



GOVERNMENT OF TAMILNADU
DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI
STATE PROJECT COORDINATION UNIT
(Established under Canada India Institutional Cooperation Project)
CURRICULUM

Course Name	TWO WHEELER AND FOUR WHEELER MECHANISM
Course Code	ME/2020/024
Course Duration	60 Hours
Minimum Eligibility Criteria	8 th Std
Pre-requisites (if any)	-
Course Objectives	<p>Training module has been designed for the participants to</p> <ul style="list-style-type: none"> • Understand the constructional details of an Automobile engine including cooling and lubrication system. • Understand fuel feed system for petrol and diesel engines. • Understand the construction and functional features of power transmission systems. • Understand the functions of different types of Steering, Suspension and Braking systems. • Familiarize Electrical equipment's.
Course Outcomes	<p>At the end of training, the participants will be able to</p> <ul style="list-style-type: none"> • Inspect and service the Fuel feed system for petrol and diesel engines. • Inspect and service the power transmission systems. • Inspect and service the Steering, Suspension and Braking systems, electrical system.
Expected Job Roles	<ul style="list-style-type: none"> • Two-wheeler and Four-wheeler mechanic in a service center • Self-employment- as a motor mechanic

TEACHING AND SCHEME OF EXAMINATION						
Course Code	Course Name	Hours		Assessment Marks		Duration of the Examination
				Min	Max	
ME/2020/024	TWO WHEELER AND FOUR WHEELER MECHANISM	Theory	20	10	20	3 Hours
		Practical	40	40	80	
		Total	60	50	100	

ME/2020/024 - TWO WHEELER AND FOUR WHEELER MECHANISM
DETAILED SYLLABUS

Unit No.	Modules	No. of Hours	
		Theory	Practical
I	Automobile Engines	12 Hours	
1.1	Automobile Engine Components-Automobile Engines and its types.	04	
1.2	Practical: Two and Four-wheeler Engine components identification, Overhauling, Two and Four wheeler engines.		08
II	Cooling , Lubrication, Fuel feeding and Ignition systems	12 Hours	
2.1	Automobile Cooling Systems-Automobile Lubrication Systems-Automobile Fuel feeding systems (Petrol & Diesel) and Ignition system.	04	
2.2	Practical: Overhauling - Water pump, Radiator - Oil pump, Oil filter - Fuel tank, Carburetor, Air filter, Fuel filter, Injection pump, Fuel injector - Spark plug, Distributor, Ignition coil.		08
III	Transmission and Suspension Systems	12 Hours	
3.1	Automobile Transmission Systems and Automobile Suspension Systems.	04	
3.2	Practical: Inspection of Two Wheeler chain & sprocket and clutch- Four wheeler clutch, Propeller shaft, Differential, Axle shaft - Two Wheeler and Four wheeler suspension system- Shock absorber- Steering system		08
IV	Chassis, Wheels , Tyres, Brake System and Steering system	12 Hours	
4.1	Automobile Chassis-Wheels, Tyres, brake system and steering system.	04	
4.2	Practical: Inspection of Two-Wheeler and Four wheeler- wheels and tyres, Puncturing, Four wheeler - wheel changing - Two and Four Wheeler Brake system adjustment and replacing, Brake Bleeding, Over hauling Mechanical, Hydraulic and Air brake systems - Inspection of Steering system.		08

V	Electrical Circuits, Pollution Control Systems and Automobile air conditioner	12 Hours	
5.1	Automobile Electrical Circuits and its components-Pollution Control Systems-Automobile Air conditioner.	04	
5.2	Practical: Two-Wheeler wiring, four-Wheeler wiring, four-Wheeler electrical components overhauling -Testing of Batteries, Inspection of Automobile Air conditioner		08
Total Theory and Practical Hours		20	40
Total Hours		60	

HARDWARE REQUIREMENT

S. NO.	LIST OF TOOLS / EQUIPMENTS
1.	Automobile mechanic tools-complete set, 4-stroke petrol and diesel engines with all accessories.
2.	Fuel pumps for petrol and diesel engines, CRDI system. MPFI system, fuel injectors.
3.	Clutch assembly, Gear box assembly, Differential unit.
4.	Steering arrangement, braking system, Suspension system.
5.	Battery, ignition system, starting motor, Lighting circuit, horn circuit, wiper circuit.

REFERENCE BOOKS

S. NO.	NAME OF THE BOOK	AUTHOR	PUBLISHER
01	Motor vehicle basic principles	V.A.W.Hillier	Nelson Thornes Ltd, UK
02	Automobile engineering Vol I & II	Dr. Kirpal Singh	Standard Publishers Distributors, New Delhi
03	Mechanic (Motor vehicle) trade- theory and practicals	-----	National Instructional media Institute, Chennai

ASSESSMENT AND CERTIFICATION

S. NO.	Criteria for Assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training, Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnics.

END EXAMINATION

ALLOCATION OF MARKS

S.NO	Description	Max.Marks
1.	Theory Examination	20
2.	Practical Examination	
	a) Aim and Procedure	20
	b) Demonstration / Execution	25
	c) Result & Viva Voce	15
	d) Record	20
Total Marks		100

THEORY MODEL QUESTION PAPER
ME/2020/024 – TWO WHEELER AND FOUR WHEELER MECHANISM

(Maximum Marks :20)

(N.B: Answer any **twenty** questions)

(20x1 = 20Marks)

1. On construction basis, what are the two types of engine?
2. What are the Cycle of Operation in Four stroke petrol engine?
3. Write the types of engine on fuel basis?
4. On working system what are the two types of engine?
5. What are the main parts of internal combustion engine?
6. What is the use of Torque wrench?
7. What is the name of the part, which is connect piston and crank shaft?
8. What is the name of part, which connect connecting rod with piston?
9. Name of the tool, which used for setting valve clearance?
10. Write various types of bearings?
11. What grade of Lubricating oil used to lubricate the Four stroke engine?
12. What grade of Lubricating oil used in petrol system?
13. What are the types of cooling system used in Automobile?
14. What is the name of water storage and cooling tank in Automobile?
15. What is the name of Lubrication system in Four stroke and two stroke petrol system?
16. What is the use of heater plug in diesel engine?
17. Write the type of clutches used in Automobile?
18. Write the type of gearboxes used in Automobile?
19. What type of Clutch used in Two Wheeler?
20. Write the name of parts used in Fuel System?
21. Write the types of brakes used in Automobile?
22. What type of oil used in Transmission gear box and differential?
23. What type of Engine mostly used in Four Wheelers?
24. Name the type of steering assembly used in Automobiles?
25. Name the Alignments in a vehicle?