



LIST OF EXPERIMENTS IN LABORATORIES

DEPARTMENT : **EEE**

ACADEMIC YEAR: **2019-20**

UG LABORATORIES:

Electrical Circuits Laboratory **(II-I)**

Electrical Machines -I Laboratory **(II-II)**

Electrical Machines-II Laboratory **(III-I)**

Control Systems Laboratory **(III-I)**

Electrical Measurements Laboratory **(III-I)**

Power Electronics Laboratory **(III-II)**

Microprocessors & Microcontrollers Laboratory **(III-II)**

Electrical Simulation Laboratory **(IV-I)**

Power Systems & Simulation Laboratory **(IV-I)**

PG LABORATORIES:

Power Electronics Simulation Laboratory **(I-I), R19**

Power Converters Laboratory **(I-I), R19**

Electric Drives Simulation Laboratory **(I-II), R19**

Electric Drives Laboratory **(I-II), R19**

(R16)

Electrical Circuits Laboratory (II-I)

S.No	Name of the Experiment
1	Verification of Thevenin's and Norton's Theorems
2	Verification of Superposition theorem and Maximum Power Transfer Theorem
3	Verification of Compensation Theorem
4	Verification of Reciprocity , Millmann's Theorems
5	Locus Diagrams of RL and RC Series Circuits
6	Series and Parallel Resonance
7	Determination of Self, Mutual Inductances and Coefficient of coupling
8	Z and Y Parameters
9	Transmission and hybrid parameters
10	Parameters of a choke coil.
11	Determination of cold and hot resistance of an electric lamp.
12	Measurement of 3-phase Power by two Wattmeter Method for unbalanced loads

Electrical Circuits Laboratory (II-I)

S No	NAME OF THE EQUIPMENT	QUANTITY
1	RLC NETWORK TRINER KIT	1
2	SERIES AND PARALLEL RESONANCE KIT	1
3	NETWORK THEOREM VERIFICATION TRAINER	1
4	DECADE RESISTANCE BOX	6
5	DECADE CONDENSOR BOX	4
6	DECADE INDUCTANCE BOX	4
7	REGULATED POWER SUPPLY	2
8	D.P.M.S	2
9	C.R.O	5
10	FUNCTION GENERATOR	5
11	POWER SUPPLY	5
12	DIGITAL MULTIMETER	5
13	SERVO STABILIZER	1
14	M.C.D.C VOLTMETER	4
15	M.C.D.C AMMETER	5
16	M.C.D.C AMMETER	2
17	M.C.D.C VOLTMETER	5
18	M.C.D.C AMMETER	7
19	BREAD BOARDS	10
20	CONNECTING WIRES	10
21	SOLDERING PASTE	1
22	SOLDERING LEAD	1
23	SOLDERING IRON	1
24	COMPONENTS BOX	9
25	PATCH CHORDS	8
26	PHY- 8230 D RPS	3
27	MULTIMETERS	3

(R16)
Electrical Machines -I Laboratory (II-II)

S.No	Name of the Experiment
1	Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.
2	Brake test on DC shunt motor. Determination of performance curves.
3	Hopkinson's test on DC shunt machines. Predetermination of efficiency.
4	Swinburne's test and Predetermination of efficiencies as Generator and Motor.
5	Speed control of DC shunt motor by Field and armature Control.
6	Retardation test on DC shunt motor. Determination of losses at rated speed.
7	Separation of losses in DC shunts motor.
8	Oc& SC test on single phase transformer.
9	Sumpner's test on single phase transformer.
10	Scott connection of transformers
11	Parallel operation of Single phase Transformers
12	Separation of core losses of a single phase transformer
13	Heat run test on a bank of 3 Nos. of single phase Delta connected transformers

(R16)

Electrical Machines-II Laboratory (III-I)

S.No	Name of the Experiment
1	Brake test on three phase Induction Motor
2	No-load & Blocked rotor tests on three phase Induction motor
3	Regulation of a three –phase alternator by synchronous impedance &m.m.f. Methods
4	Regulation of three–phase alternator by Potier triangle method
5	V and Inverted V curves of a three—phase synchronous motor.
6	Determination of X_d and X_q of a salient pole synchronous machine
7	Equivalent circuit of single phase induction motor
8	Speed control of induction motor by V/f method.
9	Determination of efficiency of three phase alternator by loading with three phase induction motor.
10	Power factor improvement of single phase induction motor by using capacitors and load test on single phase induction motor.

