B.Voc. (Vehicle Testing)

SYLLABUS

SEMESTER – I

Paper 1

BASICS OF AUTOMOBILE-1

Course Content Theory :-

Unit -1 **History of Automobile**: -
Indian and worlds leading Automobile Industries, history and development, Introduction to various Indian Vehicle manufacturer.

Unit -2 **Classification of Automobile** Introduction to the various types, Components of automobile vehicle.

Unit-3 **Engine and its components**. Construction and working principle of I.C engine, classification of I.C engine. : Two stroke petrol engine & four stroke petrol/diesel engine.

Unit-4 **Transmission System** Clutches types function components and materials,Gear Box types function components and materials ,Propeller Shaft types function components and materials, Differential types function components and materials.

Practical :-

1.Two stroke petrol engine & four stroke petrol/Diesel engine

2. Demonstration of various automobile parts used in Two wheeler, Three wheeler, Four wheeler their basic function, construction & location etc.

3.Demonstration of various engine components their function, construction, location, material etc. Sketching of Various engine components.

4.Demonstration on working of two strokes and four stroke engine on cut section Modal ,(petrol & diesel engine also used of)

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.

SEMESTER – I
Paper 2
WORKSHOP TECHNOLOGY-1

Course Content Theory :-

Unit -1 Workshop Basics
Introduction of work shop, work shop ethics, discipline, safety precaution, elementary first aid, workshop lay out, 5's' techniques.

Unit -2 Workshop Tools Introduction and use of various tools and equipment used in work shop.
General tools : - Hammer, Chisels, Hacksaw frame, Screw driver, Punches, Pliers, Files, Spanner, Allen key etc.
Special tools : - Taps, Dies, Reamers, and Scrapper etc.

Unit-3 **Measuring tools:** - Inside caliper, outside caliper, Vernier caliper (Inside/Outside), MicrometerInside/Outside), Height gauge, Try square, Feeler gauge, Taco meter, AVO meter etc.
Marking Tools: - Surface plate, Angle plate, Scribing block, Height gauge, Dial indicator, 'V' Block etc.

Unit-4 **Automobile Tools** Introduction and use of various Automobile tools & equipments: - Mechanical & Hydraulic Jack, Piston ring compressor, Piston ring expander, Stud extractor, Valve spring lifter, Tap extractor, Pullers, Grip pliers, Filter wrench, Torque wrench, Battery tester, Growler, Hydrometer.

Practical :-

1. Introduction to the work shop , types of work done in work shop , job opportunity (Organization chart with duties and responsibility)
2. Practice on health & safety - importance of safety precaution, Shoes, Dressing, safety symbol, safety equipments. Practice on how to use first aid & fire extinguishers.
3. Practice on 5.s technique
4. Demonstration on how to use various tools used in work shop, their free hand sketching. General tools – Measuring tools, Marking tools, Special tools.
5. Demonstration on how to use various tools used in work shop, their free hand sketching. Measuring tools, Marking tools.
6. Demonstration on how to use various Tools and equipments used in two wheeler garage , Tools and equipments used in four wheeler garage
7. Practice on checking the battery for charging, connecting the battery for charging
8. Demonstration on painting equipments, coating and polishing.

References :-

1) Workshop technology –Vol-1 S.K Hajra Choudary ,- A.K Hajra Choudary , Nirjhar Roy -Media Promoters & publication pvt Ltd
2) Workshop technology –Vol-2 S.K Hajra Choudary ,- A.K Hajra Choudary , Nirjhar Roy -Media Promoters & publication pvt Ltd
3) Workshop technology –Vol-1 B.S Raghuwanshi Dhanpatrai Publication
4) Workshop technology –Vol -2 B.S Raghuwanshi , Dhanpatrai Publication
5) Workshop technology -1 S R. Raghuwanshi,V.B kulkarni, V.NDas Pute,H.S Pawar, S.S patil –Director of Vocational & training Mumbai.

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SEMESTER – I
PAPER 3
BASIC OF VEHICLE TESTING-1

Course Content Theory :-

Unit No -1 **Testing of different components of vehicle** : clutch, gear box, propeller shaft, Differential, wheel axles

Unit No. 2 **Testing of vehicle systems:** Test procedure of brake system, suspension system, steering system.

Unit No. 3 Differentiate between various test done on various vehicle.

