

CURRICULUM FOR TWO YEAR  
(FOUR SEMESTER)

POST GRADUATE DIPLOMA COURSE IN

=====  
:       COMPUTER APPLICATION       :  
:       Effective from Session       :  
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=====  
: Semester System     :  
:     Revised Syllabus     :  
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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

=====  
: BOARD OF TECHNICAL EDUCATION     :  
: U.P. LUCKNOW,                     :  
:CORRECTED AS SYLLABUS COMMITTEE OF:  
: B.T.E. MEETING HELD ON 17.08.2016:  
=====

STUDY & EVALUATION SCHEME  
for  
TWO YEAR (FOUR SEMESTER) POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS  
(Effective from )

I SEMESTER

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
4	-	-	4	-	8	1.1 Basics Of Information Technology	2.5	50	20	70	3	50	25	75	145
6	-	-	6	-	12	1.2 Concept of Programming using C	2.5	50	20	70	3	50	30	80	150
6	-	-	-	-	6	1.3 Computer Organization	2.5	50	20	70	--	--	--	--	70
4	-	-	6	-	10	1.4 Office Automation Tools	2.5	50	20	70	3	50	25	75	145
20	-	-	16		36	TOTAL		200	80	280	-	150	80	230	510
Games/NCC/Social and Cultural Activities/Community Development+Discipline(15+10)														25	
Total														535	

II SEMESTER

6	-	-	4	-	10	2.1 Operating system	2.5	50	20	70	3	50	30	80	150
6	-	-	4	-	10	2.2 Data Communication & Computer Network	2.5	50	20	70	3	60	30	90	160
4	-	-	4	-	8	2.3 Web Technology-I	2.5	50	20	70	3	70	35	105	175
5	-	-	5		10	2.4 Data Structure using C	2.5	50	20	70	3	60	30	90	160
21	-	-	17		38	TOTAL		200	80	280	-	240	125	365	645
Games/NCC/Social and Cultural Activities/Community Development+Discipline(15+10)														25	
Total														670	

Note:- (i) Each period will be of 50 minutes duration.  
(ii) Each session will be of 16 weeks.  
(iii) Effective teaching will be atleast 14 weeks.

STUDY & EVALUATION SCHEME  
TWO YEAR (FOUR SEMESTER) POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS  
(Effective from )

III SEMESTER

Curriculum						Scheme of Examination									
Periods Per Week						S U B J E C T	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															
8	-	-	8	-	16	3.1 Java Programming	2.5	50	20	70	3	60	30	90	160
6	-	-	6	-	12	3.2 Database management system	2.5	50	20	70	3	60	30	90	160
6	-	-	6	-	12	3.3 Web Technology-II	2.5	50	20	70	3	60	30	90	160
4	-	-	4	-	8	3.4 Computer Hardware And Maintenance	2.5	50	20	70	3	75	40	115	185
24	-	-	24	-	48	<-----TOTAL----->		200	80	280	--	255	130	385	665
														Games/NCC/Social and Cultural Activities/Community Development+Discipline(15+10)	25
														Total:	690

IV SEMESTER

6	-	-	6	-	12	4.1 Computer Based Accounting	2.5	50	20	70	3	75	40	115	185
6	-	-	-	-	6	4.2 E-Commerce	2.5	50	20	70	-	--	--	--	70
4	-	-	-	-	4	4.4 Environmental Education(*) And Disaster Management	2.5	50	--	--	--	--	--	--	--
			8		8	4.5 i.Project						80	40	120	120
						ii.Industrial Training (One Month)						40	20	60	60
						iii.Seminar (Any Computer Based Topic) (No External Examination)						25	25	25	25
16	-	-	14	-	30	<-----TOTAL----->		100	40	140	--	195	125	320	460
														Games/NCC/Social and Cultural Activities/Community Development+Discipline(15+10)	25
														Total:	485
														(i) Each period will be of 50 minute duration.	
														(ii) Each session will be of 16 weeks.	
														(iii) Effective teaching will be atleast 14 weeks.	
														(v) Four weeks structured & supervised, branch specific, task oriented 100% of III & IV Semester	1175
														Industrial/field exposure to be organised during summer vacation, after II semester	603
														(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 IV Semester (Examination marks:40, Sess.marks:20)	1778
														(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 (Four Semester)
TYPE OF THE COURSE	: Full Time Institution Based
PATTERN	: Semester 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

