 7: Exhaust Systems

LESSON 1: Diagnose and Service the Exhaust System

UNIT 8: Engine Related Service

LESSON 1: Engine Related Service

LESSON 2: Oxyfuel Heating and Cutting

EMISSION CONTROL SYSTEMS (Module 3.3)

UNIT 1: Introduction to Emission Control Systems

LESSON 1: Overview of Emission Control Systems

UNIT 2: General Engine Diagnosis

LESSON 1: Performing Preliminary Engine Diagnosis

LESSON 2: Performing Engine Diagnostic Tests

LESSON 3: Performing Engine System Diagnostic Tests

UNIT 3: Computerized Engine Controls Diagnosis and Repair

LESSON 1: Introduction to Computerized Engine Controls

LESSON 2: On-Board Diagnostics and Driveability

LESSON 3: Test and Service Computerized Engine Controls Components

UNIT 4: Positive Crankcase Ventilation System

LESSON 1: Positive Crankcase Ventilation System

UNIT 5: Exhaust Gas Recirculation

LESSON 1: Diagnose and Service the Exhaust Gas Recirculation System

UNIT 6: Exhaust Gas Treatment

LESSON 1: Diagnose and Service Secondary Air Injection Systems

LESSON 2: Diagnose and Service the Catalytic Converter

UNIT 7 Evaporative Emissions Controls

LESSON 1: Diagnose and Service Evaporative Emissions Controls

UNIT 8: Engine Related Service

LESSON 1: Engine Related Service

LESSON 2: Oxyfuel Heating and Cutting

ENGINE REPAIR (Module 4)

UNIT 1: Engine Design

LESSON 1: Principles of Engine Design

UNIT 2: Engine Diagnosis, Removal, and Installation

LESSON 1: General Engine Diagnosis

LESSON 2: Engine Diagnostic Tests

LESSON 3: Engine Removal and Installation

UNIT 3: Cylinder Head and Valve Train Diagnosis and Repair

LESSON 1: Cylinder Head and Valve Train Function and Construction

LESSON 2: Cylinder Head Diagnosis and Repair

LESSON 3: Valve Train Diagnosis and Repair

UNIT 4: Engine Block Assembly

LESSON 1: Engine Disassemble and Assembly

UNIT 5: Lubrication and Cooling Systems Diagnosis and Repair

LESSON 1: Lubrication System Function and Components

LESSON 2: Lubrication System Diagnosis and Repair

LESSON 3: Cooling System Function and Components

LESSON 4: Cooling System Diagnosis and Repair

STEERING AND SUSPENSION SYSTEMS (Module 5)

UNIT 1: General Steering and Suspension Systems Diagnosis

- **LESSON 1: Steering and Suspension Systems Overview**
- **LESSON 2: Work Orders and General Diagnosis**

UNIT 2: Steering System Design and Fluid Service

- **LESSON 1: Introduction to Steering Systems**
- LESSON 2: Conventional Steering System Components and Operation
- LESSON 3: Rack and Pinion Steering System Components and Operation
- LESSON 4: Servicing Steering Fluids and Diagnosing Leaks

UNIT 3: Steering Gear and Linkage Diagnosis and Repair

- LESSON 1: Diagnosing the Steering Gear
- LESSON 2: Repairing a Manual Steering Gear
- LESSON 3: Repairing an Integrated Power Steering Gear
- **LESSON 4: Inspecting and Replacing Linkages**

UNIT 4: Rack and Pinion Steering Diagnosis and Repair

- LESSON 1: Diagnosing and Repairing a Manual Rack and Pinion Steering Gear
- LESSON 2: Diagnosing and Repairing a Power Rack and Pinion Steering Gear
- LESSON 3: Repairing Rack and Pinion Steering External Components

UNIT 5: Power Steering System Diagnosis and Repair

- **LESSON 1: Pressure Testing Power Steering Systems**
- LESSON 2: Replacing and Servicing Power Steering Components

UNIT 6: Steering Column Diagnosis and Repair

- LESSON 1: Energy Absorbing Steering Column Design and Operation
- LESSON 2: Air Bag System Design and Operation
- LESSON 3: Diagnosing and Repairing the Steering Column

UNIT 7: Suspension System Designs

- **LESSON 1: Introduction to Suspension Systems**
- **LESSON 2: Front Suspension System Types and Components**
- LESSON 3: Rear Suspension System Types and Components