Unit No. 4 **Electrical test**: Test procedure of various electrical system like lighting, horn, indicator, electric accessories, advance electronic components.

Unit No.5 how to calibrate ,align, adjust settings ,alignment and other routine servicing of various Vehicle parts

Practical :-

1. Demonstration on different testing of vehicle components.
2. Demonstration on different testing methods of vehicle systems (brake, suspension, steering.)
3. Prepare chart showing difference of test between various vehicle Industrial/ Vehicle show room visit for different test.
4. Demonstration on Test procedure of various electrical system like lighting, horn, indicator, electric accessories, advance electronic components.

Reference :-

1. Automotive Mechanics-WilliamH Crouse – Donald L. Anglin – McGraw Hill Education Pt. Ltd. New Delhi.
2. Automitive Mechanics – S. Srinivasan - McGraw Hill Education Pt. Ltd. New Delhi.
3. Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
4. Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
5. Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
6. Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7. Automotive Mechanics – S.Shrinivasan - Tata McGraw Hill Second edition.

SEMESTER – II

Paper 1

BASICS OF AUTOMOBILE-2

Course Content Theory :-

Unit -1 **Vehicle Automobile Specification**

Technical Specification Details Vehicle specification, engine specification Technical details included in owners and service manual. Work, power, energy, efficiency, bore, stroke, displacement, compression ratio, IHP, BHP.

Unit -2 **Automobile Electrical System** : Basic concept of electricity. Current, Ampere, Volt,

Resistance, Ohm law, potential difference, parallel circuit, series circuits , Wiring in farm automobile

Unit-3 **Automobile Cooling** ,Lubrications fuel & specifications Classification, properties &

uses of coolants, viscosity, material properties

Unit-4 **Control system of automobile:** steering system and breaking system

Practical :-

1. Collection of vehicle information broacher from authorized dealer and prepare chart on technical details.
2. Prepare chart of various two and four wheeler dealers available in city-Dealer name, address, contact number, manufacturer details and their various Models.
3. Study on service manual on any one automobile vehicle model.
4. Study of electrical circuit - parallel and series.
5. Practice on using various electrical measuring equipment.
6. Visit to automobile garages/ automobile industries.
7. Study of various four stoke engine.

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7) Automotive Mechanics – S.Shrinivasan - Tata McGraw Hill Second edition.
8) Automobile Engineering – R.B. Gupta – Satyaprakashan.

SEMESTER – II
PAPER 2
WORKSHOP TECHNOLOGY-2

Course Content Theory :-

Unit No. 1 Introduction of General machineries : Introduction, working, Construction and use of machines: - Lath, Milling, Shaper, Drill, Grinding.

Unit No. 2 Air Compressor, Fly press, Pipe bending M/c, Wheel aliment M/c, Wheel balancer M/c, Fuel Injection pump testing bench, Tyre changer M/c, Tyre inflection M/c, Decarburizing M/c etc.

Unit No. 3 Introduction to Welding Welding M/c (Arc/Gas), Soldering and Brazing, thermit welding TIG MIG & its applications

Unit No. 4 Manufacturing process heat treatment: Plating, Casting, Defects ,Forging, Hot and cold rolling, Extrusion.

Practical :-

1. machine used in Demonstration on various automobile industries - Compressor, Drilling, Grinding, Welding (Arc & Gas), Hand Operated & Hydraulic Operated Press, lathe, milling, shaper machine, crank shaft grinding, cylinder boring, cylinder head refacing, honing, Wheel Alignment, Tyre changer, Wheel balancing M/c.
2. Demonstration of Decarburizing Process, smoke tester, FI pump testing, car washing, hydraulic hoist, air compressor etc.
3. Study of Wheel alignment by visiting Wheel balancing center
4. Preparation of any job on welding process using any type of welding
5. Demonstration on various heat treatment Process on Automobile parts.
6. Study of casting & forging products.
7. Visit to Garage for usage of Tools & Equipments Used in two, three and four wheeler garage. Various automobile dealers/ authorized work shop. Automobile Industry/ Automobile components manufacturing industries.

