

**Faculty of Technology**  
**B.Tech. Food Technology**  
**(R 2021) Semester – II**

<b>Course Code: BE3272</b>		
<b>Course Title: Basic Electrical, Electronics and Instrumentation Engineering Laboratory</b>		
<b>Sl. No.</b>	<b>Description of Equipment</b>	<b>Required numbers (for batch of 30 students)</b>
<b>1.</b>	<b>Verification of ohms and Kirchoff's Laws</b> 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
<b>2.</b>	<b>Three Phase Power Measurement</b> 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
<b>3.</b>	<b>Load test on DC Shunt Motor.</b> 1. Ammeter MC (0-20A) 2. Voltmeter MC (0-300)V 3. Rheostat 7.5 $\Omega$ , 10 A 4. Tachometer 5. Field Rheostat 175 $\Omega$ , 1.5 A 6. Connecting wires	1 1 1 1 1 As Required
<b>4.</b>	<b>Load test on Self Excited DC Generator</b> 1. DC shunt generator(0- 300V) 2. Ammeter (0-30 A), (0-2A) 3. Voltmeter (0-30V) 4. Rheostat 175 $\Omega$ , 250 $\Omega$ 5. Tachometer 6. Connecting Wires	1 1 1 1 1 As Required
<b>5.</b>	<b>Load test on Single phase Transformer</b> 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
<b>6.</b>	<b>Load Test on Induction Motor</b> 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><b>Characteristics of PN and Zener Diodes</b></p> <ol style="list-style-type: none"> <li>1. PN Diode (BY127, OA79), Zener diode (6.8V, 1A)</li> <li>2. Resistor 1 K<math>\Omega</math>, 100<math>\Omega</math></li> <li>3. Bread Board</li> <li>4. DC Regulated Power supply (0 - 30 V variable)</li> <li>5. Multimeter</li> <li>6. Connecting wires</li> </ol>	<p>1 1 1 1 1 As Required</p>
8.	<p><b>Characteristics of BJT</b></p> <ol style="list-style-type: none"> <li>1. Transistor (No-BC548)</li> <li>2. Resistors- 1k<math>\Omega</math>, 470K<math>\Omega</math>, 1M<math>\Omega</math></li> <li>3. Bread Board</li> <li>DC Regulated Power supply (0 - 30 V variable)</li> <li>5. Multimeter</li> <li>6. Connecting wires</li> </ol> <p><b>Characteristics of SCR</b></p> <ol style="list-style-type: none"> <li>1. D C Power Supply (0-128 V), (0-32V ),</li> <li>2. Voltmeter (0-100V)</li> <li>3. SCR TYN604</li> <li>4. Digital multimeter</li> <li>5. Ammeters (0-100mA, 0-25mA, 0-1mA)</li> <li>6. Resistors 1K<math>\Omega</math>, 1K<math>\Omega</math></li> <li>7. Bread board</li> <li>8. Connecting Wires</li> </ol> <p><b>Characteristics of MOSFET</b></p> <ol style="list-style-type: none"> <li>1. MOSFET (2N7000)</li> <li>2. Bread board</li> <li>3. resistor (1K<math>\Omega</math>, 100K<math>\Omega</math>)</li> <li>4. DC power supply (0-30V)</li> <li>5. Multimeter</li> <li>6. Bread board</li> <li>7. Connecting Wires</li> </ol>	<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><b>Design and analysis of Half wave and Full Wave rectifiers</b></p> <ol style="list-style-type: none"> <li>1. Diodes (Si-1N4007) – 4</li> <li>2. Resistor 1K<math>\Omega</math></li> <li>3. Capacitor 100<math>\mu</math>F</li> <li>4. Digital Multimeter</li> <li>5. CRO</li> <li>6. Transformer (6-0-6)V</li> <li>7. Bread Board</li> <li>8. Connecting Wires</li> </ol>	<p>1 1 1 1 1 1 1 As Required</p>
10.	<p><b>Measurement of displacement of LVDT</b></p> <ol style="list-style-type: none"> <li>1. LVDT Kit</li> <li>2. Multimeter</li> </ol>	<p>1 1</p>

