

Faculty of Technology
B. Tech. Chemical Engineering
(R 2021) Semester – II

Course Code: BE3272		
Course Title: Basic Electrical, Electronics and Instrumentation 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.	Three Phase Power Measurement 1. Three Phase Variable Load, 2. Ammeters 0-10 A, MI, 3. Wattmeters 0-5 A, 300V, 4. Voltmeter 0-300v,MI 5. Connecting wires	1 2 2 1 As Required
3.	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
4.	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 175 Ω , 250 Ω 5. Tachometer 6. Connecting Wires	1 1 1 1 1 As Required
5.	Load test on Single phase Transformer 1. Ammeter (0-30) A, (0-5) A 2. Voltmeter (0-150)V, (0-300)V 3. Wattmeter – 300V, 5A, UPF 4. Autotransformer 5. Single phase Transformer 6. Connecting Wires	1 1 1 1 1 As Required
6.	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 6. Single phase Induction motor	1 1 1 1 As Required 1

7.	<p>Characteristics of PN and Zener Diodes</p> <ol style="list-style-type: none"> 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 	<p>1 1 1 1 1 As Required</p>
8.	<p>Characteristics of BJT</p> <ol style="list-style-type: none"> 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 <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 As Required</p> <p>1 1 1 1 1 1 As Required</p> <p>1 1 1 1 1 As Required</p>
9.	<p>Design and analysis of 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>
10.	<p>Measurement of displacement of LVDT</p> <ol style="list-style-type: none"> 1. LVDT Kit 2. Multimeter 	<p>1 1</p>

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(R 2021) Semester – III

CH3311 Basic Mechanical engineering Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Single cylinder diesel engine coupled with Electrical loading	1
2.	Single cylinder diesel engine coupled with Electrical loading with temperature indicators	1
3.	Single cylinder slow speed diesel engine coupled with Mechanical loading	1
4.	Twin cylinder diesel engine coupled with Electrical loading with Heat balance test setup	1
5.	Single cylinder petrol engine coupled with Electrical loading	1
6.	Two stroke IC Engine model	1
7.	Four stroke IC Engine model	1
8.	Small IC Engine models for study	1
9.	UTM and Hardness test apparatus	1

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(R 2021) Semester – III
CH3312 Technical Analysis Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Silica Crucible	20
2.	Heating Mantle	3
3.	Muffle Furnace	1
4.	Hot air oven	1
5.	Desiccator	5
6.	Vacuum pump	1
7.	Condenser	10
8.	Reflux Condenser	10
9.	Pensky martens closed cup apparatus	1
10.	Cleveland Open cup apparatus	1
11.	Cloud point apparatus	1
12.	Saybolt Viscometer	1
13.	Redwood Viscometer	1
14.	Bomb Calorimeter	1
15.	COD reflux	1
16.	Orsat apparatus	1
17.	UV-Vis Spectrophotometer	1
18.	Fume hood	1

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(R 2021) Semester – IV
CH3412 Mechanical Operations Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Sieve shaker	1
2.	Leaf filter	1
3.	Plate and Frame Filter Press	1
4.	Sedimentation Jar	1
5.	Jaw Crusher	1
6.	Ball Mill	1
7.	Cyclone Separator	1
8.	Roll Crusher	1
9.	Elutriator	1
10.	Drop Weight Crusher	2
11.	Sieves.	Set of 5

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CH3511 Computational Chemical Engineering Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	computers with Microsoft , Matlab Software, process simulation software tool	15

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(R 2021) Semester – IV
CH3411 Fluid Mechanics Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Viscometer	1
2.	Venturi meter	1
3.	Orifice meter	1
4.	Rotameter	1
5.	Weir and Notches	1
6.	Open drum with orifice	1
7.	Pipes and fittings	1
8.	Helical and spiral coils	1
9.	Centrifugal pump / Gear pump / Reciprocating	1 - 1
10.	Packed column	1
11.	Fluidized bed	1

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(R 2021) Semester – V
CH3561 Mass Transfer Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Simple distillation setup	1
2.	Steam distillation setup	1
3.	Packed column	1
4.	Liquid-liquid extractor	1
5.	Forced draft dryer	1
6.	Wetted wall column	1
7.	Rotating disc contactor	1
8.	Cooling tower	1
9.	Absorption column	1
10.	Diffusion Cell	1
11.	Surface Evaporation setup	1

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CH3512 Heat Transfer Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Thermal Conductivity Apparatus	
2.	Cooling Tower	1
3.	Tray Dryer	1
4.	Open Pan Evaporator	1
5.	Packed Bed	1
6.	Double Pipe Heat Exchanger	1
7.	Bare and Finned Tube Heat Exchanger	1
8.	Vertical and Horizontal Condenser	1
9.	Agitated Vessels and Helical Coils	1
10.	Stefan - Boltzmann apparatus	1

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CH3612 Process Equipment Design And Drawing

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Drawing Table	30

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CH3611 Chemical Reaction Engineering Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	Batch reactor	2
2.	Plug flow reactor	2
3.	Continuous Stirred Tank Reactor	2
4.	Sono chemical reactor	1
5.	Photo chemical reactor	1
6.	Packed bed reactor	2
7.	Adiabatic Reactor	1
8.	Cascade CSTR	1
9.	Semi batch reactor	1
10.	PFR followed by CSTR	1

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(R 2021) Semester – VII
CH3711 Process Control Laboratory

Sl.No.	Description of Equipment	Required members (for batch of 30 students)
1.	U tube manometer with controller	1
2.	Interacting Tank	1
3.	Non Interacting Tank	1
4.	Open loop control system	1
5.	Closed loop control system	1
6.	ON/OFF controller	1
7.	Control valve characteristics	1
8.	Pressure Tuner	1
9.	Temperature Tuner	1
10.	Proportional Controller	1
11.	Flow Transmitter	1
12.	Level Transmitter	1
13.	Cascade control system	1