SCHEME OF EXAMINATION 2010-20117

BCA PART- III

Subject Code	Subject Paper	Theory Marks		Internal Marks		Teaching Load per Week		
		Max.(A)	Min.(B)	Max.(C)	Min. (D)	L	T	P
BCA	Part I Calculus & Geometry Part II DifferentiaL Equation & Fourier Series Part III Computer System Architect	50 50 50	60	- - -	- - -	2 2 2	- - -	- - -
BCA	Java	100	40	50	30	4	2	-
BCA	Operating Systems	100	40	50	30	4	2	-
BCA	Software Engineering	100	40	50	30	4	2	-
BCA	A. Multimedia tools and Applications B. Practical based on course 305A	50 50	20 20	- -	- -	2 -	2 -	- 2x2
BCA	A. Financial Accountancy B. Foundation Course	50 50	40	- -	- -	2 2	- -	- -
BCA	Practical Based on Course-302	100	50	-	-	-	-	3x2
BCA	Project	100	50	-	-	-	-	1x2
	TOTAL	850	360	150	90			
	GRAND TOTAL (PAPER+INTERNAL)	**(A+C) 1000**	**(B+D) 450**					

Minimum passing marks in subject BCA is 40% of total marks 150(i.e. Total of Part I + Part II + Part III marks of BCA)

30. Write a program in VC++ using M

CALCULUS & GEOMETRY

Max. Marks : 5

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

CALCULUS

UNIT-I The Reimann Integral, Existence of the Riemann Integral, Properties of Reiman Integrals, Fundamental Theorem of Integral Calculus.

UNIT-II Maxima and minima of functions of two and three variables. Langrange's metho of undetermined multipliers.

UNIT-III Improper integrals, Meaning of integrals of type $\int_a^\infty f(x)\,dx$, $\int_a^b f(x)\,dx$ where f(x) is not defined at a and/or b. Tests of convergence for improper integrals.

GEOMETRY

UNIT-IV Equation to cone with given base, Generators of Cone, condition for three mutually perpendicular generators, Right Circular Cone, Equation of a cylinder.

UNIT-V Polar Coordinates, Polar equation to straight line, Circle. Polar equation of a Conic

REFERENCE:

1. Calculus of two and more variables: G.S. Pandey & V.P. Saxena (Wiley Eastern)
2. Higher calculus : P.L.Sharma
3. Vector Calculus & Geometry : B.R.Thakur.

DIFFERENTIAL EQUATIONS & FOURIER SERIES

Max Marks : 50

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT-I Concept of Differential equation. Recall of first order and first degree differential equations. Equation of first order but of higher degree. Homogeneous and exact differential equations.

UNIT-II Geometric representation, Family of curves and orthogonal trajectories. Linear differential equation with constant coefficients. Operational rules of D. Homogeneous linear equations.

UNIT-III Partial differential equations of first order, Standard forms, Linear partial differential equations of higher order with constant coefficients.

UNIT-IV Periodic Function, Fourier Sine and Cosine Series, Even and Odd Functions, Full Range and Half Range Fourier Series

UNIT-V Convergence of Fourier Series, Gibbs Phenomenon, Operations on Fourier Series,

Applications of Fourier Series to Differential Equation

REFERENCE:

1. Introductory course in differential equations : D. A. Murray
2. Differential equations(Awkl Sameekaran) : B.P. Parashar & L.P. Rajpal
3. Differential equations and Fourier Series : H.K.Pathak

Computer System Architecture

Max Marks : 50

Note : **The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.**

UNIT-I Data Representation – Data Types, Number System, Fixed Point Representation – 1's, 2's complements, Binary Fixed point representation, Arithmetic operation on Binary operation, Overflow & Underflow, Codes, ASCII, EBCDIC codes, Grey codes, Excess-3, BCD codes, Error detection & correcting codes.

UNIT-II Digital Logic Circuits – Logic Gates AND, OR, NOT, Gates & their truth tables, NOR, NAND & XOR Gates, Boolean algebra, Basic Boolean Law, Doorman's theorem, Map Simplification, Minimizing technique, K Map, Sum of product, Product of sums, Combinational & sequential Circuits Half adder & Full adder, Full Subtractor, Flip Flop – RS, D, JK & T Flip Flop, Shift register, RAM & ROM.

UNIT-III CPU organization, ALU & Control circuit, Idea about arithmetic circuits, Program control, Instruction sequencing, Introduction to Microprocessor, Microprocessor architecture, System buses, Registers, Program counter,, Block diagram of a Macro computer system, Microprocessor control signals, Interfacing Devices ,Introduction to Motherboard ,SMPS

UNIT-IV Input output organization, I/O Interface, Properties of simple I/O devices and their Controller, Isolated versus Memory mapped I/O, Modes of Data transfer, Synchronous & Asynchronous Data Transfer, Handshaking, Asynchronous serial transfer, I/O processor

UNIT-V Auxiliary memory - Magnetic drum, Disk & Tape, Semi conductor memories, Memory Hierarchy, Associative memory, Virtual memory, address space & memory space, Address mapping, Page table, Page replacement, cache memory, Hit ratio, Mapping Techniques, Writing into cache.

REFERENCE:

1. Computer System architecture - M. Moris Mano

Programming In JAVA

Max marks : 100 **Min marks : 40**

Note : **The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.**

UNIT-I **Introduction :**

Genesis of java, importance to the Internet, overview of features.

OOP :

OOP features, data types, control structures, arrays, methods and classes, nested & inner classes, string and String Buffer class, Wrapper Class, vectors,

UNIT-II **Inheritance :**
Basics type,, method Override, using abstract and final classes, using sup
Packages and Interfaces :
Defined CLASSPATH, importing packages, implementing interface.

UNIT-III **Exception Handling :**
Fundamental: exception types, using try and catch, throwing exceptions, def exceptions.
Multithreaded Programming :
Java spread model, creating threads, and thread priorities, synchroniza Suspending resuming and stopping threads.