ELECTRICAL MACHINES LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	I.T.L RECTIFIER	1
2	RHEOSTAT	5
3	RHEOSTAT	10
4	RHEOSTAT	4
5	RHEOSTAT	5
6	RHEOSTAT	5
7	RHEOSTAT	2
8	RHEOSTAT	2
9	RHEOSTAT	2
10	RHEOSTAT	2
11	RHEOSTAT	2
12	DISTRIBUTION PANEL BOARD	1
13	NYLON SHEET	16
14	BRASS TERMINALS	350
15	SHUNT MOTOR COUPLED TO 3KWATTS D.C. SHUNT GENERATOR WITH BASE PLATE COUPLING MAKE BENN	1
16	3POINT STARTER	1
17	SHUNT MOTOR WITH OUT BRAKE DRUM ARRANGEMENT	1
18	3 point starter	1
19	SHUNT MOTOR WITH BREAKDRUM ARRANGEMENT MAKE BASIN	1
20	3POINT STARTER	1
21	5H.P/415V 3PHASE A.C. SLIPPERING INDUCTION MOTOR WITH BREAKDRUM ARRANGEMENT MAKE BASIN	1
22	ROTOR RESISTANCE STARTER	1
23	5 H.P D.C. SHUNT MOTOR COUPLED TO 3.5KVA SALIENT POLE SYNCHRONOUS ALTERNATOR WITH BASE PLATE COUPLING	1
24	3 POINT STARTER	1
25	STATIC EXITATION UNIT	1
26	2KVA STEP DOWN T/F OPEN TYPE	1
27	ANALOG TECHOMETER MAKE FUSI	3
28	DIGITAL TECHOMETER MAKE LUTRON	3
29	M.C.VOLTMETER(D.C.)	9
30		2
31	M.C.AMMETER(D.C.)	4
32		1
33		4
34	WATTMETER U.P.F	2
35		2
36	WATTMETER L.P.F	2
37		2
38	M.C.AMMETER MAKE MECO	3
39	M.C.VOLTMETER	3
40	M.C.VOLTMETER	4
41	MC AMMETER	5
42	MC AMMETER	2
43	M.I.VOLTMETER	4
44	M.I.VOLTMETER	2
45	M.I.AMMETER	2
46	SPRING BALANCES	2
47	LOAD RHEOSTAT SINGLE PHASE	1

48	LOADING RHEOSTAT THREE PHASE	1
49	THREE PHASE AUTO T/F(AIR COOLED TABLE TYPE)	1
50	D.C AMMETER	4
51		6
52	D.C VOLTMETER	1
53	LOAD TEST D.C SERIES GENERATOR	1
54	D.C. MOTRO COUPLED TO D.C. SERIES GENERATOR	1
55	HOPKINSON'S TEST D.C. SHUNT MACHINE	1
56	BRAKE TEST ON D.C. COMPOUND MOTOR	1
57	SINGLE PHASE LOADING RHEOSTATS	2
58	SHUNT MOTOR COUPLED WITH SHUNT GENERATOR	1
59	RETARDATION TEST ON D.C SHUNT MOTOR	1
60	SEPERATION OF LOSSES IN D.C SHUNT MOTOR	1
61	D.C STARTERS	8
62	VOLTMETER MC	2
63	DIGITAL TACHOMETER	2
64	3-POINT STARTER	1
65	MOVING IRON VOLTMETERS	3
66	MOVING IRON VOLTMETERS	10
67	MOVING IRON AMMETERS	2
68	MOVING IRON AMMETERS	6
69	MOVING IRON AMMETERS	4
70	TRANSFORMERS	5
71	THREE PHASE VARIC	2
72	SINGLEPHASE VARIC	4
73	SINGLEPHASEAUTOT/F	1
74	THREEPHASEINDUCTIVELOAD	1
75	AUTOSYNCHRONOUS MOTOR WITH MECHNICIALLOADING ARRANGEMENT	1
76	SQ.CAGE I.M WITH MECHNICIAL LOADINGARRANGEMENT	1
77	SHUNT MOTOR COUPLED TO CYCLINDRICAL ROTORALTERNATOR WITH BASE PLATEAND COUPLING	1
78	DC STATORS	1
79	SINGLE PHASE VARIBLE INDUCTOR	2
80	SINGLEPHASE T/F	1
81	VOLTMETER M.I.	3
82	VOLTMETER M.I.	5
83	Ammeter M.I	1
84	L.P.F.Wattmeter	3
85	U.P.F.Wattmeter	5
86	REGULATION OF THREE PHASE ALTERNATOR BY POTIERTRIANGLE METHOD	1
87	SPEED CONTROL OFTHREE PHASE INDUCTION MOTOR V/F METHOD	1
88	DETERMINATIONOF EFFICIENCY OF THREE PHASE ALTERNATOR BY LOADING WITH THREE PHASE INDUCTION MOTOR	1
89	POWER FACTORIMPROVEMENT OF SINGLE PHASE INDUCTION MOTOR BY USING CAPACITORS &LOAD TEST ON SINGLE PHASE INDUCTION MOTOR	1
90	D &T	1
91	RESISTANCE KIT	1