UNIT 8: Front Suspension Diagnosis and Repair

- LESSON 1: Diagnosing and Servicing a Front Suspension System
- LESSON 2: Inspecting and Replacing Front Suspension Control Components
- LESSON 3: Inspecting and Replacing Front Suspension Springs, Ball Joints, and Control Arms
- **LESSON 4: Servicing Front Strut Suspensions**

UNIT 9: Rear Suspension Diagnosis and Repair

LESSON 1: Diagnosing and Repairing Rear Suspension Systems

UNIT 10: Electronic Suspension Control Systems Diagnosis and Repair

LESSON 1: Electronic Suspension Control Systems Design

LESSON 2: Diagnosing and Repairing Electronic Suspension Control Systems

UNIT 11: Wheel Bearing and Spindles Diagnosis

LESSON 1: Wheel Bearing and Spindle Design

LESSON 2: Diagnosing and Repairing Wheel Bearing and Spindles

UNIT 12: Wheel and Tire Design

LESSON 1: Wheel Design LESSON 2: Tire Design

UNIT 13: Wheel and Tire Diagnosis and Repair

LESSON 1: Inspecting and Rotating Tires

LESSON 2: Mounting Tires and Repairing Punctures

LESSON 3: Principles of Wheel Balance and Runout

LESSON 4: Testing for and Correcting Wheel and Tire Assembly Runout and Imbalance

UNIT 14: Wheel Alignment Diagnosis, Adjustment, and Repair

LESSON 1: Diagnosing Various Steering, Suspension, and Wheel Alignment Problems

LESSON 2: Principles of Wheel Alignment

LESSON 3: Measuring and Correcting Wheel Alignment

BRAKES (Module 6)

UNIT 1: Introduction to Brake Systems

LESSON 1: Fundamental Principles of Brake Systems

UNIT 2: General Brake Systems Diagnosis

LESSON 1: Troubleshooting Various Brake System Problems

LESSON 2: Brake Diagnosis Procedures

UNIT 3: Hydraulic System Diagnosis and Repair

LESSON 1: Hydraulic System Components

LESSON 2: The Selection and Handling of Brake Fluid

LESSON 3: Bleeding Brake Systems

LESSON 4: Servicing the Master Cylinder

LESSON 5: Servicing Hydraulic Brake Plumbing

LESSON 6: Servicing Brake System Switches and Valves

UNIT 4: Drum Brake Diagnosis and Repair

LESSON 1: Drum Brake Operating Principles

LESSON 2: Inspect and Diagnose Drum Brake Systems

LESSON 3: Service Drum Brake Systems

LESSON 4: Machine Brake Drums

UNIT 5: Disc Brake Diagnosis and Repair

LESSON 1: Disc Brake Operating Principles

LESSON 2: Inspect and Diagnose Disc Brake Systems

LESSON 3: Service Disc Brake Calipers

LESSON 4: Service Disc Brake Rotors

UNIT 6: Power Assisted Brake System Diagnosis and Repair

LESSON 1: Operating Principles of Power Assist Units

LESSON 2: Diagnose and Service Power Assist Units

UNIT 7: Diagnose and Repair Wheel Bearings, Parking Brakes, and Brake Electrical Systems

LESSON 1: Wheel Bearing Service and Adjustment

LESSON 2: Parking Brake and Brake Electrical System Service and Adjustment

UNIT 8: Antilock Brakes and Traction Control Systems

LESSON 1: Overview of Antilock Brake Systems

LESSON 2: Diagnose and Service Antilock Brake Systems

MANUAL DRIVE TRAIN AND AXLES (Module 7)

UNIT 1: Introduction to Manual Drive Train and Axle Deign

LESSON 1: Manual Drive Train and Axles Design

UNIT 2: Manual Transmission Components and Operation

LESSON 1: Manual Transmission Gear Components and Operation

LESSON 2: Manual Transmission Design and Operation

UNIT 3: Manual Transmission Diagnosis and Repair

LESSON 1: Diagnose and Performance Test a Manual Transmission

LESSON 2: Remove, Disassemble, Inspect, and Clean a Manual Transmission

LESSON 3: Reassemble and Reinstall a Manual Transmission

UNIT 4: Clutch Assembly Components and Operation

LESSON 1: Clutch Assembly Components and Operation

UNIT 5: Clutch Assembly, Diagnosis and Repair

LESSON 1: Clutch Assembly Diagnosis

LESSON 2: Clutch Assembly Repair

UNIT 6: Drive Shaft Diagnosis and Repair

LESSON 1: Drive Shaft Components

LESSON 2: Drive Shaft Diagnosis and Repair

LESSON 3: Drive Shaft Inspection and Repair

UNIT 7: Differential Components and Operation

LESSON 1: Differential Component Design

UNIT 8: Differential Diagnosis and Removal

LESSON 1: Differential Diagnosis

LESSON 2: Differential Repair

UNIT 9: Differential Repair, Installation, and Performance Test

LESSON 1: Differential Disassembly, Adjustment, Installation, and Performance Test

