

STUDY & EVALUATION SCHEME

for

TWO YEARS POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

I YEAR

(Effective from )

Curriculum						S U B J E C T	Scheme of Examination								
Periods Per Week							Theory			Practical			Grand Total		
Le	Tut	Dr	Lab	Work	Tot		Examination	Sess.	Total	Examination	Sess.	Total			
c.	ori	aw	Shop	al		Dur.	Marks	Marks	Marks	Dur.	Marks	Marks	Marks	al	
4	2	-	-	-	6	1.1 Components Of Information Technology.	2.5	50	20	70	-	-	-	70	
4	-	-	4	-	8	1.2 Operating system	2.5	50	20	70	3	50	30	80	
3	-	-	4	-	7	1.3 Programming in C & C++	2.5	50	20	70	3	60	30	90	
3	-	-	-	-	3	1.4 Data Communication & Computer Network	2.5	50	20	70	--	--	--	70	
3	-	-	4	-	7	1.5 Office Tools	2.5	50	20	70	3	70	30	100	
3	-	-	4	-	7	1.6 Visual Basic	2.5	50	20	70	3	70	35	105	
3	-	-	-	-	3	1.7 Computer Organisation	2.5	50	20	70	--	--	--	70	
3	1	-	3	-	7	1.8 Financial Accounting	2.5	50	20	70	3	45	20	65	
26	3	-	19	-	48	TOTAL		400	160	560	-	310	155	465	
													Games/NCC/Social and Cultural Activities/Community Development+Discipline(30+20)	50	
													Total	1050	

Note:- (i) Each period will be of 50 minutes duration.  
(ii) Each session will be of 32 weeks.  
(iii) Effective teaching will be atleast 25 weeks.

STUDY & EVALUATION SCHEME  
TWO YEARS POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

II YEAR

Curriculum						S U B J E C T	Scheme of Examination								
Periods Per Week							Theory			Practical			Grand Total		
Le	Tut	Dr	Lab	Work	Tot		Examination	Sess.	Total	Examination	Sess.	Total			
c.	ori	aw	Shop	al		Dur.	Marks	Marks	Dur.	Marks	Marks	al			
3	-	-	3	-	6	2.1 Computer Hardware And Maintenance.	2.5	50	20	70	3	75	40	115	185
3	-	-	3	-	6	2.2 UNIX & LINUX	2.5	50	20	70	3	70	35	105	175
3	-	-	4	-	7	2.3 Data Structure Using C&C++	2.5	50	20	70	3	60	30	90	160
3	-	-	4	-	7	2.4 Internet & Web Technology	2.5	50	20	70	3	60	30	90	160
3	-	-	3	-	7	2.5 Concepts of RDBMS Using Oracle	2.5	50	20	70	3	60	30	90	160
3	-	-	4	-	7	2.6 Java programming	2.5	50	20	70	3	60	30	90	160
3	-	-	-	-	3	2.7 MIS System Analysis & Design	2.5	50	20	70	-	--	--	--	70
2	-	-	-	-	2	2.8 Environmental Education(*) And Disaster Management	2.5	50	--	--	--	--	--	--	--
			-	4	4	2.9 i.Project						80	40	120	120
						ii.Industrial Trainning (One Month)						40	20	60	60
						iii.Seminar (Any Computer Based Topic)							25	25	25
23	-	-	25		48	<-----TOTAL----->	---	350	140	490	---	505	280	785	1275

Games/NCC/Social and Cultural Activities/Community Development+Discipline(30+20) | 50

(i) Each period will be of 50 minute duration. Total: 1325

(ii)Each session will be of 32 weeks.

(iii)Effective teaching will be atleast 25 weeks. 50 % Carry Over of Ist Year 525

(v)Four weeks structured &supervised,branch specific,task oriented

Industrial/field exposure to be organised during summer vacation,after Aggregate Total 1850

I YEAR.

(vi)Students shall submit a report.There shall be 60 marks for this

exposure.These marks shall be awarded by the project examiner in the

final year(Examination marks:40,Sess.marks:20

(vii)(\*) It is compulsory to appear & to pass in examination, But marks will

not be included for division and percentage of obtained marks.

(viii) At least 1 seminar should be organised at the institute level with in the session,

Participation of each student is compulsory and sessional marks for this should be

allotted to the student.

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MAIN FEATURES OF THE COURSE

TITLE OF THE COURSE : Post Graduate Diploma In Computer Application

DURATION OF THE COURSE : Two years

TYPE OF THE COURSE : Full Time Institution Based

PATTERN : Annual System

INTAKE : 60

AGE : Minimum 17 Years, No Upper Age Limit

ENTRY QUALIFICATION : Graduate in any discipline (With a minimum of 50% marks)

MODE OF ADMISSION : The admission are made through Entrance Test conducted by Joint Entrance Examination Council U. P. Lucknow

LIST OF EXPERTS

1. Dr. Ram Ji Kapoor General Manager(Computer)  
U.P.Development System Corporation  
9,Sarojini Naidu Marg,Lucknow.
2. Dr. K.K.Tripathi Professor & Head computer Science  
& Tech. Deptt., I.I.T.,Kanpur
3. Dr. R. K. M.Sinha Professor & Head  
Computer Science & Tech.  
Deptt. I.I.T.Kanpur
4. Dr. A.N.Mulla Chairman,Computer Science of  
India(Kanpur Chapter),Pandu  
Nagar,Kanpur.
5. Shri Alok Mall Scientist 'C',  
DMSRDE,G.T.Road,Kanpur
6. Shri D.P.Yadav Scientist 'B'  
DMSRDE, G.T.Road Kanpur
7. Shri R.C.Yadav Sr. Engineer,Computer Centre  
Allhabad University Allhabad
8. Shri Rajesh Singh Lecturer (Computer)  
Govt. Polytechnic,Kanpur.

List of experts who contributed in the revision of curriculum  
of One & Half Year Diploma in Computer Application.

1. Shri Alok Mall Scientist 'C',  
DMSRDE,G.T.Road,Kanpur
2. Shri D.P.Yadav Scientist 'B'  
DMSRDE, G.T.Road Kanpur
3. Shri R.K.Singh Lecturer(Computer) H.B.T.I. Kanpur
4. Shri L.S. Yadav Lecturer(Computer) Govt. Polytechnic, Kanpur
5. Shri D.S.Kushwaha Lecturer(Computer) D.T.E.,U.P.,Kanpur
6. Shri B.R. Verma Lecturer(Computer) Govt Polytechnoc, Lucknow
7. Shri Rajesh Chandra Lecturer(Computer) Govt.Polytechnic,Ghaziabad
8. Shri D.D.Srivastava Lecturer(Computer) Govt.Polytechnic,Dwarahat
9. Shri S.K.Verma Professor I.R.D.T.,U.P.,Kanpur
10. Shri Ashraf Ali Lecturer(Computer) I.R.D.T.,U.P.,Kanpur

List of experts who contributed TO Change the of curriculum of Two Years Diploma in Computer Application to Semester wise held on 17.04.99.

