CURRICULUM FOR ONE YEAR

POST DIPLOMA COURSE IN

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=====================================
:      INFORMATION TECHNOLOGY      :
:   Effective from Session         :
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        :   Annual System   :
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Prepared By

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:  Curriculum Development Cell  :
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INSTITUTE OF RESEARCH DEVELOPMENT
& TRAINING, U.P., KANPUR

APPROVED BY

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:   BOARD OF TECHNICAL EDUCATION   :
: U.P. LUCKNOW,                    :
:CORRECTED AS SYLLABUS COMMITTEE OF:
: B.T.E. MEETING HELD ON 27.12.12 :
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STUDY AND EVALUATION SCHEME FOR

ONE YEAR POST DIPLOMA COURSE IN INFORMATION TECHNOLOGY

ANNUAL SYSTEM   (Effective From   )

I YEAR

Curriculum — Periods Per Week						SUBJECT	Scheme of Examination							
							Theory				Practical			Grand Total
Lec.	Tut orial	Dr aw	Lab	Work Shop	Tot al		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
2	–	–	2	–	4	1.1 Information Technology and Operating System.	2.5	50	20	70	3	60	30	90	160
3	–	–	4	–	7	1.2 Programming in C & C++	2.5	50	20	70	3	60	30	90	160
3	–	–	2	–	5	1.3 Data Communication & Computer Network	2.5	50	20	70	3	60	30	90	160
3	–	–	3	–	6	1.4 . NET Technologies	2.5	50	20	70	3	70	35	105	175
3	–	–	3	–	6	1.5 Data Structure Using C&C++	2.5	50	20	70	3	60	30	90	160
3	–	–	3	–	6	1.6 Internet & Web Technology	2.5	50	20	70	3	60	30	90	160
3	–	–	3	–	6	1.7 RDBMS	2.5	50	20	70	3	60	30	90	160
3	–	–	–	–	3	1.8 E-Commerce & ERP	2.5	50	20	70	–	--	--	--	70
2	–	–	–	–	2	1.9 Environmental Education(*) And Disaster Management	2.5	50	--	--	--	--	--	--	--
–	–	–	3	–	3	1.10 Project -i. Problem	--	--	--	--	3	80	40	120	120
						ii)Industrial Training	--	--	--	--	–	40	20	60	60
						iii Seminar	--	--	--	--	–	--	15	15	15
25	–	–	23	–	48	T O T A L		400	160	560	–	550	290	840	1400

Games/NCC/Social and Cultural activities + Discipline (30+20)| 50|

                                                     Total |1450|

NOTE:-(1) Each period will be of 50 minutes duration.
      (2) Each session will be of 32 weeks.
      (3) Effective teaching will be at least 25 weeks.
      (4) Remaining periods will be utilised for revision etc.
      (5) Duration of Industrial Training should be One Month.
      (6) (*) It is compulsory to appear & to pass in examination, But marks will
          not be included for division and percentage of obtained marks.
      (7) At least 1 seminar should be organised at the institute level with in the session,
          Participation of each student is compulsuory and sessional marks for this should be
          allotted to the student. (No External Exam.)

C O N T E N T S

Sl.No. Particulars   Page No.

MAIN FEATURES OF THE CURRICULU

1.   Title   of   the   Course   : Post Diploma In   Information
                                 : Technology

2.   Duration of the Course   : One Year

3.   Type of the Course   : Full Time Institutional

4.   Pattern of the Course   : Anual System

5.   Intake   : 60

6.   Entry Qualification   : Diploma in Any Branch

7.   Admission Criteria   : State Joint   Entrance
                                    Examination

     List of experts who contributed in the modification of
curriculum   of Post Diploma in INFORMATION TECHNOLOGYIn Annual
System, held on December,26,2000 at Board of Technical Education,

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Lucknow.

1. Smt. Usha Birjee   Director
                                 D.T.E.,Kanpur
2. Shri Subhash Tandon   Jt. Manager
                                 Uptron India Limited
                                 10,Ashok Marg Lucknow.
3. Shri Ram singh   Sr. Manager
                                 U.P.Jal Nigam
                                 4/18 Gomtinagar,Lucknow.
4. Shri Ranjan Srivastav   Asstt. Professor
                                 I.I.I.T.,Allhabad.
5. Shri S.K.Verma   Principal
                                 G.G.Polytechnic Lucknow.
6. Shri Ashraf Ali   Professor
                                 I.R.D.T.,Kanpur
7. Shri R.S.K.Sinha   Asstt. Professor
                                 Board Of Technical Education
                                 Lucknow.
8. Shri Ram Singh   Secretary
                                 Board of Technical Education
                                 Lucknow.

   List of experts who contributed to Change the of curriculum of Post Diploma in INFORMATION TECHNOLOGYheld on   24.10.2002 at I.R.D.T . U.P., Kanpur

1. Shri S. C. GUPTA   Director,
                                 Dr. Ambedkar Institute of
                                 Technology for handicapped,
                                 Kanpur
2. Shri Aditya Singh   Manager.
                                 UPTEC Awadhpuri Kanpur
3. Shri B.R. Verma   Head Computer
                                 Govt. Polytechnic Lucknow
4. Shri L.S. Yadav   Head Computer
                                 Govt. Polytechnic Kanpur
5. Shri Saurabh Agrawal   Lecturer Computer
                                 United Institute of Designing
                                 Kanpur
6. Shri Ashok Kushwaha   Lecturer Computer
                                 Govt. Girls Polytechnic Lucknow
7. Shri Vimal Misra   Lecturer Computer
                                 Govt. Polytechnic Jhansi
8. Shri Ashraf Ali   Professor
                                 I.R.D.T.,U.P.Kanpur.
9. Shri A.P.Singh   Lecturer Computer
                                 I.R.D.T.,U.P.Kanpur.

List of experts who contributed to Change the of curriculum of One Year Post Graduate Diploma in Information Technology held on 27.02.2003 at I.R.D.T . U.P., Kanpur.

