

**Department  
of  
Computer Science & Engg**

**List of Experiments**

**List of Practicals**  
**Semester 3<sup>rd</sup> CSE**

<b>S.No.</b>	<b>Subject Name</b>	<b>Subject Code</b>
1	Software Lab-1 (DSPM)	CS-213
2.	Hardware Lab -1 (DCLD)	CS-217
3.	Object Oriented Programming using C++	CS-252

**Software Lab-1 (DSPM)**  
**CS-213**  
**3<sup>rd</sup> Sem**

<b>S. No.</b>	<b>Programs Details</b>
1.	PROGRAM TO TRAVERSE A LINEAR ARRAY
2.	PROGRAM TO FIND MAXIMUM AND MINIMUM VALUE IN LINEAR ARRAY
3.	PROGRAM TO INSERT ELEMENT AT K <sup>TH</sup> POSITION IN A LINEAR ARRAY
4.	PROGRAM TO SEARCH AN ELEMENT LINEARLY IN A LINEAR ARRAY
5.	PROGRAM FOR BUBBLE SORT
6.	PROGRAM FOR BINARY SEARCH IN A LINEAR ARRAY
7.	PROGRAM TO DELETE AN ELEMENT FROM A LINEAR ARRAY
8.	PROGRAM TO FIND THE FACTORIAL OF A GIVEN NUMBER USING RECURSION
9.	PROGRAM TO PRINT THE FIBONACCI SERIES USING RECURSION
10.	PROGRAM TO SORT ELEMENTS IN AN ARRAY USING QUICK SORT (USING RECURSION)
11.	PROGRAM TO CONVERT INFIX EXPRESSION TO POSTFIX EXPRESSION
12.	PROGRAM TO PERFORM DATA STRUCTURE OPERATIONS ON A LINKED LIST
13.	PROGRAM TO SORT ELEMENTS USING MERGE SORT
14.	PROGRAM TO SORT ELEMENTS USING SELECTION SORT
15.	PROGRAM TO INSERT & DELETE ELEMENTS IN QUEUE

**Software Lab-1 (OOPS)****CS-252****3<sup>rd</sup> Sem**

Sno	List of practicals
1	Program to print a simple message as output
2	Program to illustrate Associative law for Arithmetic Operators
3	a>Program to illustrate Relational Operator b>Program to illustrate Pre/Post Increment Operator
4	Test for divisibility using If statement.
5	The If-else statement - find minimum number.
6	a>The If-else statement - find minimum and maximum number b>Minimum of three numbers-Using nested if else statements.
7	WAP to illustrates switch statement
8	Find out sum of 10 numbers using while loop.
9	program to find sum of digits of 3 digit number using while loop.
10	Program to show the use of the Do while loop.
11	WAP to print the table of the given number using FOR loop.
12	WAP to find out the Armstrong number.
13	WAP to print following output using for loop. 1 2 1 3 2 1
14	wap to print following output using for loop *** ** ** ** * *
15	WAP a program to print the Fibonacci Series.
16	Calculate factorial using for loop.
17	Program to illustrates the break statement.
18	Program to illustrates the continue statement
19	Program to illustrates the goto statement
20	program to find largest and smallest number from array elements.
21	Program to illustrates Automatic Storage Classes
22	Program to illustrates Register Storage Classes
23	Program to illustrates Static Storage Classes
24	WAP to illustrates functions.
25	Call by value.
26	Program of call by reference.
27	WAP to show date using structure.
28	Structure with in struture.
29	Program for Structure local to a function
30	Program for Structure passed to a function ( by Value )
31	Function returning a Structure
32	Program for Array of Structures
33	Wap to define class student having data members roll number, percentage using this pointer invoke the functions to accept & display data for one object.
34	Program to illustrates Constructor

35	Program to illustrates Destructor using delete operator.
36	Overloading binary operator.
37	Program to illustrates Virtual base Class
38	Program to illustrates Friend function.
39	Program to illustrate function overloading.
40	Passing object by value.
41	Passing object by refernce.
42	Program Dynamic Construction of Objects
43	Program to elaborate multilevel inheritance
44	Program to elaborate multiple inheritance
45	WAP to write in a text file.
46	WAP to read a text file.
47	WAP to obtaining file size.

**List of Practicals**  
**Semester 4<sup>th</sup> CSE**

<b>S.No.</b>	<b>Subject Name</b>	<b>Subject Code</b>
1	Software Lab-1 (Operating System)	CS-212
2.	Hardware Lab II (Data Comm)	CS-214
3.	Hardware Lab II (Microprocessor & Assembly Lang Programming )	CS-216
4.	Software Lab-IV (System Programming)	CS-218

## Hardware Lab II (Data Comm) CS-214

<b>Sno</b>	<b>Name of practical</b>
1	Familiarization with computer hardware
2	<i>Study of configuration of network neighborhood</i>
3	<i>Study of categories of network</i>
4	<i>Introduction to network Computing</i>
5	<i>Familiarization with transmission media viz. Coaxial cable, twisted pairs, optical fiber networking, wireless networking, connectors etc.</i>

### Software Lab-1 (Operating System) CS-212

SNO.	Name of Practical
1.	Introduction to Operating Systems, Operating System Services, Types, Command Line Interpreter.
2.	Study & Implementation of various commands: Ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
3.	Study & Implementation of various commands: Cal, cat(append), cat(concatenate), mv, cp, man, date.
4.	Study & Implementation of various commands: Chmod, grep, tput (clear, highlight), bc.
5.	(a)Develop a simple shell program to display your Name, Roll_no, Current Date and Time. (b)Develop a shell program to print the factorial of a given number. (c)Develop a shell program to print the Fibonacci series.
6.	(a)Develop a shell program to calculate Simple Interest. (b) Develop a shell program which makes use of <i>if-then-else</i> statement and <i>for/while</i> loops.

**Software Lab-IV (System Programming) CS -216**

**List of Practicals**  
**Semester 5<sup>th</sup> CSE**

<b>S.No.</b>	<b>Subject Name</b>	<b>Subject Code</b>
1	Software Lab (DBMS)	CS-313
2.	Hardware Lab- IV (Computer Networks)	CS-315
3.	Software Lab-VI (Algorithms)	CS-317
4.	Software Lab-VII (Computer Graphics)	CS-319

# **Lab Manual**

**Subject Name: Database Management System**

**Subject Code: CS-313**

**Semester: 5<sup>th</sup>**

<b>S.No.</b>	<b>Experiments</b>
<b>1.</b>	<b>Introduction To DBMS</b>
<b>2.</b>	<b>Introduction to SQL</b>
<b>3.</b>	<b>To implement Different types of DDL,DML and DCL statements in SQL</b>
<b>4.</b>	<b>To use constraints on create database</b>
<b>5.</b>	<b>To explore 'select' clause using where, order by, between, like, group by, having etc.</b>
<b>6.</b>	<b>To implement different in-built functions on the created database</b>
<b>7.</b>	<b>To implement nested and correlated queries.</b>



## Hardware Lab- IV (Computer Networks) CS-315

Semester: 5<sup>TH</sup>

<b>S. NO.</b>	<b>EXPERIMENT DETAILS</b>
1.	Conversion of Analog to digital signals.
2.	Conversion of digital to analog signals.
3.	Conversion of Analog to Analog signals.
4.	Conversion of digital to digital signals.
5.	Implementation of multiplexers.
6.	To study FDM modulation techniques.
7.	To study TDM modulation techniques
8.	To study WDM modulation techniques
9.	To study various transmission media like twisted pairs, co-axial cables, optical fibers etc.

**Subject Name: DAA ( SOFTWARE LAB-VI )**

**Subject code: CS-317**

**Semester: 5th**

<b>S.NO.</b>	<b>Name of Practical</b>
1.	To search an element using linear search
2.	To search an element using binary search
3.	To implement Fibonacci series using recursion.
4	To sort elements using bubble sort
5.	To sort elements using insertion sort
6.	To sort elements using quick sort
7.	To sort elements using merge sort
8.	To traverse an element using BFS
9.	To traverse an element using DFS
10.	To implement Kruskal's algo to find shortest path.
11.	To implement Prim's algo to find shortest path.
12.	To implement problem of knapsack
13.	To implement Matrix –Chain Multiplication using Dynamic Programming
14.	To implement Traveling salesperson Problem
15.	To find the solution for n-queen

# **Lab Manual**

**Subject Name: COMPUTER GRAPHICS**

**Subject code: CS-319(SOFTWARE LAB-vii)**

**Semester:5th**

# Subject code:CS-319

## **EXPERIMENT NO: 1**

INTRODUCTION TO COMPUTER GRAPHICS.