UNIT-IV **Input/Output:**
Basic Streams, Byte and Character Stream, predefined streams, reading and wr from console and files. Using standard Java Packages (lang,util,io)
Networking : Nasecs. TCP/IP client & server sockets, URL connection.
JDBC: Setting the JDBC connectivity with backend database.

UNIT-V **Applets :**
Fundamentals, life cycle, overriding update, HTML APPLET tag, passing paramet Developing single applets.
Introduction to AWT :
Window fundamentals, creating windowed, programs waking with graphics, using A controls, menus. Delegation event model, handling mouse and keyboard even

BOOKS RECOMMENDED:

1. java complete reference - by Patrick naughten & Mesut Scpddt. [TMH]
2. Java Primer - by E.Balaguruswami
3. Java Programming - Khalid Mughal

COMPUTER OPERATING SYSTEMS

Max marks-100 **Min marks –**

Note : **The Question Paper setter is advised to prepare unit-wise question with th provision of internal choice. Only Simple calculator is allowed not Scientif calculator.**

UNIT-I **Introduction**
What is operating system, basic concept, terminology, batch processing, spoolin multiprogramming, time sharing, real time systems, protection, multiprocess system, operating system as resource manager, process view point, memor management, process management, device management and information manage ment, other views of operating system, historical, functional job control languag and supervisor service control.

UNIT-II **Processor Management (CPU Scheduling)**
Reviewing of multiprogramming concept, scheduling concept, basic concept, CPU I/O burst cycle process state, PCB (Programme Control Block) scheduling queues schedulars, scheduling algorithms - performance criteria, first-come - first served shortest job - first priority, preemptive algorithm, round robin, multilevel queues and multilevel feedback queues, algorithm evolution, multiprocessor scheduling separate system, coordinated job scheduling, master / slave scheduling.

UNIT-III **Memory Management**
Preliminaries of memory management, memory handling in M/C, relocation, swapping

and swap time calculation, multiple partitions, partitioned allocation MFT, fragmentation, MVT, compaction, paging, job scheduling implementation of page tables, shared page, virtual memory-overlays, concepts of virtual memory demand page, memory management and performance, page replacement and page replacement algorithms. Allocation algorithms. Storage hierarchy disk and drum scheduling - physical characteristics fcfs scheduling SCAN, short of seek time first disk scheduling algorithms sector queuing.

UNIT-IV **Information Management (File System)**

File concept, file type, typed based system, disk based system, general model of file system, file directory maintenance, symbolic file system, basic file system, physical file system, file support device directory, access methods free space management contiguous, linked allocation and indexed allocation performances.

UNIT-V **Dead Locks**

The Dead Lock problem - Dead Lock definition, Dead Lock detection, detection algorithm usage, Dead Lock characterization, resource allocation graph, Dead Lock prevention, mutual exclusion, hold and wait, no preemption and circular wait, dead lock avoidance-bankers algorithm. Recovery from Dead Lock process termination, resource preemption, combined approach to Dead Lock handling.

BOOKS RECOMMENDED :

1. **Principles of Operating System** - **Peterson.**
2. **Operating System** - **Mandinick & Donovan.**

BCA (Third Year)
Software Engineering

Max marks-100 **Min marks – 40**

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT-I **Introduction to Software Engineering**

e. Definition
f. Need and Software problem
g. Software Crises
h. Software Engineering Problem
   1. Fundamental Problem
   2. Important Quality of Software Product
i. Software Engineering Approach
   1. Phase Development Process
   2. Life Cycle of Software
j. Principles Of Software Engineering
k. Software Development Process Model
   1. Waterfall model
   2. Spiral Model
   3. Prototype Model
   4. Iterative Model

UNIT-II **Project Management**

a. The Phase Management Process
b. Software Metrics
   1. Size Oriented Metrics

2. Function Oriented Metrics

UNIT-III **Software Requirement and Specification**

a. Introduction and Need of SRS
b. Structured Analysis
   1. Data Flow Diagram
   2. Context Diagram
   3. Data Dictionary

UNIT-IV **Software Design & Coding**

f. Principle of Software Design
   1. Partitioning
   2. Abstraction
   3. Top Down and Bottom up Strategies
g. Concept of Module
   1. Coupling
   2. Cohesion
h. Structured Chart
i. Coding –
   a. Rules of Good programming Style
   b. Code Verification

UNIT-V **Software Testing and Maintenance**

a. Definition
b. Testing Fundamentals
   Error, Fault, Failure
c. Test Oracles
d. Types of Testing
   1. Black Box Testing
   2. White Box Testing
   e. Level of testing- Unit, Integration, System, Acceptance
f. Introduction of Maintenance

Books

1. Software Engineering by Roger Pressmen

MULTIMEDIA TOOLS AND APPLICATIONS

Max marks-50 **Min marks – 2**

Note : **The Question Paper setter is advised to prepare unit-wise question with th provision of internal choice. Only Simple calculator is allowed not Scientifi calculator.**

UNIT-I **Multimedia:** Needs and areas of use, Development platforms for multimedia – DOS Windows, Linux. Identifying Multimedia elements – Text, Images, Sound, Animatio and Video, Making simple multimedia with PowerPoint.

Text – Concepts of plain & formatted text, RTF & HTML texts, using common tex preparation tools, Conversion to and from of various text formats, using standard software, Object Linking and Embedding concept, Basics of font design, overview of some fonts editing and designing tools, Understanding & using various text effects

Images – importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc. various attributes of Images – size color, depth etc, Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG

TGA, PNG and TIF format – their features and limitations, graphic file formats conversions, processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc..

UNIT-II **Sound:** Sound and it Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sounds-Sampling, Frequency, Sound Depth, Channels, Sound on PC, Sound standards on PC, Capturing and Editing sound on PC, Overview and using some sound recording, editing software. Overview of various sound file formats on PC – WAV, MP3, MP4, Ogg Vorbose etc.

