

ELECTRICAL TECHNOLOGY LAB

LIST OF EXPERIMENTS:-

1. To verify KCL and KVL.
2. To verify Thevenin's & Norton's Theorems.
3. To verify Superposition theorems.
4. To study frequency response of a series R-L-C circuit and determine resonant frequency & Q- factor for various Values of R,L,C.
5. To study frequency response of a parallel R-L-C circuit and determine resonant frequency & Q -Factor for various values of R,L,C.
6. To perform direct load test of a transformer and plot efficiency Vs load characteristic.
7. To perform O.C. and S.C. tests on transformer.
8. To perform speed control of DC motor.
9. To perform O.C. and S.C. tests of a three phase induction motor.
10. Measurement of power in a 3 phase system by two watt meter method

LAB TECH.

PRADEEP KUMAR

LAB INCHARGE

VED PARKASH

SEMICONDUCTOR DEVICES

List of Experiments :

1. Draw V.I characteristics of P.N.junction diode in forward bias region & study of L.E.D characteristics.
2. To study the reverse breakdown characteristics of given zener diodes as a voltage regulator.
3. To study the input and output characteristics of a given transistor in common emitter configuration
4. To study the static characteristics of a given JFET & evaluate parameters r_d , I_{dss} , V_{po} , g_m
5. Verify the Truth Table of And ,OR ,XOR , NOT Logic gates.
6. To study half wave rectifier , Full wave rectifier & bridge rectifier and effect of different filter circuits on ac ripple at different loads.
7. To study the inverting and non – inverting amplifier using op-amp .
8. (a) To understand the function of each subsystem of the Oscilloscope and the proper use of each of its controls
(b) To measure the voltage and frequency.
9. To study the UJT as relaxation oscillator and to observe the effect of RC time constant upon output pulse.
10. To measure h- parameters of given transistor ac128 in common emitter configuration at 1 KHz

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BAJRANG BANSAL

POWER APPARATUS & MACHINE-I

List of Experiments :

1. To perform load test on a single phase transformer and plot graph between load current & efficiency.
2. To perform O.C. & S.C. test on a single-phase transformer.
3. To carry out speed control on DC shunt motor (Armature & Field control)
4. To obtain magnetizing characteristics of a separately excited DC generator and hence calculate critical resistance and critical speed.
5. To draw the load characteristics of a DC shunt /Compound Generator (I) shunt, (II) Cumulative Compound (III) Differential Compound.
6. To determine the efficiency of a DC machine by Swinburn test.
7. To transform power from 3- phase system to 2- phase system using Scott connection transformer.
8. To draw the equivalent circuit of 1- phase transformer from the result of open circuit test & short circuit test and estimate the regulation and efficiency of a transformer from test data.
9. To perform parallel operation of single-phase transformer.
10. To control speed of D.C. machine using Ward Leonard method.

Power Apparatus & Machine Lab-II

LIST OF EXPERIMENTS:

1. To study of running of three phase induction motor & determine of mechanical losses .
2. study & stating of a 1- phase induction motor, light & running block rotor test & hence, determine the parameter of equivalent circuit .

3. To find out of losses of transformer by Sumpener's test (Back to Back test or load test)

4. A) To perform a load test on a 3 – phase induction motor

B) compute efficiency, torque, slip, speed, I/P p.f. and stator current . plot the graph b/w efficiency Vs P_o , T Vs, P_o , I, Vs, P_o , P, F Vs P_o , S Vs P_o , T vS N .

5. To study the various connection of 3- phase transformer .

6.To determine regulation of synchronous impedance method

1) conduct open & short ckt. Test on a 3- phase alternator

2) Determine & plot variation of synchronous impedance with IF

3) Determine S.E.R.

4) determine regulation for 0.8 lagging p.f., unity p.f.

7. To perform open & short ckt. Test on a 3- phase alternator to find regulation by mmf method .

8. V – curve of synchronous motor .

A) to study the effect of variation of field current upon the stator current and p.f. with synchronous motor running at no load, hence draw V & inverted V curves of the motor

9. To perform direct load Test on a 3- phase alternator for :

1) Resistive load .

2) Inductive load .

3) Capacitive load .