1. Shri Gurdeep Singh   Director.
                                 I.R.D.T.,U.P. Kanpur.
2. Shri Rajeev Misra   Head of Department
                                 Information Technology

	H.B.T.I.Kanpur
3. Shri Raghu Raj Singh	Head of Department
	Computer Science & Engg.
	H.B.T.I.Kanpur.
4. Shri S. C. GUPTA	HOD Computer Science & Engg.
	Dr. Ambedkar Institute of
	Technology for handicapped,
	Kanpur
5. Shri M.A. Idrees	Senior System Analyst
	NIC, Yojna Bhawan
	Lucknow.
6. Shri Alok Tiwari	District Informatics Officer
	Kanpur Dehat.
7. Shri B.R. Verma	Head Computer
	Govt. Polytechnic Lucknow
8. Shri L.S. Yadav	Head Computer
	Govt. Polytechnic Kanpur
9. Shri Saurabh Agrawal	Lecturer Computer
	United Institute of Designing
	Kanpur
10. Shri Ashok Kushwaha	Lecturer Computer
	Govt. Girls Polytechnic Lucknow
11. Shri Ashraf Ali	Professor
	I.R.D.T.,U.P.Kanpur.

List of experts who contributed to Change the of curriculum of Three Years Diploma Course in INFORMATION TECHNOLOGY held on 15.10.2003 at I.R.D.T . U.P., Kanpur.

1. Shri Alok Tiwari	District Informatics Officer
	Kanpur Dehat.
2. Shri B.R. Verma	Head Computer
	Govt. Polytechnic Lucknow
3. Shri D. Singh	Head Computer
	Govt. Girls Polytechnic,
	Allahabad
4. Shri S. N. Singh	Head Computer
	Govt. Polytechnic Unnao
5. Shri L.S. Yadav	Head Computer
	Govt. Polytechnic Kanpur
6. Shri Saurabh Agrawal	Lecturer Computer
	United Institute of Designing
	Kanpur
7. Shri Alok Gupta	HIG 174, Kalish Vihar,
	Kalyanpur, Kanpur
8. Shri R. Goel	Programmer, I.E.T.,Lucknow
9. Shri Ashraf Ali	Professor
	I.R.D.T., Kanpur

List of experts who contributed to Change the of curriculum of One Year Post Graduate Diploma in Information Technology held on 15.11.2007 and 16.11.2007 at I.R.D.T . U.P., Kanpur.

1. Shri Ashraf Ali	Head (Computer)
	Govt. Girls Poly., Lucknow
2. Shri L.S. Yadav	Head Computer
	Govt. Polytechnic,Lucknow
3. Shri B.R. Verma	Head Computer/Asstt. Director
	D. T. E., Kanpur
4. Shri Alok Tiwari	District Informatics Officer
	Kanpur Dehat.
5. Shri Jitendra Kumar	Sr. Manager
	U. P. Tech, Mall Road, Kanpur
6. Shri Kurunesh Yadav	Lecturer, G.G.P., Lucknow
7. Shri Ashok Kushwaha	Lecturer, G.G.P., Lucknow
8. Shri S. K. Agarwal	Lecturer, G.G.P., Allahabad
9. Smt Sarla Agarwal	Lecturer(Electronics),
	Govt. Poly., Barillary
10. Smt. R. P. Alam.	Assistant Professor
	I. R. D. T., Kanpur

List of experts who contributed to Change the of curriculum of Three Years Diploma Course in Computer Scinece & Engineering held on 17.10.2012 and 27.11.2012 at I.R.D.T . U.P., Kanpur.

1. Shri Alok Tiwari	Director, NIC., Lucknow
2. Shri Rajveer Singh	Manager, IT, HAL,Kanpur
3. Shri L.S. Yadav	Head Computer
	Govt. Polytechnic,Unnao
4. Shri B.R. Verma	Head Computer/Asstt. Director
	D. T. E., Kanpur
5. Shri Amrendra Sharan	NITTR, Chandigarh
6. Shri Madan Mishra	Head(Computer,G.P.,Unnaow
7. Shri Neeraj Kumar	Lecturer, G.P., Kanpur
8. Shri Ravi Kumar	Lecturer, G.P., Gaziabad
9. Shri Ravindra Kuamr	Head(Computer)
	Govt. Poly., Mau
10. Smt. R. P. Alam.	Assistant Professor
	I. R. D. T., Kanpur

IV. NEED ANALYSIS :

With the development of civilisation, human needs to keep on increasing thier fulfilment needed simulation, analysis of lot of informations too became essential. Now the individual responsbilities of every responsible citizen

grew up to such a light that it is difficult for him to handle them successfully. Human memory too has its own limitations. So here comes the computer to help in all kind of decision making, whether it is highly complicated research work, war strategy, market speculations or day-to-day need of human life etc. As a matter of fact every individual activity needs decision making. So the computer is the need of organisations and also the need of individual being. It will not be exaggeration if we say that it is "Informtion era". So is the need for developing a course for "Information Technology" at diploma level. It is supposed that such personnel will not face any dearth of employment because of omnipresent nature of computer.

The syllabus for diploma in"Information Technology" has been developed to meet above mentioned aims. Obviously achievement of any aim requires knowledge of the means and procedures of thier utilisation. With this view various courses have been carefully selected and thier length and depth decided by experienced experts in the field.

1.1 Information Technology & Operating System.

	L	T	P
	3	–	3

Rationale

Computers have become an integral part of modern industrial atmosphere. Every technician is supposed to be aware of the application of computers. A student having knowledge of popular software and computer peripherals will prove useful to accept any challenge in day today working.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction of Information Technology	9	–	–
2.	Component of Information technology	12	–	–
3.	Data Representation	12	–	–
4.	Emerging Trends	12	–	–
5.	Components of Computers	12	–	–
7.	Unix, linux & Windows	18	–	–
		75	–	75

1.   Intoduction of Information Technology:

     Definition Of Information, difference betwwen data and
     information,need for information, qualities of
     information,value of information, categories of
     information,level of Information. Use of Information
     Technology in Office Automation, Components of Information
     Technology : Computers & Its Types

2.   Components of Information Technology:

     Components Hardware & its Functioning - Input Unit, Control
     Processing Unit, Output Unit, Types of Input Units & Output
     Units
     Computer Software - Types of Software, System Software,
     Application Software.

