STATE COUNCIL OF TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA
TEACHING AND EVALUATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES

DISCIPLINE: COMPUTER SCIENCE ENGINEERING						**SEMESTER: 3RD**						
SL NO	**SUBJECT CODE**	**SUBJECT**	**PERIODS**			**EVALUATION SCHEME**						
			L	**T**	**P**	**INTERNAL EXAM**			**END SEM EXAM**	**TERM WORK**	**PRACTICAL EXAM**	**TOTAL MARKS**
						TA	**CT**	**Total**				
THEORY												
1.	BST 301	ENGINEERING MATHEMATICS III	4			10	20	30	70			100
2.	CST 301	DATA STRUCTURE	4			10	20	30	70			100
3.	CST 302	MANAGEMENT INFORMATION SYSTEM	4			10	20	30	70			100
4.	ETT 321	DIGITAL ELECTRONICS	5			10	20	30	70			100
5.	ETT 322	FUNDAMENTAL ELECTRONIC DEVICES	4			10	20	30	70			100
PRACTICAL/TERM WORK												
5.	CSP 301	DATA STRUCTURE LAB USING C	-	-	6				100	50	50	100
6.	CSP 302	MANAGEMENT INFORMATION SYSTEM LAB.	-	-	6					25	50	75
7.	ETP 321	DIGITAL ELECTRONICS LAB	-	-	6					25	50	75
GRAND TOTAL			**21**		**18**	**50**	**100**	**150**	**350**	**100**	**150**	**750**

Total Contact hours per week: 39
Abbreviations: L-Lecture, T-Tutorial, P-Practical, TA- Teacher's Assignment, CT- Class test
Minimum Pass Mark in each Theory Subject is 35% and in Practical subject is 50%

ENGINEERING MATHEMATICS – III

(COMMON TO ELECT/CSE/ETC, AE & I/CP/IT/MECH/AUTO)

Name of the Course: Diploma in Electrical Engineering			
Course code:	BST 301	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P / week	Class Test:	20
Tutorial:		Teacher's Assignment:	10
Maximum marks:	100	End Semester Examination:	70

A. RATIONALE:

The subject Engineering Mathematics-III, is a common paper for Engineering branches. This subject includes Matrices, Laplace Transforms, Fourier Series, Differential Equations and Numerical Methods etc. for solution of Engineering problems.

B. OBJECTIVE:

On completion of study of Engineering Mathematics-III, the students will be able to:

1. Apply matrices in Engineering mechanics, electrical circuits and linear programming.
2. Transform Engineering problems to mathematical models with the help of differential equations and familiarize with the methods of solving by analytical methods, transform method, operator method and numerical methods.
3. Solve algebraic and transcendental equations by Iterative methods easily programmable in computers.
4. Analysis data and develop interpolating polynomials through method of differences.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Matrices	04
2	Differential equation	12
3	Laplace transform	14
4	Fourier series	14
5	Numerical methods	04
6	Finite difference & Interpolation	12
	Total:	**60**

D. COURSE CONTENTS

1. MATRICES **04**

1.1 Define rank of a matrix.
1.2 Perform elementary row transformation to determine the rank of a matrix.
1.3 State Rouche's Theorem for consistency of a system of linear equations in 'n' unknowns.
1.4 Solve equations in three unknowns testing consistency.

2. Linear Differential Equations **12**

2.1 Define Homogeneous and non-homogeneous differential equations with constant coefficients with examples.
2.2 Find general solution of linear equations in terms of C.F. and P.I.
2.3 Derive rules of finding C.F. and P.I. in terms of operator D.
2.4 Define Partial Differential equations(P.D.E.)
2.5 Form partial differential equations by eliminating arbitrary constants and arbitrary functions.
2.6 Solve partial differential equations of the form P.p+Q.q=R
2.7 Solve Engineering problems on 2.1-2.6.

