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I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-01</b>
IV	COURSE TITLE	<b>AUTOTRONICS (Diagnosis of Sensors and Actuators by using Scan Tool)</b>
V	DURATION	01 Week

IV	<b>OBJECTIVES</b>	
<p>On completion of the course, the learner will be able to understand,</p> <ol style="list-style-type: none"> <li>1) Working principle of MPFI &amp; CRDI systems</li> <li>2) Identify the sensors and actuators</li> <li>3) Trouble codes of sensors &amp; actuators</li> <li>4) Find out the problems in sensors &amp; Actuator by using scan tool</li> </ol>		

## VI Course Content :

Theory topics	Practical Topics
History of Automobile engine, classification of motor vehicles/engines. (Conventional and Latest) Engine management system (Petrol) ,Constructional details of SPFI, MPFI and CRDI engines, Function and working of Types of Sensors , ECM and Actuators ,Description of Trouble codes, Description on OBD-I & OBD-II, Function and working of types Networking Systems Function and Importance of battery in Automotive Vehicles ,Passive and active safety system	Identification of engine components and various engines (Conventional and Latest), Demonstration on SPFI, MPFI and CRDI Systems in the cars, Demonstration of on sensors, ECM and Actuators in the car, Checking the sensors and actuators in the car by using multi-scanner. (Engine Scanner) , Checking the trouble codes of sensors , Checking the battery voltage and specific gravity Test, Demonstration on various components of the vehicle




I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-02</b>
IV	COURSE TITLE	<b>Basics of Diesel, Petrol, CNG and LPG Engines</b>
V	DURATION	01 Week

**IV OBJECTIVES**

On completion of the course, the learner will be able to understand ,  
1) Construction and working of Petrol and Diesel engines  
2) Identify the difference between petrol, Diesel, CNG and LPG Engines  
3) Importance of periodical maintenance

**VI Course Content :**

<b>Theory topics</b>	<b>Practical Topics</b>
History of Automobile engine, classification of motor vehicles/engines, Working of 2 & 4 stroke of petrol engine, Valve timing diagram of petrol engines, Working of 2 & 4 stroke of Diesel engines, Valve timing diagram of Diesel engines, Function and working of LPG and CNG in Automotive Vehicles, Types of Maintenances of Automotive engines	Identification of engine components and various engines, Dismantling and assembling of an engine (Petrol ), Engine Tuning (Petrol ), Dismantling and assembling of an engine (Petrol/Diesel ), Setting and adjustment of engine Timing (petrol/Diesel), Demonstration on LPG Engines , Demonstration on CNG Engines, Demonstration on periodical maintenance in a vehicle

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I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-03</b>
IV	COURSE TITLE	<b>Automotive Fuel Feed System (Petrol and Diesel)</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	
<p>On completion of the course, the learner will be able to understand ,</p> <ol style="list-style-type: none"> <li>1) Construction and working of conventional &amp; latest fuel feed pumps in petrol and diesel engines</li> <li>2) Phasing , calibration and testing of different fuel pumps</li> <li>3) Trouble shooting of pumps</li> </ol>		

## VI Course Content :

<b>Theory topics</b>	<b>Practical Topics</b>
History of Automobile engine, classification of motor vehicles/engines, Construction and Working of types of Fuel feed pumps (petrol/diesel), Types of Governors in the engine , Construction and working of different types of Inline Fuel Injection pumps, Types of Injectors and their working, Trouble shooting of Inline FIP, Construction and working of different types of Distributor Fuel Injection pumps, Trouble shooting of Inline FIP, Construction and working of different types of Distributor Fuel Injection pumps, Trouble shooting of Inline FIP, Construction and working of different types of MPFI and CRDI Pumps, Trouble shooting of CRDI pumps	Identification of engine components and various engines, Overhauling of feed pumps (petrol and diesel), Demonstration on Governors, Overhauling of Inline FIP, Phasing and calibration of Inline FIP, Demonstration on Injector pressure testing procedure, Overhauling of Distributor type FIP, Phasing and calibration of Distributor Type FIP, Demonstration on Calibration of CRDI Pumps



