|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Nomenclature of Laboratory established in Electrical Engg. department**  | **Class & Semester**  |
| 1. | Electrical Technology Lab  | 1st Year  |
| 2. | Electrical Measurements & Measuring Instruments Lab  | 3rd Sem. EE |
| 3. | Electrical Machines-I Lab  | 3rd Sem. EE |
| 4. | Electrical Workshop Lab  | 3rd Sem. EE |
| 5. | Skills & Innovation Lab  | 3rd Sem. EE |
| 6. | Electrical Machines-II Lab  | 4th Sem. EE |
| 7. | Digital Electronics Lab  | 4th Sem. EE |
| 8. | Electronics Measurement & Process Control  | 4th Sem. Food Tech. |
| 9. | Power System Lab  | 4th Sem. & 7th Sem. EE |
| 10. | Power Electronics-I & II Lab  | 5th Sem. & 6th Sem. EE |
| 11. | Electric Drives Lab  | 6th Sem. EE |
| 12. | Electronic Measurement Lab  | 5th Sem. EE |
| 13. | Control System Lab  | 5th Sem. EE |
| 14. | Microcontroller Lab | 6th Sem. EE |
| 15. | Transducers Applications Lab | 7th Sem. EE |
| 16. | Minor Project Lab.  | 7th Sem. EE |
| 17. | Computer Methods in Power System Lab.  | 8th Sem. EE |
| 18. | Electrical Engg. Departmental Library  | - |

**Other Subject Laboratories are under process for establishment and up-gradation.**

**List of Lab Equipments available in Electrical Engg. Department**

**1st Semester & 2nd Semester (Common to All Branches)**

**Electrical Technology Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Verification of Theorems Kit (( Norton’s , Thevenin’s & Superposition, Maximum Power Transfer, Reciprocity) | 02 kits |
| 2. | Verification of Theorems ( Norton’s , Thevenin’s & Superposition ) Kit | 03 kits |
| 3. | Verifications of Krchhoff’s Law Kit (KCL & KVL) | 04 kits |
| 4. | Verification of LCR Resonance Kit (Series Resonance & Parallel Resonance) | 03 kits |
| 5. | Transformer 1-phase 1KVA, 50Hz, 230V/115V  | 03  |
| 6. | AC Ammeter, MI, 1/2A | 03 |
| 7. | AC Ammeter , MI, 2.5/5A  | 04 |
| 8. | Wattmeter Dynamometer Type 0/5/10A 0/250/500V or 0/125/250V | 02 |
| 9. | Wattmeter1-Phase 5/10A, 150/300/600V  | 08 |
| 10. | AC Voltmeter, MI, 300/600V | 05 |
| 11. | AC Voltmeter, MI, 75/150/300V | 04 |
| 12. | Auto Transformer 1 phase, 50 Hz,8A,0-270 V | 06 |
| 13 | Variable Lamp Load, 1 phase,2KW,230V | 02 |
| 14. | DC Shunt Motor ( Direct Test) 3Kw,220V,1500rpm with 3-point starter | 01 |
| 15. | Induction Motor 1phase ,1 HP,250V, Capacitor start | 02 |
| 16. | Variable Lamp Load, 3phase, 2KW, 440V  | 02 |
| 17. | Cut Section of 1-Phase Transformer  | 01 |
| 18. | Cut Section of DC Machine with DC Supply and 3-Point Starter  | 01 |
| 19. | Cut Section of 1-Phase Induction Motor with Direct-on-Line (DOL) Starter  | 01 |

**3rd Semester (Electrical Engg.)**

**Electrical Machines Lab- I**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Transformers 1- phase 2 KVA, 230 V, 9A,50Hz  | 02 |
| 2. | Transformer 1-phase 1KVA,230V,50Hz  | 02 |
| 3. | Transformer 1-Phasse, 2KVA,50Hz,230v/115V | 02 |
| 4. | Three –phase Transformer 4KVA,50Hz,440V/215V | 01 |
| 5. | Three-phase Transformers 2KVA,5Hz,440V/215V | 02 |
| 6. | AC Ammeter, MI. , 0.5/1A | 3 +3 = 6 |
| 7. |  AC Ammeter, MI, 5/10 A | 04 |
| 8. | AC Ammeter, MI, 15/30A | 02 |
| 9. | AC Ammeter, MI, 1/3/10A | 04 |
| 10. | Wattmeter, 50mm, Dynamometer  | 02 |
| 11. | Wattmeter 1-Phase, 1/2A, 75/150/300V, Dynamometer | 04 |
| 12. | Wattmeter1-Phase 5/10A, 150/300/600V, Dynamometer  | 08 |
| 13. | AC Voltmeter, MI, 150/300V | 05 |
| 14. | AC Voltmeter 125/250/500 V, MI | 04 |
| 15. | AC Voltmeter- 15/30/75 V, MI | 04 |
| 16. | Auto Transformer 1 phase, 50 Hz,15A,0-270 V | 04 |
| 17. | Auto Transformer 1 phase, 50 Hz,8A,0-270 V | 06 |
| 18. | DC Shunt Motor 3HP,1500rpm,230V with Control Panel | 01 |
| 19. | DC Shunt Generator 2 Kw,230V | 01 |
| 20. | Speed Control of DC Shunt Motor 1HP with control panel with control | 01 |
| 21. | Variable Lamp Load, 3phase, 2KW, 440V | 02 |
| 22. | DC Shunt Motor ( Direct Test) 3Kw,220V,1500rpm with 3-point starter | 01 |