1. Smt. Usha Birjee Director.  
I.R.D.T.,U.P. Kanpur.
2. Shri R.K.Singh Asstt.professor  
M.M.M.Engg. College Gorakhpur
3. Shri S.C.Gupta Assistant Director  
D.T.E.,Kanpur
8. Shri L.S.Yadav Head(Computer)  
Govt.Polytechnic,Kanpur.
9. Shri B.R.Verma Head(Computer)  
Govt.Polytechnic, Jhanshi.
10. Shri D.S.Kushwaha Lecturer(Computer)  
D.T.E.,U.P.,Kanpur
- 11.Shri S.N.Singh Lecturer(Computer)  
Govt.Polytechnic,Unnao.
- 12.Shri J.P.Yadav Dy.Director  
I.R.D.T.,U.P.Kanpur.
- 13.Shri Ashraf Ali Professor  
I.R.D.T.,U.P.Kanpur.
- 14.Shri M.P.Singh Asst. Professor  
I.R.D.T.,U.P.Kanpur.
- 15 Shri K.M.Gupta Asst.Professor  
I.R.D.T.,U.P.Kanpur.

List of experts who contributed to Change the of curriculum of Two Years Diploma in Computer Application to Semester wise held on 10.01.2000 at Board of Technical Education, Lucknow

1. Shri J. L. Saha Director, Directorate of  
Technical Edu,U.P., Kanpur
2. Smt. Usha Birjee Director.  
I.R.D.T.,U.P. Kanpur.
3. Shri R. R. Sharma Sr. Manager(Systems)  
UPDESCO, Lucknow
4. Shri Nitin Mathur Asstt. Manager(Systems)  
UPDESCO, Lucknow
5. Shri Rajesh Bahadur P.S.A. & Incharge,  
N.I.C., Lucknow
6. Shri Ajay Gopal S.S.A.  
N.I.C., Lucknow
7. Shri Ashraf Ali Professor  
I.R.D.T.,U.P.Kanpur.
8. Shri M.P.Singh Asst. Professor  
I.R.D.T.,U.P.Kanpur.

List of experts who contributed to Change the of curriculum of Two Years Diploma in Computer Application held 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.<br>UPTEC Awadhपुरi Kanpur                           |
| 3. Shri B.R. Verma      | Head Computer<br>Govt. Polytechnic Lucknow                   |
| 4. Shri L.S. Yadav      | Head Computer<br>Govt. Polytechnic Kanpur                    |
| 5. Shri Saurabh Agrawal | Lecturer Computer<br>United Institute of Designing<br>Kanpur |
| 6. Shri Ashok Kushwaha  | Lecturer Computer<br>Govt. Girls Polytechnic Lucknow         |
| 7. Shri Vimal Misra     | Lecturer Computer<br>Govt. Polytechnic Jhansi                |
| 8. Shri Ashraf Ali      | Professor<br>I.R.D.T., U.P. Kanpur.                          |
| 9. Shri A.P. Singh      | Lecturer Computer<br>I.R.D.T., U.P. Kanpur.                  |

List of experts who contributed to Change the of curriculum of Two Years Post Graduate Diploma in Computer Application held on 27.02.2003 at I.R.D.T . U.P., Kanpur.

- |                         |  |
|-------------------------|--|
| 1. Shri Gurdeep Singh   | Director.<br>I.R.D.T., U.P. Kanpur.  |
| 2. Shri Rajeev Misra    | Head of Department<br>Information Technology<br>H.B.T.I. Kanpur                                    |
| 3. Shri Raghu Raj Singh | Head of Department<br>Computer Science & Engg.<br>H.B.T.I. Kanpur.                                 |
| 4. Shri S. C. GUPTA     | HOD Computer Science & Engg.<br>Dr. Ambedkar Institute of<br>Technology for handicapped,<br>Kanpur |
| 5. Shri M.A. Idrees     | Senior System Analyst<br>NIC, Yojna Bhawan<br>Lucknow.   |
| 6. Shri Alok Tiwari     | District Informatics Officer<br>Kanpur Dehat.  |
| 7. Shri B.R. Verma      | Head Computer<br>Govt. Polytechnic Lucknow   |
| 8. Shri L.S. Yadav      | Head Computer<br>Govt. Polytechnic Kanpur  |
| 9. Shri Saurabh Agrawal | Lecturer Computer<br>United Institute of Designing<br>Kanpur                                       |
| 10. Shri Ashok Kushwaha | Lecturer Computer<br>Govt. Girls Polytechnic Lucknow   |
| 11. Shri Ashraf Ali     | Professor<br>I.R.D.T., U.P. Kanpur.  |



#### IV. NEED ANALYSIS :

With the development of civilisation, human needs too have been rising spirally. fulfillment of these needs requires their right identification, simulation and analysis of lot of relevant informations. Thus, the individual responsibilities of every responsible citizen have grown up to such a height as it has become difficult for him to handle them successfully. Human memory too has its own limitations. So, here comes the computer to help him in all kinds 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 involves some decision making. So the computer is the need of organizations as well as of an individual being. It will not be exaggeration if we say that it today is "Computer era". So is the need for developing a course for computer applications at diploma level. The course aims at developing personnel, capable of writing programmes in different high level languages, using the personal computer software available in the market, using the computer for scientific, engineering, research and development works as well as for commercial applications. It is supposed that such personnel will not face any dearth of employment because of ubiquitous use of computers.

The syllabus for diploma in Computer Applications has been developed to meet the above mentioned aims. Obviously achievement of any aim requires knowledge of the means and procedures of their utilization. With this view, various courses have been carefully selected and their length and

depth decided by the experienced experts of world of work.

Need for IInd Revision: The existing curriculum for DCA was developed in 1993. With the change in time, there is a lot of advancement in Computer hardware as well as software. Hence it becomes necessary to revise the existing curriculum of the programme. For the purpose a workshop was organised and a number of subject experts were contracted. In the draft in hand the views arrived in the workshop and in personal contacts has been incorporated.

V. PROFILE DEVELOPMENT :

A tool in the form of questionnaire for getting information about job potential, job opportunities, manpower requirements and job activities of diploma holders in Computer Applications was designed and sent to various organizations, industries, higher technological Institutions and Polytechnics. The response was not very much encouraging. So, efforts were made to get feed back through mutual interaction with the experts of above organizations, industries, higher technological institutes and polytechnics. The feed back, thus received was discussed and analyzed in a workshop and a draft curriculum was prepared adopting the following procedures :

1. Listing job potential and job activities.
2. Analysing activities, knowledge and skills.
3. Determining course objectives.
4. Planning horizontal and vertical organizations of the subjects.
5. Developing study and evaluation scheme.
6. Development of detailed course content and coverage time keeping in view the knowledge and skill requirements.
7. Determination of resource input in the form of human resource, space, equipment, etc.