## **PROGRAM NO: 2**

PROGRAM TO DRAW A LINE USING BRESENHAM LINE DRAWING ALGORITHM

## **PROGRAM NO: 3**

PROGRAM TO DRAW A LINE USING DDA ALGORITHM

## **PROGRAM NO: 4**

PROGRAM TO DRAW A CIRCLE USING THE GENERAL FORMULA  $x^2 + y^2 = r^2$

## **PROGRAM NO: 5**

PROGRAM TO DRAW A CIRCLE USING THE MID POINT CIRCLE ALGORITHM

## **PROGRAM NO: 6**

PROGRAM TO FILL A CIRCLE WITH ANY COLOUR USING "BOUNDARY FILL " ALGORITHM

## **PROGRAM NO: 7**

PROGRAM TO FILL A SQUARE WITH MULTIPLE COLOUR EDGES USING ANY COLOUR USING "FLOOD FILL" ALGORITHM

## **PROGRAM NO: 8**

PROGRAM TO DRAW A "HUT"

## **PROGRAM NO: 9**

PROGRAM TO DRAW A CONCENTRIC CIRCLES

## **PROGRAM NO: 10**

PROGRAM TO DRAW A CIRCLE, ELIPSE, RECTANGLE, LINE, ARC

## **PROGRAM NO: 11**

PROGRAM FOR SCALING A CIRCLE

## **PROGRAM NO: 12**

PROGRAM TO DRAW DIFFERENT STYLES OF LINE

## **PROGRAM NO: 13**

PROGRAM TO IMPLEMENT PLOYGON CLIPPING

## **PROGRAM NO: 14**

PROGRAM TO APPLY SHEARING

## **PROGRAM NO: 15**

PROGRAM TO DO TRANSLATION

## **PROGRAM NO: 16**

PROGRAM TO DO LINE CLIPPING USING COHEN SUTHERLAND ALGO.

## **PROGRAM NO: 17**

PROGRAM TO ROTATE LINE, RECTANGLE, TRIANGLE

## **PROGRAM NO: 18**

PROGRAM TO DRAW A CIRCLE USING BRESENHAM'S CIRCLE ALGORITHM

## **PROGRAM NO: 19**

WRITE A PROGRAM TO PERFORM TRANSLATION OF A POLYGON.

## **PROGRAM NO: 20**

WRITE A PROGRAM TO SHOW MIRROR REFLECTION OF ANY POLYGON.

## **PROGRAM NO: 21**

WRITE A PROGRAM TO PERFORM SCALING OPERATION.

## **PROGRAM NO: 22**

PROGRAM TO DRAW "CONCENTRIC CIRCLES".

## **PROGRAM NO: 23**

PROGRAM TO DRAW A "PIE CHART".

## **PROGRAM NO: 24**

PROGRAM TO MAKE "MOVING CAR".

**PROGRAM NO: 25**

PROGRAM TO MAKE "SMILING FACE".

**PROGRAM NO: 26**

PROGRAM TO MAKE "MOVING BALL".

**List of Practicals**

**Semester 6<sup>th</sup> CSE**

<b>S.No.</b>	<b>Subject Name</b>	<b>Subject Code</b>
1	H/W Lab-V (Asynchronous Transfer Mode)	CS-314
2.	Software Lab- VIII (RDBMS-II)	CS-316
3.	Software Lab-IX (Software Engg)	CS-318
4.	Software Lab-X (Introduction to Business System )	CS-320

**Cse 6<sup>th</sup> sem IBS (CS-320)**

Sno	List of experiments
1	Explanation of coding format of cobol program
2	Program to print a messege
3	Program to perform all arithmetic operations on given 2 numbers
4	Program to find whether the year is leap year or not
5	Program to find largest number among three numbers
6	Program to accept name, roll no, branch, marks of three subjects
7	Program to find the factorial of a number
8	Program to print fibonacci series
9	Program to input data of an employee using indexed sequential file.
10	Introduction to foxpro and Foxpro commands
11	Introduction to word processor
12	Introduction to spread sheets

<b>Sno</b>	<b>List of practicals</b>
1	INSTALLING WINDOWS 2000 SERVER
2	CREATING A USER ACCOUNT FOR THE SERVER
3	CONNECTION OF TWO SIMILAR AND DISSIMILAR DEVICES
4	SHARING of LOCAL RESOURCES.
5	IP ADDRESSING
6	INSTALLATION OF DHCP SERVER
7	MEMORY MANAGEMENT TECHNIQUES IN NETWORK.
8	CONFIGURE NTFS PERMISSIONS (IIS 6.0)
9	INSTALLATION OF NOVELL NETWARE 6.
10	PROCESS UTILIZATION

**Software Lab- VIII RDBMS CS-316**

<b>S. NO.</b>	<b>Practical</b>	<b>Teacher sign</b>
1	To run the various queries using commands of SQL and introduction to PL/SQL	
2	To write programs using control structures of PL/SQL like IF-ELSE	
3	To write programs using loops of PL/SQL like FOR, DO-WHILE, WHILE	
4	Implementation of cursor	
5	Implementation of procedures	
6	Implementation of packages	
7	Implementation of triggers	

**List of Practicals**

**Semester 7/8<sup>th</sup> CSE**

<b>S.No.</b>	<b>Subject Name</b>	<b>Subject Code</b>
1	Project Lab	CS-406
2.	Department Elective-3 (Expert System)	CS-430
3.	Software Lab-13 (SL & PL)	CS-416

**Subject Name: Symbolic logic and logic programming**

**Subject code: CS-416**

**Semester: 8th**

<b>SNO.</b>	<b>Name of Practical</b>
1.	Introduction to FOPL
2.	Introduction to Prolog
3.	Write a program in PROLOG to find the length of an input list.
4.	Write a program in PROLOG for checking a specific object to be a member of given list.
5.	Write a program in PROLOG to append the elements within a list to another list and binding the resulting list to the third.
6.	Write a PROLOG code to find out a rule that will give us information about the various teams namely Zimbabwe, India, Sri Lanka, South Africa and West Indies, who agreed to participate in Hero's Cup held in India in 1993. Each team is to play with the other before they come to the stage of the semifinal.
7.	Write a program in PROLOG to split the list into two sub-lists such that one list is less than a selected object and other list is greater than that object.
8.	Write a program in PROLOG to implement the Quick Sort.
9.	Write a program in PROLOG to find the $n^{\text{th}}$ element in the list.
10.	Write a program in PROLOG to delete an element from the given list.
11.	Write a program in PROLOG to find whether element is the last element in the given list or not.
12.	Write a program in PROLOG to reverse the order of the members of an input list.
13.	Write a program in PROLOG to merge two sequentially ordered lists (ascending order) into one ordered output list.
14.	Write a program in PROLOG to find factorial of the given number.



**Department  
Of  
Electronics & Communication Engg.**

**List of Lab Experiments**

**EE-103: BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

To find voltage , current relationship and power factor of a given R-L circuit.

To connect 3 identical single phase transformers for three phase power transformations through following connections (a)star-delta (b) star-star(c) delta-star(d) delta-delta and to find phase and line voltage ratio.

To connect ,start and reverse the direction of rotation of a 3- phase induction motor.

To find out the line voltage , phase voltage relationship , line current and phase current relationship in case of star and delta connected 3- phase balanced load.

To perform open- circuit and short circuit test on a transformer and determine the following (a) the transformation ratio (b) the transformer efficiency.

To perform the Block Rotor test of 3-phase induction motor test.

To study the response of P N junction diode.

To study the transistor response

To analysis the truth tables of various basic digital gates.

To study the response of LVDT transducer.

To study various measuring instruments(Moving Iron Instruments – Attraction Type, Moving Iron Instruments – Repulsion Type, Moving Coil Instruments – Permanent Magnet Type, Moving Coil Instruments – Dynamometer Type)

To study the use of Multimeter.

To study the response of LVDT

To study the speed control of characteristic of D.C. Motor.

**EC-205 LAB-I (ELECTRONIC DEVICES AND NETWORKS)**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

1. Study of Half wave, full wave & Bridge rectifiers.
2. Study of simple capacitive, T &  $\pi$  filters
3. Study of Zener regulator.
4. To plot the input and output characteristics of CE configuration.
5. To plot the input and output characteristics of CB configuration.
6. Determination of h- parameters of a transistors using output characteristics.
7. Design of transistor biasing circuits.
8. Study of frequency response of RC coupled amplifier.
9. Study of an emitter follower circuit.
10. To plot JFET characteristics in CS configuration.
11. Study of frequency response of CS- FET amplifier.
12. Design of constant K filters.
13. Design of m- derived filters.