References :-

1) Workshop technology –Vol-1 S.K Hajra Choudary ,- A.K Hajra Choudary , Nirjhar Roy -Media Promoters & publication pvt Ltd
2) Workshop technology –Vol-2 S.K Hajra Choudary ,- A.K Hajra Choudary , Nirjhar Roy -Media Promoters & publication pvt Ltd
3) Workshop technology –Vol-1 B.S Raghuwanshi Dhanpatrai Publication
4) Workshop technology –Vol -2 B.S Raghuwanshi , Dhanpatrai Publication

Workshop technology -1 S R. Raghuwanshi,V.B kulkarni, V.NDas Pute,H.S Pawar, S.S patil – Director of Vocational & training Mumbai.

SEMESTER – II

PAPER 3

BASIC OF VEHICLE TESTING-2

Course Content Theory :-

Unit No. 1 **Testing of Automobile Engine**

Classification of test, Fault finding test, vacuum test, Cylinder compression test.

Unit No. 2 **Routine tests 1**

Measurement of indicated power. Mechanical indicators, optical indicators, cathode ray indicators.

Unit No. 3 **Routine tests 2**

Measurement of Brake power. Air dynamometers, hydraulic dynamometers, Electrical dynamometers.

Unit No. 4 **Measurement of Fuel Consumption**

Thermal efficiency, Relative Efficiency, Air consumption measurements.

Practical :-

1. Testing of Automobile Engine
   Fault finding test.
2. Routine tests 1
   Measurement of frictional power.
3. Routine tests 2
   Measurement of Brake power.
4. Measurement of Fuel Consumption
5. Calculation of Heat Balance Sheet.

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7) Automotive Mechanics – S.Shrinivasan - Tata McGraw Hill Second edition.
8) Automobile Engineering – R.B. Gupta – Satyaprakashan.
9) Automobile Engineering Volume 1 – K.M. Gupta – Umesh Publication.
10) Automobile Engineering Volume 2 – K.M. Gupta – Umesh Publication.

SEMESTER – III
PAPER 1
ENGINE SYSTEM-1

Course Content Theory :-

Unit No. 1 Study of Ignition System: Function and use of components, Circuits, Types of ignition system. Study of Cooling System: Function and use of components, Layout, Types of cooling system.

Unit No. 2 Study of Fuel Supply System for Petrol Engine and Diesel Engine: Function and use of components, Layout, Types of Fuel supply system.

Unit No. 3 Organic light emitting displays — anti-lock braking system abs/air bag scan Automotive scanners, graphing scanners, modular diagnostic information Systems. Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges.

Unit No 4 AC System, various components of car AC ,various refrigerants used in AC system Working of car AC system trouble shooting in car AC system

Practical :-

1. Demonstration on different types of ignition system in two wheeler & four wheeler.
2. Demonstration on different types of Cooling system in two wheeler & four wheeler.
3. Demonstration on different types of Fuel supply system in two wheeler & four wheeler Petrol vehicle.
4. Demonstration on different types of Fuel supply system in two wheeler & four wheeler Diesel vehicle.

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.

SEMESTER – III
PAPER 2
TESTING OF ENGINE SYSTEM-1

Unit No. 1 Tyres and wheels (including wheel alignment), Trouble Shootings of Steering System: Steering Hard, Excessive Play, Vehicle pulls to one side, Noise etc. Trouble Shootings of Brake System: Poor Brake, Excessive Play, Vehicle pulls to one side, Noise, Brake Pedal Hard, Brake Pedal Loose etc.

Unit No.2 trouble shooting in the transmission system: problems in the clutch,gearbox,differential, propeller shaft. Trouble Shootings of Transmission System: Clutch -Slips, Noise, Wear etc.Gear Box-Slips, Noise, Wear etc. Differential- Slips, Noise, Wear etc.Axels- Slips, Noise, Wear etc.Trouble Shootings of Suspension System: Poor Suspension, Uncomforted Driving Vehicle pulls to one side, Noise, etc.

Unit No. 3 Trouble Shootings of Ignition System, Cooling System, fuel feed supply System. Trouble Shootings of Brake System: Poor Brake, Excessive Play, Vehicle pulls to one side, Noise, Brake Pedal Hard, Brake Pedal Loose etc.

Unit no 4 Trouble shooting in the power plant of automobile engine does not start engine misfire

Engine overheating engine overhauling.