(R16)
Control Systems Laboratory (III-I)

S.No	Name of the Experiment
1	Time response of Second order system
2	Characteristics of Synchronos
3	Programmable logic controller – characteristics of stepper motor
4	Effect of feedback on DC servo motor
5	Effect of P, PD, PI, PID Controller on a second order systems
6	Lag and lead compensation – Magnitude and phase plot
7	DC position control system
8	Transfer function of DC motor
9	Temperature controller using PID
10	Characteristics of magnetic amplifiers
11	Characteristics of AC servo motor
12	Characteristics of DC servo motor
13	Potentiometer as an error detector

CONTROL SYSTEMS

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	LINEAR SYSTEM SIMULATOR TRAINER KIT MAKE: HI-Q; MODEL: HIQ-5208	1
2	PID CONTROLLER STUDY SYSTEM TRAINER KIT MAKE : HI-Q;MODEL HIQ-5203	1
3	LEAD -LAG COMPENESATOR DESIGN TRAINER KIT MAKE : HI-Q;5201	1
4	MAGNETIC AMPLIFIER TRAINER KIT MAKE :HI-Q ;MODEL :HIQ-5267	1
5	AC SERVOMOTOR CHARACTERISTICS TRAINER KIT MAKE :HI-Q MODEL: HIQ-5211	1
	DIGITAL MULTIMETER	5
6	SERVO CONTROLLED VOLTAGE STABILIZER RATING 5KVA MODEL HIQ-501	1
7	SYNCHOR TRANSMITTER AND RECEIVER KIT MAKE:HI-Q MODEL :5206 SLNO 1702	1
8	DC SERVOMOTOR CHARACTERISTICS KIT MAKE :HI-Q MODEL: HIQ-5210 SLNO 1787	
9	DC MOTOR DC GENERATOR KIT	1
10	PLC TRAINER KIT	1
11	TEMPERATURE CONTROLLER USING PID KIT	1
12	POTENTIOMETER AS AN ERROR DETECTOR KIT	1
13	DC POSITION CONTORL SYSTEM KIT	1

(R16)
Electrical Measurements Laboratory (III-I)

S.No	Name of the Experiment
1	Calibration and Testing of single phase energy Meter
2	Calibration of dynamometer wattmeter using phantom loading
3	Calibration of PMMC ammeter and voltmeter using Crompton D.C. Potentiometer
4	Measurement of resistance and Determination of Tolerance using Kelvin's double Bridge.
5	Capacitance Measurement using Schering bridge.
6	Inductance Measurement using Anderson bridge.
7	Measurement of 3 phase reactive power with single phase wattmeter for balanced loading.
8	Calibration of LPF wattmeter by direct loading.
9	Measurement of 3 phase power with single watt meter and using two C.Ts.
10	Testing of C.T. using mutual inductance method.
11	Testing of P.T. using absolute null method.
12	Dielectric oil testing using H.T test Kit.
13	Calibration of AC voltmeter and measurement of choke parameters using AC Potentiometer in polar form.
14	Measurement of Power by 3 Voltmeter and 3 Ammeter method.