## **EC-207 LAB-II INSTRUMENTATION**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

### **LIST OF EXPERIMENTS**

1. Measurement of Inductance by Maxwell's Bridge.
2. Measurement of small resistance by Kelvin's Bridge.
3. Measurement of Capacitance by Schering Bridge.
4. Measurement of Frequency by Wein Bridge.
5. Measurement of medium resistance by Wheat Stone's Bridge.
6. Determination of frequency & phase angle using C.R.O.
7. To find the Q of a coil using LCR-Q meter.
8. Study of Resonance.

## **EC-210 LAB-IV ANALOG ELECTRONICS**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

1. To study the various coupling techniques for transistor amplifiers.
2. To study the characteristics of a Class- A amplifier.
3. To study the characteristics of Class- B amplifier.
4. To study the characteristics of Class-C amplifier.
5. To study the characteristics of Class- AB amplifier.
6. To study the characteristics of Class- B push-pull amplifier.
7. To study the characteristics of complementary symmetry amplifier.
8. To study transistor series voltage regulator with current limit and observe current fold-back characteristics.
9. To study the response of RC phase shift oscillator and determine frequency of oscillation.
10. To study the response of Hartley oscillator and determine frequency of oscillation.
11. To study the response of Colpitt's oscillator and determine frequency of oscillation.
12. To study the response of Wien Bridge oscillator and determine frequency of oscillation.

**EC-212 Lab V Digital Electronics****Internal Marks: 30 L T P****External Marks: 20 0 0 2****Total Marks: 50**

1. (a) Verification of the truth tables of TTL gates, e.g., 7400, 7402, 7404, 7408, 7432, 7486.  
(b) Design, fabrication and testing of low frequency TTL clocks using NAND gates.
2. (a) Verification of the truth table of the Multiplexer 74150.  
(b) Verification of the truth table of the De-Multiplexer 74154.
3. Design and verification of the truth tables of half adder and full adder circuits using gates 7483.
4. Study and verification of the operations of ALU 74181 with regards to addition / subtraction / comparison.
5. Design fabrication and testing of differentiator and integrator circuits using OP AMP.
6. Design fabrication and testing of clipper and clamper circuits using OP AMP.
7. Design fabrication and testing of
  - (a) Monostable multivibrator of  $t=0.1$  msec.approx.) using 74121/123. Testing for both positive and negative edge triggering, variation in pulse with and retriggering.
  - (b) Free running multivibrator at 1 KHz and 1 Hz using 555 with 50% duty cycle. Verify the timing from theoretical calculations.
8. Design fabricate and test a switch depouncer using 7400.
- 9.(a) Design and test of an S-R flip-flop using TOR/NAND gates.  
(b) Verify the truth table of a J-K flip-flop (7476)  
(c) Verify the truth table of a D flip-flop (7474) and study its operation in the toggle and asynchronous modes.
10. Operate the counters 7490, 7493 and 74192. Verify the frequency division at each stage. With a low frequency clock (say 1 Hz) display the count on LEDs.
11. (a) Verify the truth table of decoder driver 7447 / 7448. Hence operate a 7 segment LED display through a counter using a low frequency clock.  
(b) Repeat the above with the BCD to Decimal decoder 7442 and an array of LEDs.

## **IC-212 ( Lab.- VI) Linear Control Systems**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

At least eight of the following experiments are to be performed :

1. To study input- output characteristics of a potentiometer and to use two potentiometers as an error detector.
2. To study transmitter- receiver characteristics of a synchro set to use the set as control component.
3. To study the operation of a d-c positional servo system and to investigate the effect of damping and supply voltage on its response.
4. To study the operation of an a.c. position servo-system and to obtain effects of supply voltage and system parameter on its transient response.
5. To design different compensation network for the given cut off frequencies and to plot frequency response of these networks.
6. To use operational amplifiers as multiplier, summer, inverter and integrator.
7. To simulate a servo-system and obtain its characteristics with the use of controllers.
8. To study control action of light control device.
9. To study details of a magnetic amplifier and to obtain input-output characterization of this amplifier.
10. To study details of a two winding a-c servometer and to obtain its T-N characteristics.
11. To study PID- controller and to obtain the effect of proportional, integral and derivative control action.
12. To study details of an analog computer and solve a given second order differential equation using it.
13. To generate a sine-wave using a given analog computer with specified amplifier and frequency.
14. To study a stepper motor and control its direction speed and number of steps with the help of a microprocessor.
15. To obtain dynamic characteristics of a given solar cell array and to obtain the point of operation for maximum power transfer to the load.
16. To obtain T.F. of a field controlled d.c. servometer and to show its pole-zero configuration.
17. To obtain T.F. of an armature controlled d.c. servometer and to obtain its pole zero configuration.
18. To design, fabricate and to obtain characteristics of a high pass T type filter.
19. To design, fabricate and to obtain characteristics of low pass T type filter.
20. To design, fabricate and to obtain characteristics of band pass T type filter.
21. To design, fabricate and to obtain the characteristics of a composite low pass filter.
22. To design, fabricate and to obtain the characteristics of a composite high pass filter.
23. To design, fabricate and to obtain the characteristics of composite band pass filter.

## **EC-311 Lab-VII Analog Communication Systems**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

### **LIST OF EXPERIMENTS:**

1. To obtain Amplitude modulated Envelop and determine depth of modulation
2. To study envelop detector for demodulation of AM signal and observe diagonal peak clipping effect.
3. Frequency modulation using voltage controlled oscillator.
4. Generation of DSB-SC signal using balanced modulator.
5. Generation of single side band signal
6. To generate a FM Signal and measure Depth of modulation.
7. Detection of FM Signal using PLL.
8. To Study Super heterodyne AM receiver and measurement of receiver parameters viz. sensitivity, selectivity & fidelity.
9. Familiarisation of PLL, measurement of lock and capture range, frequency demodulation, frequency multiplier using PLL.
10. Sampling Theorem & Reconstruction of Signal from its Isamples using Natural Sampling, Flat Top Sampling & Sample & Hold Circuits.
11. To study the circuit of PAM modulator & Demodulator
12. To study the circuit of PWM modulator & Demodulator
13. To study the circuit of PPM modulator & Demodulator

## **EC-313 LAB VIII: LINEAR INTEGRATED CIRCUITS**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

### **List Of Experiments:**

1. To study differential amplifier configurations.
2. To measure the performance parameters of an Op amp.
3. Application of Op amp as Inverting and Non Inverting amplifier.
4. To study frequency response of an Op Amp
5. To use the Op-Amp as summing, scaling & averaging amplifier.
6. To use the Op-Amp as Instrumentation amplifier
7. Design differentiator and Integrator using Op-Amp.
8. Application of Op Amp as Log and Antilog amplifier
9. Design Low pass, High pass and Band pass 1<sup>st</sup> order butterworth active filters using Op Amp.
10. Design Phase shift oscillator using Op-Amp.
11. Design Wein Bridge oscillator using Op-Amp.
12. Application of Op Amp as Sawtooth wave generator.
13. Application of Op Amp as Zero Crossing detector and window detector.
14. Application of Op Amp as Schmitt Trigger.
15. Design a series regulators with an error amplifier to provide an output voltage of 5 volt at a load current of 1.5 Amp. Use a 741 Op-Amp and specify the Zener voltage necessary transistor gain and the maximum power dissipation of the transistor.
16. Design a delay circuit using 555.
17. To examine the operation of a PLL and to determine the free running frequency, the capture range and the lock in range of PLL.

### **33EC-315 Lab IX Microprocessor Lab.**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

#### **List Of Experiments:**

1. Study of 8085 Microprocessor Kit.
2. Write a program to add two 8-bit number using 8085 .
3. Write a program to add two 16-bit number using 8085 .
4. Write a program to subtract two 8-bit number using 8085 .
5. Write a program to subtract two 16-bit number using 8085 .
6. Write a program to multiply two 8 bit numbers by repetitive addition method using 8085.
7. Write a program to multiply two 8 bit numbers by rotation method using 8085
8. Write a program to multiply 16-bit number with 8-bit number using 8085.
9. Write a program to generate fibonacci series using 8085.
10. Write a program to sort series using bubble sort algorithm using 8085.
11. Study 8086 Microprocessor kit
12. Write a program to copy 12 bytes of data from source to destination using 8086.
13. Write a program to find maximum and minimum from series using 8086.
14. Write a program to control the operation of stepper motor using 8085/8086 microprocessors and 8255 PPI.
15. Write a program for finding square of a number using look-up table and verify.
16. Write a program to control the temperature using 8085/8086 microprocessors and 8255 PPI.
17. Write a program to control the traffic light system using 8085/8086 microprocessors and 8255 PPI.
18. Write a program to control speed of DC motor using 8085/8086 microprocessors and 8255 PPI.