**Electrical Measurement & Measuring Instrument Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | AC Ammeter, MI, 1/2A | 03 |
| 2. | AC Ammeter , MI, 2.5/5A  | 04 |
| 3. |  AC Ammeter, MI, 5/10 A | 04 |
| 4. | Wattmeter 1-Phase, 1/2A, 75/150/300V, Dynamometer | 04 |
| 5. | AC Voltmeter, MI, 300/600V | 05 |
| 6. | Energy Meter, 1 phase, 250V, 5-10A, 250V  | 02 |
| 7. | Energy Meter, 3 phase, 4 wire,50Hz,10A,440V | 02 |
| 8. | D’Arsonnal Type Galvanometers 30/0/30V, 2 µA/div | 02 |
| 9. | Anderson’s bridge Kit  | 01 |
| 10. | Dr Sauty’s bridge Kit | 01 |
| 11. | Kelvin’s Double bridge Kit  | 01 |
| 12. | Maxwell’s Inductance bridge Kit  | 01 |
| 13. | DC Source 0-12V, 10A | 01 |
| 14. | Schering bridge Kit  | 01 |
| 15. | Wheat Stone’s bridge Kit  | 02 |

**Electrical Workshop Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Plier 8” | 06 |
| 2. | Plier | 02 |
| 3. | Screw Driver Set- | 06 |
| 4. | Screw Driver | 03 |
| 5. | Spanner Set | 06 |
| 6. | Wire Cutter | 03 |
| 7. | Wire Cutter | 03 |
| 8. | Hammer Set ( 500,400,800mg) | 10 |
| 9. | Tube Set | 02 |
| 10. | Tester Kit | 06 |
| 11. | Tester | 04 |
| 12. | Drilling Machine | 01 |
| 13. | Sodium Vapour Lamp 150Watt | 01 set |
| 14. | High Pressure Mercury Vapour Lamp 250 Watt | 01 set |
| 15. | Stair Case Wiring Set | 01 set |
| 16 | House Wiring Conduit & Batten arrangement | 02 sets |
| 17. | Heater 150W | 01  |
| 18. | Iron 750 W | 01 |
| 19. | Ceiling Fan for experiment  | 01 |

**4th Semester (Electrical Engg.)**

**Power System - I Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | **Transmission Line Trainer*** Short Transmission Line Set
* Medium Transmission Line Set (π Set up)
* Medium Transmission Line Set (T-Set up)
* Long Transmission Line Set
* Long Transmission Set with Ferranti Effect
* Long Transmission Set with Loading Arrangement (R, L, C and RLC)
 | 01 Set  |
| 2. | Transformer oil Testing Kit | 01 Set |

**Digital Electronics Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Shift Register Kit | 01 kit  |
| 2. | De Morgan’s Theorem Kit | 01 kit |
| 3. | 4 Bit Multiplexer Kit | 01 kit |
| 4. | 4 Bit De multiplexer Kit | 01 kit |
| 5. | BCD to Decimal Kit | 01 kit |
| 6. | BCD to 7 Segment Kit | 01 kit |
| 7. | Half & Full Adder Kit | 01 kit |
| 8. | Johnson’s Counter Kit | 01 kit |
| 9. | Study of Counters Kit | 01 kit |
| 10. | BCD to Grey & vice verse Kit | 01 kit |
| 11. | Excess 3 to BCD & Vice Verse Kit | 01 kit |
| 12. | Study of Synchronous & Asynchronous Counter Kit | 01 kit |
| 13. | Decimal to BCD Encoder Kit | 01 kit |
| 14. | Half & full Subtractor Kit | 01 kit |
| 15. | Study of Up/ Down Counter Kit | 01 kit |
| 16 | Study of S-R, J-K, D & T type Flip Flops | 02 kits |
| 17. | Logic Gates Kit | 03 kits  |