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software- animation pro, 3D studio & Paint Shop pro animator.

Animation on the Web – features and limitations, creating simple animations for the Web using GIF Animator and Flash.

UNIT-III **Video:** Basics of Video – Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX Introduction to AV/DV and IEEE1394 cards , Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards – NTSC, PAL, SECAM, HDTV, Introduction to video capturing Media & instrument – Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and various file formats – AVI, MPEG, MOVE Real Video.

Brief Introduction to video editing and movie making tools – Quick time, video for windows & Adobe premier.

UNIT-IV **Authoring tools for CD Based Multimedia:** Type of multimedia authoring tools, key factors of selecting CD based multimedia authoring tools, Planning and distribution of a multimedia project. Multimedia development team & skills requirement, Stages in designing & producing multimedia products for CD, Testing of product, distribution of multimedia product, various formats of CD's and DVD's.

UNIT-V Multimedia on the Web: Bandwidth relationship, broadband technologies, Text in the web – Dynamic and embedded font technology, Audio on the Web – Real Audio and MP3/MP4, Audio support in HTML, Graphics – HTML safe color palate, Interlaced V/s Non interlaced model, Graphics support in HTML, Image Map, Video on the Web – Streaming video, Real Video, MPEG and SMIL, Virtual Reality on the Web.

TEXT AND REFERENCE BOOKS :

1. ***Multimedia: Making It Work*** *(4th Edition) – by Tay Vaughan, Tata Mcgraw Hills.*
2. ***Multimedia In Action –*** *James E Shuman – Vikas Publishing House.*
3. ***Multimedi Basics –*** *Volume – 1 Technology, Andreas Holzinger, Firewall Media(Laxmi Publications Pvt. Ltd) New Delhi.*

FINANCIAL MANAGEMENT & ACCOUNTANCY

Max marks : 100 **Min marks : 40**

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

1. Financial Accounting :

Meaning and Nature, Accounting Principles underlying the preparation of financial

statements.

2. Preparation of Financial Statements :
A Synoptic view-Profit and Loss account, Balance Sheet

3. Financial statement Analysis
Ratio analysis (Liquidity, Solvency, Profitability, Efficiency), Statement of Changes i financial position-working capital basis.

4. Conceptual Framework of Cost Accounting
Meaning nature and need of cost accounting, Elements of cost, Preparation of cost sheet, Cost concept –Fixed and variable costs, sunk costs, Out of pocket costs, Relevar and irrelevant costs, Opportunity and imputed costs.

5. Cost – volume Profit (CVP) relationship
Break-even analysis; (single and multiple products), Determination of sales volume t attain desired profits, Cash break-even point. Graphic presentation of CVP relationshi Assumptions and limitation of break-even analysis

6. Budgeting :
Definition and objective. Preparation of various types of budgets including cash budge Fixed and flexible budgets.

7. Cost Accumulation System
Job and Process (simple treatment)

8 Variable and absorption costing systems
Comparison for income determination (simple treatment), Variable costing as a tool o decision-making

Foundation Course

NOTE :- **The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.** **Max marks : 50**

UNIT-I Essay type answer in about 200 words. Four essay. Type question to be asked and two to be attempted.

UNIT-II Writing skills for composition- Essay writing.

UNIT-III Precis Writing

UNIT-IV Roading Comprehension of an unseen passage : 10 Marks

UNIT-V Vocabulary based on text : 5 Marks
Grammar- Advanced Exercises.

Note:- Questions on unit I and IV (b) Shall be asked from the prescribed text. Which will comprise popular creative writing and the following items.
Minimum needs- Housing and Transport. Geo -economic profile of women and Empowerment, Management of change . Ouality of life, war and human survival, the question of human social value survival , the question of human Social value, new Economic Philosophy. Recent Liberalisation methods, Demoratic decoralisation(With reference to 73,74 constitutional Amendment)
The text book shall be sponsored by the M.P. Higher Education Department and published the M.P. Hindi Granth Academy.

PRACTICAL WORK

BCA III

MULTIMEDIA TOOLS AND APPLICATIONS

1 **Scheme of Examination:-**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	10
Programme 2	-	10
Viva	-	15
[Practical Copy + Internal Record]	-	15
Total	-	**50**

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

Note : At least 15 practical exercises (Decided by the concerned subject teacher of the study institute) which cover the entire syllabus.

PRACTICAL WORK

BCA III

JAVA

1 **Scheme of Examination:-**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	20
Programme 2	-	20
Programme 3	-	20
Viva	-	25
[Practical Copy + Internal Record]	-	15
Total	-	**100**

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

List of Practical

1. WAP that implements the Concept of Encapsulation.
2. WAP to demonstrate concept of Polymorphism (Overloading and Overriden)
3. WAP the use boolean data type and print the Prime number Series up to 50.
4. WAP for matrix multiplication using input/output Stream.
5. WAP to add the elements of Vector as arguments of main method(Run time) and rearrange them , and copy it into an Array.
6. WAP to check that the given String is palindrome or not.
7. WAP to arrange the String in alphabetical order.
8. WAP for StringBuffer class which perform the all methods of that class.
9. WAP to calculate Simple Interest using the Wrapper Class.
10. WAP to calculate Area of various geometrical figures using the abstract class.
11. WAP where Single class implements more than one interfaces and with help of interface

reference variable user call the methods.