3. LAPLACE TRANSFORMS **14**

3.1 Define Gamma function and $\Gamma(n+1)=n!$ and find $\Gamma(1/2)=\sqrt{\pi}$ (No problem)

3.2 Define Laplace transform of a function f(t) and inverse laplace transform.

3.3 Derive L.T. of standard functions and explain existence conditions of L.T.

3.4 Explain linear, shifting and Change of scale property of L.T.

3.5 Formulate L.T. of derivatives, integrals, multiplication by t^n and division by t.

3.6 Derive formula of inverse L.T.

3.7 Solve Linear Differential Equations with constant coefficients associated with initial conditions using Transform Method(upto 2nd order only).

3.8 Solve problems on 3.2- 3.7

4 FOURIER SERIES **14**

4.1 Define periodic functions

4.2 State Dirichlet's conditions for the Fourier expansion of a function and its convergence.

4.3 Express periodic function $f(x)$ satisfying Dirichlet's conditions as a Fourier series.

4.4 State Euler's formulae.

4.5 Define Even and Odd functions and Obtain F.S. in $(0 \le x \le 2\pi$ and $-\pi \le x \le \pi)$

4.6 Obtain F.S. of continuous functions and functions having points of discontinuity in $(0 \le x \le 2\pi$ and $-\pi \le x \le \pi)$.

4.7 Solve problems on 4.1-4.6

5 NUMERICAL METHODS **04**

5.1 Appraise limitations of analytic method of solution of algebraic and transcendental equations.

5.2 Derive Iterative formula for finding the solutions of algebraic and transcendental equations by:
a) Bisection method; b) Newton Raphson method

5.3 Solve problems on 5.2

6 FINITE DIFFERENCE and INTERPOLATION **12**

6.1 Explain finite difference and form table of forward and backward difference.

6.2 Define shift operator(E) and establish relation between E and difference operator(Δ).

6.3 Derive Newton's forward and backward interpolation formula for equal interval.

6.4 State Lagrange's Interpolation formula for unequal intervals.

6.5 Explain numerical integration and state
6.5.1 Newton-Cote's formula(No derivation)
6.5.2 Trapezoidal Rule
6.5.3 Simpson's 1/3rd rule

6.6 Solve Problems on 6.1-6.5

Learning Resources: (Text Book)

Sl.No	Name of Authors	Title of the Book	Name of Publisher
1	Dr.B.S. Grewal	Higher Engineering Mathematics	Khanna Publishers

Reference Book

1 Text book of Engineering Mathematics-III By C.R.Mallick Kalyani Publication

DATA STRUCTURE

Name of the Course: Diploma in Computer Science & Engineering

Course code:	CST 301	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assignment:	10
Maximum marks:	100	End Semester Examination:	70

Objective :

The effectiveness of implementation of any application in computer mainly depends on the - that how effectively its information can be stored in the computer. For this purpose various -- structures are used. This paper will expose the students to various fundamentals structures arrays, stacks, queues, trees etc. It will also expose the students to some fundamental, I/0 manipulation techniques like sorting, searching etc

1.0 INTRODUCTION: 04

1.1 Explain Data, Information, data types
1.2 Define data structure & Explain different operations
1.3 Explain Abstract data types
1.4 Discuss Algorithm & its complexity
1.5 Explain Time, space tradeoff

2.0 STRING PROCESSING 03

2.1 Explain Basic Terminology, Storing Strings
2.2 State Character Data Type,
2.3 Discuss String Operations

3.0 ARRAYS 07

3.1 Give Introduction about array,
3.2 Discuss Linear arrays, representation of linear array In memory
3.3 Explain traversing linear arrays, inserting & deleting elements
3.4 Discuss multidimensional arrays, representation of two dimensional arrays in memory (row major order & column major order), and pointers
3.5 Explain sparse matrices.