ELECTRICAL MEASUREMENTS LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	SCHERING BRIDGE WITH HEAD PHONE SET	1
2	ANDERSON BRIDGE	1
3	SINGLE PHASE UPF WATTMETER	1
4	STOP WATCH DIGITAL	1
5	CALIBRATION OF DYNOMOMETER TEST POWER QUALITY ,SINGLE PHASE POTENTIAL COIL 125/250/500V, CURRENT COIL:2.5/5A	1
6	SINGLE PHASE LPF WATTMETER POTENTIAL COIL 150/300/600V, CURRENT COIL:5/10A	1
7	LVDT TRAINER KIT	1
8	SINGLE PHASE VARIAC (0-270) /10A	2
9	CROMPTON DC POTENTIOMETER	1
10	KELVIN DOUBLE BRIDGE	1
11	SINGLE PHASE AIR COOLED ,TABLE /MOUNTING TYPE AUTO T/F .	1
12	WATTMETER UPF 300V/10A	1
13	PHASE SHIFTING T/F 500VA	1
14	PRECISION C.T.KIT 20,15,10,5/5A	1
15	HEAD PHONES FOR BRIDGE CIRCUIT	1
16	DC CROMPTON POTENTIOMETER	1
17	STANDARD CELL	1
18	2V FIXED POWER SUPPLY	1
19	VOLT RATIO BOX	1
20	SENSITIVE GALAVANO METER	1
21	CURRENT SHUNT /STANDARD RESISTANCE	1
22	0.01 OHMS 10A 0.05%	1
23	CALIBRATION OF LPF WATTMETER BY DIRECT LOADING	1
24	TESTING OF PT USING ABSOLUTE NULL METHOD	1
25	TESTING OF C.T USING MUTUL INDUCTANCE METHOD	1
26	REGULATED POWER SUPPLY 5V/5A	1

(R16)
Power Electronics Laboratory (III-II)

S.No	Name of the Experiment
1	Study of Characteristics of Thyristor, MOSFET & IGBT.
2	Design and development of a firing circuit for Thyristor.
3	Design and development of gate drive circuits for IGBT.
4	Single -Phase Half controlled converter with R and RL load
5	Single -Phase fully controlled bridge converter with R and RL loads
6	Single -Phase AC Voltage Regulator with R and RL Loads
7	Single -Phase square wave bridge inverter with R and RL Loads
8	Three- Phase fully controlled converter with RL-load.
9	Design and verification of voltages gain of Boost converter in Continuous Conduction Mode(CCM) and Discontinuous Conduction Mode(DCM).
10	Design and verification of voltages ripple in buck converter in CCM operation.
11	Single -phase PWM inverter with sine triangle PWM technique.
12	3-phase AC-AC voltage regulator with R-load.

POWER ELECTRONICS LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	STUDY OF CHARACTERISTICS OF SCR,MOSFET,IGBT KIT	1
2	STUDY OF SCR FIRING CIRCUITS TRAINER WITH BUILT IN POWER SUPPLY KIT	1
3	SINGLE PHASE HALF CONTROLLED BRIDGE CONVERTER CIRCUIT TRAINER KIT	1
4	SINGLE PHASE FULLY CONTROLLED BRIDGE	1
5	FORCED COMMUTATION CIRCUITS	1
6	SINGLE PHASE AC VOLTAGE CONTROL CIRCUITS KIT	1
7	SINGLE PHASE CYCLO CONVERTER POWER CONVERTER CIRCUIT	1
8	DC JONES CHOPPER POWER CIRCUIT KIT	1
9	SINGLE PHASE SERIES INVERTER POWER CIRCUIT TRAINER KIT	1
10	R-LOAD	7
11	SINGLE PHASE CYCLO CONVERTER POWER CONVERTER CIRCUIT	1
12	L-LOAD	6
13	REGULATED DC POWER SUPPLY	3
14	1-PHASE ISOLATION TRANSFORMER	3
15	CENTER TAPPED 1-PHASE ISOLATION TRANSFORMER	1
16	DESIGN 4 DEVELOPMENT OF GATE DRIVE CIRCUITS FOR IGBT IN MICROCONTROLLER BASED CIRCUIT	1
17	DESIGN AND VERIFICATION OF VOLTAGE GAIN OF BOOST CONVERTER IN CCM	1
18	DC POWER SUPPLY	1
19	R-LOAD	1
20	DESIGN AND VERIFICATION OF VOLTAGE GAIN OF BUCK CONVERTER IN CCM	1
21	DIGITAL STORAGE OSCILLOSCOPE	1
22	25 MM PATCH CARDS	50
23	CRO PROBES	4