**Electrical Machines – II Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | AC Ammeter, MI, 1/2A | 03 |
| 2. | AC Ammeter , MI, 2.5/5A  | 04 |
| 3. |  AC Ammeter, MI, 5/10 A | 04 |
| 4. | Wattmeter 1-Phase, 1/2A, 75/150/300V, Dynamometer | 04 |
| 5. | AC Voltmeter, MI, 300/600V | 05 |
| 6. | Trainer for speed control of 3-phase squirrel cage induction motor with Pulley belt load arrangements 3- phase,440 V, 3HP | 02 |
| 7. | 3-phase star- Delta Starter | 02 |
| 8. | Trainer for speed control of 3 phase slip ring induction motor 3phase ,440v, 3 HP with suitable panel arrangement | 02 |
| 9. | Vacuum Filtration Pumps 1- phase squirrel cage induction motor | 04 |
| 10. | Induction Motor 1phase ,1 HP,250V, Capacitor start | 02 |
| 11. | Auto Transformer 3 phase, 0-400 V, 15 A | 02 |
| 12. | Auto Transformer 3 phase, 0-400 V, 25 A | 02 |

**Control System Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Linear System Simulator | 01 kit |
| 2. | Stepper motor controller Trainer  | 01 kit |
| 3. | Characteristics of potentiometer trainer | 01 kit |

**5th Semester (Electrical Engg.)**

**Electronic Measurements & Instruments Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Instrumentation Trainer using Transducers* LVDT
* RTD
* Thermistors
* Thermocouple
* LDR
 | 01 set |
| 2. | Pressure Measurement by strain Gauge Kit | 01 set |
| 3. | Oscilloscope Dual Channel 0-30MHz ( CRO ) | 02 |

**Power Electronics – I Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Light Intensity using SCR & TRIAC Kit | 01 kit  |
| 2. | SCR Commutation Techniques Kit | 01 kit |
| 3. | SCR Single Phase Half wave & full wave Converter Kit  | 01 kit |
| 4. | Phase control using TRIAC Kit  | 01 kit |
| 5. | Thyristor Firing circuits Kit  | 01 kit |
| 6. | P-N Diode Characteristics Kit  | 01 kit  |
| 7. | Study of Thyristor Kit  | 01 kit |
| 8. | TRIAC Characteristics Kit  | 01 kit |
| 9. | Transistor Characteristics Kit  | 01 kit |
| 10. | MOSFET Characteristics Kit  | 01 kit |
| 11. | TRIAC Phase Control Kit  | 01 kit |
| 12. | Bridge Inverter Application Kit  | 01 kit |
| 13. | Single-Phase Cycloconverter Kit  | 01 kit |

**Control System Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Linear System Simulator | 01 kit |
| 2. | Stepper motor controller Trainer  | 01 kit |
| 3. | Characteristics of potentiometer trainer | 01 kit |

**6th Semester (Electrical Engg.)**

**Microcontroller Applications Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | 8051 microcontroller Kit with inbuilt power supply | 04 kits |

**Power Electronics – II Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Step up chopper Kit | 01 kit  |
| 2. | Jone’s Chopper Kit | 01 kit |
| 3. | Morgan’s Chopper Kit  | 01 kit |
| 4. | Switched Mode Regulator Kit  | 01 kit |
| 5. | Series Inverter using SCRs Kit | 01 kit |
| 6. | Chopper Control of DC series motor kit | 01 kit |
| 7. | Single phase parallel Inverter Kit | 01 kit |
| 8. | Single phase Dual Converter Kit | 01 kit |
| 9. | IGBT Based PWM Inverter Kit | 01 kit |
| 10. | Study of Buck, Boost and Cuk Regulator Kit  | 01 kit |

**Electric Drives Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Various Industrial Drives Applications ( Lathe Machines ) | 01 set |
| 2. | Different Types of Loading on electrical machines * Continuous Loading
* Intermediate Loading
 | 01 set01 set |
| 3. | Chopper Control of DC Series Motor ( 1 HP) for N-T Characteristics | 01 set |
| 4. | 3-phase fully controlled Rectifier fed separately excited DC Motor (1HP) Kit | 01 set |
| 5. | 3 Phase VSI Inverter Controlled squirrel cage induction motor drive | 01 set |

**Advanced Programming Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | C/ C++ Language installed on computers to write various programmers. |