List of experts who contributed to Change the of curriculum of Two Years Diploma in Computer Application to Semester System on dated 25.07.2016 at I.R.D.T.U.P., Kanpur

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| 1. Shri Arun Kumar              | HOD Computer Science Engg. GGP Jhansi |
| 2. Shri Neeraj Kumar            | Lecturer IT GP Kanpur                 |
| 3. Shri Sumit Babu              | Lecturer CS GP Kanpur                 |
| 4. Miss Puja saxena             | Lecturer IT GP Kanpur                 |
| 5. Shri Prashant Shakya         | Lecturer IT GP Mahoba                 |
| 6. Shri Gaurav Kishor Kanaujiya | Lecturer(IT)I.R.D.T., 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.

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	i Prodecure of maintaining the log register for the use of the system and peripherals for the purpose of maintenance.	
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>	i Practice in running diagnostics
8. Informing the appropriate person in case of system breakdown and run system checks for proper working after the system is set right.	i Understand the breakdown in the computer system and at decide whether fault is in hardware or software.	i. Fault location

	ii Run diagnostics	ii. Practice in running diagnostics
9. Analysing a data processing problems	i Principles of system analysis, design and structured programming.	i. Practice in numeric and nonnumeric computation.
	ii Computational errors and their estimation.	ii. Practice in error analysis.
	iii Data organization and file handling techniques.	iii. Practice in writing programmes & executing them
10. Writing working programmes from the given specifications	i Concept of flow charts.	i. Practice in writing programmes using appropriate languages.
	ii Writing programmes in different languages.	ii. Practice in executing programmes on computer.

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.	i. Practice in executing programmes on computer.
	ii Execution procedures.	
	iii Error message in interpretation.	
12. Debugging the Programmes	i Error messages	i. Practice in debugging the programmes
	ii Debugging procedures	
	iii Reference manual.	

#### 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.

**I Semester**

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

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	8	-	-
2.	Component of Information technology	10	-	-
3.	Data Representation	12	-	-
4.	Emerging Trends	8	-	-
5.	Components of Computers	8	-	-
6.	Mobile Computing	10	-	-
		56	-	56

1. Introduction of Information Technology

Definition Of Information, difference between 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 Representation :

Binary Number System, Conversion from Decimal to Binary, Conversion from Binary to Decimal, Hexadecimal and Octa decimal 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, Laptops, Notebooks, Palmtops, Memory System of a PC, Primary Memory, RAM(Random Access Memory, ROM(read only Memory), Secondary Memory, Types of Secondary Storage, Access Mechanism of storage Devices, PC setup and ROM-BIOS, Elementary Trouble shooting.

6. MOBILE COMPUTING :

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

**LIST OF PRACTICALS**

1. Given a PC, name its various components and list their functions
2. Identification of various parts of a computer and peripherals
3. Practice in installing a computer system by giving connection
4. DOS Commands (internal / external) e.g. TYPE, REN, DEL, CD, MD, COPY, TREE, BACKUP
5. Exercises on entering text and data (Typing Practice using any tutor)

6. Features of Windows as an operating system
- Start
  - Shutdown and restore
  - Creating and operating on the icons
  - Opening closing and sizing the windows
  - Using elementary job commands like - creating, saving, modifying, renaming, finding and deleting a file
  - Creating and operating on a folder
  - Changing setting like, date, time color (back ground and fore ground)
  - Using short cuts
  - Using on line help