(R16)**Microprocessors & Microcontrollers Laboratory (III-II)**

S.No	Name of the Experiment
1	Arithmetic operation – Multi byte addition and subtraction, multiplication and division – Signed and unsigned arithmetic operation, ASCII – Arithmetic operation.
2	Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
3	By using string operation and Instruction prefix: Move block, Reverse string Sorting, Inserting, Deleting, Length of the string, String comparison.
4	Interfacing 8255–PPI
5	Interfacing 8259 – Interrupt Controller.
6	Interfacing 8279 – Keyboard Display.
7	Stepper motor control using 8253/8255.
8	Reading and Writing on a parallel port using 8051
9	Timer in different modes using 8051
10	Serial communication implementation using 8051
11	Understanding three memory areas of 00 – FF Using 8051 external interrupts.
12	Interface PIC 18 with an optoisolator
13	Interface PIC 18 with a DC motor

MICROPROCESSORS & MICROCONTROLLERS LABORATORY

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	CORE i3 4TH PROCESSOR 4130 3.4GHZ ,GIGABYTE H81MS1 DDR3 4GB KINSTONE SEGATE 500GB SATA HDD CABINET ATX WITH IBALL DELL KEY BOARD VSB.DELL MOUSE USB, DELL 18.5LED MONITOR	2
2	8086 -MICRO PROCESSOR TRAINER KIT (LCD)JAYAM	2
3	8051 -MICRO PROCESSOR TRAINER KIT (LCD)JAYAM	2
4	8255-INTERFACING CARD JAYAM	2
5	8279-INTERFACING CARD JAYAM	2
6	SEAGATE 4TB BACKUP PLUS	2
7	SEAGATE 1TB EXPANSION PORTABLE DRIVE	8

(R16)
Electrical Simulation Laboratory (IV-I)

S.No	Name of the Experiment
1	Simulation of transient response of RLC circuits a. Response to pulse input b. Response to step input c. Response to sinusoidal input
2	Analysis of three phase circuit representing the generator transmission line and load. Plot three phase currents & neutral current .
3	Simulation of single–phase full converter using RLE loads and single phase AC voltage controller using RL loads
4	Plotting of Bode plots, root locus and nyquist plots for the transfer functions of systems up to 5th order
5	Simulation of Boost and Buck converters.
6	Integrator & Differentiator circuits using op–amp.
7	Simulation of D.C separately excited motor using transfer function approach.
Any 2 of the following experiments are to be conducted:	
8	Modeling of transformer and simulation of lossy transmission line.
9	Simulation of single phase inverter with PWM control.
10	Simulation of three phase full converter using MOSFET and IGBTs.
11	Transient analysis of single machine connected to infinite bus(SMIB).

ELECTRIAL SIMULATION LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	CORE i3 4TH GENERATION 4130 3.4GHZ ,GIGABYTE H81MS1 DDR3 4GB KINSTONE SEGATE 500GB SATA HDD CABINET ATX WITH IBALL DELL KEY BOARD VSB.DELL MOUSE USB, DELL 18.5LED MONITOR	34
2	ML MAT LAB 8.2 WITH 12 TOOL BOX	10
3	MAT LAB / SIMULINK TOOL BOX LICIENCE RENEWED	10
4	ORCAD PSPICE V9.2	34
5	GRAPHIC CARDS 16GB	24
6	APC UPS-SRC 6KUX1	3
7	CISCO SWITCHES SG-95-24-A6 10/100	5
8	CP PLUS SMPS 20A 12V	3

(R16)
Power Systems & Simulation Laboratory (IV-I)

S.No	Name of the Experiment
1	Sequence impedances of 3 phase Transformer.
2	Sequence impedances of 3 phase Alternator by Fault Analysis.
3	Sequence impedances of 3 phase Alternator by Direct method.
4	ABCD parameters of Transmission line.
5	Power Angle Characteristics of 3phase Alternator with infinite bus bars.
6	Dielectric strength of Transformer oil.
7	Calibration of Tong Tester.
8	Load flow studies using Gauss-seidel method
9	Load flow studies using N-R method..
10	Transient Stability Analysis
11	Load frequency control with &without control
12	Load frequency control with control
13	Economic load dispatch with & without losses
14	Economic load dispatch with losses.