12. WAP that use the multiple catch statements within the try-catch mechanism.
13. WAP where user will create a self-Exception using the "throw" keyword.
14. WAP for multithread using the isAlive(), join() and synchronized() methods of Thread class
15. WAP to create a package using command and one package will import another package
16. WAP for AWT to create Menu and Popup Menu for Frame.
17. WAP for Applet that handle the KeyBoard Events.
18. WAP, which support the TCP/IP protocol, where client gives the message and server will be, receive the message.
19. WAP to illustrate the use of all methods of URL class.
20. WAP for JDBC to insert the values into the existing table by using prepared Statement
21. WAP for JDBC to display the records from the existing table.
22. WAP to demonstrate the Border Layout using applet.
23. WAP for Applet who generate the MouseMotionListener Event.
24. WAP for display the checkboxes, Labels and TextFields on an AWT.
25. WAP to calculate the Area of various geometrical figures using the abstract class.
26. WAP for creating a file and to store data into that file.(Using the FileWriterIOStream
27. WAP to display your file in DOS console use the Input/Output Stream.
28. WAP to create an Applet using the HTML file, where Parameter Pass for font Size and Font type and Applet message will change to corresponding parameters.

PRACTICAL WORK

BCA III

Project

1. **Scheme of Examination:- The Project should be done by individual student.** Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Software Demonstration	-	40
Project Report (Hard Copy + Soft Copy)	-	20
Project Demonstration/Presentation	-	20
Project Viva	-	20
Total	-	**100**

2. **Format of the student project report on completion of the project**
   - Cover page as per format
   - Certificate of Approval
   - Certificate of project guide/Center Manager
   - Certificate of the company/Organization
   - Certificate of Evaluation
   - Declaration / Self Certificate
   - Acknowledgement

   In the "Acknowledgement" page, the writer recognizes his /her indebtedness for guidance and assistance of the thesis/report adviser and other members of the faculty. Courtesy demands that he/she also recognize specific contributions by other persons or institutions such as libraries and research foundations. Acknowledgements should be expressed simply, tastefully, and tactfully.
   - Synopsis of the project
   - Main Report

- ✓ Objectives & Scope of the project
- ✓ Theoretical Background of Project
- ✓ Definition of problem
- ✓ System Analysis & Design
- ✓ System Planning (PERT Chart)
- ✓ Methodology adopted, system Implementation & Detail of Hardware & Software used
- ✓ System maintenance & Evaluation
- ✓ Cost and benefit Analysis
- ✓ Detailed Life Cycle of the project
  - o ERD,DFD
  - o Input and Output Screen Design
  - o Process involved
  - o Methodology used for testing
  - o Test Report, Printout of the code sheet
- ✓ User/Operational Manual- including security aspects, access rights, back up, Controls etc.
- ✓ Conclusion
- ✓ References
- ✓ Soft copy of the project on CD

Formats of various certificates and formatting styles are as:

1. **Project report Cover Format:**

A
Project Report
On

Title of the Project Report

(Times New Roman.Italic, Font Size=24)

Submitted in partial fulfillment of the requirements for the award of degree
Bachelor of Computer Application
From
Pt.Ravishankar Shukla University Raipur (C.G.)
(Bookman Old Style, 16 Point, Center)
Year : xxxx
Logo of college

Guide
(Guide Name)

Submitted by:
(Student's Name)
Roll No:

Submitted to
(College Name)
Pt.Ravishankar Shukla University Raipur (C.G.)

2. **Certificate of Approval by Head of the Department in letter head**

CERTIFICATE OF APPROVAL

This is to certify that the Project work entitled " _____ "
is carried out by Mr/Ms/Mrs _____, a student of BCA – III year at (**College**

Name) is hereby approved as a credible work in the discipline of Computer Scie & Information Technology for the award of degree of **Bachelor of Computer Applicat** during the year _____ **from Pt. Ravishankar Shukla University, Raipur (CG).**

(Head Name

3. **Certificate from the Guide in letter head**

CERTIFICATE

This is to certify that the Project work entitled " _____ Submitted to the **(College Name)** by Mr/Ms/Mrs _____ R No_____, in partial fulfillment for the requirements relating to nature and stand of the award of **Bachelor of Computer Application** degree by , **Pt. Ravishankar Shu University, Raipur (CG)** for the academic year 20___ - 20___ .

This project work has been carried out under my guidance.

(Guide Name

4. Certificate of the Company or Organisation from where the Project is done from the Pro Manager or Project guide.
5. Certificate of evaluation in the department letter head

CERTIFICATE OF EVALUATION

This is to certify that the Project work entitled " _____ carried out by Mr/Ms/Mrs _____ , a student of BCA – III year at (**Colle Name)**, after proper evaluation and examination, is hereby approved as a credible w in the discipline of Computer Science & Information Technology and is done in a satisfact manner for its acceptance as a requisite for the award of degree of **Bachelor of Comput Application** during the year _____ from **Pt. Ravishankar Shukla University, Raip (CG).**

Internal Examiner **External Examiner**

6. Declaration of Student / Self Certificate

DECLARATION

This to certify that the project report entitled "_____ which is submitted by me in the partial fulfillment for the award of the degree of **Bachel of Computer Application, (College Name)**, comprises the original work carried o by me.

I further declare that the work reported in this project has not been submitted a will not be submitted, either in part or in full for the award of any other degree or diplom in this Institute or any other Institute or University.

(Name)
(Roll No)

Place :
Date :

- - - - - - -

Ordinance No. 129

1. **Name of the course : Diploma in Computer Application (Part-time course)**

The course will be under the Board of Studies in Computer Science of the University for academic purposes.

2. **Duration : One Year**

The Examination shall consists of Total 8 papers in a year (Six Theory Papers and Two Practical), each carrying 100 marks. Candidate should pass in Theory and Practical Examinations seperately. Each Theory paper will be having 50 marks each as sessional marks, which will be awarded, internally by teachers and Head of the Department (Computer Science). Minimum passing marks will be 33% in theory and 40% each in Practical & Sessional. A candidate failing in one or more subjects will be required to clear it in the next Annual examination. His/Her result will be declared only after he/she clears all the papers, the result should be declared according to the following.

1.	Less than 33%	-	FAIL
2.	33% & more but less than 50%	-	PASS DIVISION
3.	50% & more but less than 60%	-	SECOND DIVISION
4.	60% & more but less than 75%	-	FIRST DIVISION
5.	75% & more	-	FIRST DIVISION WITH DISTINCTION

A candidate will be permitted to appear in the examination of the course for a maximum period of 4 years. If he/she fails to clear the corse within the period of 4 years, he/she will be dropped out of the course.

