

**Course Blueprint for  
Today's Class Automotive Brakes**  
(Recommended hours of instruction: 135 or 150 minimum)

	<b>Total Course Weight</b>	<b>100%</b>	
<b>101.00</b>	<b>Understanding Brake System Fundamentals</b>	<b>11%</b>	
	1.01 Principles of Friction 1.02 Heat and Brake Linings 1.03 Weight and Speed 1.04 Friction Between Tire and Road 1.05 Service Brakes & Parking Brakes 1.06 Base Brake Components 1.07 Brake Subsystems 1.08 Hydraulic Principles 1.09 Split Hydraulic Systems 1.10 Regenerative Braking		
<b>102.00</b>	<b>Understanding Master Cylinder</b>	<b>9%</b>	
	2.01 Brake Circuit Leak 2.02 Compensating Ports 2.03 Bypass Ports 2.04 Master Cylinder Release/Leak Types 2.05 Balance Control Systems 2.06 Metering Valve 2.07 Proportioning Valve 2.08 Pressure Differential Valve (Switch)		
<b>103.00</b>	<b>Understanding the Power Assist System</b>	<b>6%</b>	
	3.01 Vacuum Booster 3.02 Hydraulic Assist Boost System 3.03 Diagnosing Power-Assisted Brake Systems 3.04 Diagnosing Vacuum-Boost Power Brake Systems 3.05 Diagnosing Hydraulically-Assisted Power Brakes 3.06 Repairing Power Boosters		
<b>AS104.00</b>	<b>Understanding Disc Brakes</b>	<b>19%</b>	
	4.01 Disc Brake Caliper 4.02 Disc Brake Rotors 4.03 Measuring Rotor Thickness Variation 4.04 Rotor Refinishing 4.05 Inspect and Diagnose Disc Brake Systems 4.06 Determining the Cause of Pulsating Pedal or Brake Fade 4.07 Service Disc Brake Calipers 4.08 Removing Disc Brake Calipers 4.09 Inspecting and Repairing Calipers 4.10 Installing and Adjusting Disc Brake Calipers 4.11 Service Disc Brake Rotors 4.12 Determining Rotor Thickness, Parallelism, and Runout 4.13 Machining Rotors off the Vehicle 4.14 Machining Rotors on the Vehicle		
<b>105.00</b>	<b>Reading Micrometers</b>	<b>2%</b>	
	5.01 Reading an English Micrometer 5.02 Exercise 1 5.03 Exercise 2 5.04 Reading a Metric Micrometer 5.05 Exercise 3		

<b>106.00</b>	<b>Understanding Drum Brakes</b>	<b>12%</b>	
	6.01 Brake Drum 6.02 Brake Shoes 6.03 Wheel Cylinder 6.04 Brake Anchors 6.05 Backing Plate 6.06 Duo-servo Brake Operation 6.07 Self-Adjusters 6.08 Leading-Trailing Brake Operation 6.09 Brake Drum Inspection 6.10 Measuring Brake Drums 6.11 Inspecting and Diagnosing the Drum Brake System 6.12 Visually Inspecting the Drum Brake System 6.13 Disassembling, Inspecting, and Servicing the Drum Brake System 6.14 Procedures for Disassembling and Inspecting a Drum Brake Assembly 6.15 Disassembling and Inspecting the Wheel Cylinder 6.16 Procedure for Wheel Cylinder Service 6.17 Installing and Adjusting Drum Brake Components 6.18 Machine Brake Drums 6.19 Brake Service Tips		
<b>107.00</b>	<b>Understanding Brake Fluid and Bleeding Brake Systems</b>	<b>11%</b>	
	7.01 The Selection and Handling of Brake Fluid 7.02 Procedure for Adding Brake Fluid 7.03 Brake Bleeding Fundamentals 7.04 Pressure Bleeding 7.05 Pressure Bleeding (cont'd) 7.06 Manual Bleeding 7.07 Bleeding the Brake System 7.08 Procedure for Pressure Bleeding the Brake System 7.09 Procedure for Vacuum Bleeding the Brakes 7.10 Servicing the Master Cylinder 7.11 Procedure for Checking the Operation of the Master Cylinder 7.12 Removing, Bench Bleeding, and Replacing the Master Cylinder 7.13 Inspecting and Adjusting Brake Pedal Free Height and Travel		
<b>108.00</b>	<b>Understanding Parking Brake</b>	<b>4%</b>	
	8.01 Parking Brake - Drum (Duo-Servo) 8.02 Disc Brakes with Integral Parking Brake 8.03 Ball-and-Ramp Parking Brake 8.04 Drum-in-Hat Parking Brake 8.05 Mechanical Brake System Components 8.06 Inspecting and Adjusting Drum Parking Brakes 8.07 Procedure for Inspecting Auxiliary Drum Parking Brakes 8.08 Procedure for Adjusting Integrated and Auxiliary Parking Brake Systems 8.09 Inspecting and Adjusting Disc Parking Brakes 8.10 Testing Parking Brake Performance 8.11 Testing the Parking Brake Indicator Light 8.12 Testing the Brake Light Circuit 8.13 Testing the Brake Warning Light		
<b>109.00</b>	<b>Understanding Brake Lines and Hoses</b>	<b>4%</b>	

