



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956

Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, WEST BENGAL

Curriculum for Undergraduate Degree (B.VOC) in Automobile Servicing (w.e.f. AY: 2021-22)

Part II: Detailed Curriculum

SIXTH SEMESTER

THEORY

Paper: Customer Relations Management

Code: BAS 601

Credits: 3

Emerging Concepts in Customer Relationship Management: CRM Definition, Need and Importance : Conceptual Framework of Customer Relationship Management ; The Value Pyramid , Customer Interaction Cycle , Customer Profiling and Total Customer Experience, Goals of a CRM Strategy and Obstacles, CRM Solutions Map, Discussing People, Processes and Technology, CRM myths.

CRM as a Business Strategy: CRM - Issues and Strategies; Winning Markets through Effective CRM; CRM as a business strategy, CRM Process, Effective Customer Relation Management through Customer Knowledge Management; Customer Interaction Management, Call Centre management in CRM. Customer Centricity in CRM-Concept of Customer centricity, Customer touch points, Customer Service, Measuring Customer life time value. Customer life cycle Management.

CRM in Services :Status of Customer Relationship Management in service industry in India; Relevance of CRM for Automobile Services, CRM in Insurance Sector, Supply-Demand Mismatches and their impact on CRM; The Past, Present and Future of CRM.

RECOMMENDED TEXT BOOK: Jagdish N Sheth, Parvatiyar Atul, G Shainesh, Customer Relationship Management.



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956

Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, WEST BENGAL

Paper: Automobile Maintenance Service & Repairs

Code: BAS 602

Credits: 3

Course Contents:

Unit 1: Workshop Equipment

Equipment for testing electrical accessories: Electric test bench, growler, coil tester, ignition and cam-dwell-angle tester; wiring harness tester. Ampere-hour battery tester, voltmeter tester, Layout of diesel injector and F.I.P. reconditioning shop, Tools and equipment required

Unit 2: Lubrication and Maintenance Schedule

Necessity for routine maintenance, Importance of service manuals, Specification of engines- petrol and diesel vehicles

(a) Engine (b) Clutch (c) Gear Box (d) Propeller shaft (e) Universal joints (f) Differential
(g) Axles and hubs

Unit 3: Lubrication and Maintenance Schedule

(a) Suspension system (b) Steering system (c) Tyre (d) Chassis (e) Brake-drum and disc
(f) Battery (g) Self starter (h) Dynamo

Unit 4: Fuel System

Maintenance Schedule of diesel engine fuel injector, hot plugs, rotary and reciprocating type of fuel injection pump, fuel injection pump of single cylinder engines, hoses & pipe lines, priming unit, tanks.

Unit 5: Engine Tuning

Engine tuning of conventional and MPFI petrol engine. Adjustments of spark plug gap, valve tappet clearance, head bolts, Use of vacuum and compression gauge, Air cleaner cleaning, Ignition timing setting by timing light, Pollution checking, Troubleshooting

Unit 6: Overhaul and Reconditioning Procedures -1

Overhaul and reconditioning procedures of engine, clutch, gear box, Propeller shaft & universal joints, differential, axles, and hubs, Overhaul and reconditioning procedures of steering and suspension system components including McPherson strut. Overhaul and reconditioning procedures of drum and disc brakes Service, overhaul and testing of starter motor, alternator, ignition system, wiper motor, electrical fuel pump, horn, flasher unit, wiring harness, condenser, H.T. coil, spark plug.

Unit 7: Reconditioning

Overhaul, and testing of diesel fuel injector, single and multi cylinder fuel injection pumps. Calibration, phasing, and spray tests.

Air-conditioning and heating equipment: Faults and their remedies.

Reference Books:

1. Automobile Mechanics, A.K. Babu, S.C.Sharma, T.R. Banga, Khanna Publishing House



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956

Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, WEST BENGAL

Paper: Auto NVH

Code: BAS 603

Credits: 3

Course Contents:

Unit-I: Introduction to NVH: Noise, Vibration and Harshness (NVH) and its role in automotive design and development. Physiological effects of noise and vibration, sources of vibration and noise in automobiles,

Unit II Vibrations

Basic concepts of vibration, time period, frequency, SHM, types of vibration, Natural frequency, resonance, damping, mathematical models.

Unit III Vibration Control

Different types of dampers, vibration absorbers, centrifugal pendulum, dry friction, untuned viscous, vibration isolation

Unit IV: Vibration measurement: Instruments, vibrometer, velocity pick-ups, frequency measurement instrument. one applications: isolation of the engine from vehicle structure and control of torsional oscillation amplitudes in engine crankshaft.

Unit V: Noise Fundamentals: Fundamentals of acoustics – general sound propagation – structure borne sound and air borne sound, plane wave propagation - wave equation, specific acoustic impedance, acoustic intensity, spherical wave propagation – acoustic near and far fields, reference quantities, the decibel scale

Unit VI: NVH Measurements: Vibration and Noise Standards – Pass/Drive by noise, noise from stationary vehicles, interior noise in vehicles, NVH measurement tools and techniques, Modal parameter (natural frequency, mode shape and damping) estimation techniques, signal and system analysis

Unit VII: Automotive Noise Sources

Methods for control of engine noise, transmission noise, intake and exhaust noise, aerodynamic noise, tyre noise, brake noise

Unit VIII: Automotive Noise Control Techniques

Noise control strategy, noise control at source – along the path – isolation, damping, balancing, resonators, absorption, barriers and enclosures



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956

Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, WEST BENGAL

Paper: Off Road Vehicles

Code: BAS 604

Credits: 3

Course Contents:

Unit 1: Classification and Requirements of Off Road Vehicles

Introduction, pretest, history and overview of an off-road machines, construction layout, capacity and applications, power plants, chassis and transmission, multi-axle vehicles

Unit 2: Earth Moving Machines

Different types of earth moving equipments and their applications. Bulldozers, cable and hydraulic dozers, Crawler track, running and steering gears, scrapers, drag and self powered types - Dump trucks and dumpers - Loaders, single bucket, multi bucket and rotary types - Power and capacity of earth moving machines.

Unit 3: Farm Equipments & Tractors

Scrapers, elevating graders, motor graders, self powered scrapers and graders, power shovel, revolving and stripper shovels, drag lines, ditchers, capacity of shovels

Tractors: General description, specification and functions, light, medium and heavy wheeled tractors, crawler tracks mounted / wheeled-bull dozers, tilt dozers and angle dozers, front end loaders, factors affecting efficiency of output of tractors, simple problems, merits and demerits

Unit 4: Combat Vehicles and Vehicle Systems

Power take off, special implements. Special features and constructional details of tankers, gun carriers and transport vehicles

Vehicle Systems: Brake system and actuation – OCDB and dry disc caliper brakes. Body hoist and bucket operational hydraulics, Hydro-pneumatic suspension cylinders, Power steering system, Kinematics for loader and bulldozer operational linkages, Safety features, safe warning system for dumper, Design aspects on dumper body, loader bucket and water tank of sprinkler.

Unit 5: Vehicle Evaluation Mobility

Soil-Vehicle Mechanics, characteristics of soils, nominal ground pressure, mean maximum pressure, the mobility index (mi), vehicle cone index (vci) and rated cone index (rci), mobility number, dynamic behavior and traction on wet soil, traction performance and factors affecting traction performance

SIXTH SEMESTER

PRACTICAL

Paper: Industrial Project

Code: BAS 691

Credits:6

Course Contents:

On the basis of learning in the Bachelor of Vocational, a project to be taken up by the student strengthening his/ her vocational skills.