3. **Eligibility and Admission :**

A candidate who has passed the Higher Secondary Examination or Equivalent. The admission will be done on the basis of Entrance Test. Admission to Maximum 10% of total seats may be given to eligible candidate(s) under NRI/NRI-Sponsored /Industry/Organization Sponsored category. Entrance Test will not be required for the candidates under this category.

In each course 40 students will be admitted in this course but University reserves the right to alter the intake. The reservation of seats will be made as per govt. Rules for SC/ST/OBC/ PH category. In case no candidate is eligible /available for admission under reserved category the seats will be treated as unreserved and will be made available for general category candidates. Candidates doing any other Under Graduate or PG Course can also do this course.

4. **Fee Structure :**

University reserves the right to decide the fee structure, time to time.

5. **Syllabus :**

The syllabus & scheme of examination has been approved by the Board of Studies in Computer Science of Pt. Ravishankr Shukla University, Raipur and subject to alteration by the Board of Studies.

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DIPLOMA IN COMPUTER APPLICATION, 2010-2011
[DURATION - ONE YEAR - PART TIME]

The duration of the course shall be one year consisting of two semesters. There shall be thr theory and one practical course in the each semester. There shall be grading system of awar

FIRST SEMESTER

DCA : Essential of Information Technology and OS
DCA : Essentials of Office Automation.
DCA : Programming in 'C' Language
DCA : Practical based

Essential of Information Technology and OS

1. **Introduction to Computers**
Computer System Characteristics and Capabilities : Speed, Accuracy, Reliability, Memo *Computer Hardware and Software,* Block Diagram of a Compute capability, Repeatability. *Types of Computers:* Analog, Digital, Hybrid General and Special Purpose Computer *Computer Generations:* Characteristics of Computer Generations Computer Systems Micros, Minis & Main-frames. *Introduction to a PC :* The IBM Personal Computer Type of PC systems PC, XT & AT Pentium PC's.
2. **Computer Organization**
Introduction to Input Devices : Keyboard, Direct Entry – Card Readers, Scanning Devic – O.M.R., Character Readers, MICR, Voice Input Devices, Pointing Devices – Mous Light Pen. *Storage Devices :* Storage Fundamentals-Bits, Bytes, Primary Storage RAM,ROM, Secondary Storage-Floppy Disks, Hard Disks, Optical Disks, CD/DV *Computer Output :* Output Fundamentals, Hardcopy Output Devices, Impact Prin ers, Non-Impact Printers, Plotters, Computer output, Softcopy Output Devices, Cathod Ray Tube, Flat Screen Technologies.
3. **Operating System**
MS-DOS - Introduction, History and Versions of DOS. Booting Process, System File and Command.com, Internal DOS Commands - DIR, MD, CD, COPY, DEL, REN, VOL DATE, TIME, CLS, PATH, TYPE. Files & Directories, Elementary External DOS Commands - CHKDSK, MEM, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, HELP TREE, SYS, LABEL, ATTRIB, Creating a Batch Files, Additional Commands - ECHO PROMPT, MODE, EDIT, FORMAT, FDISK, BACKUP, RESTORE, MORE, SORT.
4. **Windows**
Windows Concepts, Features, Structures, Desktop, Taskbar, Start Menu, My Computer Recycle Bin. Accessories : Calculator, Notepad, Paint, Wordpad, Character Map. Explorer Creating folders and other Explorer facilities, Internet Explorer basics, navigating the Web Control Panel.
5. **Linux**
Open Source Software concept and evolution of Linux, Features of Linux OS, Structure of Linux OS, File System, Directory Structure, Linux editors & Editor commands, Linux commands cd, md, rm, mv, ls, cat, find, grep.

Books

1. Using IT : Williams T M Hill
2. IT : Curtin T M Hill
3. Fundamental of Information Technology : Chetan Shrivastava_Kalyani Publishers
4 Computer Fundamentals : P.K Sinha BPB Pubications
5. Working with UNIX : Vijay Mukhi [BPB]

ESSENTIALS OF OFFICE AUTOMATION

1. **MS-Word**- Creating and editing word documents, formatting documents – aligning documents, indenting paragraphs, changing margin, formatting pages, formatting paragraph, printing labels, working with tables, formatting text in tables, inserting and deleting cells, rows and columns, use bulleted and numbering, checking spelling and grammar, finding synonyms, working with long documents, working with header and footer, adding page number and foot note, working with graphics, inserting clip art, working with pictures, Word art, creating chart & Graphs, creating flowcharts, working with mail merge, writing the form letter, merging form documents, merging to label, Working with Mailing lists and Data Sources, selecting merge records, creating macros, running macro.
2. **Working with MS-Excel** – Introducing Excel, use of excel sheet, saving, opening and printing workbook ,Apply formats in cell & text, Divide worksheet into pages , setting page layout, adding Header & Footer. Using multiple documents, arranging windows i.e. (Cascade, Tiled ,Split), protecting your work, password protection. Working with Functions & Formulas, using absolute reference, referencing cell by name , using cell label , giving name to cell and ranges , working with formulas (mathematical & trigonometric , statistical, date time , most recently used), Working with Excel graphics, creating chart & graphs. Working with lists & database, sorting a database, filtering a database ,using auto filter ,criteria range, calculating total and subtotal, creating pivot table, goal seek, recording & playing macros, deleting and selecting macro location.
3. **Presenting with PowerPoint** – Creating presentation, working with slides, different types of slides, setting page layout, selecting background and applying design, adding graphics to slide, adding sound and movie, working with table, creating chart and graph, playing a slide show, slide transition, advancing slides, setting time, rehearsing timing, animating slide, animating objects, running the show from windows.
4. **Introduction of DBMS through MS-Access** – Introduction to Database, DBMS, RDBMS, Features of Access, Designing Database, Relationship (One to One, One to many, Many to Many), Create table (Design View, Wizard, Datasheet View), Query (Update Query, Delete Query, Selection Query, Cross table Query, Make table Query).
5. **Introduction to TALLY**

   Accounting, Accounting Conventions (Single and Double Entry), Transactions, Types of Accounts, Personal Accounts, Real, Nominal, Rules of Accounting.