4.0 STACKS & QUEUES 08

4.1 Give fundamental idea about Stacks and queues
4.2 Explain array representation of Stack
4.3 Explain arithmetic expression ,polish notation & Conversion
4.4 Discuss application of stack, recursion
4.5 Discuss queues, circular queue, priority queues.

5.0 LINKED LIST 08

5.1 Give Introduction about linked list
5.2 Explain representation of linked list in memory

5.3 Discuss traversing a linked list, searching,
5.4 Discuss garbage collection.
5.5 Explain Insertion into a linked list, Deletion from a linked list, header linked list

6.0 TREE **08**
6.1 Explain Basic terminology of Tree
6.2 Discuss Binary tree, its representation and traversal, binary search tree, searching,
6.3 Explain insertion & deletion in a binary search trees

7.0 GRAPHS **06**
7.1 Explain graph terminology & its representation,
7.2 Explain Adjacency Matrix, Path Matrix

8.0 SORTING SEARCHING & MERGING **08**
8.1 Discuss Algorithms for Bubble sort, Quick sort,
8.2 Merging
8.3 Linear searching, Binary searching.

9.0 FILE ORGANIZATION **08**
9.1 Discuss Different types of files organization and their access method,
9.2 Introduction to Hashing, Hash function, collision resolution, open addressing..

Learning Resources:

Text Books:			
Sl no.	Name of Authors	Titles of the Book	Name of the publisher
1.	S. Lipschutz	Data Structure	Schaum Series
2.	A.N.Kamthane	Introduction to Data Structure in C	Pearson Education
3.	Reema Thereja	Data Strcture using C	Oxford University Press

MANAGEMENT INFORMATION SYSTEM

Name of the Course: Diploma in Computer Science & Engineering

Course code:	CST 302	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assignment:	10
Maximum marks:	100	End Semester Examination:	70

Objective :

Management Information System is the basic foundation paper for any hardcore computer engineer. In this subject students will be exposed to the theoretical aspects of different functional units of a digital computer and fundamental idea how different units of a computer system work together to achieve a common goal.

COURSE CONTENT **PERIODS**

1.	**Management Information System An Overview**	**06**
1.1	Introduction	
1.2	Management Information System	
1.3	Definition of MIS	
1.4	Framework for MIS Organisation and Management Triangle	
1.5	Information needs and its Economics	
1.6	System Approach	
1.7	Meaning and Objective of MIS	
1.8	Disadvantages of Information System	
1.9	Approaches of MIS Development	
1.10	Constraints in Developing an MIS	
1.11	MIS and Use of Computer	
1.12	Limitations of MIS	
1.13	Computer based Information System	
2.	**Information System for Decision Making**	**03**
2.1	Introduction	
2.2	Transaction Processing System	
2.3	Management Information System	
2.4	Intelligent Support System	
2.5	Office Automation System	
3.	**Computer Hardware for Information System**	**03**
3.1	Introduction	
3.2	Basics of Data Representation	
3.3	Types of Computer.	

3.4	Basic Components of Computer Systems		
3.5	Factors to buy a PC		
4.	**Computer Software for Information System**	**03**	
4.1	Introduction		
4.2	Programming Languages		
4.3	Classification of Software		
4.4	Role of Software in Problem Solving		
4.5	Criteria for Investment in Hardware and Software		
5.	**Data Communication System**	**03**	
5.1	Introduction		
5.2	Telecommunication System		
5.3	Data Communication Hardware		
5.4	Data Communication Software		
5.5	Communication Networks		
5.6	Distributed Systems		
5.7	Topology of Computer Network		
5.8	Protocols and Network Architecture		
5.9	Open System Interconnection (OSI)		
5.10	Network Management		
6.	**Database Management technology**	**03**	
6.1	Introduction		
6.2	Data vs. Information		
6.3	Data Hierarchy		
6.4	Methods for Organising Data in files		
6.5	Limitations of File-based- systems		
6.6	Database and Database Management System		
6.7	Object Oriented Database Structure		
6.8	Entity Relationship Diagram		
6.9	Fourth Generation Languages (4GLs)		
6.10	Recent Development in Database		
6.11	Principle of Database Management		
6.12	The Database Administrator		
7.	**Client- Server Computing**		**03**
7.1	Introduction		
7.2	Definition of Client-Server Computing		
7.3	Components and functions of a Client-Server System		
7.4	Development of Client-Server System		
7.5	Client-Server Security		
7.6	Client-Server Costs Computations		
7.7	Advantages of Client-Server Systems		
7.8	Disadvantages/ Obstacles of a Client-Server System		
8.	**Decision Support System**		**03**