**7th Semester (Electrical Engg.)**

**Transducer Application Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Instrumentation Trainer using Transducers* LVDT
* RTD
* Thermistors
* Thermocouple
* LDR
* Photo Diode
 | 01 set  |
| 2. | Pressure Measurements using strain Gauge Kit | 01 kit |

**Power System Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | **Transmission Line Trainer*** Short Transmission Line Set
* Medium Transmission Line Set (π Set up)
* Medium Transmission Line Set (T-Set up)
* Long Transmission Line Set
* Long Transmission Set with Ferranti Effect
* Long Transmission Set with Loading Arrangement (R, L, C and RLC)
 | 01 Trainer  |
| 2. | Transformer oil Testing Kit | 01 Kit |

**Minor Project Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | DC- AC converter, 750 VA | 02 sets |
| 2. | DC- AC Converter, 1400 VA | 01 set |
| 3. | Voltage regulator, 1 KVA | 02 sets |
| 4. | Voltage Regulator , 0.5 KVA | 02 sets |
| 5. | Control Circuit Card , 750 VA | 03 sets |

**8th Semester (Electrical Engg.)**

**Computer Methods in Power System Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | C Language installed on Computers to write various programs. |

**Internet Fundamentals Lab**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | HTML Language installed on computers to write various programs. |

**Supporting Equipments/ Accessories in Labs for performing Practicals**

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Name of Equipment** | **Quantity of Equipment** |
| 1. | Rheostats 1089 ohms, 0.6A | 03 |
| 2. | Rheostats 150 ohms,2A | 03 |
| 3. | Rheostats 0-350 ohms, 1.5A | 03 |
| 4. | Variable Capacitive load 3-phase, 440V, 15A,  | 01 |
| 5. | Variable Inductance load, 3-phase, 15A, 440V,  | 01 |
| 6. | Variable capacitor, 0-10MFD,  | 02 |
| 7. | DC regulated Multiple Output Power Supply 0-30Vdc out, 2A, & 3-15Vdc at 2A | 02 |
| 8. | Digital Meter Multimeter 3.5digit, LCD display  | 02 |
| 9. | Inductance boxes. 0-200KHz, accuracy 0.5% | 02 |
| 10. | Inductor, 0.8A Choke, 0.4A | 02 |
| 11. | Earth Tester 500V, 0-10-100 ohms  | 02 |
| 12. | Stop Watch digital  | 04 |
| 13. | Digital Contact type Tachometer 0-9999rpm, 3.5 digit  | 02 |
| 14. | Wire 1mm2 | 03 roll  |
| 15 | Wire 1.5mm2 | 02 roll  |
| 16 | Wire 2.5mm2 (Make: Mayur)  | 05 roll  |
| 17 | Wire 4mm2 (Make: Mayur)  | 05 roll  |
| 18 | Cable 3 Core 23/76 (Make: Mayur) | 02 roll  |
| 19 | Cable 4 Core 23/76 (Make: Mayur) | 02 roll  |
| 20 | Lab tables of size 6'x3'x3' (Sheesham Wood)  | 08+ 08+ 08 =24 |
| 21 | Loading Rheostat 2.5KW, 10Amp.  | 02 |

**Laboratory Charts and Scientist Charts**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No.** | **Name of Chart**  | **Size of Chart**  | **Quantity of Equipment** |
| 1. | Safety precautions in electric laboratories  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 03 |
| 2. | Thyristor Family  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 02 |
| 3. | Chopper Circuits  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 01 |
| 4. | Inverter Circuits  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 01 |
| 5. | Non Conventional Sources of Energy  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 02 |
| 6. | Special Types of DC Machines | Big sized charts of size 30” x 40” laminated and attached with rollers  | 01 |
| 7. | Parts of Synchronous Machine  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 02 |
| 8. | Electric Traction System  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 01 |
| 9. | Components of a Power System  | Big sized charts of size 30” x 40” laminated and attached with rollers  | 02 |
| 10 | Scientist Chart of **William Shockley** | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 01 |
| 11. | Scientist chart of **Nikola Tesla** | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 01 |
| 12. | Scientist chart of **John Bardeen**  | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 01 |
| 13. | Scientist chart of **Charles Coulomb**  | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 02 |
| 14. | Scientist chart of **C.V. Raman** | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 01 |
| 15. | Scientist chart of **Thomas Edison**  | Big Scientist Chart of size 20” x 26” laminated and framed with board  | 01 |

 

 Head (Electrical Engg.)

 CDL State Institute of Engg. & Tech.

 Panniwala Mota (Sirsa)