   Introsuction to Accounting Software [Ex. TALLY] – Creating of Company, Ledgers & Groups. Voucher Entry; Types of Voucher, Capital and Revenue, Income, Expenditure, Receipts, Preparation of Trial Balance, Profit & Loss Account & Balance Sheet.

Suggested Books :

1. The Big Basics Book Of MS-OFFICE : Fulton, et al.

PROGRAMMING IN 'C'

1. Programming Languages - Introduction & History, Types of Programming Languages – Low Level, Middle Level & High Level Languages, Generations of Languages; Language Translator – Assembler, Compiler, Interpreter, Concept of Flow Chart & Algorithms.
2. Introduction to C programming structure and C compiler, Data representation : Simple data types like real integer, character etc. Program, statements and Header Files, Simple Input Output statements in C, Running simple C programs. Primitive data types in C, char, integer, float, Double Long, Double Void etc.
3. Operators and Expressions – Arithmetic Operators, Assignment Operators, increment and

decrement operator, relational and Boolean operators, Mixing of Different data types an operators for forming expressions.
Control Structures using if, if....else, nested if....else, switch statement, Using Loop For loop situations, while loop situation, Nested loops.

4. User define functions

UNIT-2 - Control Structure: If - statement, If -else statement, Multiway decision, Compound Statement, Loops: For - loop, While -loop, Do-While loop, Break statement, Switch statement, Continue statement, Goto statement.
2.1 - Functions : Function main , Functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of Iteration and recursion variable length argument list.

UNIT-3 - Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of String Function in String, Pointers: Definition and use of pointer, address operator, point variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, point and arrays, passing arrays to functions, pointer and functions, accessing array insi functions, pointers and two dimensional arrays, array of pointers, pointers constant pointer and strings.

UNIT-4 - Structure and Union, Declaring and using Structure, Structure intialization, Structu within Structure, Operations on Structures, Array of Structure, Array within Structur Creating user defined data type, pointer to Structure and function. Union, differenc between Union and Structure, Operations on Union, Scope of Union.

UNIT-5 - Dynamic memory allocation, Library function for Dynamic memory allocation, Dynam Multi-Dimensional arrays, Self-referential structure. File : - Introduction, Structure, Fi handling, Functions file types, Unbuffered and buffered file, Error handling. Low level fi Input- Output.

5.1 - Introduction to C++ : Concept of Object Oriented Programming Syste Characteristics of OOP Language, object ,classed, advantages of OOPS over procedur oriented program, C++ Programming Basics, C++ Programs.

TEXT BOOKS :-

1. Let us C - Yashwant Kanitkar.
2. Mastering in C - Venugopal
3. Shaum's Series

SECOND SEMESTER

DCA : GUI - Programming in Visual Basic.
DCA : Data Base Management System [DBMS].
DCA : Essential of E -Commerce .
DCA : Practical based

GUI - PROGRAMMING IN VISUAL BASIC

1. Designing and Creating Programs :
Program Design; the launch program; the form and the controls; writing the code; save your work; running and testing; making an EXE file; printouts.

1.1. Program FLOW :
Logical testing; branching with if; Select Case; Go To; For...Next; Do Loops; While... Wend.

2. INTERACTING WITH USER :

Msg boxes, the input box function, scrool bars, frames, options, check boxes, menus.

2.1 **GRAPHICS :**
Objects and properties for drawing, the drawing methods, working with imported graphics,animation.

3. **PROCEDURES, FUNCTIONS AND FORMS :**
Procedures and Functions, creating a procedures, creating a function, recursive functions, multiple forms, startup forms, starting from sub main, transferring between forms, procedures and modules.

3.1 **ARRAYS :**
Dimensions, elements and subscripts, arrays and loops, control arrays, creating a control arrays.

4. **SEQUENTIAL FILES :**
Saving data to files, basic filing, data analysis and file, the extended text editor.

4.1 **RECORDS AND RANDOM ACCESS FILES :**
Record structures, random acces files, the staff database, design and coding, MDI Forms- parent and child.

5. **ACCESSING DATA - DATA MANAGER AND DATA CONTROL**
Creating database, what is database, planning your database, using the data manager, adding an index, using the data manager to enter data, creating a form with data aware contrls, what is data control, what are data aware controls, creating a menu bar.

BOOKS RECOMMENDED :

1. Introduction to OOP & V.B. – V.K. Jain (Vikas Publisher]
1. Data Base Management System - Alexies & Mathews [Vikas publication]
2. Programming in Visual Basic - G.B. Sahoo & Rita Sahoo BPB Publications.
3. Programming in VB 6.0- Bradley – TM Hill.

DATA BASE MANAGEMENT SYSTEM [DBMS]

1. **DATABASE SYSTEM :**
Operational data, why database, data Independence, an Architecture for a Data base system, DDL & DML, Data Dictionary, Data structures and Corresponding Operators, Data Models, The Relational approach, The Network approach, DBMS storage structure and access method.

2. **ENTITY-RELATIONSHIP MODEL:**
Entity - Relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; Strong and weak entities, Generalization; specialization and aggregation. Converting and ER model into relational Schema.

3. **RELATIONAL DATA STRUCTURE :**
Relations, domains and attributes, keys, extensions and Intentions, base tables, indexes, system R Data Manipulation, built-in-functions, the system R Dictionary.

4. **QUERY LANGUAGE :**
Embedded SQL, Introduction, operations not involving cursors, Operations involving cursors, dynamic statements, security & integrity, security specification in SQL.