POWER SYSTEMS LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	SEQUENCE IMPEDANCES OF 3 PHASE TRANSFORMER	1
2	SEQUENCE IMPEDANCES OF 3 PHASE ALTERNATOR BY FAULT ANALYSIS	1
3	ABCD PARAMETERS OF TRANSMISSION NETWORK	1
4	DIELECTRIC STRENGTH OF TRANSFORMER OIL	1
5	CALIBRATION OF TONG TESTER	1
6	POWER ANGLE CHARACTERISTICS OF 3PHASE ALTERNATOR WITH INFINITE BUS BAR	1
7	CORE i3 4TH GENERATION 4130 3.4GHZ ,GIGABYTE H81MS1 DDR3 4GB KINSTONE SEGATE 500GB SATA HDD CABINET ATX WITH IBALL DELL KEY BOARD VSB.DELL MOUSE USB, DELL 18.5LED MONITOR	34
8	ML MAT LAB 8.2 WITH 12 TOOL BOX	10
9	MAT LAB / SIMULINK TOOL BOX LICIENCE RENEWED	10
10	ORCAD PSPICE V9.2	34
11	GRAPHIC CARDS 16GB	24
12	APC UPS-SRC 6KUX1	3
13	CISCO SWITCHES SG-95-24-A6 10/100	5
14	CP PLUS SMPS 20A 12V	3

PG LABORATORIES:

(R19) Power Electronics Simulation Laboratory (I-I)

S.No	Name of the Experiment
1	Simulation of Buck converter using small signal model.
2	Simulation of Boost converter using small signal model.
3	Simulation of single phase half bridge inverter.
4	Simulation of single-phase full bridge inverter using Uni-polar & Bi-polar PWM techniques.
5	Simulation of three phase inverter using sine-triangle PWM.
6	Simulation of three phase inverter using space vector PWM.
7	Simulation of three level three phase NPC inverter.
8	Study of neutral point voltage floating in NPC three level inverter
9	Simulation of 3-level flying capacitor inverter & evaluation of capacitor voltage balanced methods.
10	Simulation of single phase AC voltage regulator.
11	Simulation of three phase AC voltage regulator.
12	Comparison of harmonic profile of two level & three level inverter (FFT analysis).
13	Simulation of 5-level inverter using carrier based PWM methods.
14	Simulation of three phase full converter with RL & RLE loads.
15	Simulation of three-phase dual converter.

POWER ELECTRONICS SIMULATION LABORATORY

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	CORE i3 4TH GENERATION 4130 3.4GHZ ,GIGABYTE H81MS1 DDR3 4GB KINSTONE SEGATE 500GB SATA HDD CABINET ATX WITH IBALL DELL KEY BOARD VSB.DELL MOUSE USB, DELL 18.5LED MONITOR	34
2	ML MAT LAB 8.2 WITH 12 TOOL BOX	10
3	MAT LAB / SIMULINK TOOL BOX LICIENCE RENEWED	10
4	ORCAD PSPICE V9.2	34
5	GRAPHIC CARDS 16GB	24
6	APC UPS-SRC 6KUX1	3
7	CISCO SWITCHES SG-95-24-A6 10/100	5
8	CP PLUS SMPS 20A 12V	3

(R19)
Power Converters Laboratory (I-I)

S.No	Name of the Experiment
1	Study of DC-DC non-isolated converters such as Buck & Boost converter.
2	Study of DC-DC Buck-Boost and Cuk converters.
3	Study of 1- ϕ dual converter.
4	Determination of input p.f. and harmonic factor for 1- ϕ semi- converter and 1- ϕ fullconverter (Inductive load)
5	Study of p.f. improvement in 1- ϕ full-converter with symmetric and extinction angle control.
6	Study of 1- ϕ square wave and sinusoidal PWM inverter.
7	Study of 3- ϕ inverter with 120o and 180o mode of operation.
8	Study of 3- ϕ sinusoidal PWM inverter.
9	Study of 3-level NPC inverter.
10	Study of 5-level cascaded H-bridge inverter.
11	Determination of input p.f. and harmonic factor for 3- ϕ full converter (Inductive load).
12	Determination of input p.f. and harmonic factor for 3- ϕ semi converter (Inductive load).
13	Study the characteristics of IGBT, MOSFET & GTO's.
14	Design of gate drive circuits for IGBT & MOSFET's.