10. To measure negative sequence reactance of a synchronous machine.

11. To measure direct – axis synchronous reactance and quadrature – axis Synchronous reactance. X_d X_q by slip test .

LAB TECH.

VIJENDER MALIK

LAB INCHARGE

ANKUR GUPTA, D.N YADAV

SIGNALS AND SYSTEMS LAB

List of Experiments :

- 1.To study Z- transform of ;
 - a) Sinusoidal signals.
 - b) Step functions.
- 2.To compare fourier and laplace transform of a signal.
- 3.To study convolution theorem in time and frequency domain.
4. To Study Signal Synthesis via sum of harmonics.
5. To study LPF &HPF,band pass& reject filters using RC circuits.
- 6 . To demonstrate how analog signals are sampled & how different sampling rates affect the outputs.
- 7.To study sampling theorem for low pass signals & band pass signals .
8. To determine the components of :
 - a) Square wave.
 - b) Clipped sine wave.

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DEVENDER DESWAL

LAB INCHARGE

VED PARAKASH

ELECTRICAL WORKSHOP

LIST OF EXPERIMENTS:

1. Introduction of tools, electrical materials, symbols and abbreviations.
2. To study stair case wiring.
3. To study house wiring i.e., batten, cleat, casing-caping and conduit wirings.
4. To study fluorescent tube light.
5. To study high pressure mercury vapour lamp (H.P.M.V).
6. To study Sodium lamp.
7. To study repairing of home appliances such as heater, electric iron, fans etc.
8. To study construction of moving iron, moving coil, electro-dynamics & induction type meters.
9. To design & fabricate single phase transformer.
10. To study fuses, relays, contactors, MCBs and circuit breakers.
11. Insulation testing of electrical equipments.
12. To design, fabricate a PCB for a circuit, wire-up and test.

NOTE: Ten experiments are to be performed, out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution.

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DEVENDER DESWAL

LAB INCHARGE

CHANDER SHEKHAR

DIGITAL ELECTRONICS LAB

LIST OF EXPERIMENTS :

1. Verify the truth table of AND, OR, NOT, EX-OR, gate.
2. Verification of NAND, OR, EX-OR, NOR using 7400 IC.
3. Design a hardware circuit to perform the operation of half & full adder.
4. Design a hardware circuit to perform the operation of full subtractor.
5. Verify the truth table of RS, D, T, JK Flip Flop.
6. Study asynchronous counter in up & down mode.
7. To study multiplexer and demultiplexer.
8. To study decade counter.
9. To design D/A, A/D converter.
10. To study the operation of Schmit Trigger using 741 IC.

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LINEAR IC LAB

LIST OF EXPERIMENTS

1. To study the OPAMP as inverting and non-inverting
2. To study the OPAMP as differentiator
3. To study the OPAMP as integrator
4. To demonstrate the operation of low pass filter and design the second order low pass filter.
5. To demonstrate the operation of high pass active filter
6. To study the frequency response of band pass filter
7. To study the notch filter
8. To construct the astable multivibrator using IC 555
9. To study the operation of the Schmitt trigger using the IC 741.
10. To study the phase shift wein bridge oscillator

LAB TECH.

SHIV KUMAR

LAB INCHARGE

HARVINDER

ANALOG ELECTRONICS

LIST OF EXPERIMENTS:

1. To study of characteristics of photodiode & LED .
2. To study of characteristics of phototransistor.
3. To study of characteristics of VDR &LDR.
4. To study of characteristics of optocoupler .
5. To study of characteristics of Varactor diode .
6. To study Transformer coupled amplifier & determine its voltage gain.
7. To study RC coupled amplifier & determine its voltage gain, power gain & freq. response.
8. To study Hartley Oscillator .
9. To study the different types of negative feedback in two stage amplifier and to observe its effects upon the amplifier parameters.
10. To study biasing of transistor by following method :
 - I) Fixed bias .
 - II) Voltage divider bias .

LAB TECH.