3.   Data Representation :

     Binary Number System, Conversion from Decimal to Binary,
     Conversion from Binary to Decimal, Hexadecimal and
     Octadecimal No. System, Memory Addressing and its
     Importantance, ASCII and EBCDIC coding System.

4.   Emerging Trends in Information Technology :

     Concepts of Networking and Local Area Networking, Advanced
     Input/ Output Devices and their use(MICR, OCR, Scanners,
     Light pen, Plotters, Microfilms, Rewritable, CD-ROMS etc,
     Multimedia, Video Conferencing, Mobile computing(wireless
     Communication).

5.   Components of Computer:

     Types of PC e.g. Desktops, Labtops, Notebooks, Palmtops,
     Memory System of a PC, Primary Memory,RAM(Ramdom Access
     Memory, ROM(read only Memory), Secondary Memory, Types of
     Secondary Storage, Acces Mechanism of storage Devices, PC
     setup and ROM-BIOS, Elemantary Trouble shooting.

7.   UNIX,Linux & WiNDOWS

    Introductin & Functions of O.S, C.P.U. Scheduling, Unix,
    Linux   commond, Features of Windows 98/2000/VISTA   and
    functions of Programs,Documents,setting,Find, Run.

    Practicals

    1. Exercises on Unix Commonds.
    2. Exercises on Linux Commonds.
    3. Exercises on Windows98/2000/VISTA.

                    1.2 PROGRAMMING IN C & C++

(Post Graduate Diploma In Computer Application, Diploma In
Computer Science & Engineering and Diploma In Information
Technology)

                                          L   T   P
                                          3   -   4

Rationale :

        For solution of different problems, C is a very
    powerful high level language. It is widely used in research
    and engineering problems. A software technician must be
    aware of this language for working in computer environment.

            TOPIC WISE DISTRIBUTION OF PERIODS
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Sl.No.   Units   Coverage Time
                                            _L___T___P___
_____
1.   Concept of Programming   10   -
2.   Programming in C   30   -   -
3.   Classes & Objects   30   -
4.   Programming in C++   30   -

_____
                                            100   -   100
_____

                    DETAILED CONTENTS

1.   CONCEPT OF PROGRAMMING:

    Concept of Flowcharing, algorithm,programming, Structured
Programming Various techniques of programming,   Use   of
programming.

2.   Programming in C:

    Data Types, Operators and Expressions;Input & Output printf,
scanf, clibrary   Control Statement: IF- ELSE, While, For, Do-
While, Switch; Functions   and modular programming; Scope of
variables, parameter passing, recursion, block   structure;
preprocessor statements; pointers and arrays; structures and

unions; File handling.

3.CLASSES & OBJECT:

What is a class,what is an object,constructors,types of object(external,automatic static, Dynamic objects) Metaclass,role of meta class.Scope of classes, array of objects, objects as a function argument.

4.Programming in C++

What is object-orientation, area of object technology,C++, getting to grips with C++(data types,escape sequence,characters, variables, operator, notation, Arrays,Function conditional statements.call by value,call by reference.Pointer : C++ memory map, dynamic allocation pointers,pointers with arrays.Structure,structure with arrays,passing, structure of function.Enumerated data types, Inherentance, apolymorphism & Overloading.

PROGRAMMING IN C & C++

List of Experiments

1. Exercises involving output and input format controls in Pascal.

2. Exercises involving control transfer statements in C & C++

3. Exercises with arrays & Pointers in C & C++.

4. Exercises with functions in C & C++.

5. Exercises with files in C & C++.

1.3 DATA COMMUNICATION AND COMPUTER NETWORKS

(Common to Post Graduate In Computer Application, Diploma In Information Technology, Diploma In Computer Science & Engineering)

	L	T	P
	3	–	2

Rationale :

TOPIC WISE DISTRIBUTION OF PERIODS

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_____
Sl.No.        Units                              Coverage Time
                                                 L    T    P
_____

1.    Topic 1                                    12   -    -
2.    Topic 2                                     9   -    -
3.    Topic 3                                     9   -    -
4.    Topic 4                                     9   -    -
5.    Topic 5                                     9   -    -
6.    Topic 6                                     9   -    -
7.    Topic 7                                     9   -    -
8.    Topic 8                                     9   -    -
                                                _____
                                                 75   -   50
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DETAILED CONTENTS

1.   OVERVIEW OF DATA COMMUNICATION AND NETWORKING :

      Introduction; Data Communication; Components, data
      representation (ASCII, ISO, etc.). Direction of Gata Flow
      (Simples, Half duplex, Full duplex), Network; Distributed
      processing, Network criteria, Physical structure (Types of
      connection, Topology), Categories of network (LAN, MAN,
      WAN); Internet; Brief history, Internet today; Protocols and
      standards; Reference models; OSI reference model TCP/IP
      reference model, their comparative study.

2.   PHYSICAL LAYER :

      Overview of data (Analog and Digital), Singnal (Analog and
      Digital), Transmission (Analog and Digital) and Transmission
      media (Guided and Non-guided); TDM, FDM, WDM; Circuit
      switching; Time division and space division switch, TDM bus;
      Telephone network.

3.   DATA LINK LAYER :

      Types of errors, Framing (Character and bit stuffing), Error
      detection and Correction methods; Flow control; Protocols
      Stop and wait ARQ, Go-Back, NARQ, Selective repeat ARQ,
      HDLC.

      Medium Access Sub Layer :

      Point to point protocol, LCP, NCP, FDDI, Token bus, Toke
      ring; Reservation, Polling, Concetration; Multiple access
      protocols, CSMA,CSMA/CD, FDMA, TDMA, CDMA; Traditional
      Ethernet, Fast Ethernet.

4.   NETWORK LAYER :

      Internetworking and devices : Repeaters, Hubs, Bridges,

Switches, Router, Gateway; Addressing : Internet address, Classful address, Subnetting; Routing : Techniques, Static vs. dynamic routing, Routing table for glassful address; Routing algorithms: Shortest path algorithm, Flooding, Distance vector routing, Link state routing; Protocols ARP, RARP, IP, ICMP, IPV6; Unicast and multicast routing protocols.