Practical :-

1. Conduct the practical's on Trouble Shootings of Ignition System: Engine does not start, Engine miss fire, engine over heat, Engine does not pick up speed etc.
2. Conduct the practical's on Trouble Shootings of Cooling System: Engine miss fire, engine over heat, Engine does not pick up speed, Engine seize etc.
3. Conduct the practical's on Trouble Shootings of Petrol fuel supply System: Engine does not start, Engine miss fire, Engine does not pick up speed, Engine start but stop immediately, Low fuel economy etc.
4. Conduct the practical's on Trouble Shootings of Diesel fuel supply System: Engine does not start, Engine miss fire, Engine does not pick up speed, Engine start but stop immediately, Low fuel economy etc.
5. Conduct the practical's on Trouble Shootings of : Brakes system.
6. Conduct the practical's on Trouble Shootings of : Suspention and steering system.

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7) Automotive Mechanics – S.Shrinivasan - Tata McGraw Hill Second edition.
8) Automobile Engineering – R.B. Gupta – Satyaprakashan.
9) Automobile Engineering Volume 1 – K.M. Gupta – Umesh Publication.
10) Automobile Engineering Volume 2 – K.M. Gupta – Umesh Publication.

SEMESTER – III
PAPER 3
MECHATRONICS ENGINEERING – 1

Course Content Theory :-

Unit No 1 Introduction to Mechatronic engineering. measurement systems control system Sensors & transducers Types of sensors , transducers Like strain gauge, load cells, force, displacement, temperature, load dynamometers.

Unit No. 2 Pneumatics, electro pneumatics hydraulic actuators, valves, limit switches DCV, solenoids. Electrical stepper motors solid state switches.

Unit No. 3 Ohms Law, voltage, power, current (AC/DC) resistance, magnetism, electromagnetism and electromagnetic induction etc.
Vehicle earthing and earthing methods, Types of circuit protection and their use Electrical safety procedures, The operation of warning, charging and starter circuits Symbols, units and terms associated with electric systems and components

Unit No. 4 Battery charging Electrical/electronic control systems Operation of electronic and electric engine systems (including electrical Component function, electrical inputs, outputs, voltages and oscilloscope patterns, digital and fibre optics principles) Electrical theory and operation covering automotive digital computers, networked vehicles, voltage, current, resistance, power, capacitance, electrostatics, magnetics, inductance, discrete electronic components, logic families, and radio frequency.

Practical :-

1. Study of various control systems.
2. Study of various sensors Experimental on load cell.
3. Measurement of load using dynamometers on tractor s & farm equipments.
4. Study of various actuators.
5. Study of solid state devices.

Reference :-

1. Salivahanan. S., N Suresh Kumar and A. Vallavaraj, 2006 Electronic Devices and Circuits. Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. Ernest O. Doebelin, 1990. Measurement System – Application and Design. McGraw-Hill Publishing Company, London.
3. Gupta. B.R., 1999.Electronicsand Instrumentation Second Edition. Wheeler Publishing, New Delhi.
4. Singh.S.K., 2005. Industrial Instrumentation and Control, Second Edition. Tata McGraw-Hill Publishing Company Limited, New Delhi.
5. Measurement System by D.S. Kumar – Dhanpat Rai & Sons, New Delhi.

SEMESTER – IV
PAPER 1
ENGINE SYSTEM - 2

Course Content Theory :-

Unit No. 1 Study of Electrical System for Diesel and Petrol Vehicle: Function and use of components, Layout, Types of Electrical system.

Unit No. 2 Study of Automobile Battery: Function, construction, Types, Charging etc.

Unit No. 3 Study of Electrical Charging System for Diesel and Petrol Vehicle: Function and use of components, Layout, Types of Charging system, Dynamo, Alternator.

Unit No. 4 Study of Electrical Starting System for Diesel and Petrol Vehicle: Function and use of components, Layout, Types of starting system, Starter Motor.

Unit No. 5 Air Supply System , Emission & Exhuast System , Automotive Transmission , Drive Lines And Hub

Tube & tyre , Various Information of Diagnosis of Vehicle System

Test Drive

Practical :-

1. Demonstration on different types of Electrical system in two wheeler & four wheeler vehicle.
2. Demonstration of Automobile Battery: Function, construction, Types, Charging etc.
3. Demonstration of Electrical Charging System for Diesel and Petrol Vehicle:, Layout of Charging system, Assembly and Disassembly of Dynamo, Alternator.
4. Study of Electrical Starting System for Diesel and Petrol Vehicle: Function and use of components, Layout, Types of starting system, Starter Motor Visit to vehicle garage show rooms for studding of different system used on Engine

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.