The so prepared curriculum was sent for comments of experts of various higher technological institutions and senior personnels in industries. The suggestions, thus received, and those through personal contacts, have been incorporated where found suitable. Finally, the revised curriculum has been put before an expert Committee approved by the "Government of Uttar Pradesh" for its final approval. The Committee's suggestions, though very nominal, too have been respectfully incorporated to give it its final shape.

It is hoped that this revised curriculum for Diploma in Computer Applications will be useful in producing suitable middle level manpower for the world of work.

JOB POTENTIAL:

INTRODUCTION:

Computer industry is rapidly growing in India. There is a great need for personnel with specific knowledge and skills in this field. One can make distinction between those who manufacture and maintain computer system and those who use it. Those personnel who are involved in manufacture, testing, maintenance and installation of computer systems are generally called as system personnel. Those who use the computer system are generally known as user group or Applications group. The present curriculum is intended to produce the Application Programmers. The application programmers must have knowledge of the area of application as well as the knowledge of programming. Hence a Post Diploma Course in Computer Applications is suggested for the diploma pass outs in any discipline of Engineering and Technology.

JOB OPPORTUNITIES:

At the completion of this course, the student is trained for the following jobs/capacities :

1. System Operator
2. Programmer/Junior Programmer/Application Programmer.

JOB DESCRIPTION:

Following are the activities of a System Operator in the Computer Centres :

1. to operate the computer system and peripherals.
2. to help the users in operating the system.
3. to allocate resources to the users.
4. to schedule the work of the computer centre.
5. to monitor the environment of the computer centre.
6. to maintain log of the system.
7. to maintain preventive maintenance schedules.
8. to inform the appropriate persons in case of system break down and run system checks for proper working after it is set right.

Following are the activities of Programmers/Junior Programmers/Application Programmers.

1. to write working programmes from the specifications or flow charts prepared by the Programmer/System Analyst.
2. to write Flow Chart and Programmes independently for simple application
3. to execute programmes (Enter the programme, Edit the programme, Save the programme, Link the programme and Run the programme).
4. Debug the programmes.
5. Analyse a data processing problem to select an appropriate algorithm and construct a well structured computer programme.

ACTIVITY ANALYSIS

Activity	Knowledge	Skills
1. Operation the computer system and peripherals	i Principles of working of computers in terms of different blocks.	i Operation of Computer
	ii Principles of working of different peripherals like printer, plotter, floppy drive, disc drive, tape drive, terminal, off line data entry devices & specific types of control devices.	ii Operation of different peripherals
	iii Concept of data bus, data transfer, synchronization, band rate.	
	iv Precaution in the use of Computer system and peripherals.	
	v Principles of sharing the system resources.	
2. Helping the users in operating the system.	i Operating system commands	i Operation of computer and peripherals
	ii Concepts of peripherals specifications like speeds and capacities.	ii Execution procedures
	iii Execution procedures.	
	iv Error message interpretation	
3. Allocation resources to the users.	i Procedure for password allocation, time allocation and priority allocation.	i Practice in running different kinds of programmes
4. Scheduling the work of computer centre	i Estimating the time required to run various jobs including the peripheral time and job scheduling.	
5. Monitoring the environment of computer centre	i Concept of effects of temperature, humidity, dust and static charges on the system and peripherals.	

Activity	Knowledge	Skills
	<ul style="list-style-type: none"> <li>ii Appreciation of the need to monitor these parameters regularly.</li> <li>iii Programmes for monitoring and tallring appropriate parameter.</li> </ul>	
6. Maintaining the log book of the system	<ul style="list-style-type: none"> <li>i Prodecure of maintaining the log register for the use of the system and peripherals for the purpose of maintenance.</li> </ul>	
7. Maintaining the preventive maintenance schedules	<ul style="list-style-type: none"> <li>i Different maintenance and preventative schedules.</li> <li>ii Procedure of the follow up actions regarding preventive maintenance.</li> <li>iii Procedure of checking the working of the system. (Run diagnostics)</li> </ul>	<ul style="list-style-type: none"> <li>i Practice in running diagnostics</li> </ul>
8. Informing the appropriate person in case of system break down and run system checks for proper working after the system is set right.	<ul style="list-style-type: none"> <li>i Understand the breakdown in the computer system and at decide whether fault is in hardware or software.</li> <li>ii Run diagnostics</li> </ul>	<ul style="list-style-type: none"> <li>i. Fault location</li> <li>ii. Practice in running diagnostics</li> </ul>
9. Analysing a data processing problems	<ul style="list-style-type: none"> <li>i Principles of system analysis, design and structured programming.</li> <li>ii Computational errors and their estimation.</li> <li>iii Data organization and file handling techniques.</li> </ul>	<ul style="list-style-type: none"> <li>i. Practice in numeric and nonnumeric computation.</li> <li>ii. Practice in error analysis.</li> <li>iii. Practice in writing programmes &amp; executing them</li> </ul>
10. Writing working programmes from the given specifications	<ul style="list-style-type: none"> <li>i Concept of flow charts.</li> <li>ii Writing programmes in different languages.</li> </ul>	<ul style="list-style-type: none"> <li>i. Practice in writing programmes using appropriate languages.</li> <li>ii. Practice in executing programmes on computer.</li> </ul>

Activity	Knowledge	Skills
		iii. Practice in debugging the programmes
11. Executing the programmes(Enter,Edit, Save, Link and Run the programmes)	i Operating system and its commands. ii Execution procedures. iii Error message interpretation.	i. Practice in executing programmes on computer.
12. Debugging the Programmes	i Error messages ii Debugging procedures iii Reference manual.	i. Practice in debugging the programmes

#### COURSE OBJECTIVES:

The preceding section outlines the knowledge and the skills essential for a middle level computer applications personnel. In this section, all skills and knowledge are summarised. Course Objectives derived from the knowledge and skills required to perform different activities, lay foundation for planning educational programmes. All the objectives which deserve greater weightage are marked with asterisk. Following are the course objectives :-

#### 1. KNOWLEDGE

On completion of the course, the student will acquire knowledge :

- to understand the functioning of different blocks of computer system ;
- to understand the functioning of different peripherals;
- of different computer languages like BASIC, 'C', COBOL and PASCAL language , Fortran, C++
- of analysis of a given problem and formulate an algorithm for solving it on a computer ;
- in related Mathematics so as to develop skill in analysing scientific/tehnological problems and programmes ;
- to apply the principles and techniques of data processing to data processing environment ;
- to on the computer centre. Organise computer cantre activities and maintain the records and documents ;
- to comprehend the total computer activities and grow with experience.