5.   TRANSPORT LAYER :

Process to process delivery; UDP, TCP; Congestion control algorithm; Leaky bucket algorithm, Token bucket algorithm, Choke packets; Qualit of service; Techniques to improve Qos.

6.   SESSION LAYER :

Functioning of session layer, OSI primitives.

7.   APPLICATION LAYER :

DNS;SMTP;SNMP;FTP; HTTP & WWW; Security; Cryptography, Use authentication, Security protocols in internet Firewalls

8.   EMERGING TECHNOLOGIES IN NETWORKING :

ISDN services and ATM; DSK technology, Cable modem, Sonet wireless LAN: IEEE 802.11; Introduction to blue-tooth, VLAN's, Cellular telephony and Satellite network.

Text Books

1.   B. A. Forouzan - Data Communication and Networking (3 Ed.) - TMH.

2.   A. S. Tanebaum - Computer Networks (4 Ed.) - Pearson Education/ PHI.

3.   W. Stallings - Data and Computer Communication (5 Ed.) - Pearson Education/ PHI.

                          LIST OF PRACTICALS

1.   Identification of various networks components

-    Connection, BNC, RJ-45, I/O box
-    Cables, Co-axial, twisted pair, UTP
-    NIC (Network Interface Card)
-    Switch, Hub

2.   Sketch wiring diagram of network cabling considering a computer lab of 20 systems.

3.   Interfacing with the network card (Ethernet)

4.   Preparing of network cables.

5.   Establishment of a LAN

6.   Use of protocols in establising LAN

7.   Trouble shooting of networks.

8.   Installation of network device drivers.

9.   Installation of networks (Peer Networking client server interconnection.

10. Use/installation of proxy server.

1.4 DOT(.) NET TECHNOLOGY

(Common to Computer Science & Engineering, Post Graduate Diploma in Computer Application, Diploma in information Technology.)

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                                          L    T    P
                                          3    -    3
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TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	12	–	–
2.	Topic 2	12	–	–
3.	Topic 3	12	–	–
4.	Topic 4	15	–	–
5.	Topic 5	12	–	–
6.	Topic 6	12	–	–
		75	–	75

1.   THE DOT(.) NET FRAMEWORK :

     Introduction, Common Language Routime, Common Types System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language. Justin- Time compilation, garbage collection, Application installation and Assemblies, Web Services, Unified classes.

2.   C# BASICS :

     Getting started with .NET framework, Elploring Visual Studio .NET, Inside a C# Program, Data Types, Statements, Arrays, Using Strings, Objects, Classes and Structs, Properties, Inheritance, Indexers, Delegates, Events, Namespaces, Generics.

3.   ADVANCED FEATURES OF C# :

Collection and Data Structure, Exception, Handling, Threading, Using Streams and Files, Reflection, Assemblies, Verioning, Windows Forms, Controls, Data binding to Controls, Advanced Database Programming using ADO.net, Using GDI+, Networking, .net Remoting, Manipulation XML.

4. VB .NET :

    Creating Applications with Visual Basic .NET, Variables, Constants adn Calculations, Making Decisions and Working with Strings, List, Loops, Validations, Sub Procedures adn Functions, Multiple Forms, Standard Modules and Menus. Array, Timers, Form Controls, File Handling, Exception Handling, Working with Database, Advanced Database Programming using ADO.net, Classes, Generics, Collections, Inheritance, Custom Controls, Packaging and deployment, Using Crystal Reports.

5. ASP .NET 2.0 :

    Features of ASP .NET 2.0, Stages in Web Forms Processing, Introduction to Server Control, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State, ADO.NET., Database Programming - Connecting with Database using DAO, RDO & ADO.

6. Working with inbuilt Active X, Window Common Control, Creating Own Active X through Active X Control, Active X EXE, Difference between EXE and DLL.

LIST OF PRACTICAL

1. Develop small software using . NET Technology.

LIST OF BOOKS

1. Application of .NET Technology, ISRD Group- McGraw Hill.

2. Beginning ASP.NET 4:in C# and VB by Imar Spaanjaars

3. Introduction to .NET 4.0 with Visual Studio 2010 From Apress Publication - Alex Mackey

4. Understanding .NET (2nd Edition) - David Chappell

1.5 DATA STRUCTURE USING C & C++

(Common to Post Diploma in Computer Science & Engg. and Post Graduate Diploma In Computer Application, Diploma In Information Technology)

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                                          L    T    P
                                          3    -    3
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Rationale :

For solution of different problems 'C' is a very powerful high level language. It is widely used in research and engineering problems. A software technician aware of this language will be useful for working in computer environment.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Basic Concepts.	8	-	
2.	Stacks And Queues	10	-	
3.	Lists	12	-	
4.	Sorting & Merging	11	-	
5.	Tables	11	-	
6.	Trees	12	-	
7.	Graphs	11	-	
		75	-	75

DETAILED CONTENTS

1.   BASIC CONCEPTS:

    Basic concepts and notation & Mathematical background

2.   Stacks And Queues

    Representation of stacks & queues,linked sequential.

3.   LISTS:

    List representation techniques,Multilinked structures, Dynamic storage allocation techniques.

4.   SORTING ALGORITHMS

    Insertion sorts, Bubble sort, Quicksort, Mergesort, Heapsort

5.   Tables: -

    Searching sequential tables,Hash tables and Symbol tables, Heaps.r

6.   TREES

    Definitions and basic concepts, Linked tree representations,binary tree traversal algorithms,B-trees and their applications.

7. Graphs:

Depths-first-search.