5. **RELATIONAL DATABASE DESIGN :**
Relational Algebra, Traditional Set Operations, Attributes Names for Derived Relations, special relational operations, further normalization, functional dependence. First, second and third normal forms, relations with more than one candidate key, Good and bad decompositions, fourth normal form, fifth normal form.

6. **INTRODUCTION TO ORACLE :**

Introduction to Commercial data base query language, SQL & its environment. SQL as a data definition language, creating tables, altering tables, Inserting, Deleting, updating, Retrieving data in a table, Join concepts(inner, outer, self, equi, non-equi), Nested Queries, Constraints concept ,null, not null concept, Primary key, Foreign key, Unique key concept and Authorization concepts. Introduction to front end tool (ex. Developer 2000and Visual Basic), Introduction to ODBC Concept, features of higher versions of ORACLE.

Suggested Books :

1. Data base system : Korth & Silberschatz.
2. An Introduction toData base System : C.J. Date

Essentials of E -Commerce

1. **Introduction to Electronic Commerce** –The scope of E-commerce; Size, growth and future projection of E-commerce market Worldwide and in India; Internet and its impact on traditional businesses; Definition of E-commerce; Business models in E –Commerce environment; Case studies. *Emergence of E-commerce* - E-commerce on private networks, Electronic Data Interchange (EDI), What is EDI, EDI in action, EDI basics, EDI standards, financial EDI, FEDI for international trade transaction, FEDI payment system within the US, ACH credit transfer payment system FEDI, application of EDI, benefits of EDI, Electronics Payment system, E-commerce on the web, E-commerce in India,
2. **Internet, Security and E-Commerce:** Security of Data/Information in Internet/web environment; Client security, Network security; Virus protection and Hacking; Security Measures: Authentication, Integrity, Privacy, Non-repudiation; Public information, Private information, firewall tunnels, encryption, secret key encryption, public key encryption, digital signature. Case studies. *E-commerce Payment Systems* – E-Commerce Payment Models: Pure and Hybrid E-Commerce Payment Models; Credit Card; Debit Cards; Pre-paid Card; Online debit to the accounts; and Alternative Payment Systems employing Electronic Clearing System of Reserve Bank of India. Case studies.
3. **Business–to-Business (B2B), Business-to-Consumer (B2C); Business-to-Business-to-Consumer (B2B2C) and Consumer-to-Consumer (C2C) E-Commerce** – How E-Commerce business practices differ from traditional business practices; Inter organizational transaction; Business transaction cycle, different types of transactions in E-commerce environment; Electronic markets, advantages and disadvantages of E-Market, Future of E-Markets; Inter- Organizational E-Commerce transactions; Advantages and Disadvantages of Inter-Organizational E-Commerce. Business-to-Consumer E-Commerce transactions; advantages and disadvantages of B2C E-Commerce transactions. *Application of E-Commerce in India:* Internet banking; Online Trading; E-Governance and E-Government etc. Case Studies.
4. **HTML Basics & Web Site Design Principles** –
Concept of a Web Site, Web Standards, What is HTML? HTML Versions, Naming Scheme for HTML Documents , HTML document/file, HTML Editor , Explanation of the Structure of the homepage , Elements in HTML Documents ,HTML Tags, Basic HTML Tags, Comment tag in HTML, Viewing the Source of a web page, How to download the web page source? XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet language (XSL), Some tips for designing web pages, HTML Document Structure. HTML Document Structure-Head Section, Illustration of Document Structure,<BASE>

Element,<ISINDEX> Element,<LINK> Element ,META ,<TITLE> Element,<SCRIPT> Element ,Practical Applications, *HTML Document Structure-Body Section:*-Body elements and its attributes: Background; Background Color: Text; Link; Active Link (ALINK); Visited Link (VLINK); Left margin; Top margin ,Organization of Elements in the BODY of the document: Text Block Elements; Text Emphasis Elements; Special Elements — Hypertext Anchors; Character-Level Elements; Character References ,Text Block Elements: HR (Horizontal Line); Hn (Headings) ; P (Paragraph); Lists; ADDRESS ; BLOCKQUOTE; TABLE; DIV (HTML 3.2 and up) ; PRE (Preformatted); FORM ,Text Emphasis Elements, Special Elements — Hypertext Anchors ,Character-Level Elements: line breaks (BR) and Images (IMG),Lists ,ADDRESS Element, BLOCKQUOTE Element, TABLE Element ,COMMENTS in HTML ,CHARACTER Emphasis Modes, Logical & Physical Styles ,Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER.

5. **Image, Internal and External Linking between WebPages**
Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER Insertion of images using the element IMG (Attributes: SRC (Source), WIDTH, HEIGHT, ALT (Alternative), ALIGN),IMG (In-line Images) Element and Attributes; Illustrations of IMG Alignment, Image as Hypertext Anchor, Internal and External Linking between Web Pages Hypertext Anchors ,HREF in Anchors ,Links to a Particular Place in a Document ,NAME attribute in an Anchor ,Targeting NAME Anchors ,TITLE attribute, Practical IT Application Designing web pages links with each other, Designing Frames in HTML. Practical examples.

6. **Creating Business Websites with Dynamic Web Pages** – Concept of static web pages and dynamic web pages, Introduction to scripting, Types of Scripting languages, Scripting Files, Client Side Scripting with VB/Jscript/JavaScript, Practical examples of Client side scripting. Identifying Objects & Events, and Creating & Implementing Common Methods,. Hosting & promotion of the web site, Domain Name Registration, Web Space allocation, Uploading / Downloading the website- FTP, cute FTP. Web Site Promotion Search Engines, Banner Advertisements.

