

Faculty of Mechanical Engineering

B.E. Automobile Engineering

(R 2021) Semester – II

Course Code: BE3271 Course Title: Basic Electrical and Electronics Engineering Laboratory		
Sl. No.	Description of Equipment	Required numbers (for batch of 30 students)
1.	Verification of ohms and Kirchoff's Laws 1. DC Regulated Power supply (0 - 30 V variable) 2. Bread Board 3. Resistors 4. Multimeter 5. Connecting wires	1 1 As per circuit Diagram 1 As Required
2.	Load test on DC Shunt Motor 1. Ammeter MC (0-20A) 2. Voltmeter MC (0-300)V 3. Rheostat 7.5 Ω, 10 A 4. Tachometer 5. Field Rheostat 175 Ω, 1.5 A 6. Connecting wires	1 1 1 1 1 As Required
3.	Load test on Self Excited DC Generator 1. DC shunt generator(0- 300V) 2. Ammeter (0-30 A), (0-2A) 3. Voltmeter (0-30V) 4. Rheostat 175Ω, 250 Ω 5. Tachometer 6. Connecting Wires	1 1 1 1 1 As Required
4.	Load Test on Induction Motor 1. Ammeter MI (0-20A) 2. Voltmeter MI (0-300)V 3. Wattmeter – 300V, 30 A 4. Tachometer – Digital 5. Connecting Wires – As Required 6. Single phase Induction motor	1 1 1 1 As Required 1
5.	Characteristics of PN and Zener Diodes 1. PN Diode (BY127, OA79), Zener diode (6.8V, 1A) 2. Resistor 1 KΩ, 100Ω 3. Bread Board 4. DC Regulated Power supply (0 - 30 V variable) 5. Multimeter 6. Connecting wires	1 1 1 1 1 As Required
6.	Characteristics of BJT 1. Transistor (No-BC548) 2. Resistors- 1kΩ, 470KΩ, 1MΩ 3. Bread Board DC Regulated Power supply (0 - 30 V variable) 5. Multimeter 6. Connecting wires	1 1 1 1 1 As Required

	<p>Characteristics of SCR</p> <ol style="list-style-type: none"> 1. D C Power Supply (0□128 V), (0□32V), 2. Voltmeter (0□100V) 3. SCR TYN604 4. Digital multimeter 5. Ammeters (0□100mA, 0-25mA, 0-1mA) 6. Resistors 1KΩ, 1KΩ 7. Bread board 8. Connecting Wires <p>Characteristics of MOSFET</p> <ol style="list-style-type: none"> 1. MOSFET (2N7000) 2. Bread board 3. resistor (1KΩ, 100KΩ) 4. DC power supply (0-30V) 5. Multimeter 6. Bread board 7. Connecting Wires 	<p>1 1 1 1 1 1 As Required</p> <p>1 1 1 1 1 1 As Required</p>
7.	<p>Half wave and Full Wave rectifiers</p> <ol style="list-style-type: none"> 1. Diodes (Si-1N4007) – 4 2. Resistor 1KΩ 3. Capacitor 100μF 4. Digital Multimeter 5. CRO 6. Transformer (6-0-6)V 7. Bread Board 8. Connecting Wires 	<p>1 1 1 1 1 1 1 As Required</p>
8.	<p>Study of Logic Gates</p> <ol style="list-style-type: none"> 1. IC 7400, 7402, 7404,7408,7432,7486 2. Digital IC trainer 3. Patch chords 	<p>1 1 As Required</p>
9.	<p>Implementation of Binary Adder and Subtractor</p> <ol style="list-style-type: none"> 1. AND Gate IC 7408 2. X-OR Gate IC 7486 3. NOT Gate IC 7404 4. OR Gate IC 7432 5.. IC Trainer Kit 6. Patch Chords 	<p>1 1 1 1 1 As Required</p>

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(R 2021) Semester – III

AU3311 MECHANICAL SCIENCES LABORATORY

Sl.No.	Description of Equipment	Required Numbers
1.	Universal Testing Machine	1 Nos
2.	Torsion testing machine	1 Nos
3.	Spring and Weights	1 Nos
4.	Impact testing machine	1 Nos
5.	Brinell hardness testing machine, Vickers hardness testing machine	Each 1 Nos
6.	Weights	1 Nos
7.	Mass Moment of inertia of connecting rods	2 connecting rods
8.	Orifice meter set up.	1 Nos
9.	Venturi meter set up.	1 Nos
10.	Rota meter set up.	1 Nos
11.	Pipe test set up.	1 Nos
12.	Centrifugal pump set up.	1 Nos
13.	Reciprocating pump set up.	1 Nos
14.	Gear pump set up.	1 Nos
15.	Turbine setup	1 Nos