#### 2. SKILL:

- to write programmes in good style, debug and document them and
- to operate computer and its peripherals.

## CHANGES IN SYLLABUS

### I YEAR

#### 1.1 COMPONENT OF IT

1. In topic no 4. "Mobile Computing" is shifted in topic no. 6 and new matter added as "Tele conferencing".
2. In Topic no. 6 "CPU and Mathematical Logic" is shifted in II Year in Paper No. "2.7 Computer Organisation".

#### 1.2 OPERATING SYSTEM

1. In Topic No 5 and 7 removed.
2. In Topic No. 6 "Types of windows and difference" added.
3. In Lab Experiment No. 1 is Removed.

#### 1.3 PROGRAMMING IN C & C++

1. In Topic no. 4 "Generalisation, Specialization" added.

#### 1.4 DATA COMMUNICATION & COMPUTER NETWORK

1. New paper 2.3 "Data Communication & Computer Network" introduce in place of "Computer Communication Network".

#### 1.5 OFFICE TOOLS

1. New Paper 2.4 "Office Tools" introduce in place of "MS office".

#### 1.6 VISUAL BASIC

1. In topic no. 6 VB.NET is added. and in lab a new experiment VB.NET added.

#### 1.7 COMPUTER ORGANISATION

1. The above new paper introduced.

### II YEAR

#### 2.1 COMPUTER HARDWARE & MAINTENANCE

1. The above paper redesigned.

#### 2.4 INTERNET AND WEB TECHNOLOGY

1. This paper is redesigned in place of 2 paper named as "Internet" and Other as "Web Technology".
- \* ASP programme, redesigned HTML and Web Building added.

#### 2.5 CONCEPTS OF RDBMS

1. In topic no. 5 SQL commands introduced.

#### 2.6 JAVA PROGRAMMING

1. The above new paper introduced.

#### EQUIPMENT LIST FOR COMPUTER CENTRE, STAFF STRUCTURE & SPACE REQUIREMENT

Equipment list for computer centre revised as per changed syllabus and number of equipment, staff structure and space requirement revised for the intake of 60 students.

TWO YEARS POST GRADUATE DIPLOMA COURSE IN COMPUTER APPLICATION

I YEAR

1.1 Components of Information Technology

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

L T P  
4 2 -

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

L T P  
3 1 -

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction of Information Technology	20	10	-
2.	Component of Information technology	15	6	-
3.	Data Representation	20	10	-
4.	Emerging Trends	15	10	-
5.	Components of Computers	15	6	-
6.	Mobile Computing	15	8	-
		100	50	-

1. Intoduction of Information Technology

Definition Of Information, difference betwween 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, 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 Resentation :

Binary Number System, Conversion from Decimal to Binary, Conversion from Binary to Decimal, Hexadecimal and

Octadecimal No. System, Memory Addressing and its Importance, 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 ,Multimedia, Video Conferencing, Tele Conferencing .

5. Components of computer

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

6. MOBILE COMPUTING :

Introduction, Personnel Communication Services (PCS), Gobal System Mobile Communication (GSM), GPRS, Mobile Data Communication, WAP, 3G Mobile service.

## 1.2 OPERATING SYSTEM

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

L	T	P
4	-	4

Rationale :

For effective use of computer, the knowledge about computer operating system, Windows, DOS, UNIX, C.P.U. share prove useful for a technician working in a computer centre.

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction	10	-	-
2.	File System	15	-	-
3.	C.P.U. & Disk, Drum scheduling	25	-	-
4.	Memory Management	25	-	-
5.	Features WINDOWS	25	-	-
		100	-	100

### DETAILED CONTENTS

1. Introduction  
 What is O.S., Multiprogramming, Time Sharing, Real Time System, Multitasking.
2. File System  
 File concepts, Access methods, Allocation methods, Directory System.
3. C.P.U. & Disk, Drum Scheduling.  
 Scheduling concepts, Scheduling Algorithm, Multiprocessor, FCFS Scheduling, Shortest Seek-time first, Scan.
4. Memory Management  
 Swapping, Multiple partitions, Paging, Segmentation, Demand paging, page replacement.
5. Features of Windows  
 Types of Window & differences, GUI, What is interface, Windowing, windows environment, menus of Dialog boxes, Concepts of Icon, Functions of Programms, Documents, Setting, Run Command.

### List Of Practicals

1. Exercise on Windows 98/2000/VISTA.

### 1.3 PROGRAMMING IN C & C++

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

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

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 Flowcharting, algorithm, programming, Structured Programming Various techniques of programming, Use of programming.

##### 2. Programming in C:

Data Types, Operators and Expressions; Input & Output printf, scanf, library 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, Inheritance, polymorphism & 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++.

## 1.4 DATA COMMUNICATION AND COMPUTER NETWORKS

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

L	T	P
3	-	-

Rationale :

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Data Communications	5	-	-
2.	Transmission Media	10	-	-
3.	Protocols and Architecture	10	-	-
4.	Data Link Control & Protocol	10	-	-
5.	Local Area Network	10	-	-
6.	Network Layer	10	-	-
7.	Transport Protocols	10	-	-
8.	Wide Area Networks	10	-	-
		75	-	-

### DETAILED CONTENTS

1. DATA COMMUNICATION :
 

Data Transmission : Analog Transmission, Digital Transmission.

Data Encoding : Digital Data- digital signals, Digital Data - analog signals, Analog Data-Digital Signals, Analog Data-Analog Signals, Synchronous and Asynchronous Transfer.
2. TRANSMISSION MEDIA :
 

Twisted pair, Coaxial Cable, Optical Fibers, Wireless Transmission, Microwave, Radio Waves, Infrared.
3. PROTOCOLS AND ARCHITECTURE :
 

Protocols, OSI reference models, TCP/IP protocol suit.
4. DATA LINK CONTROL AND PROTOCOL :
 

Flow Control - Stop and Wait, Sliding window, Error Detection, Error Control, HDLC.

5. LOCAL AREA NETWORK :

LAN architecture, LAN topologies - BUS/Tree LAN, Ring LAN, Star LAN, Wireless LAN, Ethernet and Fast Ethernet (CSMA/CD), Tokenring and FDDI.

6. NETWORK LAYER :

Introduction, Routers, Routing Algorithms, Congestion control algorithm, Addressing, Internet working.

7. TRANSPORT PROTOCOLS :

Transport services, TCP, UDP.

8. WIDE AREA NETWORKS :

WAN, Circuit switching, Packet switching, Frame relay, ATM, ISDN.