DATA STRUCTURE USING C & C++

List of Experiments

1. Write a program on Linked List Using   'C' & C++.

2. Exercise on Stack, Queues. Using C & C++

3. Exercises on Sorting .

LIST OF BOOKS

1. Data Structure - Schaum's Outline Series - McGraw Hill

2. Data Structure - Schaum's Series - McGraw Hill Publications

3. Horwitz and Sartaj Sahni - Data Structure

4. Tanenbaum - Data Structures - Prentice Hall of India, New Delhi

5. Kanekar Yashwant - Data Structure through C, BPB Publication

1.6 INTERNET & WEB TECHNOLOGY

(Common with Post Graduate Diploma In Computer Application, Diploma In Inforamtion Technology, Post Graduate Diploma In Computer Application)

L   T   P
3   -   3

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Internet	15	-	-
2.	Web Technology	60	-	
		75	-	75

INTERNET

Introducing Internet, Its Uses : Why Internet, Basic internet Tools, E-Mail, Ftp, Telnet, Usenet News, Web Browsers, Search Engines, Yahoo, Archie, Infoseak, Veronica, World Wide Web.
    How Internet works: Administration of Internet, How to Go On Internet : Requirements, Hardware, Software, ISP, Internet Account PPP/Shell. How to Use E-Mail Services On Internet Introducing Hotmail/Yahoo/Vsa-Net, How To Operate E-Mail address, How to Operate E-Mail Services : Sending E-

Mail, Forwording, Saving, Reading etc., How to attach files,

2.   WEB TECHNOLOGY :

A.   HTML:

Elements of HTML, HTML sources & Rules of nesting, syntax conventions, HTML Categories, text tags, Formatting WebPages by using Styles, adding pictures, image attribute , introduction to forms, tables and models,advantages & limitations of tables, frames, links. SS cascading style sheets, XHTML, XML, Cient Side Scripting, Server Side Scripting, Managing data with SQL.

B.   JAVA SCRIPTS:

what is a Java Scripts, adding, Java scripts to documents, embedding java scripts, linking java scripts, creating a page program with scripts. What is a Java and its appletes, to make webpages run server sripts, activeX.

Data types, variables, operators, conditional statements, array object, date object, string object.

C.   JAVA SERVLET :

Servlet environment and role, HTML support, Servlet API, The servlet life cycle, Cookies and Sessions.

D.   JSP :

JSP architecture, JSP servers, JSP tags, understanding the layout in JSP, Declaring variables, methods in JSP, inserting java expression in JSP, processing request from user and generating dynamic response for the user, inserting applets and java beans into JSP, using include and forward action, comparing JSP and CGI program, comparing JSP and ASP program; Creating ODBC data soruce name, introduction ot JDBC, prepared statement and callable statement.

E.   DYNAMIC WEB PAGES :

The need of dynamic web pages; an overview of DHTML, Cascading Style Sheet (CSS), Comparative studies of different technologies of dynamic page creation.

F.   ACTIVE WEB PAGES :

Need of active web pages; Java applet life cycle.

                           PRACTICAL
1.   Excercises on E-Mail.
2.   Excercises on to see web sites.

3.   Development of different Websites using all tools.
4.   Development of Websites useing Frontpage

1.7 RELATIONAL DATABASE MANAGEMENT SYSTEM

(Common to Computer Science & Engineering, Post Graduate Diploma in Computer Application, Diploma in Information Technology).

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                                              L  T  P
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Rationale:

Relational Database management system is the modern technique of managing data. The knowledge of DBMS is very useful & effective in prepration of different types of application software like Inventory, Financial & Accounting system etc. The student equiped with knowledge of this subject will be useful in the areas of the computer application.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	10	-	-
2.	Topic 2	10	-	-
3.	Topic 3	10	-	-
4.	Topic 4	10	-	-
5.	Topic 5	9	-	-
6.	Topic 6	9	-	-
7.	Topic 7	9	-	-
8.	Topic 8	8	-	-
		75	-	75

DETAILED CONTENTS

1.   OVERVIEW OF DBMS :

Data, Representation of Data, Record, Data item, Field name, File, Data and Information, Database (Properties), Benifits of Database approach, Database Management System (Capabilities, Advantages, Disadvantages) and Functions of DBMS. Basic DBMS terminology (Data items, Entities and Attributes, Schama and Subschama, Database users, Instrance and Schanas). Three views of Data (External View, Conceptual View, Internal View), Three level architecture of DBMS, Data Independence.

2.   DATA MODELS :

Define data model, classify data model, Local Models : Object and Record based- Object Oriented Model- Entry relationship Models - Entity sets and relationship sets- Attributes - Keys in entity and relationship sets : (a)

Super Key (b) Candidate Key (c) Primary Key (e) Unique Key - Mapping constraints.Object based logical models, E-R model, E-R diagram, Notations, Hierarchical Model (Advantage, Disadvantages), Network model (Advantages, Disadvantages), Relational Model (Advantages, Disadvantages), Object oriented database, Object oriented relational database.

3.   RELATIONAL MODEL :

Advantages, Disadvantages, Codd's 12 rules, Definition of Relations, Degree and Cardinality, Relational Model Constraints (Domain, Tuple Uniquiness, Key Constraints, Integrity Constraints, Entity constraints). Relations algebra (Basic operation : Union intersection and difference), Additional Relational Abgebraic Operations (Projection, Selection rows, Division)

4.   RELATIONAL DATABASE DESIGN :

Functional dependencies (I, II & III), Normal forms, Normalization, Boyce Codd Normal Form, Multivalued dependencis and Forth Normal Form, Join Dependencies and Fifth normal forms.

5.   STRUCTURE QUERY LANGUAGE (SQL) :

SQL, Object naming conventions, Object naming guidelines, Data types (Varchar 2, Number, Long, Date, Raw, Long Raw, Rowid, Char etc.), Tables, Views, Indexes, SQL Commond :- DESCRIBE, SELECT, COLUMN ALIASES, CONCATENATION OPERATOR, DISTINCT CLAUSE, ORDER BY, WHERE CLAUSE, LOGICAL OPERATIONS, SQL OPERATORS.

6.   DATABASE IMPLEMENTATION USERS:

Database integrity, Locking techniques for concurrency control, Concurrency control based in Time Stamp Ordering, Multiversion Concurrency control techniques, Database Security.

7.   RATIONAL DATABASE :

Data definition language- Data mainpulation language- Relational algebra - Operators : Select, Project, Join, Rename, etc. - Simple example.

8.   SECURITY :

Authorization and View- Security constraints - Integrity Constraints- Encryption.

