

## Engine Diagnostic Course – 10 Weeks

Week 1 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• College Polices &amp; Facilities – Health &amp; Safety – Fire Alarm</li> <li>• Staff &amp; student introductions</li> <li>• Course Calendar – Course Overview</li> <li>• Log In Details – Teams/ LJ/ Electude</li> <li>• Workshop Policies – Health &amp; safety (PPE) - Tools and Equipment –</li> </ul> <p><b>Health &amp; Safety Phase Test</b></p>	<ul style="list-style-type: none"> <li>• <b>Health &amp; Safety</b></li> <li>• <b>Tour</b></li> <li>• <b>Use of Workshop Tools and Equipment</b></li> <li>• <b>Vehicle layout – component identification – sourcing information using Autodata</b></li> </ul>

Week 2 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• 4 – Stroke cycle – Engine operating principle</li> <li>• Engine Component - identification &amp; function</li> <li>• Engine Dimensions, measurement and markings</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Engine dismantle and assemble</b></li> <li>• <b>Valve Timing</b></li> <li>• <b>Component inspection</b></li> </ul>

Week 3 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• Checking and assessing engine mechanical condition</li> <li>• Compression test – evaluating results, making recommendations of repair</li> <li>• Cylinder leakage test – evaluating results making recommendations of repairs</li> </ul> <p><b>Engine Mechanical Phase Test</b></p>	<ul style="list-style-type: none"> <li>• <b>Cylinder compression test</b></li> <li>• <b>Cylinder leakage test</b></li> </ul>

Week 4 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• Ignition system layout and operation – Si engine</li> <li>• Component identification and function – spark plug identification</li> <li>• Ignition timing</li> <li>• Ignition Circuit – wiring diagrams</li> <li>• Crankshaft and Camshaft Position Sensors</li> <li>• Health &amp; safety</li> </ul> <p><b>Ignition system Phase Test</b></p>	<ul style="list-style-type: none"> <li>• <b>Check/ Set ignition timing</b></li> <li>• <b>R&amp;R Spark plugs – Interpreting spark plug tip information</b></li> <li>• <b>Ignition circuit wiring</b></li> <li>• <b>Use of Multimeter</b></li> </ul>

Week 5 – Classroom	Workshop
<ul style="list-style-type: none"> <li>Fuel system layout and operation - Si engine</li> <li>Component identification and function</li> <li>Types of fuel systems</li> <li>Emissions – Lambda sensors – Catalytic convertors</li> </ul> <p><b>Fuel System Phase Test</b></p>	<ul style="list-style-type: none"> <li>Testing fuel line pressures</li> <li>Testing injector pulse , (Use of Noid Lights)</li> </ul>

Week 6 – Classroom	Workshop
<ul style="list-style-type: none"> <li>Induction systems – layout and components</li> <li>Naturally aspirated &amp; Turbo charge</li> </ul> <p><b>Induction System Phase Test</b></p>	<ul style="list-style-type: none"> <li>Reading &amp; evaluating Lambda sensor data</li> <li>Reading and evaluating Air Mass Meter data</li> </ul>

Week 7 – Classroom	Workshop
<ul style="list-style-type: none"> <li>Diesel Engines and Diesel Fuel Systems</li> <li>Component identification and function</li> <li>Turbochargers and intercoolers</li> <li>Emissions – DPF – Diesel Particulate Filter Operation</li> </ul> <p><b>Diesel System Phase Test</b></p>	<ul style="list-style-type: none"> <li>Bleeding diesel fuel systems</li> <li>Checking glow plug operation</li> </ul>

Week 8 – Classroom	Workshop
<ul style="list-style-type: none"> <li>Can-Bus Layout and operation</li> <li>Sensor types and operation</li> <li>Interpreting data and information</li> <li>Wiring diagrams</li> </ul>	<ul style="list-style-type: none"> <li>Reading Data and DTC</li> <li>Use of Diagnostic equipment</li> <li>Testing sensors and evaluating operation</li> </ul> <p><b>End Assessment practical with Q&amp;A</b></p>

Week 9 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• Can-Bus Layout and operation</li> <li>• Sensor types and operation</li> <li>• Interpreting data and information</li> <li>• Wiring diagrams</li> </ul> <p><b>Summative knowledge test</b></p>	<ul style="list-style-type: none"> <li>• <b>Reading Data and DTC</b></li> <li>• <b>Use of Diagnostic equipment</b></li> <li>• <b>Testing sensors and evaluating operation</b></li> <li>• <b>Fault finding</b></li> </ul>

Week 10 – Classroom	Workshop
<ul style="list-style-type: none"> <li>• System Summary</li> <li>• Engine performance enhancement</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Fault Finding</b></li> <li>• <b>Dyno Testing - BHP</b></li> </ul>