## 1.5 OFFICE TOOLS

(Common to Computer Science & Engineering, Diploma in Computer Information Technology)

L	T	P
3	-	4

Rationale :

The PC's are gaining their image as personal assistants to every individual in day today life. It is only because of the softwares like Electronic spread sheet, Data base and Word Star,Without these this image of the pc's is of no worth.

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	MS Word	20	-	-
2.	MS Excel	20	-	-
3.	Power Point	20	-	-
4.	Corel Draw	15	-	-
		75	-	100

### DETAILED CONTENTS

1. MS WORD PROCESSING:

File : Open, Close, Save and Find File, Print and Page Setup  
 Edit : Cut, Copy, Find, Replace  
 Insert: Page Insert, Page No., Symbole  
 Font : Paragraph, Tabs, Boder & Shading, Change Case  
 Tools : Spelling, Mail Merge  
 Table : Insert Table, Delete Cells, Merge Cell, Sort Text

2. MS Excel:

File : Open, Close, Save and Find File, Print and Page Setup  
 Edit : Cut, Copy, Find, Replace, Undo, Redo  
 Insert: Cell, Row, Worksheet, Chart  
 Format: Data, Sort, Filter, Form, Table

3. POWER POINT

File : New,Open,Close,Save as HTML,Pack and Go,Page setup,Send to ,Properties  
 Edit : Cut, Copy, Find, Replace, Undo, Redo,Duplicate.  
 View : Slide\_Outline,Slide\_sorter,Notepage,Slideshow,Master, Black & white slide,Toolbars,Ruler ,Guides  
 Insert : New slide,Duplicate slide,Picture,Text box,Movies

& sound,Hyperlink.  
Format : Font,Bullet,Alignment,Line spacing,Slide layout.  
Tool : Power point,Presentation & conference,Expand  
slide,Macro,customise.  
Slide show: View show,Rehearse timing,Naration,View on two  
screen ,Active buttons,Preset Animation,Custom -  
animation,Slide transition.  
Window : New window,Arrange icons,Fit to page,Cascade.

4. COREL DRAW :

Corel Group, Corel Photopaint, Corel Ventura, Corel Draw,  
Corel show and other packages.

MS-OFFICE

List Of Practicals

1. Creating, Editing, Modifying database file, Label, Report, Format & Query.
2. Write programme for small systems like Marksheet preparation, Payroll, Inventory Control, Accounting, etc.
3. Use all the features and utilities of MS Word.
4. Creating, Editing, Modifying Spread Sheet, Graph, Database.
5. Use of macros and printing of well formatted reports.
6. Selection of command using Windows.
7. Small projects of Power Point Presentation.
8. Small Projects of Corel Draw.

## 1.6 VISUAL BASIC

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

L	T	P
3	-	4

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction to Visual BASIC	10	-	-
2.	Programming with Module & Procedure	10	-	-
3.	Program flow & Decision Making	15	-	-
4.	Array & Control Functions	15	-	-
5.	Designing Customs Menus	15	-	-
6.	Fundamental of Visual Basic.NET	10	-	-
		75	-	100

### DETAILED CONTENTS

1. INTRODUCTION TO VISUAL BASIC:-

Understanding Events, preparing to create the program, creating program user interface, Caption & name properties, attaching code to objects, properties for form appearance and behaviour, Control properties, Caption property, Enable property, Value property and Text property.

2. PROGRAMMING WITH MODULES & PROCEDURES :

Placing code in modules, understand the procedure, use standard code writing conventions, work with data types, variables.

3. PROGRAMME FLOW AND DECISION MAKING :

Unconditional branching, conditional testing and branching, looping.

4. ARRAYS & CONTROL FUNCTIONS:

Control arrays and sequential files, one dimensional and multi dimensional arrays. List box, combobox control, timer control, format control, data type conversion, input box functions, create message box.

5. DESIGNING CUSTOM MENUS :

- i) Understand the menu, editor, window, create menu application, edit menu, polish the appearance of menus, code menu option.

ii) How to interact with ms access database with visual basic 6.

6. FUNDAMENTAL OF VISUAL BASIC NET :

Introduction to NET framework and the common language routine, Visual Basic integrated development environment, Visual Basic.Net Application

LIST OF PRACTICAL

1. Develop small software using visual basic (all commands) and Visual Basic.NET.

## 1.7 COMPUTER ORGANISATION

(Common To Information Technology)

L	T	P
3	-	-

Rationale :

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Digital Logic Fundamentals	5	-	-
2.	Introduction To Computer Organisation	10	-	-
3.	C.P.U. & Mathematical Logic	10	-	-
4.	C.P.U. Organization	10	-	-
5.	Computer Arithmetic	10	-	-
6.	Input-Output Organization	10	-	-
7.	Memory Organization	10	-	-
		75	-	-

### DETAILED CONTENTS

1. DIGITAL LOGIC FUNDAMENTALS :

Boolean Algebra : Basic function, Logic gats, Map simplifaction, Combinational Logic : Decoder/Encoder, Multiplxer, Sequential Cks, Flip-Flop, Registers.

2. INTRODUCTION TO COMPUTER ORGANISATION:

Basic computer organization : Functional units operationla concepts, System buses and instruction cycle, CPU organization, Memory subsystem organization : Memory location, Address and encoding of infermation, Types of memory, Internal chip organization.

3. C.P.U.& MATHEMATICAL LOGIC

Processor Bus Organization, CPU Architecture Arithmetic Logic Unit, Stack Organization, Instruction formats, Addressing Modes, Data transfer manipulations, Program Control, Interrupt, Microprocessor Organization, Parallel processing. Logic gates, Boolean Algebra, Map simplification, Combinational Circuits, Flip-flops, Sequential circuits.

4. CPU ORGANIZATION :

Register Organization : General register organization, Stack organization, Programmer visible register, Status and control register. Microoperations : Register transfer, Bus and Memory transfer, Arithmetic, Logic and shift microoperation. Control Unit : Structure of Control Unit, Hard wired control unit. Case Study : 8085 Microprocessor.

5. COMPUTER ARITHMETIC :

Addition and subtraction, Multiplication algorithms, Division algorithms, Floating point arithmetic operations.

6. INPUT OUTPUT ORGANIZATION :

I/O devices : Accessing, I/O interfaces, Asynchronous data transfer : Strobe control, Hand shaking, Modes of transfer : Programmed I/O, Interrupt - Initiated I/O, DMA interrupt hardware and priority I/O processes.

7. MEMORY ORGANIZATION :

Memory hierarchy, Main memory : RAM and ROM, Memory address map, Auxiliary memory. Cache Memory : Associative memory, Virtual memory concept.