## 1.2 CONCEPT OF PROGRAMMING USING C

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

L	T	P
6	-	6

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	8	-	
2.	Introduction to Programming in C	10	-	-
3.	Fundamentals of C Programming	10	-	
4.	Conditional Program Execution	10	-	
5.	Function	10	-	
6.	Arrays	10	-	
7.	Pointers	10	-	
8.	Programming in C++	16	-	
		84	-	84

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## DETAILED CONTENTS

### 1. CONCEPT OF PROGRAMMING:

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

### 2. INTRODUCTON TO PROGRAMMING IN C:

Standard I/o in C, Fundamental data types- Character types, Integer, Short, Long, Unsigned, Single and Double floating point, Storage classes - Automatic, Register, Static and External, Operators and Expression using numeric and relational operators, Mixed operands, Type of conversion, Logical operators, Bit operators, Assignment operator, Operator precedence and associatively.

### 3. FUNDAMENTALS OF C PROGRAMMING :

Structure of C program, writing and executing the first C program, components of C language, Standard I/O in C.

### 4. CONDITIONAL PROGRAM EXECUTION :

Applying if and switch statements, nesting if and else, use of break and default with switch, program loops and iterations: use of while, do while and for loops, muple loops variables, use of break and continue statement.

### 5. FUNCTIONS :

Introduction, types of functions, functions with array, passing values to functions, recuresive fuctions.

### 6. ARRAYS :

Array notation and representation, manipulating array elements, using multi dimentional arrays, Structure, union, enumerated data types.

### 7. POINTERS :

Introduction, decaration, applicaitons, File handling, standard C preprocessors, defining and calling macros, conditonal compilation, passing values to the compiler.

### 8. 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.

List of Experiments  
(Using GCC/Turbo/Borland compiler techniques)

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 COMPUTER ORGANISATION

L	T	P
6	-	-

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction To Computer Organisation	12	-	-
2.	C.P.U. & Mathematical Logic	12	-	-
3.	C.P.U. Organization	15	-	-
4.	Computer Arithmetc	15	-	-
5.	Input-Output Organization	15	-	-
6.	Memory Organization	15	-	-
		84	-	-

DETAILED CONTENTS

1. 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.

2. 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.

3. 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.

4. COMPUTER ARITHMETIC :

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

5. INPUT OUTPUT ORGANIZATION :

I/O devices : Accesing, 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.

6. MEMORY ORGANIZATION :

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

LIST OF BOOKS

1. Patterson - Computer Organization adn Design- Elsevier Pub. 2009
2. William Stalling - Computer Organization - PHI
3. Cravice, Hamacher & Zaky - Computer Organization - TMH
4. Mano - Computer Organization - PHI

5. John P Hays - Computer Organization- McGraw Hill
6. Tannenbaum - Structured Computer Organization- PHI

#### 1.4 OFFICE AUTOMATION TOOLS

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

L	T	P
4	-	6

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.

TOOLS : Following tools can be used for this subject  
Libre Office, Open Office, MS Office

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Word Processing	14	-	-
2.	Spreadsheets	14	-	-
3.	Presentation	14	-	-
4.	Electronic Mail	14	-	-
		56	-	84

#### DETAILED CONTENTS

##### 1. WORD PROCESSING:

File : Open, Close, Save and Find File, Print and Page Setup

Edit : Cut, Copy, Find, Replace

Insert: Page Insert, Page No., Symbol

Font : Paragraph, Tabs, Boder & Shading, Change Case

Tools : Spelling, Mail Merge

Table : Insert Table, Delete Cells, Merge Cell, Sort Text

##### 2. SPREADSHEET:

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. PRESENTATION

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. Electronic Mail :

- Composing an Email Message
- Working with Address Book
- Automatically Add contents to Your Address Book
- Reading Email using Outlook Express
- Reading a message

- Checking for New Messages
- Reading file Attachment
- Taking Acting on a Messages
- Web Based Email
- Advantage os using Web Based Email.