**EC-310**

**LAB X: MICROWAVE Engineering**

**Internal Marks: 30 L T P**

**External Marks: 20 0 0 2**

**Total Marks: 50**

**List of Experiments:**

1. Study of microwave components and instruments.
2. Measurement of crystal characteristics and proof of the square law characteristics of the diode.
3. Measurement of klystron characteristics.
4. Measurement of VSWR and standing wave ratio.
4. Measurement of Dielectric constants.
5. Measurement of Directivity and coupling coefficient of a directional coupler.
6. Measurement of Q of a cavity.
7. Calibration of the attenuation constant of an attenuator.
8. Determination of the radiation characteristics and gain of an antenna.
9. Determination of the phase-shift of a phase shifter.
10. Determination of the standing wave pattern on a transmission line and finding the length and position of the short circuited stub.

**PTU/BOS/EC/101/08-05-2004/BATCH 2004**

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**EC-312****Lab-XI Digital Communication****Internal Marks: 30 L T P****External Marks: 20 0 0 2****Total Marks: 50****LIST OF EXPERIMENTS**

1. Study of Time Division Multiplexing system.
2. Study of pulse code modulation and demodulation.
3. Study of delta modulation and demodulation and observe effect of slope overload.
4. Study pulse data coding techniques for various formats.
5. Data decoding techniques for various formats.
6. Study of amplitude shift keying modulator and demodulator.
7. Study of frequency shift keying modulator and demodulator.
8. Study of phase shift keying modulator and demodulator.
9. Error Detection & Correction using Hamming Code
10. Digital link simulation; error introduction & error estimation in a digital link using MATLAB (SIMULINK)/ComSim.

PTU/BOS/EC/101/08-05-2004/BATCH 2004

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**EC-314****Lab XII Micro controller****Internal Marks: 30 L T P****External Marks: 20 0 0 2****Total Marks: 50****List of Experiments:**

1. Study of 8051/8031 Micro controller kits.
2. Write a program to add two numbers lying at two memory locations and display the result.
3. Write a program for multiplication of two numbers lying at memory location and display the result.
4. Write a program to check a number for being ODD or EVEN and show the result on display.
5. Write a program to split a byte in two nibbles and show the two nibbles on display.
6. Write a Program to arrange 10 numbers stored in memory location in Ascending and Descending order.
7. Write a program to find a factorial of a given number.
8. Study of Interrupt structure of 8051/8031 micro controllers.
9. Write a program to show the use of INTO and INT1.
10. Write a program of Flashing LED connected to port 1 of the Micro Controller
11. Write a program to generate a Ramp waveform using DAC with micro controller.
12. Write a program to interface the ADC.
13. Write a program to control a stepper motor in direction, speed and number of steps.
14. Write a program to control the speed of DC motor.
15. Interfacing of high power devices to Micro-controller port-lines, LED, relays and LCD display.

PTU/BOS/EC/101/08-05-2004/BATCH 2004

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### **EC-316 Lab XIII: Digital Signal Processing using MATLAB™**

List of experiments:

Perform the following exercises using MATLAB™

1. To develop elementary signal function modules (m-files) for unit sample, unit step, exponential and unit ramp sequences.
2. To develop program modules based on operation on sequences like signal shifting, signal folding, signal addition and signal multiplication.
3. To develop program for discrete convolution and correlation .
4. To develop program for finding response of the LTI system described by the difference equation.
5. To develop program for computing inverse Z-transform.
6. To develop program for finding magnitude and phase response of LTI system described by system function  $H(z)$ .
7. To develop program for computing DFT and IDFT .
8. To develop program for computing circular convolution.
9. To develop program for conversion of direct form realisation to cascade form realisation.
10. To develop program for cascade realisation of IIR and FIR filters.
11. To develop program for designing FIR filter.
12. To develop program for designing IIR filter.

Recommended Book:

1. DSP using Matlab : Ingle V.K., Proakis ; Vikas Publication.

**Department  
of  
Mechanical Engg.**

**List of Experiments/ Practicals**

<b>Semester / Name of Laboratory</b>	<b>Name of Experiment</b>
<p>1<sup>st</sup> /2<sup>nd</sup> Sem. <b>C.G Lab</b></p>	<ol style="list-style-type: none"> <li>1. Introduction of the CAD software and its utilities in the engineering software.</li> <li>2. Study of the various toolbar options and exercises to familiarize all the drawing tools.</li> <li>3. Study the basic initial setting and viewing of the drafting software interfaces.</li> <li>4. Use of basic entities in 2D.</li> <li>5. Use of various modify commands of the drafting software.</li> <li>6. Dimensioning in 2D and 3D entries.</li> <li>7. Study and implementing of coordinate systems &amp; UCS.</li> <li>8. Draw the different type of 3D modelling entries using viewing commands to view them (Isometric projection).</li> <li>9. Sanctioning of solid primitives and rendering in 3D.</li> <li>10. Intersection of solid primitives.</li> <li>11. Draw different surface models with different editing commands.</li> </ol>
<p>3<sup>rd</sup> Sem. <b>S.O.M Lab</b></p>	<ol style="list-style-type: none"> <li>1. To perform tensile test in ductile and brittle materials and to draw stress-strain curve and to determine various mechanical properties.</li> <li>2. To perform compression test on C.I. and to determine ultimate compressivestrength.</li> <li>3. To perform shear test on different materials and determine ultimate shearstrength.</li> <li>4. To perform any one hardness test (Rockwell, Brinell &amp; Vicker's test) and determine hardness of materials.</li> <li>5. To perform impact test to determine impact strength.</li> <li>6. To perform torsion test and to determine various mechanical properties.</li> <li>7. Study of performance of Fatigue &amp; Creep tests</li> <li>8. To perform bending test on beam (wooden or any other material) and to determine the Young's modulus and Modulus of rupture</li> <li>9. To perform Torsion test and close coiled helical spring in tension and compression and to determine modulus of rigidity/stiffness</li> <li>10. Determination of Bucking loads of long columns with different end conditions.</li> </ol>



<p>4<sup>th</sup> Sem.</p> <p><b>TOM Lab</b></p>	<ol style="list-style-type: none"> <li>1. Study of various links and mechanisms.</li> <li>2. Study and draw various inversions of 4- bar chain and single slider crank chain.</li> <li>3. Draw velocity and diagram of engine mechanism using graphical methods including Klien's construction.</li> <li>4. Conduct experiments on various types of governors and draw graphs between height and equilibrium speed of a governor.</li> <li>5. Determination of gyroscopic couple (graphical method).</li> <li>6. Balancing of rotating masses (graphical method)</li> <li>7. Determination vibration characteristics of free and forced spring mass system with and without damping.</li> <li>8. Cam profile analysis (graphical method)</li> <li>9. Determination of gear- train value of compound gear trains and Epicyclic gear trains.</li> <li>10. Study pressure distribution in a full journal bearing.</li> </ol>
<p>4<sup>th</sup> sem.</p> <p><b>FM-I Lab</b></p>	<ol style="list-style-type: none"> <li>1. To determine the metacentric height of a floating vessel under loaded and unloaded conditions.</li> <li>2. To study the flow through a variable area duct and verify Bernoulli's energy equation.</li> <li>3. To determine the coefficient of discharge for an obstruction flow meter (venture meter/ orifice meter)</li> <li>4. To determine the discharge coefficient for a Vee- notch or rectangular notch.</li> <li>5. To study the transition from laminar to turbulent flow and to ascertain the lower critical Reynolds number.</li> <li>6. To determine the hydraulic coefficients for flow through an orifice.</li> <li>7. To determine the friction coefficients for pipes of different diameters.</li> <li>8. To determine the head loss in a pipe line due to sudden expansion/ sudden contraction/ bend.</li> <li>9. To determine the velocity distribution for pipeline flow with a pitot static probe.</li> </ol>