**Faculty of Technology**  
**B.Tech. Food Technology**  
**(R 2021) Semester – III**  
**FD3311 Food Chemistry Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Waterbath	5
2.	Colorimeter tubes	5
3.	Hunter colorimeter	1
4.	Viscometer	3
5.	Lovibond Colorimeter	2
6.	Hot plate	5
7.	Magnetic stirrer	5
8.	Vortex mixer	5
9.	Refractometer	5

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**FD3312 Food Microbiology Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Laminar Airflow Chamber	1
2.	Microscope	3
3.	Hot Air Oven	1
4.	Drying Oven	1
5.	Autoclave	1
6.	Microbiological Incubator	1
7.	Bod Incubator	1
8.	Distilled Water Plant	1
9.	Fridge(Refrigerator)	1
10.	Deep Freezer	1
11.	Electronic Top-Pan Balance	1
12.	Electronic Analytical Balance	1
13.	pH Meter	1
14.	Colony Counter	1
15.	Petri Dishes	30
16.	Test Tubes	50
17.	Inoculation Loop & L Shaped Glass Rods	4
18.	Glass Slides	30
19.	Conical Flasks	20
20.	Pipettes	10
21.	Micropipettes	1

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**(R 2021) Semester – IV**

**FD3411 Biochemistry And Nutrition Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Fast Pipette	10
2.	Burette with stand	10
3.	TLC Chromatographic chamber	1
4.	Capillary tubes	10
5.	Glass Slides	10
6.	UV-Vis Spectrophotometer	1
7.	Cuvettes	10
8.	Spectroscope	1

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**FD3412 Unit Operations Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Orifice meter	1
2.	Venturi meter	1
3.	Rotameter	1
4.	Packed column	1
5.	Centrifugal separator	1
6.	Steam distillation unit	2
7.	Fluidized bed column	1
8.	Rotary flash evaporator	1
9.	Cyclone separator	1
10.	Ball mill	1
11.	Hammer mill	1
12.	Burr mill	1
13.	Pin mill	1

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**(R 2021) Semester – V**

**FD3511 Food Processing And Preservation Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Plate heat exchanger	1
2.	Refrigerator	2
3.	Deep freezer	1
4.	Tray dryer	1
5.	Hot air oven	1
6.	Refractometer	1
7.	Extruder	1
8.	RO equipment	1
9.	Double seamer machine	1
10.	Canning and bottling unit	1
11.	Pasteurizer	1
12.	Spray dryer	1
13.	Retort unit	1
14.	Thermometer	3
15.	Water vapour permeability tester	1
16.	Tensiometer	1
17.	Viscometer	1
18.	Desiccator	5
19.	Weighing balance	2
20.	Vegetable chopper	0

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**(R 2021) Semester – V**  
**FD3512 Food Analysis Laboratory**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Weigh balance	2
2.	Hot air oven	1
3.	Aluminium disc plates	5
4.	Heating mantle	2
5.	Moisture distillation apparatus with trap	2
6.	Butyrometer	3
7.	Lock stopper	3
8.	Centrifuge 1200 rpm	2
9.	Waterbath	1
10.	Pipette	3
11.	HPLC	1
12.	Spectrophotometer	1
13.	Burette	3
14.	Conical flask	5
15.	Colorimeter	1
16.	Thin layer chromatography	1
17.	UV visible spectroscopy	1
18.	Crucible	5
19.	Ring	
20.	Bunsen burner	2
21.	Test tubes	10
22.	Beakers	10
23.	Filter paper	5
24.	Funnel	3
25.	Ring stand	1
26.	Kjildahl digestion flask	1
27.	Kjildahl distillation apparatus	1
28.	96 well microtiter plates	5



29.	Incubator	1
30.	Micropipettes with tips	2
31.	Fluorescence microplate reader	1

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**FD3611 Food Process Engineering Lab**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required members (for batch of 30 students)</b>
1.	Electric blender	1
2.	Microscope	1
3.	Slide	10
4.	Graduated cylinder	5
5.	Test tubes	30
6.	Hydrometer	1
7.	Refractometer	1
8.	Burette	10
9.	Conical flask	10
10.	Spectrophotometer	1
11.	Filter	3
12.	Texture analyser	1
13.	Refrigerator	1
14.	Ph meter	1
15.	Centrifuge	1
16.	Centrifuge tube	10
17.	Weigh balance	2
18.	Oven	1
19.	Peeler	6
20.	Knife	6
21.	funnel	6