NOIDA INSTITUTE OF ENGG. & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR
(AN AUTONOMOUS INSTITUTE)

NIET
Greater Noida
Autonomous Institute
Estd.2001
Get Future Ready

Affiliated to

DR.A.P.J. ABDUL KALAMTECHNICAL UNIVERSITY UTTAR PRADESH, LUCKNOW

In association with

Mercedes-Benz

Mercedes Benz India Pvt. Ltd., Pune

Evaluation Scheme & Syllabus

For

Advance Diploma

in

Automotive Mechatronics

(Effective from the Session: 2024-25)

NOIDA INSTITUTE OF ENGG. & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR
(AN AUTONOMOUS INSTITUTE)

Advance Diploma in Automotive Mechatronics

EVALUATION SCHEME

Evaluation Scheme & Examination:

There is continuous assessment and evaluation by Trainer through assignment sheets / worksheets. The marking scheme as below:

Sr. No.	Module Name	Examination	Examination heads (Marks/duration in minutes)			Total Marks
			Theory	Practical	T/W	
1	Mechanical	Module 1	50	50	50	150
2	Electronics	Module 2	50	50	50	150
3	System Module	Three Modules together	100	200	100	400
4	Soft Skills		50	--	50	100
5	Workshop- I		---	--	100	100
6	Workshop – II				100	100
		Total	250	400	350	1000

1. Theory question papers shall comprise of either objective type or multiple-choice questions.
2. All theory exams and continuous evaluation sheets (Term work) will be evaluated by ADAM Trainers from Institute.
3. Final Practical Examination will be conducted by Mercedes- Benz Academy Assessor.
4. Final practical exam shall comprise of 50% marks (30 minutes) for work plan preparation and 50% marks (30 minutes) for job execution.
5. Passing marks against each examination head shall be 50%

Re- assessment

In most unlikely cases, if the student could not perform in the final practical assessment and failed to full-fill the requirements to be qualified in the practical exam, re- assessment will be conducted.

1. Each such case will be discussed with ADAM trainers. An Individual study plan is to be developed and executed by the student & trainers.
2. All re- assessments shall happen at the institute. Student has to be present for re-assessment in institute / suitable location as decided by Academy.
3. Student will get maximum of 2 chances for re- assessment. If Student fails to qualify even after 2 chances, he will continue to work as bench technician (if he is employed by Mercedes- Benz Dealer Network) and shall appear regular course for Certified Maintenance Technician.
4. Institute may charge additional fees for the re-examination.

Module 3: System Module

1. Engine Management system for Diesel engines	1. Study of principle of working, application, location and effect of sensors- Cam shaft sensor, Crankshaft position sensor, coolant temperature sensor, air temperature sensor, HFM sensor, charge pressure sensor, accelerator pedal sensor, oil sensor. 2. CDI ignition on function. 3. CDI Turbo charging function. 4. CDI Fuel supply function.
	5. CDI Main injection function. 6. CDI Intel shut off part function. 7. CDI Pre-glow function. 8. CDI Start-up glowing and after- glowing function. 9. CDI EGR function. 10. CDI emission control function. 11. CDI starting function. 12. 12) CDI idle speed/driving mode function. 13. CDI start quantity control function. 14. CDI Idle speed control function. 15. CDI quantity control function. 16. CDI anti jerk control function. 17. CDI limiting full load injection quantity function. 18. CDI Maximum Engine speed function. 19. CDI coasting mode function. 20. CDI AC compressor cutoff function. 21. CDI external quantity control function. 22. CDI stop function. 23. CDI smooth running function. 24. CDI starter control function. 25. CDI cruise control and variable speed limiter function. 26. CDI input signals. 27. CDI output signals. 28. CDI function diagram.
2. Study of Suspension & Damping System	1. Understanding the benefits of different Suspension System 2. Understanding Transmission of forces 3. Understanding Vibrating & Damping Characteristics 4. U the different behavior of suspension & damping systems under different load 5. Understanding advantage of speed dependent ground clearance of the car. 6. Understanding Automatic damping characteristic system 7. Diagnose modern suspension & damping system. 8. Understand the difference between Passive & Active suspension system 9. Understand Active Body Control System (ABC)

3. Traction and Driving Systems	1. Study of physics of driving 2. Vehicle Kinematics terms 3. Study in detail the function, task and location of different components of ESP 4. Study the function location and task of the lateral acceleration sensor 5. Study the function of Yaw rate sensor 6. Input singles to ESP control unit. 7. Output signals or ESP control unit.
	8. Function of ESP if vehicle under steers and over steers during left cornering and during braking in the right-side curve. 9. Study of ASR functions: Brake torque control and drive torque control. 10. Study of brake booster with BAS. 11. Understanding function of BAS 12. Understanding BAS operating conditions 13. To study function and task of ABS.

4. Drive Authorization System (DAS)	1. To study EIS & its interconnection with engine management 2. To understand access authorization & drive authorization system (DAS3) 3. To understand terminology of DAS3 4. To understand the system interlinkage of DAS3 5. To understand the function of Unlocking & locking the car with a remote-control key 6. To understand the system of replacement key 7. To understand the central lock system 8. To understand the function & task of an Electronic Selector Module 9. To understand the function of Key Less Go
5. Air conditioning & Heating System	1. Overview of components of refrigerant circuit 2. Location of the air conditioning components 3. Functions of different components of air conditioning 4. Checking the low & high pressure on the refrigeration circuit on the car 5. Understand the influences on the climate in vehicle 6. Understand the different controlling system of the air conditionings 7. Understand location & function of the heating system components 8. Study of air flow during heating & cooling 9. Understand the different filter systems 10. Understand the operation & setting of an automatic 11. air conditioning system 12. Study of sensors included in the air conditioning system 13. Study the actuation of air conditioning compressor 14. To study the blower speed regulating systems 15. Study the different flap position during cooling 16. Study of actuation of flaps in the A/C housing 17. To study the activation of auxiliary fan 18. Study the control processes for heating system 19. To perform functional checks & diagnostics on vehicle air conditioning system To perform quick check for maximum heating & cooling capacity

5. Air conditioning & Heating System	1. Overview of components of refrigerant circuit 2. Location of the air conditioning components 3. Functions of different components of air conditioning 4. Checking the low & high pressure on the refrigeration circuit on the car 5. Understand the influences on the climate in vehicle 6. Understand the different controlling system of the air conditionings 7. Understand location & function of the heating system components 8. Study of air flow during heating & cooling 9. Understand the different filter systems 10. Understand the operation & setting of an automatic 11. air conditioning system 12. Study of sensors included in the air conditioning system 13. Study the actuation of air conditioning compressor 14. To study the blower speed regulating systems 15. Study the different flap position during cooling 16. Study of actuation of flaps in the A/C housing 17. To study the activation of auxiliary fan 18. Study the control processes for heating system 19. To perform functional checks & diagnostics on vehicle air conditioning system 20. To perform quick check for maximum heating & cooling capacity
6. Supplement at Restraint System	1. To study the importance of SRS system 2. To Understand the Active & Passive Safety system 3. Study & understand the actuators 4. Study of different locations & types of Air bags 5. Study of operation of belt tensioner 6. Study of different sensors in SRS Diagnose the SRS using Diagnostic equipment