#### List Of Practicals

1. Create a document using funcation :Saveas, Page Number, Bullets adn Numbering.
2. Create a document using styles and formatting option
3. Create a document using different fonts.
4. Create a document using the function page setup and page preview, then print that document.
5. Create a table and perform operation in it.
6. Create a table, chart in excel and implement all formula as addition, substraction, multiplication and division.
7. How to use mail merge in MS Word.
8. Create a Power Point presentation using slide designing.
9. Create, Save and Print the Power Point Presentation.
10. Create a Power Point Presentation using Clipart, Word Art Gallery and then add transition and animation effect.

#### LIST OF BOOKS

1. Microsoft Office 2010 For Dummies By Wallace Wang
2. 2007 Microsoft Office System Plain & Simple by Jerry Joyce- Microsoft Press
3. Office XP : The Complete Reference- Stephen L. Selson - Tata McGraw Hill Education.
4. Working in Microsoft Office - Richard Mansfield - Tata McGraw Hill Education.

### **II Semester**

#### **2.1 OPERATING SYSTEM**

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

L	T	P
6	-	4

#### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Introduction	14	-	-
2.	Management of Operating System	40	-	-

3.	Case Study	30	-	-
		84	-	56

#### DETAILED CONTENTS

#### 1. Introduction

Evolution of Operating, Computer system overview, characteristics of operating system, GUI, CUI, Single user, Multi user operating system Time Sharing and Real Time System.

#### 2. Management of Operating System :

A. Process Management - Process concept, Process schedule, Process Synchronization, Inter process communication, CPU scheduling and dead lock.

B. Memory Management - Main memory, Contiguous memory allocation, Segmentation, Paging, Virtual memory, Demand paging, Page replacement, Allocation, Threading.

C. Input Output Management - Mass storage structure, Overview, Disk scheduling and Management. +

D. File Management - File concepts, File system and structure, Directory structure.

#### 3. CASE STUDY :

Linux and Unix basic concepts, system administration requirement for Linux, System Administration

#### List Of Practicals

1. Practices on commands using Linux.
2. Practices on commands using Unix

#### LIST OF BOOKS

1. Milenkovic - Operating System Concept - McGraw Hill
2. Petersons - Operating System - Addison Wesley
3. Dietal - An Introduction To Operating System- Addison Wesley
4. Tannenbaum - Operating System Design and Implementation - PHI
5. Gary Nutt- Operating System, A Modern Perspective- Addison Wesley

6. Stalling, Willium - Operating System - Maxwell Macmillan
7. Silveschatza, Peterson J - Operating System Comcpts - Willey
8. Crowley - Operating System - TMH
9. UNIX Concepts and Applications, 4th Edition, Sumitabha Das-Tata McGraw Hill
10. UNIX and Shell Programming, Behrouz A Forouzan and Richard F Gilberg - Thomson Course Technology.
11. Unix Shell Programming - Y Kanetkar - BPB Publication

## 2.2 DATA COMMUNICATION AND COMPUTER NETWORKS

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

L	T	P
6	-	4

### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P

1.	Topic 1	12	-	-
2.	Topic 2	9	-	-
3.	Topic 3	12	-	-
4.	Topic 4	9	-	-
5.	Topic 5	12	-	-
6.	Topic 6	9	-	-
7.	Topic 7	12	-	-
8.	Topic 8	9	-	-
		84	-	56

#### 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; Quality 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. Tanenbaum - 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 establishing 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.

### 2.3 WEB TECHNOLOGY - I

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

L	T	P
4	-	4

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	10	-	-
2.	Topic 2	14	-	-
3.	Topic 3	14	-	-
4.	Topic 4	8	-	-
5.	Topic 5	10	-	-
		56	-	56

1. HTML :

Elements of HTML, HTML sources and Rules of nesting, Syntax conventions, HTML categories, Text tags, Formatting Web Pages by using styles, Adding pictures, Image attribute, introduction to forms, tables and models, advantages and limitations of tables, frames, link, CSS cascading style sheets, XHTML, XML, Client side scripting, Server side scripting, Managing data with SQL.

