GANPAT UNIVERSITY

FACULTY OF DIPLOMA ENGINEERING

Programme	Diploma in Automobile Engineering		
Semester	II	Version	1.0.0.0
Effective from Academic Year	2025-26	Effective for the batch Admitted in	JULY 2025
Course code	1ES1112	Course Name	Automobile Trade Practice

I.TEACHING-LEARNING AND ASSESSMENT SCHEME

Course Type	Course Code	Learning Scheme						Assessment Scheme										
		Actual Contact Hrs./Week			SLH	NLH	Credits	Theory				Practical				Based on SL		Total Marks
		CL	TL	LL				FA-TH	SA-TH	TOTAL		FA-PR	SA-PR	TOTAL		SLA		
								MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MIN	
AEC	1ES116	0	0	4	0	6	3	-	-	-	-	60	40	100	40	20	8	120

Abbreviation:	**CL-** Classroom Learning	**TL -** Tutorial Learning	**LL -** Laboratory Learning
	SLH - Self Learning Hours	**NLH -** Notional Learning Hours	**SLA -** Self Learning Assessment
	FA - Formative Assessment (Term work +Mid Sem Exam +Attendance)		**SA -** Summative Assessment

II. PRE-REQUISITES

Learners should have:

- Basic understanding of engine components and operations.
- Familiarity with internal combustion engine concepts.

III. INDUSTRY / EMPLOYER EXPECTED OUTCOMES

On course completion, learners will be able to:

1. Prepare modern garage layout by following preliminary safety rules.
2. Select appropriate hand tool or power tool for required application.
3. Use appropriate testing and servicing tools or instruments for given situation.
4. Adherence to safety protocols in the workshop environment.

IV. COURSE LEARNING OUTCOMES

At the end of the course, students will be able to achieve the following course learning outcomes:

CO1: Perform basic automotive maintenance and repair tasks.
CO2: Identify and explain major automobile components and systems.
CO3: Apply safety procedures and practices in a workshop setting.
CO4: Diagnose common vehicle problems and suggest solutions.
CO5: Exhibit effective communication and teamwork skills in an automotive environment.
CO6: Act as a service advisor, manage job cards, and handle customer care professionally.

V. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL

Sr. No.	Practical/Laboratory Learning Outcome (LLO)	Practical Titles	Relevant COs
1	**LLO 1.1** Follow standard safety rules related to fire, electrical systems, compressed air, lifting devices, and chemical handling.	**Workshop Safety** To understand and follow general safety rules and precautions in an automobile workshop.	CO1, CO3

2	**LLO 2.1** Identify the different sections of an automobile workshop (service bays, engine repair section, body shop, electrical/electronic section, lubrication bay, washing area, stores, office, etc.).	**Layout Design** Study of Automobile Workshop Layout.	CO2, CO3
3	**LLO 3.1** Demonstrate the correct method of handling and operating selected hand tools and power tools.	**Tool Identification** Identification and Use of Hand Tools and Power Tools.	CO1, CO3, CO5
4	**LLO 4.1** Identify different measuring tools used in an automobile workshop such as vernier caliper, micrometer, dial gauge, feeler gauge, bore gauge, and torque wrench.	**Measuring Instruments** Study and identification of various measuring tools used in an automobile workshop.	CO1, CO3
5	**LLO 5.1** Identify different testing instruments and equipment commonly used in an automobile workshop such as multimeter, battery tester, compression tester, vacuum gauge, fuel injector tester, emission analyser.	**Testing Equipment** Demonstrate features and use of various types of testing instruments and equipment.	CO1, CO3
6	**LLO 6.1** Prepare a job card accurately, capturing customer details, vehicle information, reported complaints, and service requirements.	**Customer Service** Perform role of service advisor, service executive, job card preparation and customer care.	CO2, CO6
7	**LLO 7.1** Identify various engine components such as cylinder block, cylinder head, piston, connecting rod, crankshaft, camshaft, valves, timing gears, manifolds, oil pump, and flywheel.	**Engine Components** Study and identification of various engine components in an automobile workshop.	CO2, CO5