<p><b>4<sup>th</sup> sem</b></p> <p><b>ATD Lab</b></p>	<ol style="list-style-type: none"> <li>1. To Study 2 stroke and 4 stroke Petrol and Diesel engines</li> <li>2. To draw valve timing diagram of a diesel engine and study of its impact on the performance of an IC Engine.</li> <li>3. Study of various circuits of a carburetor fitted on Indian Make Vehicle.</li> <li>4. Study of various types of Boilers, Boiler trial: Estimation of equivalent evaporation and efficiency of a fire tube/ water tube boiler.</li> <li>5. Determination of dryness fraction of steam and estimation of brake power, Rankine efficiency, relative efficiency, generator efficiency, and overall efficiency of a steam engine/ steam turbine unit and plotting of William line.</li> <li>6. Determine the brake power, indicated power, friction power and mechanical efficiency of a multicylinder petrol engine running at constant speed (Morse Test).</li> <li>7. Performance of a diesel/ semi diesel engine from no load to full load (at constant speed) for a single cylinder/ multi- cylinder engine in terms of brake power, indicated power, mechanical efficiency and SFC (Specific fuel consumption) and further obtain power consumption curves and draw the heat balance sheet.</li> <li>8. Performance of single stage/ multi stage reciprocating compressor.</li> </ol>
<p><b>4<sup>th</sup> sem</b></p> <p><b>MP-II</b></p>	<ol style="list-style-type: none"> <li>1. Study of constructional features of following machines through drawings/ sketches:- <ol style="list-style-type: none"> <li>a) Lathe</li> <li>b) Capstan &amp; Turret Lathe</li> <li>c) Radial drilling machine</li> <li>d) Universal milling machine</li> <li>e) Shaper and planer</li> <li>f) Plastic moulding machine</li> <li>g) Grinding machines (Surface, cylindrical)</li> <li>h) Gear cutting machines etc.</li> <li>i) Hydraulic Press</li> <li>j) Draw Bench</li> <li>k) Drawing, Extrusion Dies</li> <li>l) Rolling Mills</li> </ol> </li> <li>2. Study of lubrication system in the machine tools.</li> <li>3. Advanced exercises on Lathe where the students will work within specified tolerances, cutting of V- threads and square threads (internal as well as external).</li> </ol>

	<p>4. Production of machined surfaces on shaper and planner.</p> <p>5. Exercises on milling machines; generation of plane surfaces, production of spur gears and helical involute gears, use of end mill cutters.</p> <p>6. Grinding of single point cutting tool, cutter and drills.</p> <p>7. Study of recommended cutting speeds for different tool- work material combinations.</p> <p>8. Identification of different cutting tool and work materials.</p>
<p>4<sup>th</sup> sem M.D-I</p>	<p>1. Select a daily use product and design the conceptual design by applying the design process talking the controlling parameters</p> <p>2. Make a list of mechanical components and know their materials and suggest some alternative materials for the each on of them</p> <p>3. Design a wall bracket, which is being used in real life by actual measurement of load</p> <p>a) Welded joints</p> <p>b) Riveted and bolted joints And justify your findings</p> <p>4. Find a flange coupling in the college laboratory and justify its design by actual measurements</p> <p>5. Design a shaft used in some practical application, by actual working and loading conditions</p> <p>6. Select a braking system lever (both hand and foot lever) and justify the design parameters</p> <p>7. Justify the design of single plate clutch of a engine assembly</p> <p>8. Design a software in some high level language or excel sheets for design of a component</p>
<p>5<sup>th</sup> sem H.T Lab</p>	<p>1. Determination of thermal conductivity of :</p> <ul style="list-style-type: none"> <li>- a solid insulating material by slab method</li> <li>- powder materials by concentric spheres method / or by some transient heat transfer technique</li> <li>- a metal by comparison with another metal by employing two bars when kept in series and / or in parallel under different boundary conditions</li> <li>- Liquids by employing thin layer</li> </ul> <p>2. Determination of coefficient of heat transfer for free/forced convection from the surface of a cylinder / plate when kept:</p> <p>a) along the direction of flow</p> <p>b) perpendicular to the direction of flow</p> <p>c) inclined at an angle to the direction of flow</p> <p>3. To plot the pool boiling curves for water and to determine its critical point</p>

	<p>4. Determination of heat transfer coefficient for</p> <p>i) film condensation</p> <p>ii) drop-wise condensation</p> <p>5. Determination heat transfer coefficient by radiation and hence find the Stefan Boltzman's constant using two plates/two cylinders of same size by making one of the plates/cylinders as a black body.</p> <p>6. Determination of shape factor of a complex body by an analog technique.</p> <p>7. To plot the temperature profile and to determine fin effectiveness and fin efficiency for</p> <p>i) A rod fin when its tip surface is superimposed by different boundary condition like.</p> <p>a) Insulated tip</p> <p>b) Cooled tip</p> <p>c) Temperature controlled tip</p> <p>ii) Straight transfer fins of various sizes and optimization of fin proportions</p> <p>iii) Circumferential fins of rectangular/triangular section</p> <p>8. evaluate the performance of a heat pipe</p> <p>9. Fluidised bed heat transfer</p>
<p>5<sup>th</sup> sem</p> <p><b>AUTO Mobile Lab</b></p>	<p>1. Valve refacing and valve seat grinding and checking for leakage of valves</p> <p>2. Trouble shooting in cooling system of an automotive vehicle</p> <p>3. Trouble shooting in the ignition system, setting of contact breaker points and spark plug gap</p> <p>4. Demonstration of steering system and measurement of steering geometry angles and their impact on vehicle performance.</p> <p>5. Trouble shooting in braking system with specific reference to master cylinder, brake shoes, overhauling of system and the adjusting of the system and its testing.</p> <p>6. Fault diagnosis in transmission system including clutches, gear box assembly and differential.</p> <p>7. Replacing of ring and studying the method of replacing piston after repair.</p>
<p>5<sup>th</sup> sem</p> <p><b>M.M.M Lab</b></p>	<p>1. Measurement with the help of vernier caliper and micrometer</p> <p>2. Measurement of an angle with the help of sine bar</p> <p>3. Measurement of surface roughness</p>

	<ol style="list-style-type: none"> <li>4. Measurement of gear elements using profile projector</li> <li>5. Three wire method to determine effective diameter of external threads</li> <li>6. Measurement of thread element by Tool makers microscope</li> <li>7. Calibration of a pressure guage with the help of a dead weight guage tester</li> <li>8. Use of stroboscope for measurement of speed of shaft</li> <li>9. Use of pitot tube to plot velocity profile of a fluid through a circular duct</li> <li>10. Preparation of a thermocouple, its calibration and application for temperature measurement</li> </ol>
<p>5<sup>th</sup> sem</p> <p><b>N.M Lab</b></p>	<ol style="list-style-type: none"> <li>1. To develop computer program to determine roots of a given equation using method of <ol style="list-style-type: none"> <li>a. False position</li> <li>b. Newton -Raphson method,</li> </ol> </li> <li>2. To develop computer programs for solution of system of simultaneous linear equations using: <ol style="list-style-type: none"> <li>a. Gauss Elimination Technique, without and with specified boundary conditions, for full as well as bounded symmetric and unsymmetrical matrices</li> <li>b. Gauss Shield iterative technique Successive over Relaxation(S.O.R) Technique</li> </ol> </li> <li>3. Linear and Non-Linear curve fitting technique</li> <li>4. Numerical Integration with Simpson's rule and Gaussian Integration</li> <li>5. Solution of ordinary differential equations by (i) Euler Method (ii) Runge-Kutta Method (iii) Taylor Series Methods</li> <li>6. Solution of partial differential equations using S.O.R. Technique with special reference to heat conduction equation. <ol style="list-style-type: none"> <li>1. Learn the basic initial setting and viewing of the drafting software's interface.</li> <li>2. Learn the basic options of drawing aids like grid, snap, ortho etc. and other aids for distance and mass properties calculations</li> <li>3. Learn and draw the basic entities in 2D</li> <li>4. Learn and use the various modify commands of the drafting software</li> <li>5. Learn and use the layers and blocks in drafting software</li> <li>6. Use hatching and dimensioning to detail out a component drawings</li> <li>7. Understand different coordinate system and do a exercise on drafting software using this</li> <li>8. Draw the different types of 3D modeling entities using viewing commands to view them</li> <li>9. Draw the different Surface model with different editing co</li> </ol> </li> </ol>