VIKAS

LAB INCHARGE

PARVEEN KAUSHIK

Electronic Instrument & Measurements Lab

LIST OF EXPERIMENTS:

1. To measure voltage using digital voltmeter.
2. To measure the frequency using Lissajous pattern on CRO.
3. To measure the distortion in amplifiers using distortion meter.
4. To study Op-Amp. as half wave & full wave precision rectifier.
5. To study the op-amp as :

Adder

Subtractor

Integrator

Differentiator

6. To study the wave form on ECG recorder.
7. To study the sphygmomanometer for blood pressure measurement.

LAB TECH.

BHRAT KUMAR

LAB INCHARGE

AMIT KUMAR

Power Electronics Lab

LIST OF EXPERIMENTS:

1. To Plot the firing characteristics of given silicon control rectifier.
 - a. By varying the gate current I_g keeping forward voltage V_{ak} fixed.
 - b. By varying forward voltage V_{ak} keeping gate current fixed.
2. To study the V-I characteristics of given UJT. To plot graph between V_e and I_e . To find negative resistance from the graph.
3. To plot V-I characteristics of given Triac in I and III quadrant.
4. To plot the drain characteristics of given F.E.T & to evaluate the parameter r_d , I_{dss} .
5. To study the UJT based relaxation oscillator & to evaluate the dynamic resistance.
6. To study & draw the characteristics of DC-DC chopper power circuit
7. To study the characteristics of single phase fully controlled converter circuit.
8. To study the characteristics of 3-phase fully controlled converter power circuit.
9. To study single phase Mc Murray Inverter power circuit.
10. To study single phase cyclo-converter circuit.

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AMIT KUMAR

Control System Lab.

LIST OF EXPERIMENTS:

1. To study D.C. Position control system.
2. To study linear system simulator.
3. To study light intensity control using P & PI controller with provision for disturbance and transient speed control.
4. To study D.C motor speed control.
5. To study the stepper motor characteristics and its control through microprocessor kit.
6. To study Temperature control system.
7. To study Compensation design
8. To study Digital control system.

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DEVENDER DESWAL

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CHANDER SHEKHAR

VLSI & IC TECHNOLOGY LAB

LIST OF EXPERIMENTS:

1. Study of VHDL.
2. To design the two input NAND gate , NOR gate , EX-OR gate in VHDL .
3. To design a full adder & full subtractor using the same hardware & with the help of control signal .
4. To design a 4:1 multiplexer and 1:4 demultiplexer in VHDL.
5. To design a priority encoder in VHDL.
6. To design a carry look ahead adder in VHDL.
7. To design a BCD adder & BCD subtractor in VHDL.
8. Write a program in VHDL to compute 2's complement of a four bit binary numbers.
9. Write a program in VHDL to implement the Boolean expression .
 $F = (A + B) (C + D)$ using CMOS circuitry .
- 10 Implement a $F = (A + B)$ using only PMOS circuitry.
 - (i) Design a MOD-6 synchronous & asynchronous (ripple) counter in VHDL.
 - (ii) Design a MOD-8 ring & Johnson counter in VHDL.

LAB TECH.

KRISHAN KUMAR

LAB INCHARGE

KAPIL SACHDEVA

MICROPROCESSOR LAB

LIST OF EXPERIMENTS:

- 1 To study the 8085-microprocessor kit.
- 2 Add two Binary numbers using 8085-Microprocessor kit.
- 3 Find 2's complement of a binary number using 8085-Microprocessor kit.
- 4 To arrange a series of numbers in descending order using 8085 Microprocessor kit.
- 5 Multiplication of two binary numbers using 8085-Microprocessor kit.
- 6 Divide a 16-bit number by 8-bit number and restore result in memory location 2700 using 8085-Microprocessor kit.
- 7 To find Square root of a 8- bit number using 8085-Microprocessor kit .
- 8 To find the largest number in a data array using 8085-Microprocessor kit.
- 9 To interface a D/A converter with the 8085-microprocessor kit.
- 10 To interface the stepper motor with the 8085-microprocessor kit.