## 1.8 Financial Accounting

L T P  
3 1 3

**Rationale :**

Management through information system has global utility in big organisations. It is very useful in managing information and management activities. The knowledge of this paper will enable the student to work in big organisations.

Computers are gaining image as personal assistants to every individual in day today life. It is very easy to manage accounts with the help computers. The knowledge of this paper will enable the student to solve accounting and financial problems.

Sl.No.	Units	Coverage Time		
		L	T	P
	Financial Accounting			
	(i)Financial Management	7	3	-
	(ii)Costing	7	3	-
	(iii)Budget and budgetary Control	6	3	-
	(iv)Marginal Costing	6	3	-
	(v)Standard Costing	6	2	-
	(vi)Introduction to Computrised	6	2	-
		75	25	75

**1. ACCOUNTING**

Principles, concept and conventions, double entry system of accounting, introduction of basic books of accounts of sole proprietary concern, control accounts for debtors and creditors, closing of books of accounts and preparation of trail balance.

**1.(i) FINANCIAL MANAGEMENT**

Meaning of the terms fund flow and fund working capitals cycle, preparation and interpretation of the fund flow statement.

**1.(ii) COSTING**

Nature, importance and basic principles.

**1.(iii) BUDGET AND BUDGETARY CONTROL**

Nature, scope and importance method of finalisation of

master budget and functional budgets.

1.(iv) MARGINAL COSTING

Nature, scope and importance, Break even chart, practical application of marginal costing.

1.(v) STANDARD COSTING

Nature and scope, computation and analysis of variances with reference to material cost and overhead cost, interpretation of the variances.

1.(vi) INTRODUCTION TO COMPUTERISED ACCOUNTING SYSTEM

Coding logic and codes required, master files, transaction files, introduction to documents used for data collection, processing of different files and output obtained. Introduction of packages like TALLY and Visual Foxpro

Practical

1. Practices on financial accounting using software Tally and Visual Foxpro

## 2.1 COMPUTER HARDWARE & MAINTENANCE

(Common to Diploma Computer Science & Engineering)

L T P  
3 - 3

Rationale :

Servicing of computer peripherals and system such as Key Board, Disk Drives, Printers, Power Supplies and different stages of the computer results in increasing efficiency and life of the computer centre. A technician having skills of servicing the above peripherals and systems will prove useful for a computer centre.

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	5	-	
2.	Topic 2	5	-	
3.	Topic 3	5	-	
4.	Topic 4	6	-	
5.	Topic 5	6	-	
6.	Topic 6	6	-	
7.	Topic 7	6	-	
8.	Topic 8	6	-	
9.	Topic 9	6	-	
10.	Topic 10	6	-	
11.	Topic 11	6	-	
12.	Topic 12	6	-	
13.	Topic 13	6	-	
		75	-	75

### DETAILED CONTENTS

1. Component and peripheral devices, Connected with computer.
2. Mother Board : BUS, Mother board components, Battery, Connections on the Mother Board, Keeping CPU cool, Mother board trouble shooting.
3. Key Board : Switches, Keyboard organization, Key board type trouble shooting.
4. Mouse : Mouse type, Connecting Mouse, Trouble shooting Mouse.
5. HDD : Magnetic recording, Data Encoding Method, HDD feature, Head barking, HDD trouble shooting.
6. FDD : Type and working, Maintenance.

7. Printers : Image formation method, Printing mechanism, DMP, Ink Jet, Laser Printer. How printer works and Trouble shooting.
8. Network : Setting up N/W, Trouble Shooting N/W.
9. Make your own computer.
10. Software Installation, Windows and other S/w.
11. Boot Process
12. How to use Pen deive and other devices.
13. Power Supply : Operating charactersics, Types and maintenance.

#### HARDWARE MAINTENANCE

##### List Of Practicals

- (I) Study of devices on motherboard
  - (II) Study of Key board & Keyboard decoder
  - (III) Study of Video Adopter & display controllers
  - (IV) Study of Floppy Drive, CD Drive and Hard Disk.
  - (V) Study of Multifunction Input/Output controllers
2. Troubleshooting & repair of following equipment
    - (I) Dot Matrix Printer, Laser, Inkjet Printer.
    - (II) Digital Plotter
    - (III) C. P. U.
    - (IV) Disk Drive
  3. Study and Trouble Shooting of
    - (I) Network
    - (II) Power Supplies.

2.2 LINUX & UNIX  
(Common To Diploma In Information Technology)

L T P  
3 - 3

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	LINUX	35	-	-
2.	UNIX	40	-	-
		75	25	75

DETAILED CONTENTS

LINUX: Overview of Linux, what is Linux, history/evaluation of Linux, features of Linux:(System Features, software features), File structures, File handling in Linux, Commands of Linux , how to create file & directory, hardware and software requirements.

UNIX:What is Unix Operating System, Unix file system,Commands files: chmod , chown File System: types of files in unix, structure of file system, parent child relationship, mkdir, pwd, cd, PATH, and directories, cat, cp,mv, rm, ls, pg, tail & head commands. File attributes: ls, ls-l output,changing file permission chmod, chownd directory permissions,chgrp, unmask. editors:ed, vi, sed, standard input/output:( pipes, tree, )Shell as a interpreter EX. c shell , bourne shell, korn shell, restricted shell.Administrations:Why does unix system need administrator (System security, accounting, uucp, ) su, system startup & shutdown, init process, cat shutdown, what is cron, creating file system, mounting and unmounting file system, saving and restoring file systems, adding and removing users, unix accounting system, accounting summary files.administrating the uucp system,permission of systems.

PRACTICALS

Practices on commands using Linux.  
Practices on commands using Unix

## 2.3 DATA STRUCTURE USING C & C++

(Common to Post Diploma in Computer Science & Engg. and Post Graduate Diploma In Computer Application, 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 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	-	100

### 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 .

## 2.4 INTERNET & WEB TECHNOLOGY

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

L T P  
3 - 4

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Internet	30	-	-
2.	Web Technology	45	-	
		75	-	100

#### INTERNET

Introducing Internet, Its Uses : Why Internet, Basic internet Tools, E-Mail, Ftp, Telnet, Usenet News, Web Browsers, Search Engines, Yahoo, Archie, Infoseek, 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, Forwarding, 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:

i)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.

##### C. ASP PROGRAMMES :

What is ASP, What can ASP do for you, How to install IIS and Run ASP on windows XP, Basic syntex rules (V.B. Script, Java Script and o/p syntax used in ASP, Procedures, Functions, Forms. Radio buttons, Check Box, Data Base Connectivity.