2. JAVA SCRIPTS:

What is Java scripts, adding, Java scripts to documents, embedding Java scripts, Linking Java scripts, Creating a page program with scripts, What is Java and its applets to make webpage run server scripts, active X.

3. XML :

Introduction to XML, Difference between XML and HTML, Use of XML, XML Syntax Rules, XML Elements, XML attribute, XML name space, Displaying XML, XML validator, XML application, RSS FEED,JSON.

4. CSS :

CSS Introduction, CSS Syntax, CSS selectors : Element Selector, id Selector, Class Selector, Grouping Selectors, Implementing CSS, JQuery, Image Format (JPG, PNG, GIF).

5. DHTML :

DHTML Introduction, DHTML - JAVA Script, DHTML - HTML DOM, DHTML - HTML Events, DHTML - CSS.

LIST OF PRACTICALS

1. Exercises on to static web sites.

2. Development of different web sites using open source tools

2.4 DATA STRUCTURE USING C

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

L T P  
5 - 5

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.	6	-	
2.	Stacks And Queues	10	-	
3.	Lists	12	-	
4.	Sorting & Merging	10	-	
5.	Tables	10	-	
6.	Trees	12	-	
7.	Graphs	10	-	
		70	-	70

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

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

### 3.1 JAVA PROGRAMMING

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

L    T    P  
8    -    8

#### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	8	-	-
2.	Topic 2	10	-	-
3.	Topic 3	12	-	-
4.	Topic 4	12	-	-
5.	Topic 5	12	-	-
6.	Topic 6	12	-	-
7.	Topic 7	12	-	-
8.	Topic 8	12	-	-
9.	Topic 9	10	-	-
10.	Topic 10	12	-	-
		112	-	112

1. Introduction and feature of Object Oriented Programming
2. An Overview of JAVA:-  
  
Introduction to Object Oriented Programming (two paradigms, abstraction, the three oops principles) creation of JAVA, JAVA Applits & applications, security & portability.
3. Data Types & Control statements:  
  
Integer, floating point type, character, boolean, all Operators, JAVA's selection statements, iteration and jump statement.
4. Classes & Methods:  
  
Class fundamentals, declaring objects, overloading methods & constructs, access control, nested and inner classes, exploring the string class.
5. Inheritance:  
  
Inheritance basics, member access and inheritance. Overriding : Method overriding, super kwyword, polymorphism and virtual function.
6. Packages and Interfece :  
  
Defining, Creating and accessing a package, Understanding CLASSPATH, Inporting packages, difference between classes and interface, defining an interface, implementing interface, applying interface, variable in interface and

extending interface, Exploring Java io.

7. Exception Handling :

Concept of exception handling, benefits of exception handling, termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating won exception sub classes. string handling, exploring java.util.

8. Multithreading :

Difference between multi threading and multi tasking, thread life cycle, creating threads, thread priorities, synchronizing threds inter thread communication, thread groups, daemon threads, enumerations, autoboxing annotations, generics.

9. Event Handling :

Events, Evants sources, Event classes, Event Listeners, Delegation event model, handling mouse and key board events, Adapter classes. The AWT class hieracrchy, user interface components - labels, button, vanvas, scrollbars, text components, check box, check box groups, choice, list panels - scrollpane, dialogs, menubar, graphics, layout manager - layout manager types border, grid, flaow card and grid bag.

10. Applets :

Concept of Applets, difference between applets and application, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Swing - Introduciton, limitations of AWT, MVC architecture, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Lables, text fields, button - the JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees and Tables.