11.8 Other Tools for IS Development

11.9 Computer Aided Software Engineering

11.10 Challenges in Developing Information Systems

Learning Resources:

Text Books:			
Sl no.	Name of Authors	Titles of the Book	Name of the publisher
1.	Dr. A.K.Gupta	Management Information System	S.Chand & Company Ltd
2.	W.S Jawadekar	Management Information System	TMH
3.	Gordon B davis & Margethe H Olson	Management Information Systems	TMH
4.	Girodhar Joshi	Management Information Systems	OXFORD PRESS

DIGITAL ELECTRONICS

Name of the Course: Diploma in Computer Science & Engineering

Course code:	ETT 321	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assignment:	10
Maximum marks:	100	End Semester Examination:	70

A: RATIONALE:

The Digital Electronics can play a vital role in wide Varity applications in the field of industrial machinery,computers,microprocessor,microcontrollers& household appliances,among others. It is the inter connection among the digital components and modules. The various Digital ICs are replaced today the analogcomponents.These are working with high degree of accuracy

B: OBJECTIVES :

On completion of the study the students will be able to:

- Know about the Number systems & codes.
- Know about Different types of Logic gates.
- Know about Boolean Algebra.
- Know about different types of Combinational Logic Circuits.
- Know about different types of Sequential Logic Circuits.
- Know about different types of Logic Families.
- Know about Counters and Registers.
- Know about the ADC & DAC.
- Know about Display devices.

C: COURSE CONTENT &DISTRIBUTION OF PERIODS

1 NUMBER SYSTEMS AND CODES 08

1.1 List different number system (Binary, Octal, Decimal, Hexadecimal) & the Conversion from one number system to another

1.2 Perform Arithmetic operations (Addition, Subtraction, and Multiplication& Division) of binary number systems

1.3 Represent the Concept of complementally numbers: 1's & 2's complementally of Binary numbers& Subtraction using complements method

1.4 Define concept of Digital Code & its application &Distinguish between weighted & non-weight Code

1.5 Study Codes: definition, relevance, types(BCD,Gray,Excess-3,ASCII & EBCDIC) and applications

2 LOGIC GATES 08

2.1 Illustrate the Different between Analog signals & systems and Digital signals & Systems

2.2 Discuss the Types of logic & representation using electric signals

2.3 Learn the Basic Logic gates (NOT,OR,AND,NOR,NAND,EX-OR & EX-NOR)-Symbol,
Function, expression, truth table & timing diagram

2.4 Concept of AOI (AND-OR-INVERT) &OAI (OR-AND-INVERT) Blocks

2.5 Define Universal Gates & realisation of other gates

2.6 Discuss the concept Threshold Gate.

3.0 BOOLEAN ALGEBRA 07

3.1 Understand Boolean: constants, variables & functions

3.2 Comprehend the Laws & details of Boolean algebra

3.3 State and prove Demorgan'sTheorems&Duality theorem.

3.4 Represent Logic Expression: SOP & POS forms & conversion

3.5 Simplify the Logic Expression /Functions(Maximum of 4 variables): using Boolean algebra and Karnaugh's map methods&Minimization of logical expressions using K-map (2, 3, 4 variables).

