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.

Course Content:

Module 1: Mechanical

Topic	Tasks
1. Introduction	1. Introduction to Mercedes Benz -History, Brand, culture 2. Introduction of data card as per VIN number 3. Dimensions of a car. 4. Dimensions and identification of screws and bolts. 5. Identification of tools. 6. Layout of chassis number. 7. Layout of an engine number. 8. Using Vernier caliper, micrometer and dial indicator. 9. To find document numbers of from the given information using WIS 10. To find the group number for the body components using WIS. 11. To identify components on the vehicle. 12. Model survey of cars. 13. Using the Diagnostic equipment. 14. Perform Pre-Delivery Inspection (PDI) 15. Service & maintenance
2. Study of Diesel engine	1. Introduction to engine terminology. 2. To find the specification of OM 642, OM 651, OM 654 engines using WIS. 3. To find the location, abbreviation and tasks and principal of working of different components and sensors on the engine. 4. Dismantle the engine. 5. Carry out measurements of cylinder bore, crankshafts, connecting rod and valves, compare them with standard value and comment. 6. Study the valve timing and setting or timing chain. 7. Disassemble, understand the working and assemble the variable turbocharger. 8. Understand inlet port shutoff function. 9. . Study of inlet and exhaust manifold. 10. To study the oil flow. 11. To study the coolant flow 12. To study coolant thermostat function. 13. Assemble the engine
3. Study of Gasoline engine	1. Introduction to engine terminology 2. Study the specifications of M270, M272, M274, M278 engines using WIS. 3. Study the location, abbreviation and tasks and principle of working of different components and sensors on the engine. 4. Dismantle the engine. 5. Carry out measurements of cylinder bore,

	crankshafts, connecting rod and valves, compare them with standard value and comment. 6. Study the valve timing and setting of timing chain. 7. Understand the working of the variable intake manifold and exhaust manifold. 8. Trace the oil flow. 9. Trace the coolant flow 10. Study coolant thermostat function. 11. Assemble the engine
4. Study Manual Transmissions	1. Need of Transmission 2. Study specifications of manual transmission used in MB cars. 3. Mount the gear box on the assembly stand and disassemble the transmission. 4. Study of single, double & triple synchronizers. 5. Observe power flow in different gears. 6. Calculation of gear ratios on different gears. 7. Understand the shifting mechanism inside the manual transmission. 8. Assemble the manual transmission.
5. Study of Automatic Transmission	1. To find specification of Automatic transmission. 2. Mount the gear box on the assembly stand and disassemble the gear box 3. Study the location, task and function of the multi-plate brakes. 4. Study the location, task and function of the multi-plate clutch. 5. Study the location, task and function of the oil pump. 6. Study the location, task and function of the free wheel. 7. Study the location, task and function of the planetary gear set. 8. Understand and note down the connection sequence of the gear sets. 9. Study power flow thorough the gears. 10. Calculate the gear ratio. 11. Understand the oil circuits 12. Understand different functions of oil such as lubrication, power transmission, cooling 13. Observe location of sensors, actuators & control unit
6. Study of Differential & Propeller shaft	1. Dismantle the differential 2. Observe the components 3. Understand the working of differential 4. Assemble the differential
7. Study of Steering mechanism	1. Disassemble, assemble and understand Rack and pinion Recirculation ball type steering system. 2. Understand speed dependent power steering systems.