LIST OF BOOKS

1.   An Introduction to Database System - C. J. Date

2.   Database System Concepts - A. Silberschatz & H. F. Korth

3.   Database Concepts and Systems - Lvan Bayroos/SPD

4.   Fundamental of Database System - R. Elmashri & S. B. Navathe
                    RELATIONAL DATABASE MANAGEMENT SYSTEM LAB

     STRUCTURED QUERY LANGUAGE

1.   Creating Database

-    Creating a database
-    Creating a table
-    Specifying relational data types
-    Specifying constraints
-    Creating indexes

2.   Table and Record Handling

-    INSERT statement
-    Using SELECT and INSERT together
-    DELETE, UPDATE, TRUNCATE Statement.
-    DROP, ALTER statement

3.   Retrieving Data From a Database

-    The SELECT statement
-    Using the WHERE clause
-    Using Logical Operators in the WHERE clause
-    Using In, BETWEEN, LIKE, ORDER BY, GROUP BY & HAVING clause
-    Using Aggregate Functions
-    Combining Tables Using JOINS

                    1.8 E-COMMERCE AND ERP

(Common to Diploma in Information Technology, Diploma in Computer
Science & Engineering, Post Graduate Diploma In Computer
Application)

                                              L T P
                                              3 - -
                    TOPIC WISE DISTRIBUTION OF PERIODS
_____
Sl.No.   Units   Coverage Time
                                              L___T___P___
1.   Topic 1   7   -
2.   Topic 2   7   -
3.   Topic 3   6   -
4.   Topic 4   6   -
5.   Topic 5   6   -
6.   Topic 6   7   -
7.   Topic 7   6   -
8.   Topic 8   6   -

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9.  Topic 9                                              6    -
10. Topic 10                                             6    -
11. Topic 11                                             6    -
12. Topic 12                                             6    -
_____ _____
                                                        75   -    -
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1.   ELECTRONIC COMMERCE :

     Overview, Definitions, Advantages and Disadvantages of E-
     commerce, threats of E-commerce, Managerial Prospective,
     Rules and Regulations For controlling E-commerce, Cyber
     Laws.

2.   TECHNOLOGY :

     Relationship Between E-Commerce and Networking, Different
     Types of Networking For E-commerce, Internet, Internet and
     Extranet, EDI System Wireless Application Protocol :
     Definition, Hand Held Devices, Mobility and Commerce, Mobile
     computing, Wireless Web, Web Security, Infrastructure
     Requirement Form E-Commerce.

3.   BUSINESS MODELS OF E-COMMERCE :

     Model based on transaction, Type, Model Based on Transaction
     Party -B2B, B2C,C2b, C2c, E-Governance.

4.   E-STRATEGY :

     Overview, Strategic, Methods for developing E-commerce.

5.   FOUR C's:

     Four C's (Convergence, Collaborative Computing, Content
     Management and Call Center)

6.   SUPPLY CHAIN MANAGEMENT :

     E-logistics, Supply Chain Portal, Supply Chain Planning
     Tools (SCP Tools), Supply Chain Execution (SCE), SCE-
     Framework, Internet's effect on Supply Chain Power.

7.   E-PAYMENT MECHANISM :

     Payment through card system, E-Cheque, E-Cash, E-Payment
     Threats and protections.

8.   E-MARKETING :

Home-Shopping, E-Marketing, Tele-Marketing.

9. ELECTRONIC DATA INTERCHANGE (EDI):

    Meaning, Benifits, Concepts, Application, Edi Model.

10. RISK OF E-COMMERCE :

    Overview, Security for E-commerce, Security Standards,
    Firewall, Cryptography, Key Management, Passward system,
    Digital certificates, Digital signatures.

11. ENTERPRISE RESOURCE PLANNING (EPR) :

    Feature, capabilities and overview of commerical software,
    re-engineering work pressure of IT applications, Business
    Process Redesign, Knowledge Engineering and data warehouse.

12. SINESS MODULES :

    Finance, Manufacturing (Production), Human Resource, Plant
    Maintenance, Materials Management, Quality Management, Sales
    and Distribution.

LIST OF BOOKS

1. E-Commerce-M. M. Oka- EPH
2. Electronic Commerce- Technologies & Application - Bhaskar
    Bharat - TMH
3. E-Commerce :Strategy Technologies and Applications - Tata
    McGraw Hill

1.9 ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

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RATIONALE:

      A diplima student must have the knowledge of different
types of pollution caused due to industrialisation and
construction activities, so as he may help in balancing of
eco-system and control pollution by providing controlling
measures. They should be also aware of the environmental laws
for effectively controlling the pollution of environment.
The topics are to be taught in light of legislation Para-3.

TOPIC WISE DISTRIBUTION OF PERIODS:

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SL. NO.	TOPIC	L	T	P
1.	Introduction	6		
2.	Pollution	3		
2.1	Water Pollution	8		

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2.2   Air Pollution                           8
2.3   Noise Pollution                         3
2.4   Radio Active Pollution                  4
2.5   Solid Waste Management                  5
3.    Legislations                            3
4.    Environmental Impact Assessment         4
5.    Disaster Management                      6
_____
                              TOTAL        50  -  -
_____
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DETAILED CONTENTS

1.   INTRODUCTION :

-     Basics of ecology, Ecosystem, Biodiversity Human activities
      and its effect on ecology and eco system, different
      development i.e. irrigation, urbanization, road development
      and other engineering activities and their effects on
      ecology and eco system, Mining and deforestation and their
      effects.

-     Lowering of water level , Urbanization.

-     Biodegradation and Biodegradibility, composting, bio
      remediation, Microbes .Use of biopesticidies and
      biofungicides.

-     Global warning concerns, Ozone layer depletion, Green house
      effect, Acid rain,etc.

2.   POLLUTION :

      Sources of pollution, natural and man made, their effects on
      living environments and related legislation.

2.1   WATER POLLUTION :

-     Factors contributing water pollution and their effect.

-     Domestic waste water and industrial waste water. Heavy
      metals, microbes and leaching metal.

-     Physical, Chemical and Biological Characteristics of waste
      water.

-     Indian Standards for qulity of drinking water.

-     Indian Standards for quality of treated waste water.