3.6 What is don't care conditions &Minimization of logical expressions using K-map with don't care conditions

3.7 Realisation of simplified logic expression using gates

4.0 COMBINATIONAL CIRCUITS 10

4.1 Define a Combinational Circuit and explain with examples

4.2 Arithmetic Circuits(Binary)
a) Realise function ,functional expression, logic circuit, gate level circuit, truth table &
applications of Half-adders, Half-Subtractor, Full-adder & Full- Subtractor
b) Explain Serial & Parallel Adder & application
c) Working of 4 bit parallel adders with logic circuit
d) Construct 2 bit Magnitude Comparator: logic expression, truth table ,gate level circuit

4.3 Discuss Decoder(2 :4)& Encoder(8:3 Octal to Binary): definition, relevance, gate level of
circuit Logic circuit truth table

4.4 Explain the working of BCD to Seven segment Decoder

4.5 Discuss Multiplexers: definition, relevance, gate level circuit of simple Multiplexers (4:1)
logic circuit .

4.6 Discuss De-multiplexers: definition,relevance,gate level circuit of simple De-multiplexers(1:4)
logic circuit with truth Table

5 SEQUENTIAL CIRCUITS 10

5.1 Define Sequential Circuit: Explain with examples & distinguish from Combinational Logic circuits

5.2 Know the Clock-definition ,characteristics, types of triggering & waveform

5.3 Define Flip-Flop & Explain SR Flip Flop using NAND,NOR Latch (unclocked)

5.4 Study Clocked RS,D,T,JK, MS-JK flip-flop with at level circuit, logic Circuit and truth table

5.5 Concept of Racing and how it can be avoided.

5.6 Applications of flip-flops and its conversation

6 LOGIC FAMILIES 06

6.1 list of various logic families & standard notations

6.2 Explain propagation Delay, fan-out, fan-in, Power Dissipation ,Noise Margin ,Power Supply requirement &Speed with Reference to logic families.

6.3 Explain Features, circuit operation &various applications of TTL(NAND), CMOS (NAND & NOR)& ECL

6.4 Explain Tristate Gates

7 COUNTERS 07

7.1 List the different types of counters-Synchronous and Asynchronous& its applications

7.2 Explain the modulus of a counter

7.3 Compare Synchronous and Asynchronous counters.

7.4 Explain the working of 4 bit ripple counter (UP & DOWN) with truth table and timing diagram

7.5 Explain the Synchronous decade/mod 10 counter

8 REGISTERS 08

8.1 Explain the working of buffer register

8.2 Explain the working of various types of shift registers SISO, SIPO, PISO, PIPO

8.3 Explain the working of bidirectional and Universal shift register(4bit)

8.4 Explain the applications of Shift Registers

8.5 Explain Ring &Jhonson Counter

9 A to D and D to A CONVERTERS& DISPLAY DEVICES & Applications 12

9.1 Explain the performance parameters of DAC-Resolution, Accuracy and Conversion time

9.2 Explain Binary Weighted resistor DAC

9.3 Explain R-2R Ladder type DAC

9.4 Explain the performance parameters of ADC-Resolution, Quantization Error and conversion time Periods

9.5 Explain the Ramp type and Dual Slope ADC's

9.6 Explain the Successive –Approximation type ADC

9.7 Explain LED driver using IC 7447 decoder

9.8 Discuss PLD ,its types, Symbol, Implementation & Advantages

Learning Resources:

Text Books:			
Sl no.	Name of Authors	Titles of the Book	Name of the publisher
1.	Ananda Kumar	Fundamental of Digital Electronics	PHI Publication
2.	P.RAJA	Digital Electronics	SCITECH Publication
3.	G.K.Kharate	Digital Electronics	OXFORD Publication
Reference:			
1.	Anokh Singh &A.K.Chhabara	Digital Electronics & Microprocessor	S.Chand
2.	R.P.Jain	Modern Digital Electronics	McGraw Hill
3.	S.Salivahanan ,S.Arivazhagan	Digital Circuits Design	VIKAS Pub House Pvt

FUNDAMENTAL OF ELECTRONICS DEVICES

Name of the Course: Diploma in Computer Science & Engineering

Course code:	ETT 322	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assignment:	10
Maximum marks:	100	End Semester Examination:	70

RATIONALE

Electronics being the basic building block for computer hardware, happens to be the foundation for a student of computer science & Engineering. In this subject the student will be expressed to the various analog electronics component concepts, which are the basic units of any modern computer and its peripheral devices.