	<p>10. Learn and use shading and rendering techniques for better visual appearance</p> <p>11. Use and learn import/export techniques and customization of drafting software</p>
<p>5<sup>th</sup> sem</p> <p><b>CAD Lab</b></p>	<p>1. Learn the basic initial setting and viewing of the drafting software's interface.</p> <p>2. Learn the basic options of drawing aids like grid, snap, ortho etc. and other aids for distance and mass properties calculations</p> <p>3. Learn and draw the basic entities in 2D</p> <p>4. Learn and use the various modify commands of the drafting software</p> <p>5. Learn and use the layers and blocks in drafting software</p> <p>6. Use hatching and dimensioning to detail out a component drawings</p> <p>7. Understand different coordinate system and do a exercise on drafting software using this</p> <p>8. Draw the different types of 3D modeling entities using viewing commands to view them</p> <p>9. Draw the different Surface model with different editing commands</p> <p>10. Learn and use shading and rendering techniques for better visual appearance</p> <p>11. Use and learn import/export techniques and customization of drafting software</p>
<p>5<sup>th</sup> sem</p> <p><b>MD-II Lab</b></p>	<p>1. Review of principles of retainment, alignment and assembly, of various components of machines, various types of oil seals: friction lock and its applications in reciprocating cam-followers, assembly and link motions.</p> <p>2. Study the layout of some existing transmission system design and suggest a new conceptual design by removing the shortcomings of the existing design</p> <p>3. Find an assembly containing the belt and pulley mechanism and do the complete design calculations and then justify the existing design.</p> <p>4. Calculation of the velocity ratios required in a gear box and then design the gearbox in practical application (gearbox application must involve different types of gears like bevel, spur and helical gears)</p> <p>5. Find a transmission system involving the worm and worm wheel and then find out the inputs required for its design and justify the design.</p> <p>6. The gearbox design in the exp no. 5, Design the shafts required to support the assembly and design it for manufacturing and assembly.(with actual calculations of the loads and the end conditions)</p> <p>7. For a press of your machine shop, study the process and suggest the design parameters of</p>

<b>MD-II Lab</b>	<p>the flywheel required. Justify the design if flywheel is already there.</p> <p>8. Design springs for practical application for the given conditions and constraints and find its practical availability.</p> <p>9. Select a mechanical component or system, convert its design procedure into an algorithm and write a code for its design or with the help of an application software.</p>
6 <sup>th</sup> <b>RAC Lab</b>	<ol style="list-style-type: none"> <li>1. Study of various elements of a mechanical refrigerator system through cut sections models / actual apparatus</li> <li>2. Study and performance of domestic refrigerator,</li> <li>3. Study the performance of and Electrolux refrigerator</li> <li>4. Study of an Ice plant and visit to a cold storage for study</li> <li>5. Calculation/ Estimation of cooling load for large building</li> <li>6. Visit to a central Air conditioning plant for study of processes for winter and summer air conditioning</li> <li>7. Study and performance of window type room air conditioner</li> </ol>
6 <sup>th</sup> sem <b>F.M-II Lab</b>	<ol style="list-style-type: none"> <li>1. Determination of various efficiencies of Hydraulic Ram</li> <li>2. To draw characteristics of Francis turbine</li> <li>3. To study the constructional features of reciprocating pump and to perform test on it for determination of pump performance</li> <li>4. To draw the characteristics of Pelton Turbine</li> <li>5. To draw the various characteristics of Centrifugal pump</li> <li>6. Determine the effect of vane shape and vane angle on the performance of centrifugal fan</li> </ol>
6 <sup>th</sup> sem <b>IAR Lab</b>	<ol style="list-style-type: none"> <li>1. Design and assembly of hydraulic / pneumatic circuit.</li> <li>2. Study of power steering mechanism using cut piece model</li> <li>3. Study of reciprocating movement of double acting cylinder using pneumatic direction control valves</li> <li>4. Use of direction control valve and pressure control valves clamping devices for jig and fixture</li> <li>5. Study of robotic arm and its configuration</li> <li>6. Study the robotic end effectors</li> </ol>

	7. Study of different types of hydraulic and pneumatic valves
6 <sup>th</sup> sem <b>CAD-CAM LAB</b>	<ol style="list-style-type: none"> <li>1) CAD exercises using Auto Cad software</li> <li>2) Part-programming on CNC machines</li> <li>3) Execution of part programme for machining given profile.</li> <li>4) Programming of robots for various applications.</li> <li>5) Part modeling using some of the modeling technique</li> <li>6) Component assembly in CAD and generating and modifying drawings</li> </ol>
8 <sup>th</sup> sem <b>Vibration Lab</b>	<ol style="list-style-type: none"> <li>1. Determine the viscosity of given fluid by single wire torsional pendulum.</li> <li>2. Determine the natural frequencies of a coupled pendulum.</li> <li>3. Find out the fundamental natural frequency of a cantilever beam</li> <li>4. Determine the modulus of elasticity from free vibration test</li> <li>5. Study of forced vibration of a two degree of freedom system under harmonic excitation</li> <li>6. Study of a dynamic absorber</li> <li>7. Determine coefficient of dry friction from measurement of natural frequency of vibration of a bar resting on two disks rotating in opposite direction</li> </ol>

## WorkShop Experiment List

### DETAILS OF LAB AND EQUIPMENT DEPARTMENT OF MECHANICAL ENGINEERING

Semester/ Name Of Laboratory	Name Of the Shop	Name Of the Experiment	Name Of the Equipment
1 <sup>st</sup> sem workshop	Electrical shop	1.Stair case wiring 2.One way wiring 3.Preparation of pcb's	PVC wire, screw driver, cutter, clips, Ribbon wire, soldering iron, soldering wire, flux.
	Machine shop	1.To prepare the job as per specifications provided:  Lathe machine(specification H.P.=0.75 H.P over all length1600-2000mm,swing dia=455-575mm List of operations: 1. cutting 2. 2.facing 3. center drilling 4. plain turning 5. taper turning 6. necking 7. knurling 8. threading 9. chamfering 10. filing 11. oiling	Engg steel rule 6", outside caliper ,vernier calipers, flat smooth file, single point cutting tool, knurling tool, center drill, drill chuck1/2", spanner set, parting off or necking tool, thread gauge, threading tool, parting tool, lathe dog carrier etc.
	Sheet metal shop	1.To make a square box using G.I sheet as per the dimension 2.To make a rectangular tray	Hammer, snip stake, punch,
	Fitting shop	1.To make a right angle fitting job 2.exercise involving marking , cutting, fitting practice, 3.male-female mating parts practice	File, bench vice, tri-square, hacksaw etc.

		4.trapping practice	
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	Welding shop	<ol style="list-style-type: none"> <li>1. Beading practice with arc welding</li> <li>2. To make a butt joint by arc welding</li> </ol>	Arc welding m/c Electrode holder, Earth clamp, try square, hacksaw, steel rule, hammer, chisel, pair of tongs, chipping hammer, face shield.
	Foundry shop	<ol style="list-style-type: none"> <li>1.To prepare moulding sand</li> <li>2.To prepare moulding with the help of split pattern</li> </ol>	Split pattern, trowel, slicks, bellow, wire brush, spur cutter and pin, lifter, moulding boxes.
	Smithy shop	<ol style="list-style-type: none"> <li>1.To make an octagonal rod from a given round by using hand forging operation</li> <li>2.To forge 'L' hook</li> <li>3.To prepare a circular ring with the help of a rectangular piece of a iron rod</li> </ol>	Steel rule, bench vice, hand hacksaw, smith's forge, tongs, anvil, sledge hammer
	Carpentry shop	<ol style="list-style-type: none"> <li>1.To make a dovetail joint</li> </ol> <p>To make a T-lap joint</p>	Hand saw, chisel, mortise gauge, hammer, jack plane.

## **Department of Applied Science**

### **Experiment List**

Sno	Name of experiment
1	PROGRAM TO FIND THE LENGTH OF A GIVEN STRING WITH USING LIBRARY FUNCTION
2	PROGRAM TO FIND THE LENGTH OF A GIVEN STRING WITHOUT USING LIBRARY FUNCTION
3	PROGRAM TO CONCATINATE TWO STRINGS WITH USING LIBRARY FUNCTION
4	PROGRAM TO CONCATINATE TWO STRINGS WITHOUT USING LIBRARY FUNCTION
5	PROGRAM TO CHECK WHETHER ENTERED STRING IS PALINDROME OR NOT
6	PROGRAM TO COUNT THE NUMBER OF SPACES IN THE STRING
7	PROGRAM TO REPLACE THE SPACES BY HIPHEN IN THE STRING
8	PROGRAM TO REVERSE A GIVEN STRING WITHOUT USING LIBRARY FUNCTION
9	PROGRAM TO REVERSE A GIVEN STRING USING LIBRARY FUNCTION
10	PROGRAM TO REVERSE A STRING AND STORE IT IN ANOTHER ARRAY
11	PROGRAM TO CREATE A FILE WITH CONSTRUCTOR FUNCTION
12	PROGRAM TO CREATE A FILE USING <code>open( )</code> FUNCTION