LIST OF PRACTICALS

1. WAP to find the average and sum of the N numbers using command line argument.
2. WAP to demonstrate type casting.
3. WAP to find the number of arguments provide at run time.
4. WAP to test the prime number.
5. WAP to calculate the simple interest and input by users.
6. WAP to create a simple class to find out the area and

- perimeter of rectangle and box using super and this keyword.
7. WAP to find G.C.D. of the number.
  8. WAP to design a class account using the inheritance and static that show all function of bank (withdrawal, deposit).
  9. WAP to find the factorial of a given number using Recursion.
  10. WAP to design a class using abstract methods and classes.
  11. WAP to design a string class that perform string method (equal, reverse the string, change case).
  12. WAP to handle the exception using try and multiple catch block.
  13. WAP that implement the Nested try statements.
  14. WAP to create a package that access the member of external class as well as same package.
  15. WAP that import the user defined package and access the member variable of classes that contained by package.
  16. WAP that show the partial implementation of interface.
  17. WAP to handle the user defined exception using throw keyword.
  18. WAP to create a thread that implement the Runnable interface.
  19. WAP to implement Interthread communication.
  20. WAP to create a class component that show controls and event handling on that controls (math calculation).
  21. WAP to draw the line, rectangle, oval, text using the graphics method.
  22. WAP to create a menu using the frame.
  23. WAP to create a dialog box.
  24. WAP to implement the flow layout and border layout.
  25. WAP to implement the grid layout, card layout.

#### LIST OF BOOKS

1. Core Java II Advanced Feature 8th Edition, Sun Microsystem
2. The Complete Reference JAVA Seventh Edition
3. Thinking in Java, Third Edition, Bruce Eckel Pearson Education.

4. JAVA 6 By Rogers Cadenhead, Laura Lemay, Pearson Education.

### 3.2 DATABASE MANAGEMENT SYSTEM

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

L T P  
6 - 6

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.	Topic 1	10	-	-
2.	Topic 2	10	-	-
3.	Topic 3	10	-	-
4.	Topic 4	10	-	-
5.	Topic 5	14	-	-
6.	Topic 6	10	-	-
7.	Topic 7	10	-	-
8.	Topic 8	10	-	-
		84	-	84

#### DETAILED CONTENTS

1. OVERVIEW OF DBMS :

Data, Representation of Data, Record, Data item, Field name, File, Data and Information, Database (Properties), Benefits of Database approach, Database Management System (Capabilities, Advantages, Disadvantages) and Functions of DBMS. Basic DBMS terminology (Data items, Entities and Attributes, Schema and Subschema, Database users, Instance and Schemas). 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- Entity 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 Uniqueness, Key Constraints, Integrity Constraints, Entity constraints). Relations algebra (Basic operation : Union intersection and difference), Additional Relational Algebraic 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 Command :- DESCRIBE, SELECT, COLUMN ALIASES, CONCATENATION OPERATOR, DISTINCT CLAUSE, ORDER BY, WHERE CLAUSE, LOGICAL OPERATIONS, SQL OPERATORS, Accessing Metadata.

6. RATIONAL DATABASE :

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

7. SECURITY :

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

8. PL :

User defined function, Control of flow statement of PL/SQL, Procedures/Stored procedures, transcation, triggers, cursors, granting and revoking.

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

#### 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

### 3.3 WEB TECHNOLOGY-II

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

L T P  
6 - 6

#### TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	20	-	-
2.	Topic 2	15	-	-
3.	Topic 3	15	-	-
4.	Topic 4	14	-	-
5.	Topic 5	20	-	-
		84	-	84

#### 1. JAVA SERVLET :

Introduction to Server Mangement ( Using TOM Cat)

Servlet introduction, working of servlet advantage of servlet, servlet terminology, introduction to servlet API, Servlet interface, Generics Servlet class, Http servlet class, Life cycle of a servlet.

#### 2. JSP :

JSP introduction, JSP - Environment setup, JSP - Architecture, JSP- Life cycle, JSP-syntax, JSP-Directive, JSP-Actions, JSP- Implicit objects, JSP - Client request, JSP - Server response, JSP intergration with database.