-     Treatment methods of effluent (domestic waste water and
      industrial/ mining waste water), its reuse/safe disposal.

2.2   AIR POLLUTION :

Definition of Air pollution, types of air pollutants i.e. SPM, NOX, SOX, GO, CO_2, NH_3, F, CL, causes and its effects on the environment.

- Monitoring and control of air pollutants, Control measures techniques. Introductory Idea of control equipment in industries i.e.

  A. Settling chambers
  B. Cyclones
  C. Scrubbers (Dry and Wet)
  D. Multi Clones
  E. Electro Static Precipitations
  F. Bog Fillers.

- Ambient air qulaity measurement and their standards.

- Process and domestic emission control

- Vehicular Pollution and Its control with special emphasis of Euro-I, Euro-II, Euro-III and Euro IV.

2.3 NOISE POLLUTION :

Sources of noise pollution, its effect and control.

2.4 RADISACTIVE POLLUTION :

Sources and its effect on human, animal, plant and material, means to control and preventive measures.

2.5 SOLID WASTE MANAGEMENT :

Municipal solid waste, Biomedical waste, Industrial and Hazardous waste, Plastic waste and its management.

3. LEGISLATION :

Preliminary knowledge of the following Acts and rules made thereunder-

- The Water (Prevention and Control of Pollution) Act - 1974.

- The Air (Prevention and Control of Pollution) Act - 1981.

- The Environmental Protection (Prevention and Control of Pollution) Act -1986. Rules notified under EP Act - 1986 Viz.

  # The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000

The Hazardous Wastes (Management and Handling) Amendment Rules, 2003.

Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2003.

The Noise Pollution (Regulation and Control) (Amendment) Rules, 2002.

Municipal Solid Wastes (Management and Handling) Rules, 2000.

The Recycled Plastics Manufacture and Usage (Amendment) rules, 2003.

4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) :

- Basic concepts, objective and methodology of EIA.

- Objectives and requirement of Environmental Management System (ISO-14000) (An Introduction).

5. DISASTER MANAGEMENT :

Definition of disaster - Natural and Manmade, Type of disaster management, How disaster forms, Destructive power, Causes and Hazards, Case study of Tsunami Disaster, National policy- Its objective and main features, National Environment Policy, Need for central intervention, State Disaster Authority- Duties and powers, Case studies of various Disaster in the country, Meaning and benifit of vulnerability reduction, Factor promoting vulnerability reduction and mitigation, Emergency support function plan.

Main feature and function of National Disaster Management Frame Work, Disaster mitigation and prevention, Legal Policy Frame Work, Early warning system, Human Resource Development and Function, Information dissemination and communication.

1.9 (i) PROJECT

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-    -    3
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Rationale:

The purpose of including project in curriculum is to develop skill and knowledge specifications of software used in computers.

1. INFORMATION TECHNOLOGY PROJECT:

The student is expected to work on a project in consultation and acceptance with the instructor on either system software aspects related to industrial environment.

The end targets for the project should be well defined and evaluation should place major importance on meeting these targets.

2. DATA PROCESSING PROJECT:

The student is expected to work and learn from implementing an application software and study its functional and performance aspects and submit a report.

The evaluation must be based on the project report and the seminars.

3. SOFTWARE MAINTENANCE PROJECT:

Similar as Information Technology Project (Software), related to maintenance operation and evaluation of the systems.

1.9 (ii)INDUSTRIAL TRAINING

(One month during summer vacation)

OBJECTIVES :

TO enables the student to ;

1. experience the real life computer environment.

2. see the practical problems and the process of their solution.

3. work in groups.

4. find suitable problem of interest for project work.

The industrial training will be of 8 weeks duration. It should be organised at the end of the course.

The industrial training may be organised at reputed large computer centres where scientific/commercial data processing jobs are being done. The training schedule may be drawn in such a way that the student may observe the work of the system analysts, the system programmers and the operators. They may also study the environment of the computer centre, the job flow and the associated procedures. Special attention should be paid so that the students may observe the documentation and organisation of the computer centre activities.

The students should prepare a report on the industrial training. The report and the viva-voce of the industrial training along with the assessment of the training supervisors of the industry and the teacher monitoring the training shall form the basis of award of marks.

ONE YEAR POST DIPLOMA IN INFORMATION TECHNOLOGY
STAFF STRUCTURE

Intake of the Course   60
Pattern of the Course   ANNUAL SYSTEM

Sl. No.	Name of Post	No.

| 1. | H.O.D. | 1 |

(Common with I.T. 3 yrs, Diploma course OR Computer Application OR Computer Sc. & Engg. course)

| 2. | Lecturer In   Information Technoly | 3 |

| 3. | Computer Programmer Cum Operator | 3 |

4. Qualifications of Staff : as per service rule

SPACE REQUIREMENT

1. Computer Centre	150 Sq.m.

(Common with I.T. 3 yrs, Diploma course OR Computer Application OR Computer Sc. & Engg. course)

| 2. Lecture's Room | 20 Sq.m. |

| 3. Class Room/Tutorial | 60 Sq.m. |

(1 Nos.x 60 m2

COMPUTER CENTRE

S.No.	DESCRIPTION	QTY.	APPROX. COST (in Rs.)
1.	Core-2 Quad Processor, 4GB RAM 1 GB SATA HDD, 19" TFT Mointor OS-Windows 2007/2008/Latest Version	02 Server	1,20,000=00

2.	General Desktop Computer-Intel i5 60 node or Higher, 2GB RAM, 320 GB SATA HDD, 17" TFT/LCD/LED Monitor, DVD Wirter Multi Media Kit with Speakers & Microphone Key Board-Multimedia, Mouse- Optical Scroll or Latest, 32 Bit PCI ETHERNET CARD (10/100) Mbps, Internet Modem, Pen Drive 16 GB, Pre loaded Windows 2007/2008/latest Pre Loaded Latest Anti Virus with Life time Subscription, Licence Media and Manual with UPS 660 VA	36,00,000=00