I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-04</b>
IV	COURSE TITLE	<b>Basics of Automotive Vehicles</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	

On completion of the course, the learner will be able to understand ,

- 1) Identification of engine components
- 2) Working, repairing & maintenance of power transmission systems
- 3) Servicing & maintenance of Auto electrical systems

## VI Course Content :

<b>Theory topics</b>	<b>Practical Topics</b>
History of Automobile engine, classification of motor vehicles/engines , Description of power transmission ( Clutch, Gear Box, Propeller Shaft, Universal Joint) , Description of control system (steering, suspension and brakes), Description of electrical system (Starting, charging, ignition and lighting system), Passive and active safety system, Importance of Periodical Maintenance in Automotive Vehicles	Identification of engine components and various engines, Demonstration on Power Transmission, servicing and maintenance of power transmission, Demonstration on control systems, servicing and maintenance of control system, Demonstration on electrical systems, servicing and maintenance of electrical system, Demonstration on Periodical Maintenance in Automotive Vehicles

I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-05</b>
IV	COURSE TITLE	<b>Maintenance and Testing of Suspension, Steering and Wheel 3D Alignment</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	
<p>On completion of the course, the learner will be able to understand</p> <ol style="list-style-type: none"> <li>1) Working , repair &amp; maintenance of suspension system</li> <li>2) Working, repair &amp; maintenance of steering system</li> <li>3) Procedure of wheel alignment on 3D wheel alignment machine</li> </ol>		

## VI Course Content :

<b>Theory topics</b>	<b>Practical Topics</b>
<p>Function of wheels and rims and their types, Description and constructional details of different tyres (conventional and radial), Importance of Wheel Balancing and wheel alignment, Function of suspension system and its types, Construction and working of Rigid axle and of Independent suspension system, Description of Steering Geometry, caster, camber, toe-in, toe-out, kingpin inclination and included angle, Description of wheel alignment for vehicle ( 2 wheel and 4 wheel ), Construction and working of air suspension system, servicing and maintenance of suspension and steering systems</p>	<p>Removing and refitting of wheels from a vehicle, Removing and refitting of a tyre from the rim, Checking Wheel Balancing, Servicing/Overhauling of Rigid axle (Leaf Springs) suspension system, Demonstration on wheel alignment and checking of Wheel alignment for 2 wheel (front wheels), Servicing/Overhauling Independent suspension system (Front suspension), Checking the efficiency of suspension and steering slip on test lane Machine.</p>



I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-06</b>
IV	COURSE TITLE	<b>Maintenance and Testing of Transmission and Brakes with Test Lane Equipment</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	
<p>On completion of the course, the learner will be able to able to understand</p> <ol style="list-style-type: none"> <li>1) Identify the transmission parts</li> <li>2) Working, repair &amp; maintenance of transmission &amp; its related parts</li> <li>3) Working, repairing &amp; maintenance of brakes</li> <li>4) Checking the performance of brakes</li> </ol>		

**VI Course Content :**

<b>Theory topics</b>	<b>Practical Topics</b>
<p>Function of Clutch, types and their working, Construction and working of single plate and multi-plate Clutch, Function of Gear Box, types and their working, Construction and working of Constant Mesh, Sliding mesh and synchromesh Gear Box, Function of propeller shaft, types and their working, Function of universal Joint, types and their working, Function of Drive Shafts, types and their working, Construction and Working of CV Joints, Function of Brakes, types and their working, Construction and Working of Mechanical, Hydraulic Pneumatic and hydraulic with vacuum assisted brakes, working of ABS, TCS and EBD systems , Passive and active safety system</p>	<p>Servicing/Overhauling of Clutch Assembly (Single Plate and Multiplate), Overhauling of Constant mesh and synchromesh gear box, Servicing /replacing of propeller shaft, Servicing/Overhauling Universal Joints, Servicing of Drive Shafts, Servicing of CV Joints, Servicing/Overhauling of drum and disc wheel brake assembly, Brake bleeding in Hydraulic Brake System, Demonstration on Pneumatic Brake system, Checking brakes efficiency of a vehicle by using test lane</p>