#### 3. AJAX :

AJAX Introduction, XMLHttpRequest, Request object, server response, AJAX events, Validation, Interaction with API

#### 4. CROSS BROWSER COMPATIBILITY :

Introduction, Cross Browser compatibility issue, Fixing cross browser compatibility issue.

5. SESSION AND COOKIES :

Introduction to session and cookies, Session Management, Create and deletion of cookie with Java Script, Function to set a cookie, Function to get a cookie, Function to check and cookie.

LIST OF PRACTICALS

1. Exercises related to Java Servlet
2. Exercises related to JSP
3. Exercises related to ASP.
4. Exercises related to AJAX.
5. Exercises related to Cross Browser Compatibility.
6. Exercises related to Session and Cookies.



### 3.4 COMPUTER HARDWARE & MAINTENANCE

(Common to Diploma Computer Science & Engineering)

L T P  
4 - 4

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	5	-	
5.	Topic 5	5	-	
6.	Topic 6	5	-	
7.	Topic 7	5	-	
8.	Topic 8	5	-	
9.	Topic 9	6	-	
10.	Topic 10	5	-	
11.	Topic 11	5	-	
		56	-	56

#### 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. Compact Disc Drive : CD-R, CD-W, CD-RW, DVD-R, DVD-RW, Blue Ray. Working and Maintenance.

7. Printers : Image formation method, Printing mechanism, DMP, Ink Jet, Laser Printer, Multi functional printer. How printer works and Trouble shooting.
8. Network Devices: Hub, Switch, Router, Bridge, Gateway, Ethernet Card.
9. Scanner- Flat Bed.
10. External Devices- Pen Drive, Flash Drive, External Hard Disk.
11. 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.

**IV Semester**

**4.1 COMPUTER BASED ACCOUNTING**

L T P  
6 - 6

**TOPIC WISE DISTRIBUTION OF PERIODS**

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	18	-	-
2.	Topic 2	15	-	-
3.	Topic 3	18	-	-
4.	Topic 4	18	-	-
5.	Topic 5	15	-	-
		84	-	84

**DETAILED CONTENTS**

1. INTRODUCTION TO TALLY :

Installing Tally, Getway of Tally, Creating Company, Company Features (Accounting Features, Inventory Features, Statuory and Takation Features), Configuring Tally.

2. CREATING MASTERS IN TALLY :

Creating Account Masters, account information, creating an account group, Ladger, Creating Ledgers, Creating Multiple Ledger, Creating Inventory Masters, Stock Groups, Stock items, Unit of measure, Vouchers type.

3. ENTERING VOUCHERS IN TALLY :

Voucher types (Payment voucher, Reciept voucher, Contra voucher, Sales voucher, Purchase voucher, Journal voucher, Memo voucher), Simple voucher entry, Pure inventory voucher, Types of inventory vouchers.

4. TAX DEDUCTION AT SORUCE (TDS) :

Introduction to TDS, Features of TDS in Tally, Flowchart of TDS, TDS accounts, TDS transactions, Configuring Tally for TDS, Creation of Masters, Voucher entry for TDS, TDS deduction voucher, Printint TDS challans.

5. VALUE ADDED TAX VAT :

What is VAT. General terminologies used in VAT (Input tax, Output tax, Input credit, composite dealers), Advantages of VAT, Advances of VAT over sales tax, VAT rates, Computation

of VAT, VAT documents, Ledger Masters, Sales Ledger, Vouchers and transactions, VAT calculation.

LIST OF PRACTICALS

1. Exercises Based on above all topics  
4.2 E-COMMERCE

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

L T P  
6 - -

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	8	-	
2.	Topic 2	8	-	
3.	Topic 3	8	-	
4.	Topic 4	8	-	
5.	Topic 5	10	-	
6.	Topic 6	10	-	
7.	Topic 7	10	-	
8.	Topic 8	6	-	
9.	Topic 9	8	-	
10.	Topic 10	8	-	
		84	-	-

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, Benefits, Concepts, Application, Edi Model.
10. RISK OF E-COMMERCE :  
Overview, Security for E-commerce, Security Standards, Firewall, Cryptography, Key Management, Password system, Digital certificates, Digital signatures.