13	PROGRAM TO PERFORM I/O OPERATIONS ON CHARACTERS
14	PROGRAM TO PERFORM I/O OPERATIONS ON BINARY FILES
15	PROGRAM TO PERFORM READING & WRITING OPERATION ON CLASS OBJECT
16	DEVELOPMENT OF AN EDITOR

## Hardware Lab II (Data Comm) CS-214

Sno	Name of practical
1	FAMILIARIZATION WITH COMPUTER HARDWARE
2	<i>STUDY OF CONFIGURATION OF NETWORK NEIGHBOURHOOD</i>
3	<i>STUDY OF CATEGORIES OF NETWORK</i>
4	<i>INTRODUCTION TO NETWORK COMPUTING</i>
5	<i>FAMILIARIZATION WITH TRANSMISSION MEDIA viz. COAXIAL CABLE, TWISTED PAIRS, OPTICAL FIBRE NETWORKING, WIRELESS NETWORKING, CONNECTORS etc.</i>

### Software Lab-1 (Operating System) CS-212

SNO.	Name of Practical
1.	Introduction to Operating Systems, Operating System Services, Types, Command Line Interpreter.
2.	Study & Implementation of various commands: Ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
3.	Study & Implementation of various commands: Cal, cat(append), cat(concatenate), mv, cp, man, date.
4.	Study & Implementation of various commands: Chmod, grep, tput (clear, highlight), bc.
5.	(a)Develop a simple shell program to display your Name, Roll_no,Current Date and Time. (b)Develop a shell program to print the factorial of a given number. (c)Develop a shell program to print the Fibonacci series.
6.	(a)Develop a shell program to calculate Simple Interest. (b) Develop a shell program which makes use of <i>if-then-else</i> statement and <i>for/while</i> loops.

## **WORKSHOP ON COMPUTERS FOR MANAGEMENT (MB -107)**

### **MS-Office:**

o **Word processing:** MS-Word, word basics, Creating a new word document, page-setup, Editing document, cut, copy, paste, paste special, paste as hyperlink. Different views of document, tool bar customization, formatting text and documents, working with header and footer, footnotes, endnotes, tables and sorting, graphics, mail merge and macros.

Insert page break, column break, section break, paragraph, change cases, borders and shading. Spelling and grammar checking, Auto correct, Track changes, Inserting, deleting, selecting table, Insert rows and columns, Table auto format, formulas, split table.

### Unit III

#### o **Power Point:**

Basics, working with texts and graphics in Power Point, adding animation, sound, pictures and video. Creating new slide, inserting new slide, background setting, auto layout, apply design templates. Inserting header and footer, Slide from file, Clip art. Different view of slide, duplicates, delete slide, slide sorter, Master slide. Animation setting, slide transition, custom show.

#### o **MS Excel:**

Spreadsheets and their uses in business, Excel basics, Creating a new worksheet, rearranging worksheets, excel formatting techniques, using functions and working with graphics in excel. Cut, Copy, Paste, Paste special, Auto fill, Delete Sheet, Clear. Page break preview, Custom View, Header and footer. Inserting Row, Column, Worksheet, Function, Object, Hyperlink. Formatting row and column. Protection, goal seeks scenarios, Customize, option, sort, filter, form, and subtotal. Validation, table, consolidate, pivot table and chart, get external data.

#### **Internet access:**

Introduction to www, Internet and intranet

- o Creation of E-mail address
- o Send & receive messages
- o Use of search engines
- o Delivering information with Microsoft Mail.
- o Use of MS – Outlook/Outlook Express

**Department of Computer Applications**  
**Practical S/W Lab-III ( C++ )**  
**MCA-206(N2)**

**List of programs:**

1. WAP to display student's Roll No., Name & Class using I/O statements.
2. WAP to find largest no. out of three no.s using nested if-else.
3. WAP to device a mathematical calculator using Switch Case stmt.
4. WAP to check whether the string is palindrome or not.
5. WAP to check whether the no. is Armstrong or not.
6. WAP to print following pyramid using nested for loop

```
*  
* *  
* * *  
* * * * *
```

7. WAP to find factorial of a no. using recursion.
8. WAP to add two matrices.
9. WAP to find product of two matrices.
10. WAP to demonstrate Linear Search.
11. WAP to demonstrate Binary Search.
12. WAP to demonstrate Selection Sort.
13. WAP to demonstrate Bubble Sort.
14. WAP to Swap two values using Call by value.
15. WAP to swap two values using Call by reference.
16. WAP to demonstrate Classes & Objects.
17. WAP to demonstrate Array of Objects.
18. WAP to demonstrate Constructor.
19. WAP to demonstrate default Constructor.
20. WAP to demonstrate parametrized constructor.
21. WAP to demonstrate dynamic constructor.
22. WAP to demonstrate copy constructor.
23. WAP to demonstrate destructor.
24. WAP to demonstrate function overloading.
25. WAP to demonstrate friend function.
26. WAP to demonstrate Single Inheritance.
27. WAP to demonstrate Multi – level Inheritance.
28. WAP to demonstrate Hybrid Inheritance.
29. WAP to demonstrate Virtual functions.
30. WAP to demonstrate Pointer to base class.
31. WAP to demonstrate Pointer to derived class.
32. WAP to demonstrate Operator Overloading.
33. WAP to demonstrate nesting of Classes.
34. WAP to calculate sum of all elements of array using Pointer.
35. WAP to open a file using open().
36. WAP to read contents of a file.

## Department of Computer Applications

**Subject Name: Software Lab-II( c ) Subject Code:MCA-107(N2)**

### List of Programs

Sr.No	Name of Program
1.	WAP to print the sum of digits in number and reverse the digit of that number
2	WAP to calculate total salary of employee
3	WAP to display table of any number specified by user according to has choice
4	WAP to determine the sum of series $1-2+3-4\dots\dots\dots n$
5.	WAP to determine the sum of series $(1)^2 +(2)^2 +(3)^2 +\dots\dots\dots(n)^2$
6	WAP to determine the sum of series $(1)^m +(2)^m +(3)^m +\dots\dots\dots(n)^m$
7.	WAP to generate Fibonacci series.
8.	WAP to print the format 1 2 3 4 5 6 7 8 9 10
9.	WAP to print the format * * * * * * * * * *
10	WAP to perform arithmetic operator on two numbers using swith case statement
11	WAP to calculate area and circumference of circle using functions.
12	WAP to swap two variables without using third variable.
13	WAP to swap two variables using CALL BY REFERENCE.
14	WAP to add two corresponding elements of 2 arrays
15	WAP to add two matrices of order m*n
16	WAP to search an element in sorted array using LINEAR SEARCH METHOD
17.	WAP to search an element in sorted array using BINARY SEARCH METHOD
18	WAP to sort elements of an array using BUBBLE SORT METHOD
19	WAP to sort elements of an array using SELECTION SORT METHOD
20	WAP to get information about students using structures
21.	WAP to get information about employee using POINTER TO STRUCTURES
22	WAP to write and read data in a file using file handling.
23	WAP to concatenate two string without using strcpy function
24.	WAP to multiply two matrices of order m*n
25	WAP to determine the length of string without using strlen function

**Department of Computer Applications**  
**Software Lab-IV(Data Structures)**  
**MCA-306(N2)**

**List of programs:**

1. WAP to perform all operations on an array.
2. WAP to implement stack using arrays.
3. WAP to check if string is palindrome or not using stack.
4. WAP to match the braces.
5. WAP to convert infix expression to postfix expression.
6. WAP to evaluate postfix expression.
7. WAP to implement queue using arrays.
8. WAP to implement circular queue.
9. WAP to implement priority queue.
10. WAP to implement dequeue.
11. WAP to implement all operations on Linked List.
12. WAP to implement all operations on Circular Linked List.
13. WAP to implement all operations on Doubly Linked List.
14. WAP to implement stack using Linked List.
15. WAP to implement queue using arrays.
16. WAP to solve Josephus problem
17. WAP to add two polynomials.
18. WAP to implement all operations on Binary Search tree.
19. WAP to create a heap.
20. WAP to perform heap sort.
21. WAP to check if tree is strictly binary or not.
22. WAP to implement graph.
23. WAP to implement to perform searching— Linear search and Binary Search.
24. WAP to implement sorting—Insertion sort, Selection sort, Merge sort, Radix sort, Quick sort and Bubble sort.