(R19)
Electric Drives Laboratory (I-II)

S.No	Name of the Experiment
1	Study of armature controlled separately excited DC drive with 1- ϕ full converter.
2	Study of chopper controlled separately excited DC drive.
3	Study of armature controlled separately excited DC drive with 3- ϕ full converter
4	Study of dynamic braking of DC drives.
5	Study of regenerative braking of DC drive.
6	Study of performance characteristics of a 3- ϕ induction motor using V/f control.
7	Vector control based speed control of induction motor.
8	Study of direct torque control of induction motor.
9	Speed control of PMSM drive with 3- ϕ inverter.
10	Speed control of BLDC drive with 3- ϕ inverter.
11	Speed control of switched reluctance motor drive.

POWER CONVERTERS AND DRIVES LAB

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	THREE PHASE CONVERTER FIRING UNIT	1
2	THREE PHASE FULLY CONTROLLED CONVERTER POWER CIRCUIT	1
3	THREE PHASE ISOLATION TRANSFORMER	1
4	RESISTIVE LOAD	1
5	INDUCTIVE LOAD	1
6	DC SHUNT MOTOR WITH MECHANICAL LOADING ARRANGEMENT AND TACHOMETER	1
7	IGBT BASED 4 QUADRANT CHOPPER WITH DC MOTOR WITH MECHANICAL LOADING ARRANGEMENT AND SPEED SENSOR	1
8	3-PHASE CONVERTER FIRING UNIT	1
9	3-PHASE AC VOLTAGE CONTROLLER POWER CIRCUIT	1
10	3-PHASE ISOLATION TRANSFORMER	1
11	3-PHASE INDUCTION MOTOR WITH MECHANICAL LOADING ARRANGEMENT AND TACHOMETER	1
12	1-PHASE IGBT BASED PWM INVERTER WITH 5 TYPES OF MODULATION SINGLE PULSE , MULTIPLE PULSE ,SINGLE TRIANGLE,TRAPEZOIDAL AND STAIRCASE MODULATION	1
13	DC REGULATED POWER SUPPLY	1
14	RHEOSTAT	1
15	INDUCTOR TAPPINGS	1
16	3-PHASE IGBT BASED PWM INVWRTER WITH 3 TYPES OF MODULATION- SINGLE PULSE,MULTIPLE PULSE,SINGLE TRIANGLE MODULATION	1
17	DC REGULATED POWER SUPPLY	1
18	3-PHASE RHEOSTAT	3
19	3-PHASE INDUCTOR WITH TAPPINGS	3
20	SPEED CONTROL OF 3-PHASE INDUCTION MOTOR(SLIP RING) WITH IGBT CHOPPER FOR ROTOR RESISTANCE CONTROL WITH SLIP RING I-M WITH SPEED SENSOR	1
21	INCLUDING POWER CIRCUIT AND ALL ACCESSORIES	1
22	IGBT BASED PWM INVERTER WITH V/F CONTROL AND 3-PHASE SQUIRREL CAGE I-M	1

(R19)

Electric Drives Simulation Laboratory (I-II)

S.No	Name of the Experiment
1	Simulation of DC shunt machine as motor & generator.
2	Simulate the speed control of DC motor using chopper converter.
3	Simulation of induction motor modes using d-q model.
4	Simulate the speed control of induction motor by using V/f control.
5	Simulate the BLDC motor and observe the speed transients.
6	Simulate speed control of induction motor by using vector control.
7	Compare the transient performance of induction motor controlled by v/f control & vector control methods.
8	Simulate PMSM motor by using d-q model.
9	Simulate the multi-level inverter fed induction motor drive.
10	Simulate the re-generative braking of inverter fed induction motor.
11	Study of PWM controlled inverter fed PMSM drive.
12	Evaluation of switching frequency effect on electric drive

ELECTRIC DRIVES SIMULATION LABORATORY

S.NO	NAME OF THE EQUIPMENT	QUANTITY
1	CORE i3 4TH GENERATION 4130 3.4GHZ ,GIGABYTE H81MS1 DDR3 4GB KINSTONE SEGATE 500GB SATA HDD CABINET ATX WITH IBALL DELL KEY BOARD VSB.DELL MOUSE USB, DELL 18.5LED MONITOR	34
2	ML MAT LAB 8.2 WITH 12 TOOL BOX	10
3	MAT LAB / SIMULINK TOOL BOX LICIENCE RENEWED	10
4	ORCAD PSPICE V9.2	34
5	GRAPHIC CARDS 16GB	24
6	APC UPS-SRC 6KUX1	3
7	CISCO SWITCHES SG-95-24-A6 10/100	5
8	CP PLUS SMPS 20A 12V	3