COURSE CONTENT **PERIODS**

1. Semiconductor Theory **07**

1.1 Introduction to semiconductor.
1.2 Current carriers in semiconductor
1.3 Atomistic picture of Germanium & Silicon
1.4 Electric current, free electron density, & mobility in semiconductor
1.5 Current due to hole in semiconductor
1.6 Pure & impure semiconductor
1.7 Doping of minority carriers
1.8 Temperature dependency of semiconductor
1.9 History of development of semiconductor

2. The PN junction in forward & reversed bios **08**

1.1 Introduction
1.2 PN junction thermal equilibrium
1.3 PN junction under forward bios
1.4 PN junction under reverse bios
1.5 Combined V-I characteristics under forward & reverse bios

3. Photo Diode, phototransistors & PNPN structure **10**

3.1 Introduction
3.2 Carrier generation by light in a uniform semiconductor
3.3 PN junction photo diode for light detection
3.4 Phototransistor concept only
3.5 Miscellaneous photo detector structures
3.6 MOSFET structure, types & mode of operation

4. AUDIO POWER AMPLIFIERS **08**

4.1 Differentiate between voltage and power amplifier.
4.2 Classify power amplifier.
4.3 Explain the working principle of different types of power amplifier (class-A. class-AB, class-B and class-C amplifiers).
4.4 Derive collector efficiency of class-A and class-B power amplifiers.
4.5 Explain construction and working principle and advantages of push pull amplifiers and complementary symmetry amplifiers.
4.6 Discuss heat generations due to power dissipation.
4.7 Explain the concept of thermal resistance, thermal capacity, heat sinks,

5. FIELD EFFECT TRANSISTORS AND CIRCUIT ANALYSIS **07**

5.1 State concept of FET.
5.2 Differentiate between JFET & BJT.
5.3 Classify FET.
5.4 Explain construction, working principle and characteristic of JFET.
5.5 Explain JFET as an amplifier.
5.6 Define parameters of JFET.
5.7 Establish relation among JFET parameters.
5.8 Explain JFET biasing method and connection.
5.9 Derive voltage gain of a JFET amplifier.
5.10 Explain construction and working principle of MOSFET.

6. FEED BACK AMPLIFIER **06**

6.1 Define and classify feedback amplifier.
6.2 Explain principle of negative feed back with the help of block diagram.
6.3 Define gain of an amplifier with feed back.
6.4 Discuss the advantages/ effects of negative feed back in amplifier.
6.5 Derive input output impedance of negative feed back amplifier.
6.6 Explain principle of working, characteristics and use of emitter follower.

7. OSCILLATOR **10**

7.1 Define and classify Oscillator.
7.2 State and explain fundamental principle of working of oscillator.
7.3 Explain essentials of transistor oscillators.
7.4 Explain Barkhausen criteria.
7.5 Explain construction, working principle and use of Hartley, Collpits, Phase shift, wein bridge and crystal oscillators .

8. TUNED AMPLIFIER **04**

8.1 Define and classify Tuned amplifier.
8.2 Explain advantage of Tuned amplifier.
8.3 State limitations of Tuned amplifier for low frequency applications.
8.4 Explain working principle of single tuned and double tuned amplifiers.