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B.E. Automobile Engineering

(R 2021) Semester – IV

AU3411 VEHICLE COMPONENTS LABORATORY

S. No.	Description of Equipment	Required Numbers
1.	Six-Cylinder Truck Engine	1 No.
2.	CRDI Engine for passenger car	1 No.
3.	MPFI Engine for passenger car	1 No.
4.	Single plate and Diaphragm Clutch for passenger car	1 No.
5.	Constant mesh and Sliding mesh gear box for passenger car	1 No.
6.	Transfer case for all terrain vehicle	1 No.
7.	Front axle and Rear axle of truck	1 No.
8.	braking system kit	1 No.
9.	Steering system kit	1 No.
10.	Suspension system kit	1 No.

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B.E. Automobile Engineering

(R 2021) Semester – IV

AU3412 FUELS AND LUBRICANTS LABORATORY

Sl.No.	Description of Equipment	Required Numbers
1	PENSKY MARTEN FLASH POINT APPARATUS	02
2	SAYBOLT VISCOMETER	01
3	RED WOOD VISCOMETER (OLD)	01
4	CLOUD AND POUR POINT APPARATUS	01
5	PENETROMETER	01
6	BOMB CALORIMETER (OLD)	01
7	CARBON RESIDUE APPARATUS (OLD)	01
8	ASH TEST	01
9	ASTM DISTILLATION TEST APPARATUS	01
10	BOMB CALORIMETER (NEW)	01
11	CARBON RESIDUE APPARATUS (NEW)	01
12	CLOUD AND POUR POINT APPARATUS (NEW)	01
13	RED WOOD VISCOMETER (NEW) MANUEL AND AUTOMATIC	01
14	COMPUTERIZED AUTOMATIC FLASH POINT ANALYZER	01

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(R 2021) Semester – V

AU3511 AUTOMOTIVE ELECTRICAL AND ELECTRONICS LABORATORY

Sl.No.	Description of Equipment	Required Numbers
1	Vehicle Wiring kit	1
2	Ignition coil trainer kit	2
3	Automotive Electrical Trainer Kit	2
4	Vehicle Electrical training kit	1
5	Battery-different capacity, hydrometer, high voltage cable	4
6	Automotive Electrical Test Bench	1
7	Automotive Electrical Test Bench	1
8	OBD Trainer kit	2
9	Seven Segment Display, Breadboard & IC's	10
10	ADC, DAC Sensor Kit	2
11	Amplifier-Multiplexer-Demultiplexer Trainer Kit	3
12	Microprocessor Training Kit	5
13	Microcontroller Training Kit	5
14	DSO kit	1

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(R 2021) Semester – VI

AU5611 COMPUTER AIDED VEHICLE DESIGN AND ANALYSIS LABORATORY

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	COMPUTER NODES	30
2	MODELLING SOFTWARE	30 LICENCES

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(R 2021) Semester – VI

AU5612 ENGINE TESTING AND EMISSION MEASUREMENT LABORATORY

Sl.No.	Description of Equipment	Required Numbers
1	Eddy current dynamometer	1
2	Pressure pickup and crank angle encoder with data acquisition system	1
3	Petrol engine with Dynamometer and controller, Fuel consumption measurement setup, stopwatch	1
4	Diesel engine with Dynamometer and controller, Fuel consumption measurement setup, stopwatch	1
5	Multi cylinder - Petrol engine with Dynamometer and controller, Fuel consumption measurement setup, stopwatch	1
6	Multi cylinder- Petrol engine with Dynamometer and controller, Fuel consumption measurement setup, stopwatch, calorimeter, water flow measurement, Thermocouples	1
7	Five gas analyser	1
8	Smoke meter	1

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(R 2021) Semester – VII

AU3711 VEHICLE MAINTENANCE AND TESTING LABORATORY

S.No	Description of Equipment	Required Numbers
1	Live /Dead axle assembly	1
2	Clutch /Brake pedal setup	1
3	Wheel alignment machine	1
4	Diesel fuel pump test bench	1
5	Battery tester	1
6	Ignition system tester	1
7	Dynamo/ Alternator tester	1
8	Lighting system/model	1
9	Wheel with tyre assembly	1
10	Vehicle / Engine diagnostic tool	1
11	Vehicle braking system /model	1
12	Chassis dynamometer	1