I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-07</b>
IV	COURSE TITLE	<b>Basics of Auto Electrical and Electronic System</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	

On completion of the course, the learner will be able to able to understand,

- 1) Working, servicing & maintenance of charging system
- 2) Working , servicing & maintenance of starting system
- 3) Working , servicing & maintenance of Batteries (Auto)

**VI Course Content :**

<b>Theory topics</b>	<b>Practical Topics</b>
History of Automobile engine, classification of motor vehicles/engines. (Conventional and Latest), Basics of auto electrical system , Components of starting system circuit, Function and working of starter motor, Components of Charging system circuit, Construction and working of Alternator, Construction and working of Ignition system, Basics of auto electronic system, Construction and Working different electronic devices, Function and types of batteries, Construction and working of lead acid battery, Description of other electrical devices in the vehicle	Identification of engine components and various engines (Conventional and Latest), Dismantling, assembling and testing of starter motor, Dismantling, assembling and testing of Alternator, Checking the Ignition system in the car, Demonstration and trace out faults in electronic related devices, Checking the battery voltage and specific gravity, Demonstration on charging of battery, Demonstration on other electrical components



I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-08</b>
IV	COURSE TITLE	<b>Diagnosis of Automotive Vehicles (Petrol and Diesel)</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	

On completion of the course, the learner will be able to able to understand,

- 1) Working and maintenance of conventional & latest vehicles
- 2) Working, checking and adjusting of Ignition system
- 3) Testing of control system & their maintenance

## VI Course Content :

<b>Theory topics</b>	<b>Practical Topics</b>
History of Automobile engine, classification of motor vehicles/engines. (Conventional and Latest), Description of Engine and their testing procedures, Description of Ignition and Electrical, their testing procedure, Description of power transmission system, Description of control systems, Description of Latest vehicles technology	Identification of engine components and various engines (Conventional and Latest), Checking the compression, Valve timing and engine tuning, Checking ignition and adjusting, Checking and testing electrical components, Checking and testing of power transmission components, Maintenance of control systems, Demonstration and testing of latest components of the vehicle



I	SECTION CODE	<b>AUTO</b>
II	SECTION NAME	<b>AUTOMOBILE</b>
III	COURSE CODE	<b>AUTO-09</b>
IV	COURSE TITLE	<b>Basics of Automotive Denting and Painting</b>
V	DURATION	01 Week
IV	<b>OBJECTIVES</b>	
<p>On completion of the course, the learner will be able to able to understand ,</p> <ol style="list-style-type: none"> <li>1) Repairing of different parts of the body</li> <li>2) Procedure for preparation for painting</li> <li>3) Procedure for painting the vehicle body ( Different steps)</li> <li>4) Identify the tools &amp; equipment used for Denting &amp; painting</li> </ol>		

**VI Course Content :**

<b>Theory topics</b>	<b>Practical Topics</b>
<p>Safety measures during denting – painting &amp; welding ,            Different type of structure of vehicle, Introduction &amp; function of body &amp; panels , Function &amp; types of frames, Types and uses of sander. Dry and wet sander.            Denting procedure, Putty / filling applications, Surface application, Body prepare coating, Anti-rusted treatment under body of vehicle, Masking of non-painting area, Priming, Paint application, Clear coat application, Rubbing and polishing application, Body construction, on crash repair system &amp; alignment, Checking frame alignment ( car – o – liner ), Method &amp; types of painting, Paint protection treatment, Method of fixation of wind screen glass</p>	<p>Dismantle body, Checking &amp; repairing of body shell, Checking &amp; repairing of front door, rear floor &amp; wheel boxes (Arches) , Repairing dents with the help of dent master tool kit, Checking &amp; repairing of right side &amp; left side panel with fender, Checking &amp; repairing of roof panel &amp; rear lower panel, Preparation of body before painting, Use of different types of sanders ( Sand type ), Painting an accidental vehicle, Fixation of wind screen glass</p>