SEMESTER – IV
PAPER 2
TESTING OF ENGINE SYSTEM- 2

Course Content Theory :-

Unit No. 1 Lubricaton System, objects of lubrication system properties and additives of lubricants various types of lubrication system various components of lubrication system various trouble shooting in lubrication system

Unit No 2 Hydraulic & Pneumatic System, Special tools for diagnosis, Energy recuperation system, Power generation system, Various values and tolarances limits of various components across mechanical electrical aggregates

Unit No. 3 Trouble Shootings of Battery System: Engine does not start, Engine miss fire, No Light, No Indicator in Dash Board etc.

Unit No. 4 Trouble Shootings of Charging System: Engine does not Charge Engine, Noise in Charging system Low current ratting etc.

Unit No. 5 Trouble Shootings of Starting System: Engine does not Crank Engine, Noise in Starting system High current Consumption etc.

Practical :-

1. Study of lubrication system
2. Study of ac system
3. Conduct the practical's on Trouble Shootings of Battery System: Engine does not start, Engine miss fire, No Light, No Indicator in Dash Board etc.
4. Conduct the practical's on Trouble Shootings of Charging System: Engine does not Charge Engine, Noise in Charging system Low current ratting etc.
5. Conduct the practical's on Trouble Shootings of Starting System: Engine does not Crank Engine, Noise in Starting system High current Consumption etc.
6. Visit to local garage to study the various trouble shooting on all of the above syllabus.

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7) Automotive Mechanics – S.Shrinivasan - Tata McGraw Hill Second edition.

SEMESTER – IV
PAPER 3
ELECTRICAL & ELECTRONICS SYSTEM

Course Content Theory :-

Unit No. 1 Actuator Electromechanical actuators, Electrical machines

Piezoelectric actuation systems electric and electronics testing equipements (ammeter, voltmeter, ohm meter)

Unit No. 2 DC servomotor, stepper motor, relay, solenoid, speaker, light emitting diode (LED), shape memory alloy, electromagnet, oscilloscope, electronics control unit, electronic system including active and passive safety,comfort and convenience, supplementary resistance system (SRS). .

Unit No. 3 Advance electronic used in farm harvesting machines ,metering sensors , photo diode Electric wires horn system and electronic system.

Unit No. 4 Pressure Measurements: electric methods. Networking and other system, dedicated and Computer based diagnostic equipements.

Unit no 5 Trouble Shootings of Electrical System: Engine does not start, Engine miss fire, No Light, No Horn, No Indicator etc.

List Of Practicals

1. Study of Electromechanical actuators,
2. Measurement of strain using strain gauges.
3. Calibration of pressure gauge with pressure gauge tester.
4. Speed measurement by magnetic pick up or photo electric pick up tachometer.
5. Pressure measurement by strains gauge type transducer.
6. Vibration measurement.
7. Liquid level measurement.
8. Temperature measurement.

Reference :-

1. Measurement Systems : - By Erenest O. Doebelins - MC Graw Hill.
2. Mechanical Measurement & Control: By D. S. Kumar.
3. Mechanical Measurements :- By T. G. Beck with & N. L. Bulk - Addison Werllv.
4. Instrumental Measurement & Analysis : By Nakra Choudhari Tata Mc Graw Hill.
5. Mechanical Measurement & Instrumentation :By R. K. Rajput, Katsons Books Publications.

SEMESTER V
PAPER 1
MOTOR VEHICLE RULE

Unit No. 1

Motor Vehicle Act –

Overview of motor vehicle act 1939, motor vehicle act 1988, Terms defined in motor vehicle act, Driving license, Registration of vehicle, transfer of ownership, sales of new vehicle, Hire purchase, cancellation of hire purchase, permits, fitness, taxation, state transfer of vehicle

Unit No. 2

Traffic Rules -

Organization & Duties of traffic control department, road safety,. Transport authority & their responsibility. Traffic offence & punishment safe driving skill, highway codes.

Unit No. 3

Traffic Signs -

Road Safety Signs - Traffic signs. & their symbols, Registration mark.