LESSON 2: Differential Assembly, Adjustment, Installation, and Performance Test

UNIT 10: Manual Transaxle Operation and Diagnosis

LESSON 1: Manual Transaxle Operation

LESSON 2: Manual Transaxle Diagnosis

UNIT 11: Manual Transaxle Repair, Installation, and Performance Test

LESSON 1: Transaxle Removal and Disassembly

LESSON 2: Clean, Inspect, and Transaxle Assembly

LESSON 3: Transaxle installation and Performance Test

UNIT 12: Four Wheel Drive Operation Diagnosis and Repair

LESSON 1: Four Wheel Drive Components and Operation

LESSON 2: Four Wheel Drive Diagnosis and Repair

UNIT 13: Transfer Case Diagnosis and Repair

LESSON 1: Transfer Case Components and Operation

LESSON 2: Transfer Case Diagnosis and Removal

LESSON 3: Disassemble, Clean, Adjust, and Reassemble a Transfer Case

LESSON 4: Transfer Case Installation and Performance Test

AUTOMATIC TRANSMISSION AND TRANSAXLE (Module 8)

UNIT 1: Introduction to Automatic Transmissions and Transaxles

LESSON 1: Automatic Transmission/Transaxle Components and Operation

UNIT 2: Transmission and Transaxle Control Systems

LESSON 1: Hydraulic Control System Components and Operation

LESSON 2: Electronic Control System Components and Operation

UNIT 3: Transmission and Transaxle Diagnosis

LESSON 1: Evaluation and Diagnosis of Transmissions and Transaxles

LESSON 2: Shop Test Procedures for Automatic Transmissions/Transaxles

LESSON 3: Diagnostic Procedures for Electronically Controlled Transmissions/Transaxles

LESSON 4: Electronic Testing of Electronically Controlled Automatic

Transmission/Transaxles

UNIT 4: In-Vehicle Transmission and Transaxle Maintenance and Repair

LESSON 1: Maintenance and Adjustment of Transmissions and Transaxles

LESSON 2: In-Vehicle Components Inspection, Testing and Repair

UNIT 5: Off-Vehicle Transmission and Transaxle Repair

LESSON 1: Off-Vehicle Components Inspection, Testing, and Repair

LESSON 2: Reassembly and Reinstallation of the Transmission/Transaxle

HEATING AND AIR CONDITIONING (Module 9)

UNIT 1: Principles of Automotive Air Conditioning

LESSON 1: Principles of Refrigeration

LESSON 2: Operating Principles of Air Conditioning Systems

UNIT 2: Automotive Air Conditioning System Design

LESSON 1: Components of the Air Conditioning System and How They Function

LESSON 2: Typical Air Conditioning System Designs

UNIT 3: Equipment and Refrigerants for Automotive Air Conditioning System Service

LESSON 1: Equipment and Refrigerants for Servicing the Air Conditioning System

LESSON 2: Alternate Refrigerants

UNIT 4: Air Conditioning Systems Diagnosis, Repair, and Service

LESSON 1: Diagnosing, Repairing, and Servicing the Air Conditioning System

UNIT 5: Compressor and Clutch Diagnosis and Repair

LESSON 1: Diagnosing and Repairing the Compressor and Clutch

UNIT 6: Condenser, Evaporator, and Related Components Diagnosis and Repair

LESSON 1: Diagnosing and Repairing the Condenser, Evaporator, and Related Components

UNIT 7: Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair

LESSON 1: Operation of the Heating and Cooling Systems

LESSON 2: Diagnosing and Repairing the Heating and Cooling Systems

UNIT 8: Operating Systems and Related Controls Diagnosis and Repair

LESSON 1: Electrical Components

LESSON 2: Heating and Air Conditioning Control Devices

LESSON 3: Operation of Automatic and Semiautomatic Heating and Cooling Control

Systems

LESSON 4: Diagnosing Automatic and Semiautomatic Control Systems

UNIT 9: Air Conditioning System Retrofits

LESSON 1: Retrofitting the Air Conditioning System