

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

DISCIPLINE: INFORMATION TECHNOLOGY						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.	ITT 301	DATA STRUCTURE	4	-	-	10	20	30	70			100
3.	ITT 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												
6.	ITP 301	DATA STRUCTURE LAB USING C	-	-	6	-	-		-	50	50	100
7.	ITP 302	MIS LAB.	-	-	6	-	-		-	25	50	75
8.	ITP 303	ADVANCED C 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 Assessment, CT- Class test

Minimum Pass Mark in each Theory Subject is 35% and in Practical subject is 50%

* Minimum pass mark in End Sem Exam is 35% & that in term work 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	3 rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P / week	Class Test:	20
Tutorial:		Teacher's Assessment	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 Rouché'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 $\Gamma(\frac{1}{2}) = \sqrt{\pi}$ (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 $(0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi)$

4.6	Obtain F.S. of continuous functions and functions having points of discontinuity in $(0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi)$.	
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 1/3 rd 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

Data Structure

Name of the Course: Diploma in IT

Course code:	ITT 301	Semester	3 rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assessment	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/O 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:	Title of Book:	Name of 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 IT

Course code:	ITT 302	Semester	3 rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assessment	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
8.1	Introduction	
8.2	Definitions	
8.3	Evolution of DSS	
8.4	Objectives of DSS	
8.5	Classifications of DSS	
8.6	Characteristics of DSS	
8.7	Components of DSS	
8.8	Functions of a DSS	
8.9	Development of DSS	
8.10	Group Decision Support system	
8.11	Executive Information System	
8.12	Success Criteria for DSS/ EIS	
8.13	Relationship between MIS and DSS	
8.14	DSS measures of success in organizations	
8.15	Applications of a DSS	
8.16	TPS, MIS, DSS and EIS	
8.17	Future Development in DSS	
9.	Office Information System	03
9.1	Introduction	
9.2	Office Automation	
9.3	Offices and Office Systems	
9.4	Types of Office Automation Systems	
9.5	Integrated Office	

10.	Information System in Business	03
10.1	Introduction	
10.2	Functional Areas of Business	
10.3	Manufacturing Information System	
10.4	Marketing Information Systems	
10.5	Quality Information Systems	
10.6	Financial and Accounting Information Systems	
10.7	Research and Development Information Systems	
10.8	Human Resource Information Systems	
10.9	Geographical Information Systems	
10.10	Cross-Functional systems	
11.	Systems Analysis and Design	03
11.1	Introduction	
11.2	System Development Life Cycle (SDLC)	
11.3	Prototyping	
11.4	Rapid Application Development (RAD)	
11.5	End-User Computing	
11.6	Software Packages outsourcing	
11.7	Comparison of IS Development Methodologies	
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:	Title of Book:	Name of 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 System	TMH

DIGITAL ELECTRONICS

(COMMON TO ETC/CSE)

Name of the Course: Diploma in IT

Course code:	ETT 321	Semester	3 rd
Total Period:	75	Examination	3 hrs
Theory periods:	5P/week	Class Test:	20
Tutorial:		Teacher's Assessment	10
Maximum marks:	100	End Semester Examination:	70

A: RATIONALE:

The Digital Electronics can play a vital role in wide Variety 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 analog components. 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's Theorems & 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 & Johnson 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]

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:

Sl No.	Name of Authors:	Title of Book:	Name of Publisher:
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	1 VIKAS Pub House Pvt

Name of the Course: Diploma in IT

Course code:	ETT 322	Semester	3 rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Tutorial:		Teacher's Assessment	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 bias

08

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

3. Photo Diode, phototransistors & PNP 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 feedback with the help of block diagram.
- 6.3 Define gain of an amplifier with feedback.
- 6.4 Discuss the advantages/ effects of negative feedback in amplifier.
- 6.5 Derive input output impedance of negative feedback 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:

Sl No.	Name of Authors:	Title of Book:	Name of 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 IT

Course code:	ITP 301	Semester	3 rd
Total Period:	90	Examination	4hrs
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:

Sl No.	Name of Authors:	Title of Book:	Name of Publisher:
1	T.R.Jagadesh	Computer lab referral for diploma students	Unv. S. Press
2	Gilburg,Forouzen	Data Structure A pseudocode approach with C	Cengage Learning

Name of the Course: Diploma in IT

Course code:	ITP 302	Semester	3 rd
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

ADVANCE C LAB

Name of the Course: Diploma in IT

Course code:	ITP 303	Semester	3 rd
Total Period:	90	Examination	4 hrs
Lab. periods:	6P/week	Term Work	25
Maximum marks:	75	End Semester Examination:	50

1. Writing Program using Array
2. Writing Program using Strings
3. Writing Program using Functions
4. Writing Program using Structure
5. Writing Program using Unions
6. Writing Program using Pointers
7. Writing Program using file handling using C