Total 60

Learning Resources:

Text Books:			
Sl no.	Name of Authors	Titles of the Book	Name of the publisher
1.	M.K.Chuthan & Bhatt	Semiconductor devices	TMH
2.	V.K.Meheta	Principle of Electronics	
3.	B.L.Thereja	Principles of electronics Circuits	S.Chand

DATA STRUCTURE LAB USING - C

Name of the Course: Diploma in Computer Science & Engineering

Course code:	CSP 301	Semester	3rd
Total Period:	90	Examination	4 hrs
Lab. periods:	6P/week	Term Work	50
Maximum marks:	100	End Semester Examination:	50

1. Implementation of 1D & 2D Array
2. Implementation of Stack
3. Pointer and it's application.
4. Structure & Union
5. Implementation of insertion & deletion in Stack
6. Implementation of insertion & deletion in Queue
7. Implementation of insertion & deletion in Linked list
8. Implementation of Bubble sort
9. Implementation of Quick sort
10. Implementation of Binary tree traversal
11. Implementation of Linear search
12. Implementation of Binary search

Learning Resources:

Text Books:

Sl no.	Name of Authors	Titles of the Book	Name of the publisher
1.	T.R.Jagadesh	Computer lab referral for diploma students	Unv. S. Press
2.	Gilburg,Forouzen	Data Structure A pseudocode approach with C	

MANAGEMENT INFORMATION SYSTEM LAB.

Name of the Course: Diploma in Computer Science & Engineering

Course code:	CSP 302	Semester	3rd
Total Period:	90	Examination	4 hrs
Lab. periods:	6P/week	Term Work	25
Maximum marks:	75	End Semester Examination:	50

Introduction to FOXPRO

Introduction, Special features of FoxPro, Starting FoxPro, Terminologies used in FoxPro File/Table-Record-Fields, Conventions used for naming fiends, Data types

Understanding Databases

Introduction, Opening a Table/Database, Adding records in a table, Close a file

Retrieving and Editing the Data

Introduction, List, Display, Record pointer, Moving the record pointer - Goto -Skip, Modifying data-Edit-Browse

Managing Databases

Introduction, Sorting, Indexing, Searching for record within the database -Locate-Find-Seek

Working with Reports

Introduction, Creating a report format, Generating a report, Previewing the Report-Grouping of data-Subtotals-Grand total

Getting Started with Programming

Introduction, Commands for writing programs - Say - Get-Read - Valid - Range, Picture, Input Accept - Cancel, Branching concepts - If-endif - Do case Otherwise

Programming Structures

Introduction, Looping commands - Do while - For-End for

DIGITAL ELECTRONICS LAB

Name of the Course: Diploma in Computer Science & Engineering

Course code:	ETP 321	Semester	3rd
Total Period:	90	Examination	4hrs
Lab. periods:	6P/week	Term Work	25
Maximum marks:	75	End Semester Examination:	50

1. Implement AND, OR, NOT, NOR, NAND, XOR, XNOR gates & verify the truth table.

2. Study Universal properties of NAND AND NOR gates.
3. Implement Boolean function.
4. Implements K - MAP.
5. Implement Half - adder and full – adder using minimum number of logic gates
6. Implement Half - subs tractor and full - subs tractor using minimum number of logic gates.

7. Study flip-flops
   i. JK flip flop. ii. D flip flop. iii. SR flip flop.
8. Study 4 - bit a synchronous up/down counter using gates.
9. Study 4 - bit synchronous up/down counter using gates.
10. Study mod 6, mod 10, mod 12, a synchronous counters.
11. Study ring counters.
12. Study shift resistors
    i. SISO ii. SIPOiii. PISO iv. PIPO v. Bi-directional
13. Study 8 - bit D/A & A/D conversion using IC only.
14. Study Multiplexer & De-multiplexer using IC only.
15. Study encoders & decoders.
16. Study display devices – LED/LCD, 7-segment display.

(All the above experiments are to be conducted giving thorough study of IC's)