VI. SUGGESTED MICRO PROJECT / ASSIGNMENTS / ACTIVITIES FOR SELF LEARNING / SKILL DEVELOPMENT (SELF LEARNING)

1. Draw neat sketches of basic automobile components: clutch, gearbox, differential, suspension, steering, brake system.
2. Prepare a chart or video demonstrating names, functions, and safe handling of common workshop tools (spanners, screwdrivers, pliers, torque wrench, etc.).
3. Prepare a service chart showing lubrication points of a 2-wheeler or 4-wheeler.
4. Measure battery voltage using multimeter, check electrolyte level, and prepare a maintenance log.
5. Design posters/charts on safety rules in an automobile workshop.

VII. LIST OF INSTRUMENTS / EQUIPMENT / TRAINER BOARD

1.	Spanners and Wrenches (ring spanners, adjustable wrenches, socket sets), Screwdrivers (flathead, Phillips), Pliers (needle nose, cutting pliers, locking pliers).
2.	Hammers and Mallets, Torque Wrench, Feeler Gauge.
3.	Multimeter (for electrical testing), Dial Gauge, Compression Tester, Tire Pressure Gauge.
4.	Battery Charger and Tester.
5.	Vehicle Lift / Hoist.
6.	Air Compressor, Wheel Balancer, Diagnostic Scan Tool / OBD-II Scanner, Battery Tester, Grease gun, washing machine (vehicle wash bay), First-aid box, Fire extinguisher (CO_2, foam type), Safety posters & signage.

7.	Engine Trainer Board (cutaway models showing internal engine parts), Transmission Trainer Board, Brake System Trainer Board, Fuel Injection System Trainer Board, Electrical Wiring Trainer Board, Suspension and Steering Trainer Board, Clutch Trainer Board.

VIII. LIST OF REFERENCE BOOKS			
Sr.No.	**Title**	**Author**	**Publication**
1	Automotive Mechanics	William H. Crouse Donald L. Anglin	McGraw-Hill Education
2	Automobile Trade Theory	R. S. Khurmi	S. Chand & Company Ltd.
3	Automobile Engineering and Workshop Technology	K. K. Jain	S. K. Kataria & Sons

IX. LINK OF LEARNING WEB RESOURCE	
1	https://onlinecourses.nptel.ac.in/noc21_de02/preview
2	https://onlinecourses.swayam2.ac.in/nos24_ge28/preview
3	https://www.youtube.com/watch?v=Yz5fC0YaGY0
4	https://www.youtube.com/watch?v=G7ND5lO7IyQ
5	https://www.youtube.com/watch?v=WKi47BCVc3c

X. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE							
Unit	**Unit Title**	**Aligned COs**	**Learning Hours**	**R-Level**	**U-Level**	**A-Level**	**Total Marks**
1	To understand and follow general safety rules and precautions in an automobile workshop.	CO1, CO3	6	4	4	4	6
2	Study of Automobile Workshop Layout.	CO2, CO3	8	4	4	4	8
3	Identification and Use of Hand Tools and Power Tools.	CO1, CO3, CO5	9	5	5	5	9
4	Study and identification of various measuring tools used in an automobile workshop.	CO1, CO3	10	4	4	4	10
5	Demonstrate features and use of various types of testing instruments and equipment.	CO1, CO3	9	4	5	5	9
6	Perform role of service advisor, service executive, job card preparation and customer care.	CO2, CO4	9	3	4	4	9
7	Study and identification of various engine components in an automobile	CO2, CO5	9	3	4	4	9

	workshop.						
Grand Total			60	27	30	28	60

XI. COs AND POs AND PSOs MAPPING

Course outcome (Cos)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)		
	PO1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO1	PSO2	PSO3
CO1	3	3	2	1	1	3	0	2	1	1
CO2	3	3	3	3	2	2	2	3	2	3
CO3	3	3	3	2	2	2	2	2	2	3
CO4	3	3	2	2	2	2	0	2	3	2
CO5	3	3	3	1	2	3	0	3	1	1

Legends: -*3- High* *2-Moderate/Medium* *1-Slight/Low* *0-None*