# DEPARMENT OF COMPUTER APPLICATION

## Software Lab-I (IT)

Subject Name: IT

Subject Code:-MCA-

106(N2)

### LIST OF PROGRAMS :

<b>1</b>	<b>INTRODUCTION TO DOS</b>	
		a) Internal Commands b) External Commands
<b>2</b>	<b>WINDOWS</b>	
		a) Introduction to Desktop & Icons b) Properties of desktop c) Creating shortcuts d) Creating new Folders, move & cut the files and folders e) Working with Control Panel
<b>3</b>	<b>MS-WORD</b>	
		a) Creating and saving files & templates b) Format menu in MS-Word c) Page-setup, borders and shadings d) Headers and Footer e) Tools(Spell check,auto correct etc.) f) Mail Merge g) Creating and editing tables h) Importing and exporting files
<b>4</b>	<b>MS -EXCEL</b>	
		a) Introduction to MS-Excel b) Various tools of MS-Excel c) Functions in MS-Excel d) Formatting Worksheets e) Macros f) Graphs and charts inserting objects g) Sorting of data h) Header Row
<b>5</b>	<b>MS-POWERPOINT</b>	
		a) Creating slides and presentation using templates &wizads b) Formatting slides c) Slides with graphs and organizational charts d) Different views of slide show f) Master slide g)Animation & Transition h) Grouping and Ungrouping

## Department of Computer Applications

**Subject Name: Software Lab- VII(OS)      Subject Code:MCA-407(N2)**

### List of Commands

S.No.	Commands
1.	To identify current directory path
2.	To change directory
3.	To create new directory
4.	To remove an existing directory
5.	To list contents of the directory
6.	To display contents of specified file
7.	To duplicate contents from source to destination
8.	To remove a file
9.	To rename a file
10.	To display contents page-wise
11.	To display linux help manual
12.	To change file permissions of file/dir.
13.	To display system date and time
14.	To print arguments
15.	To read top ten lines of file
16.	To read bottom ten lines of file
17.	To sort a file
18.	To do remote login
19.	To search a file for a particular pattern & display all lines
20.	To count no. of lines, words & characters
21.	To display specific cols. from output of commands
22.	To display general purpose utilities
23.	To display specific cols.
24.	To display regular expressions
25.	vi editor commands

**Department of Computer Applications**

**List of Programs**

S.No	PROGRAMS
1.	WAP to draw a line.
2.	WAP to draw a line using Digital Differential Analyzer(DDA).
3.	WAP to draw a line using Bresenham's line.
4.	WAP to draw a different kinds of Dashed Lines.
5.	WAP to draw a different kinds of Thick Lines.
6.	WAP to draw a triangle.
7.	WAP to draw a rectangle.
8.	WAP to draw a polygon.
9.	WAP to draw a circle using polynomial method.
10.	WAP to draw a circle using trigonometric method.
11.	WAP to draw a circle using Bresenham's circle.
12.	WAP to draw a circle using mid point circle Algorithm.
13.	WAP to draw an ellipse using polynomial method.
14.	WAP to draw an ellipse using trigonometric method.
15.	WAP to draw an ellipse using Mid point ellipse Algorithm.
16.	WAP to draw a circular Arc using Trigonometric Method.
17.	WAP to draw an elliptical Arc using Trigonometric Method.
18.	WAP to fill different types of geometrical shapes using Boundary Fill Algorithm.
19.	WAP to fill different types of geometrical shapes using Flood Fill Algorithm.
20.	WAP to fill a polygon using scan line polygon Fill Algo.
21.	WAP to fill a rectangle using scan-line rectangle Fill Algorithm.
22.	WAP to illustrate the implementation of Translation transformations.
23.	WAP to illustrate the implementation of Scaling Transformation.
24.	WAP to illustrate the implementation of Rotation Transformation.
25.	WAP to move a character along circle
26.	WAP to rotate a character .
27.	WAP to show 2D clipping and Windowing.
28.	WAP to show 3D clipping and Windowing.
29.	WAP to Implement all the Transformations in the single Alphabet.
30.	WAP to draw a Graphs and pie-chart.
31.	WAP to slide a cube on the line.

# Department of Computer Applications

## Practical S/w Lab-VIII

**Subject code: BC-506(N2)**

**Subject name: Internet Applications and JAVA**

### **List of programs:**

1. Create an E-mail Address.
2. Perform transactions.
3. Send and receive messages.
4. Use of search Engines.
5. Print user information using java language.
6. Find the factorial of a number.
7. Find the greatest number out of three numbers.
8. Find and print Prime numbers between 1 to 500.
9. Print fibonacci series upto 100.
10. Display your name by entering data through keyboard.
11. Display the function overloading.
12. Program to implement single inheritance.
13. Program to display method overriding.
14. Print sum of two numbers input through keyboard.
15. Print table of a number.
16. Sorting of an array in ascending order.
17. Find the sum of two matrices.
18. Find the sum of digits of a matrix in diagonal position.
19. Implement multiple inheritance using interfaces.
20. Program to create a calculator using switch case.
21. Program to find the multiplication of matrices.
22. Program to implement nested if statements.
23. Program using constructors and destructors.
24. Write a program to create a thread.
25. Implementation of thread using sleep, yields and stop method.
26. Create an applet of a man face.
27. Display applet of line and rectangle.

28. Program to show the functioning of event handling.
29. Program using exceptions.
30. Program to display the function of multilevel exception handling.

# Department of Computer Applications

**Subject Name: Hardware Lab-I(MP)  
207(N2)**

**Subject Code:MCA-**

## **List of Programs**

Using 8085 and 8086 microprocessor kits do the following programs:

### **8085**

1. To examine and modify the contents of a register and memory location.
2. To add two hexadecimal nos.
3. To subtract two hexadecimal nos.
4. To add two hexadecimal nos. The result should not be greater than 199.
5. To add two sixteen bit nos.
6. To subtract two sixteen bit nos.
7. For addition of 8 bit no series neglecting the carry generated.
8. To separate hexadecimal number into two digits(Breaking the byte into two nibbles).

### **8086**

- 1.To add two binary no's each 8 bit long.
- 2 To add two binary no's each 8 bit long.
3. To multiply two binary no's.
- 4.To find the maximum no in a given string (16 bytes long) and store it in a particular location.
- 5.To find the minimum no in a given string (16 bytes long) and store it in a particular location.
- 6.To sort a string of a no of bytes in descending order.
- 7.To multiply an ASCII string of eight numbers by single ASCII digit.
- 8.To calculate the no. of bytes in a string starting from a particular location up to an Identifier  
(data byte) placed in AL register. Store the actual count in a particular memory Location.

## Department of Computer Applications

**Subject Name: Software Lab- VII(OS)      Subject Code:MCA-407(N2)**

### List of Commands

S.No.	Commands
1.	To identify current directory path
2.	To change directory
3.	To create new directory
4.	To remove an existing directory
5.	To list contents of the directory
6.	To display contents of specified file
7.	To duplicate contents from source to destination
8.	To remove a file
9.	To rename a file
10.	To display contents page-wise
11.	To display linux help manual
12.	To change file permissions of file/dir.
13.	To display system date and time
14.	To print arguments
15.	To read top ten lines of file
16.	To read bottom ten lines of file
17.	To sort a file
18.	To do remote login
19.	To search a file for a particular pattern & display all lines
20.	To count no. of lines, words & characters
21.	To display specific cols. from output of commands
22.	To display general purpose utilities
23.	To display specific cols.
24.	To display regular expressions
25.	vi editor commands

# Department of Computer Applications

**Subject Name: SOFTWARE LAB-V (RDBMS-1)**

**Subject Code: MCA-307(N2)**

## **List of Programs**

1. Introduction to Database.
2. Creation of Database.
3. Creation of Tables.
4. Insert, Delete, Update in Tables.
5. Performing Constraints (Primary key, foreign key etc.)
6. Performing Inbuilt Function of SQL like SUM, AVG etc.
7. JOINS (Inner, Outer).
8. Groups clause, having clause.
9. Views of Tables.
10. Related activities of SQL.
11. Performing different Queries of SQL.

# Department of Computer Applications

**Subject Name: SOFTWARE LAB-VI (RDBMS-2)**

**Subject Code: MCA-406(N2)**

## **List of Programs:-**

1. Introduction to PL/SQL.
2. Program to calculate product of two numbers.
3. Program to calculate Area of Circle.
4. Program to use of %ROWTYPE attributes.
5. Program to use control structure.
6. Program to print the Table of Number.
7. Program to handle Exceptions.
8. Program to use of Explicit Cursor to Display information of given Department.
9. Program to increase Salary using Procedure.
10. Program to call a stored Procedure.
11. Program to calculate product of two numbers using Function.
12. Program to create Package.
13. Program to create TRIGGER which insert or update Table.