OR

Computer of latest Specification

3.	Lap Top (Latest Version) with damage Warranty & 3 Hour backup battery	04	250000.00

4.   Software (With Licence):   LS

i.   ORACLE 11i/My SQL 5.5 or Latest Window
       based (30 users) & Development (Latest)
ii.   VISUAL STUDIO (Professional 2012)
iii.   MS OFFICE 2010
iv.   COMPILER 0 'C', C++, JAVA-7
v.   Unix & Linux - Red Hat/UBUNTU/Fedora or
       Latest
vi.   Page Maker, Corel Draw(Full Package),
       Adobe Reader, Adobe Dream Weaver CS6, Flash
       Photoshop, Net Beams
vii.   Tally ERP 9
viii. Personal Web Server, HTML, IIS

5.   Hardware   5,00,000.00 LS

i. Switch-32 Port   02
ii. Router   02
iii.Hub   04(8 Port)
iv. Ext. Modem   02
v. Wireless N/W Adaptor   02
vi. Series Access Point   02
vii.LAN Cable Meter   05
viii. LAN Cable Analyzer   05
ix.   LAN Trainer Board   05
x. DATA Communication Trainer Board   05
ix. Crimping Tool   15
     and all other accessories related to
     Networking

6.   Scanner- Flat Bed A4/Auto Lighter   02 20,000

(Bit depth 48)

7.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	02	50,000
8.	Laser Jet-A4 All In one 20 page per min (2 Each)	04	10,000
9.	Desk Jet-A4 Photo Smart (2 Each)	04	40,000
10.	5 KVA on line UPS with minimum 30 miniute battery backup along with sealed maintenance free batteries. Provision for connecting external batteries with network connectivity.(For 2 Labs)	04	8,00000
11.	Split Air Conditioner 1.5 tones capctity with ISI mark alongwith electronic voltage stablizer with over viltage and time delay circuit	08	35,0000
12.	Room preparation and furniture	LS	
13.	19" rack, 24-port switch. connector RJ-45 Cat-6 cabling for network	LS	10,0000
14.	2 KVA Inverter Cum UPS	02	6,0000
15.	Digital Camera (Latest Version)	01	20000
16.	Fire Extinguisher (2 Kg.)	04	15000
17.	Fire Extinguisher (5 Kg.)	04	25000
18.	Vaccum Cleaner	02	25000
19.	LCD Projector 3000 Lumen with all accessories	02	350000
20.	Pen Drive 16 GB	10	10000
21.	DVD Writer External	02	10000
22.	HDD External 500 GB	02	15000
23.	PAD (Latest Configuration)	02	15000
24.	Boardband For Internet(Speed Min. 8mbps)	04	LS
25.	USB Modem	02	8000
26.	Generator 15 KVA Water Coolent	01	450000

NOTE : All the above items should be equally distributed in the 2 computer centres

ANNEXURE-QUESTIONNAIRE

INSTITUTE OF RESEARCH,DEVELOPMENT AND TRAINING U.P.KANPUR -208024

SUBJECT: Questionnaire for ascertaining the job potential and
            activities of diploma holder in Information Technology

PURPOSE: To design and develop Three   Year
            diploma curriculum in Information Technology

NOTE: 1.Please answer the questions to the points given in
            the questionnaire.
            2.Any other point or suggestion not covered in this
            questionnaire may be written on a separate paper and
            enclosed with the questionnaire.

1.Name of the organisation:_____
                           _____

2.Name & Designation of the officer _____
  filling the questionnaire   _____

3.Name of the department/section/   _____
  shop   _____

4.Importent functions of the   _____
  department/section/shop   _____

5.Number of diploma holder employees
  under your charge in the area of _____
  Information Technology.

6.Please give names of modern equipments/machines handled by a
  diploma holder in Information Technology.

     1.   2.   3.

     4.   5.   6.

7.What proficiencies are expected from a diploma holder in

Information Technology.

   1.   2.   3.

   4.   5.   6.

8. Mention the approximate percentage of the following desired in
   Diploma teaching.

   1. Theoretical knowledge   -------------%
   2. Practical knowledge   ------------%
   3. Skill Development   ------------%

9. Do you think " on the job training" / Industrial training
   should form a part of curriculum.   (Yes/ No)
   if yes then
   (a) Duration of training   --------------
   (b) Mode of training   1. Spread over different semesters

                             2. After completion of course

                             3. Any other mode

10. What mode of recruitment is followed by your organisation.

   1. Academic merit
   2. Written test
   3. Group discussion
   4. Interview
   5. On the job test.

11. Mention the capabilities/ Qualities looked for while recruiting
    diploma holder in Information Technology.
    (a) Technical knowledge   ------------
    (b) Practical skill   -----------
    (c) Etiquettes and behaviour   ------------
    (d) Aptitude   ------------
    (e) Health, habit and social background --------------
    (f) Institution where trained   --------------

12. Does your organisation have   Yes/No
    any system for the survey of Home
    articles of different countries/States.

13. Does your organisation conduct field   Yes/No
    survey to know users views regarding.
    1. Home Articles for different
       age groups and sex.
    2. Effect of climatic conditions
    3. Any other
       If yes ; Please give brief account of each.

14. Which type of assignment do you suggest for an entrepreneur

in Information Technology.

15. In which types of organisations can a diploma holder in
    Information Technology can work or serve.

    1   2   3

    4   5   6

16. Job prospects for the diploma holder in Information
    Technology the next ten years in the state / country.

17. In your opinion what should be the subjects to be taught to
    a diploma student in Information Technology.

    Theory   Practical

18. Kindly mention particulars regarding topics/areas which
    should be given more emphasis in the curriculum .

    Theory   Practical

19. Kindly state whether your organisation   Yes/ No
    can contribute towards improvement of
    curriculum in above field.
    If yes : Please give names of experts in
    your organisation to whom contact.

20. Kindly give your valuable suggestions for being
    considered at the time of finalisation of curriculum.

21. What changes in technologies are to be incorporated
    in the development of curriculum in Information Technology.

                                   (Signature)

    Kindly mail the above questionaire duly filled to:-

            R. P. Alam
            Assistant Professor
            Institute of Research,Development & Training,U.P.
            Kanpur-208024
(Please note that all information in this survey is confidential
for the use of curriculum design only)