Unit No. 4

Insurance –

Difference between Assurance & Insurance, different types of insurance- life, fire, motor vehicle comprehensive, third party. Procedure of accident claim & settlement, furnishing of particular vehicle involved in accident, duty of driver in case of accident. Surveyor and loss assessor- role function of surveyor, loss assessment of accident vehicle , How to claim & where

References:-

1] Automobile Engg -by K.M. Gupta vol II 2] Motor vehicle act 1988

3] Fundamental principles of road passenger Transport operation by F. G.Fletcher

4] Elements of Transport by R. J. Eatan

5] Motor Transportation by Hudson & constantin

6] Economics of transport by H. R. Bonavia

7] Transport in modern India by K.P.Bhatnagar, Satish Bhatnagar, S.C.Gupta

SEMESTER V
PAPER 2
Supervisory Skills I

Course content theory :

Unit no. 1 service supervisor

Service supervisor work in workshop,over repair ,maintenance work in the workshop ,function, activity , necessary,for achieving the target ,purpose the sector, area of work.

Unit no:2 Job Role:

Job role definition a unique set , function , Work effective in a team, Repair and replace of parts, Maintain a heathly safe and service working.

Unit no : 3 core skills

Warranty and Guaranty their types, rules, filling the job card properly,

Unit no : 4 professional skills

Decision making ,plan and oranise,customer centricity , problem solving, analytical thinking , critical thinking ,

SEMESTER – V

PAPER 3
PROJECT - 1

Project Work Based on Engine/Vehicle Testing (Report Writing Work).

Visit to Authorized Service and Repairing Center Which Will Help for Project Work.

Visit to Automobile Industry for developing project model

[Project Work- Student should take the part in innovative work and develop the useful constructive model.]

SEMESTER – VI
PAPER 1
VEHICLE SYSTEM

Course Content Theory :-

Unit No. 1 Introduction to various testing agencies like ARAI, JSCO, List of Common test list as per ARAI, R & D project By ARAI.

Unit No. 2 Introduction to Chassis Dynamometer Test Facilities Sealed Housing for Evaporative Determination (SHED) , Central Gas handling system, environmental
Control System Engine Dynamometer Test Facilities
Nano Particle Measurement Facility

Unit No. 3 Introduction to Electronics Test Facility for Evaluation Testing of Electronic Components and Sub systems

Unit No -4 Introduction to Vibration Test, Thermal shock test & CAE / Simulation

References :-

1) Basic of Automobile Engineering -C.P. Nakara-Dhanpatrai Publication
2) Automobile Engineering Volume 1-Dr. Kripal Singh-Standard Publisher Distributor
3) Automobile Engineering Volume 2-Dr. Kripal Singh-Standard Publisher Distributor
4) Automotive Mechanics – William H. Crouse – Tata McGraw Hill Tenth edition.
5) Automotive Mechanics – Donald L. Anglin – Tata McGraw Hill Tenth edition.
6) Automotive Electrical Equipment – P.L. Kohli - Tata McGraw Hill Tenth edition.
7) Automotive Mechanics – S. Shrinivasan - Tata McGraw Hill Second edition.
8) Automobile Engineering – R.B. Gupta – Satyaprakashan.
9) Automobile Engineering Volume 1 – K.M. Gupta – Umesh Publication.
10) Automobile Engineering Volume 2 – K.M. Gupta – Umesh Publication.

11]Automotive Research Association of India Research Institute of the Automotive Industry

SEMESTER VI
PAPER 2
Supervisory Skills II

course content theory :

unit no .1 organise the service , and repair department , through controlling, manpower, resources, and other assets ,tools at a level , with workshop requirements, supervise service ,repair, operations, at the workshop,

unit no. 2 Techniques and tools Equipment , Quality issue Quality Check issues , work done by the technician and components. Supply of raw material ,tools and parts procedure and requirement procedure.

Unit No 3: Technical Knowledge regarding to vehicle, various components basic knowledge ,Design and manufacturer knowledge. recent technology and various safety precaution in automobile sector.

Unit No 4: general Skill All diagnosis repair and report co-ordinations with team and workers .review of job card and proper checking of it

SEMESTER – VI
PAPER 3
PROJECT - 2

Project Work Based on Engine/Vehicle Testing (Report Writing Work).

Visit to Authorized Service and Repairing Center Which Will Help for Project Work.

Visit to Automobile Industry for developing project model

[Project Work- Student should take the part in innovative work and develop the useful constructive model.]