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BAJRANG BANSAL

POWER SYSTEM LAB

LIST OF EXPERIMENTS:

1. To find out the dielectric strength of transformer oil.
2. To find zero sequence component of three phase line.
3. To draw the characteristics of thermal overload relay.
4. To study an IDMT over current relay to obtain and plot it's characteristic curves i.e. the graph between current and time.
5. To measure the ABCD parameters of a given transmission line.
6. To plot the power angle characteristics of given transmission lines.
7. To find the string efficiency of a string insulator with/without guard rings.
8. To study the characteristics of transmission line for t-network & pie- network.
9. To study and testing of a current transformer
10. To study various types of distance re

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DEVENDER DESWAL

LAB INCHARGE

CHANDER SHEKHAR

COMMUNICATION ENGG. LAB

LIST OF EXPERIMENTS:

1. Study of AM Modulation / Demodulation.
2. Study of FM Modulation / Demodulation.
3. Study of PAM Modulation / Demodulation.
4. Study of DA Modulation / Demodulation. ..
5. Study of PCM Modulation / Demodulation.
6. Study of Carrier Modulation technique using ASK.
7. Study of Carrier Modulation technique using FSK
8. Study of Carrier Modulation technique using PSK
9. Comparative study of Delta Modulation & Adaptive Delta Modulation Technique.
10. To study the Time Divison Multiplexing & Demultiplexing

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DEVENDER DESWAL

LAB INCHARGE

VED PARKASH

ELECTRIC DRIVES LAB

LIST OF EXPERIMENTS:

1. Study of Industrial Applications of various mills.
2. Variable Torque Control of Induction Motor.
3. Breaking of DC Motor by using Mechanical & Electrical Methods.
4. Rotor resistance control of 3 ϕ Slip Ring Induction Motor.
5. Chopper Control of DC Motor.
6. Chopper Control of separately excited DC motor.
7. Study of different types of a loading on a particular load.
 - (a) Intermediate Loading
 - (b) Continuous Loading
8. Methods of starting Induction Motor.
9. Variable Voltage Control of Induction Motor.
10. Microprocessor Based Control of any Motor.

LAB TECH.

VIJENDER MALIK

LAB INCHARGE

D.N YADAV

ADVANCE PROGRAMMING LAB

LIST OF EXPERIMENTS:

- 1) Write a program to perform following operations on linked list.
 - a. Insertion of a node
 - b. Deletion of node.
- 2) WAP to implement stack.
- 3) WAP to implement queues.
- 4) WAP to sort a list using following.
 - a. Insertion sort d. Quick sort
 - b. Bubble sort e Merge sort
 - c. Selection Sort f. Radix sort
- 5) WAP to find roots of quadratic equation using polymorphism.
- 6) WAP to find addition & multiplication of two matrices using classes.
- 7) WAP which shows the use of inheritance.
- 8) WAP to implement the concept of copy constructor & destructor.

LAB TECH.

RAJESH KUMAR

LAB INCHARGE

AMITESH ARYA

DIGITAL SIGNAL PROCESSING LAB

LIST OF EXPERIMENTS:

1. To develop a program for computing Z- transform in factored form, Plot its poles and zeros , and then determine its ROCs.
2. To develop a program for computing Inverse Z-transform of a rational transfer function.
3. To develop a program for linear convolution and circular convolution .
4. To develop a Program for computing discrete fourier transform .
5. To develop a Program for computing the convolution by overlap-add method and overlap save-method.
6. To develop Program for realization of IIR Digital filters (Direct, Cascade, Parallel).
7. To develop a program for sampling theorem .
8. To design FIR filters using windows technique.
9. To design analog filter (Low pass, High pass).
10. To design analog filter (Band pass, Band stop)
11. To design IIR filters using (Impulse Invariant method).
12. To design IIR filters using (bilinear transformation)

Perform the Experiments using MATLAB:-

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KRISHAN KUMAR

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KAPIL SACHDEVA

SIMULATION LAB

List of Experiments :

Perform the experiments using C/C++ Language

1. To develop a Program for Matrix $n*n$.
2. Add two Matrix.
3. Multiplication of two Matrix.
4. Find Inverse of Matrix.
5. Check stability by Routh Hurwitz Criteria.
6. Check stability by Jury Test.
7. Draw a circle for given radius use graphics.
8. Draw a straight-line use graphics.
9. Find Eigen value for given Matrix.
10. To develop a program for Cramer's Rule
11. To develop a program for Tower of Hanoi.

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MANOJ BANSAL