##### D. Web building.

#### 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

## 2.5 CONCEPTS OF RELATIONAL DATABASE MANAGEMENT SYSTEM USING ORACLE.

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

L T P  
3 - 3

### Rationale:

Relational Database management system is the modern technique of managing data. The knowledge of DBMS is very useful & effective in preparation of different types of application software like Inventory, Financial & Accounting system etc. The student equipped 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.	Concepts of DBMS	13	-	-
2.	Relational Database design	17	-	-
3.	File Organisation Techniques	13	-	-
4.	Security and Privacy	17	-	-
5.	SQL	15	-	-
		75	-	75

### DETAILED CONTENTS

#### 1. CONCEPTS OF DBMS :

Data items, DBA, Entity, Attributes, Logical and Physical data, Primary and secondary keys, Form of query, Redundancy, Schema and Sub-schema.

#### 2. RELATIONAL DATABASE DESIGN

Define data model, classify data model, object based logical model, Record based data model, entity, attribute, Relationship, data model, network model, hierarchy model, top down approach, bottom approach of logical database, need of normalization. Types of normal form function and dependency, properties of relation.

#### 3. FILE ORGANISATION TECHNIQUES

Sequential index, Sequential and Random File organisation technique and their relative advantages and disadvantages.

#### 4. SECURITY AND PRIVACY

Integrity, protection, security, concurrency, recovery.

5. SQL

Introduction to SQL commands, Type of SQL commands and its application RDBMS.

RELATIONAL DATA BASE MANAGEMENT SYSTEM

List Of Practicals

1. Programms in ORACLE using relational structures for complicated systems.
2. Programms and reports generation through ORACLE & SQL.

## 2.6 JAVA PROGRAMMING

(Common To Diploma In Computer Science & Engineering, Diploma In Information Technology)

L    T    P  
3   -   4

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	An Overview of Java	15	-	-
2.	Data Types & Control Statement	12	-	-
3.	Introducing Classes & Methods	12	-	-
4.	Inheritance	12	-	-
5.	Multi threaded Programming	12	-	-
6.	Input/Output Applits	12	-	-
		75	-	100

1. An Overview of JAVA:-

Introduction to Object Oriented Programming (two paradigms, abstraction, the three oops principles) creation of JAVA, JAVA Applits & applications, security & portability.

2. Data Types & Control statements:

Integer, floating point type, character, boolean, all Operators, JAVA's selection statements, iteration and jump statement

3. Introducing Classes & Methods:

Class fundamentals, declaring objects, overloading methods & constructs, access control, nested and inner classes, exploring the string class, Inheritance

4. Inheritance:

Inheritance basics, member access and inheritance.

5. Muti threaded Programming.:

The JAVA thread model, thread priority, synchronozation, Messaging.

6. Input/Output Applits:

I/O Basics, byte streams & character streams, predefined streams, reading and writing console input/output, reading and writing files, applet fundamentals, applete class.

### LIST OF PRACTICALS

PROGRAMS USING CONTROL STATEMENTS.

## 2.7 MIS & SYSTEM ANALYSIS & DESIGN

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

L T P  
3 - -

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Intoduction to Management System	6	-	
2.	Level Of Management	10	-	
3.	Influence of Information Technology	12	-	
4.	The System Concepts & Characteristics	10	-	-
5.	Elements of a System & System Development	10	-	-
6.	Detailed Syatem Analysis	9	-	-
7.	Structured System Analysis Tools	9	-	-
8 .	The process and Stages of System Design	9	-	-
		75	-	-

1. Introduction to Management System.

What is information, components of Information system. What is MIS, Meaning, need role and importance, evaluation of MIS, Traditional management System Vs MIS, components of MIS, Common managerial, Process, Planning, organising & Controlling. Types of information system TPS, DSS, MIS. Assumptions & limitations of each system. System requirements.

2. Level Of Management

Strategic, tractical & operational level, different functions of each level, characteristics of informations & its need. flow of information in levels, concepts of balance MIS, effectiveness and efficiency criteria.

3. Influence of Information Technology

Problems with MIS, causes and solutions, Knowledge requirements for MIS, need and role in decision making, advantages of knowledge based system, types of knowledge system. Knowledge requirement for MIS.

4. The System Concepts, Characteristics -

Organization, Interaction, Interdependence, Integration, Control Objective.

5. Elements of a System & System Development:

Inputs and outputs, Processors, Controls, Feedback, Environment, Boundaries and Interface, Examples of System. System Development Life Cycle, Phrases in SDLC(Only Definition) - Problems Identification, Preliminary Investigation/Study, Types of Feasibility - Operational, Technical, Economical, System Analysis, System Design, Testing, Implementation.

6. Detailed System Analysis-

Primary Investigation, Facts, Gathering and its techniques( Interviews, Questionnaires, Background Reading, On site Observation, Record Gathering)

7. Structured System Analysis Tools for

SSA(Data Flow Diagrams, Data Dictionary. Decision Tree, Decision Table, Pros and Cons of each Table.

8. The process and Stages of System Design:

Logical & Physical-Design, Design methodologies in Brief, Input/Output and Forms Design, Input Design(Input Data, Media and devices), Output Design.

## 2.8 ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

L T P  
2 - -

### RATIONALE:

A diploma 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:

SL. NO.	TOPIC	L	T	P
1.	Introduction	6		
2.	Pollution	3		
2.1	Water Pollution	8		
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		
<b>TOTAL</b>		<b>50</b>	<b>-</b>	<b>-</b>

### 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 Biodegradability, composting, bio remediation, Microbes .Use of biopesticides 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 quality 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, CO, CO<sub>2</sub>, NH<sub>3</sub>, 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 quality 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 benefit 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.

## 2.9 (i)PROJECT WORK

L	T	P
-	-	4

### 1. OBJECTIVES

1. To provide experience of solving practical problems.
2. To provide synthesis of knowledge to solve problems.
3. To provide group working environment.

### 2. NATURE OF THE PROJECTS

The project should be a group project, preferably of interest to industry. The students should be encouraged to select the project while on visits to such industry. The project should be supervised by the teacher or the expert from industry jointly. The project work should involve designing the application system and implementing it on any of the computer systems available.

At the end of the project, the student is expected to prepare report. The evaluation should be based on:

1. Continuous assesment of the work done by the student;
2. Project report, and
3. Viva-Voce.

## 2.8 (ii)INDUSTRIAL TRAINING

(One month After I YEAR 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.

2.8 iii)

SEMINAR

Seminar will be organised for all students individually on Computer based Topic by Internal Examiner.