	<ul style="list-style-type: none"> <li>9.01 Brake Hoses</li> <li>9.02 Servicing Hydraulic Brake Plumbing</li> <li>9.03 Inspecting and Replacing Brake Lines and Hoses</li> </ul>		
<b>110.00</b>	<b>Understanding Wheel Bearing Service and Adjustment</b>	<b>5%</b>	
	<ul style="list-style-type: none"> <li>10.01 Inspecting and Servicing Nonsealed Wheel Bearings</li> <li>10.02 Procedure for Servicing Nonsealed Wheel Bearings</li> <li>10.03 Adjusting Nonsealed Wheel Bearings and Tightening Sealed Wheel Bearings</li> <li>10.04 Procedure for Tightening Sealed Wheel Bearings</li> <li>10.05 Inspecting and Servicing Sealed Bearings</li> <li>10.06 Inspecting and Replacing Wheel Studs</li> </ul>		
<b>111.00</b>	<b>Understanding Antilock Brakes and Traction Control Systems</b>	<b>8%</b>	
	<ul style="list-style-type: none"> <li>11.01 Antilock Brake System Components</li> <li>11.02 Brake Modulator</li> <li>11.03 ABS Controller</li> <li>11.04 Variations in the Antilock Brake System Design</li> <li>11.05 Integrated Hydraulic Assembly Design</li> <li>11.06 Nonintegrated System Design</li> <li>11.07 Other System Designs</li> <li>11.08 Traction Control System Function and Components</li> <li>11.09 Stability Control System Function and Components</li> <li>11.10 Diagnose and Service Antilock Brake Systems</li> <li>11.11 Precautions for Servicing Antilock Brake Systems</li> <li>11.12 Recognizing Normal ABS Functions</li> <li>11.13 Diagnosing Antilock Brake Systems</li> <li>11.14 Diagnosing Intermittent Electrical Problems</li> <li>11.15 Servicing Individual ABS Components</li> <li>11.16 Powertrain Control Module (cont'd)</li> <li>11.17 Hydraulic Assembly</li> </ul>		
<b>112.00</b>	<b>Understanding Brake Diagnosis Procedures</b>	<b>9%</b>	
	<ul style="list-style-type: none"> <li>12.01 The Work Order</li> <li>12.02 Brake Diagnosis - Initial Steps</li> <li>12.03 Visual Inspection</li> <li>12.04 Detailed Visual Inspection</li> <li>12.05 Brake Pedal Checks</li> <li>12.06 Test Drive</li> <li>12.07 Safety Precautions for Dealing With Asbestos</li> <li>12.08 Safety Precautions for Lifting a Vehicle</li> <li>12.09 Troubleshooting Various Brake System Problems</li> <li>12.10 Diagnosing Brakes that Pull, Drag, or Stop the Vehicle Poorly</li> <li>12.11 Contaminated Brake Fluid</li> <li>12.12 Troubleshooting the Brake System</li> </ul>		