#### 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

#### 4.3 ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

L T P  
4 - -

##### 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	4		
2.1	Water Pollution	8		
2.2	Air Pollution	8		
2.3	Noise Pollution	4		
2.4	Radio Active Pollution	6		
2.5	Solid Waste Management	6		
3.	Legislations	4		
4.	Environmental Impact Assessment	4		
5.	Disaster Management	6		
TOTAL		56	-	-

##### 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.

#### 4.4 (i)PROJECT WORK

L	T	P
-	-	8

#### 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.

#### 4.4 (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.

4.4 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 Semester System

Sl. No.	Name of Post	No.
1.	H.O.D.	1
2.	Lecturer	6
3.	Computer Programmer/ Computer Operator	3

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.	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 (Bit depth 48)	02	20,000
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 minute 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	08	35,0000

over voltage and time delay circuit

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

HARDWARE MAINTENANCE & PROJECT LAB

S.No.	Descirption	Qty.	Approximate Cost.
1.	Digital Multimeter 3 1/2 to 4 1/2 digits, 1000 Volt DC, 2 Mega Ohm range, Resistance, capacitance, Freq., Diode, transistor, Continuity testing, AC/DC Change	15	55,000
2.	Power Supply Regulated/transistorized 0-30 V	15	50,000
3.	Intel i5 or Highere-2 Processor 2 GB RAM, 320 GB HDD, or Higher, CD/DVD Drive	15	1000000
4.	Printer (600 cps) a) Dot Matrix b) Desk Jet c) Laser	3 Each	200000

5.	Constant Voltage Transformer	5		50,000
6.	PC Card Sets (One Mother Board, 4 Cards)	5		50,000
7.	Spike Buster	15		20,000
8.	Trainer Board	05 Set		500000
	i. To demonstrate assembly & working of multimedia computer system	of each Board		
	ii. To study mother board with different chip set and processor			
	iii To study Hard Disk (SATA/IDE)			
	iv. To study construction and working of TFT/LCD/LED monitor			
	v. To study dot-matrix, Ink Jet, Laser Jet Printer			
9.	Tool Kit	15		75000

7. LEARNING RESOURCE MATERIALS

1.	LCD Projector with Screen	1	--	20000
2.	Handicam	1	--	30000
3.	Cutting, Binding & Stitching equipment.	1	--	30000
4.	Desk Top Computer with Internet Core i5/i7- 760, Processor, Genuine Windiw 7, Professional 18 inch HD, Flat Panel Monitor Optical Mouse, Key Board & all related media or latest version	1	--	40000
5.	Home Theater Support Disc type CD. CDR/CDRW DVDR/DVDRW, VCD Supported with USB Port Support-DIVX/JPEG/MP3	1	--	25000
6.	Commerical P A System 16 W-220W output, AC & 24V DC Operated, 5 Mic. & 2 Auxilary input, Speaker output 4 Ohm, 8 Ohm, 17 V & 100 V	1	--	20000
7.	Interactive Board	1	--	50000

ote :

1. This center will be only one at the institute level irrespective of all branches.

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.

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 holders in Computer Applications
- |   |       |
|---|-------|
| (a) Technical knowledge                 | ----- |
| (b) Practical skill                     | ----- |
| (c) Etiquette and behaviour             | ----- |
| (d) Aptitude                            | ----- |
| (e) Health, habit and social background | ----- |
| (f) Institution where trained           | ----- |
12. Does your organisation have any system for the survey of Home articles of different countries/States. Yes/No
13. Does your organisation conduct field survey to know users views regarding: Yes/No
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 Computer Applications
15. In which type of organisation can a diploma holder in Computer Applications can work or serve.
- |   |   |   |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
16. Job prospects for the diploma holders in Computer 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:-

Gaurav Kishor Kanaujiya  
Lecturer-IT  
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 )

#### 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.