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION  
STAFF STRUCTURE

Intake of the Course 60  
Pattern of the Course Annual System

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Sl. No.	Name of Post	No.
1.	H.O.D.	1
2.	Lecturer	4
3.	Computer Programmer/ Computer Operator	3

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1. The staff required for the each institution shall be worked out in accordance with the norms laid down in G.O. No. 2281/Pra. Shi.-3-1989-60(B)/85 Dated June 27, 1989
2. Services of other discipline staff of the Institute may be utilized if possible

QUALIFICATIONS OF STAFF : as per service rules

SPACE REQUIREMENT

1.	Computer Centre	150 Sq. m.
2.	Hardware Maintenance Room	120 Sq. m.
3.	H. O. D.'s Room	15 Sq. m.
4.	Lecture's Room (4 Nosx10 Sq.m.)	40 Sq. m.
5.	Class Rooms/Tutorial (2 Nos. x 60 m2	120 Sq. m.
	TOTAL	445 Sq. m.
	Additional 40% for wall Passage Laboratory, etc.	120 Sq. m.

LIST OF EQUIPMENT

1. Only those of the equipments given below which are essentially required for performing the practicals mentioned in the curriculum are to be procured by the institutions.

COMPUTER CENTRE

S.No.	DESCRIPTION	QTY.	APPROX. COST (in Rs.)
1	Latest Version-Core-2 Dual Processor 2 MB L2 Cache, 2.4 Ghz ofr Higher 1 GB DDR2 RAM,160 GB SATA HDD,72K RPM MONITOR COLOUR 17" TFT DVD Writer, Multi Media Kit with Speaker & Microphone FDD - 1.44 MB Key Board - Multimedia Mouse - Optical Scrool Fibre Mouse 32 Bit PCI ETHERNET CARD(10/100) Mbps Internal Modem, Pen Drive 2GB, Blue Tooth Pre loaded Windows XP/2000/VISTA Pre loaded latest Anti Virus with licence media and manual with UPS 660 VA OR		20,000,00=00 (60+2Server)

Computer of latest Specification

2.	Lap Top (Latest Version)	04	300000.00
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3. Software :

- i. WINDOWS - XP/2000/VISTA
- ii. ORACLE 9i or Latest Windows based  
20 USERS) & Development (Latest)
- iii. VISUAL STUDIO (professional)
- iv. MS OFFICE XP
- v. COMPILER - 'C',C++, JAVA
- vi. Unix & Linux
- vii. Front Pange, Internet Explorer,Page Maker  
Corel Draw, Dream Weaver
- viii. Personal Web Server, HTML, IIS
- ix. Tally

3. Hardware

	i. Switch-16,8,24 Port all accessories related to Networking.		100000.00
	ii.Scanner- A4/Auto lighter Scanner	02	25000.00
4.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	02	50000.00
5.	Laser Jet-A4,All In One (2 Each)	04	70000.00
6.	Desk Jet-A4, Photo Smart(2 Each)	04	40000.00
7.	5 KVA on line UPS with minimum 30 miniute battery backup along with sealed maintenance free	04	400000.00

	batteries. Provision for connecting external batteries with network connectivity. (For 2 Labs)		
7.	Split Air Conditioner 1.5 tones capctity with ISI mark alongwith electronic voltage stablizer with over voltage and time delay circuit	08	300000.00
8.	Room preparation and furniture	LS	
9.	Cat-6 cabling for network	LS	
10.	2 KVA Inverter Cum UPS	02	50000.00
11.	Digital Camera	01	25000.00
14.	Fire Extinguisher (2 Kg.)	04	15000.00
16.	Fire Extinguisher (5 Kg.)	04	30000.00
17.	Vaccum Cleaner	02	15000.00
18.	LCD Projector	02	200000.00
19.	Pen drive 1GB, 2GB, 4 GB	10	15000.00
20.	DVD writer External	02	5000.00
21.	HDD External 160 GB	02	10000.00
22.	PDA (Latest Configuration)	02	10000.00
23.	Broadband For Internet	04	
24.	USB Modem	02	10000.00

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

HARDWARE MAINTENANCE & PROJECT LAB

S.No.	Descirption	Qty.	Approximate Cost.
1.	Digital Multimeter	12	24,000
2.	Power Supply	10	30,000
3.	Latest Version-Core-2 Dual Processor 2 MB L2 Cache, 2.4 Ghz or Higher,1 GB DDR2 RAM,160 GB SATA HDD, 72K RPM, CD/DVD Drive	10	400000
4.	Printer (600 cps) a) Dot Matrix b) Desk Jet c) Laser	2 Each	100000
5.	Constant Voltage Transformer	4	32,000
6.	PC Card Sets (One Mother Board, 4 Cards)	2	20,000
7.	Spike Buster	10	5,000
8.	Tool Kit	10 Set	50000

ANNEXURE-I QUESTIONNAIRE

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

SUBJECT: Questionnaire for ascertaining the job potential and activities of diploma holders in Computer Applications

PURPOSE: To design and develop One & Half Year diploma curriculum in Computer Applications

NOTE: 1. Please answer the questions to the point as 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. Important functions of the \_\_\_\_\_  
department/section/shop \_\_\_\_\_

5. Number of diploma holder employees  
under your charge in the area of \_\_\_\_\_  
Computer Application

6. Please give names of modern equipment/machines handled by a  
diploma holder in Computer Application

- |    |    |    |
|----|----|----|
| 1. | 2. | 3. |
| 4. | 5. | 6. |

7. What proficiencies are expected from a diploma holder in  
Computer Application

- |    |    |    |
|----|----|----|
| 1. | 2. | 3. |
| 4. | 5. | 6. |

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



Applications during the next ten years in the state / country.

17. In your opinion what should be the subjects to be taught to a student of diploma in Computer Applications

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 can contribute towards improvement of curriculum in above field. Yes/ No  
If yes, Please give names of the experts available 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 Computer Applications

( Signature )

Kindly mail the above questionnaire duly filled into:-

R. P. Alam  
Assistant Professor  
Institute of Research, Development & Training, U.P.  
(Govt. Polytechnic, Campus)  
Kanpur-208024

( Please note that all information in this survey is confidential & for the use of curriculum design only )

## ANNEXURE- II FIELD EXPOSURE SCHEDULE

All the students of final year after their annual Examination shall undergo Industrial Training for a period of four weeks in industries dealing with computers. It will, in all respect, end by the end of summer vacation. It will be arranged and supervised by the institute staff. The performa for preparing a report of his stay. There in the industry (as given below) can be taken as a guide line for the purpose.

1. Name & Address of the organisation
  
2. Nature of the industry and its activity.
  
3. Date of
  - i. Joining
  - ii. Leaving
  
4. Details of the sections of the industry visited.
  - i. Name of machines, peripherals in use.
  
  - ii. Activities of the section
  
  - iii. Study of the computers, peripherals used at the computer centre.
  
  - iv. P. C. Software used in at the computer centre.
  
  - v. Names of the high level languages and their study used at the computer centre.
  
  - vi. Computer centre preventive maintenance.
  
  - vii. Study of software package developed by the student.