Recommend Books –

1. Business on the net - by Kamlesh N. Agarawala , Amit Lal & Deeksha Agarawal (Macmillan India Ltd.).
2. Introduction to HTML by Kamlesh N. Agarwala, O.P.Vyas, Prateek A. Agarwala. (Kitab Mahal Publications).
3. ASP Developer's Guide – by Greg, Buczek (TATA McGraw Hill).
4. Information Technology Act 2000: www.mit.gov.in/it-bill.htm

Online Resources—

Indian Case Studies: URL's of some of the websites

India's first e-Commerce B2C e-tailer: www.fabmart.com
India's first online trading netpreneurs www.icicidirect.com
India's first alternative payment alternative: www.billjunction.com
Indian online grocery establishments: www.fabmart.com; www.sangam.com; www.subiksha.com; and www.myfoodworld.com for example.
India bank's offering Internet banking services: www.icicibank.com; www.hdfcbank.com; www.gtb.com , for example.
www.ncsa.uiuc.edu/General/Internet/www.

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION, 2010-2011
[DURATION - ONE YEAR - FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theories and two practical courses in the each semester. There shall be grading system of awards.

FIRST SEMESTER

PGDCA	:	Introduction to software organization.
PGDCA	:	Programming in "C" & "C++".
PGDCA	:	DBMS (SQL/Oracle).

INTRODUCTION TO SOFTWARE ORGANISATION

1. **Introduction to Computers**

Computers – Introduction, Computer System Characteristics, Strength and Limitations of Computer, Development of Computers, Types of Computers, Generations of Computers.

Introduction to Personnel Computers – Uses of PC's, Components of PC's, Evolution of PC's, Developments of Processors, Architecture of Pentium IV, Configuration of PC's, Input Device; Output Devices.

2. **Computer Organization**

Central Processing Unit – Arithmetic Logic Unit, Control Unit, Registers, Instruction Set, Processor speed.

Storage Devices – Storage and its need, Storage Evaluation Units, Primary Storage, Secondary Storage, Data Storage and Retrieval Systems, SIMM, DIMM, Types of Storage Devices.

3. **Computer Software**

Basics of Software – needs of Software, Types of Software; Free Domain Software; Open Source Software; Compiler, Interpreter and Assembler; Linker and Loader; Debugger; Integrated Development Environment;

Operating System – Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux.

Programming Languages – Introduction, Comparison between Human and Computer Language; Program; Data, Information and Knowledge; Characteristics of Information; Types of Programming Languages; Generations of Languages; Program Development Steps; Programming Paradigms; Object-Oriented Programming; Structured Programming, Functional Programming, Process Oriented Programming.

4. **Communication, Networks and Internet**

Communication – Introduction, Communication process, Communication Types, Communication Protocols, Communication Channels/Media.

Networks – Introduction; Types of Network; Topology; Media - NIC, NOS, Bridges, HUB, Routers, Gateways.

Internet – Introduction, Growth off Internet, Owner of Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet History of World Wide Web, Services Available on Internet - File Transfer Protocol, Gopher, E-mail, Telnet, Newsgroups, WWW, Archie, Whols, WAIS, Veronica, Internet Relay Chat, Basic Internet Terminologies, Net Etiquette, Applications of Internet. Applications of Computers and Information Technology.

5. **Linux**

Open source Software concept and evolution of Linux; Features of Multi-User Operating System; Structure of Linux OS; Security Features of Linux, File System, Directory Structure and related commands. Linux Editors & editor commands, Linux commands cd, md, rm, mv, cp, ls, cat, find, grep.

Books Recommended

1. Essentials of Information Technology - A. Mansoor, Prgya Publications
2. Using IT : Williams T M Hill
3. IT : Curtin T M Hill
4. Fundamental of Information Technology : Chetan Shrivastava_Kalyani Publishers
5. Computer Fundamentals : P.K Sinha BPB Pubications
6. Fundamental of Computer - V.Rajaraman
7. Computer today - Sanders D.H
8. Information technology today - S.Jaiswal
9. Linux Book by Red Hat

PROGRAMMING IN 'C' & 'C++'

1. **Introduction :**
Introduction Character set, Identifiers and Keywords, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers, Type define Statements, Value initialized variables, Constants, Constant Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output: Single Character I/O, General Outputs, Types of Characters in format string, Scanf with specifier, Searchset Arrangements and Supression Character, Format Specifier for scanf.

2. **Control Structures & Functions -**
Control Structure: If - statement, If -else statement, Multiway decision, Compound Statement, Loops: For - loop, While -loop, Do-While loop, Break statement, Switch statement, Continue statement, Go to statement.
Functions : Function main , Functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of Iteration and recursion variable length argument list.

3. **Arrays & Pointes -**
Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of Strings, Function in String, Pointers: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, pointer and arrays, passing arrays to functions, pointer and functions, accessing array inside functions, pointers and two dimensional arrays, array of pointers, pointers constants, pointer and strings.

4. **Structure and Union -**
Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union. **Dynamic memory allocation -** Library function for Dynamic memory allocation, Dynamic Multi-Dimensional arrays. File : - Introduction, Structure, File handling, Functions file types, Unbuffered and buffered file, Error handling. Low level file Input- Output.

5. **Introduction to C++ :**
Concept of Object Oriented Programming System. Characteristics of OOP Language, object class, advantages of OOPS over procedural oriented program, inline function, function overloading, creating class and object, constructor, destructor, operator overloading, Friend function, Inheritance. .

SUGGESTED BOOKS :-

1. Let us C - Yashwant Kanetkar.
2. Programming in C - E. Balaguruswamy

3. Mastering in C++ - Venugopal
4. Let us C ++ - Yashwant Kanitkar

DBMS (SQL/Oracle)

1. **Introduction To DBMS**: -Purpose of database systems, views of data, Data Modeling, Database Languages, Transaction Management, Storage Management, Database Administrator and User, Database System Structure.
2. **E-R Model:** - Basic concepts, Constraints, Keys, Mapping Constraint, E-R Diagram, Weak and Strong Entity sets, E-R Database Schema, Reduction of an E-R Schema to Table.
3. **Relational Model**: Structure to Relational Database, Relational Algebra, The Domain Relational Calculus, Extended Relational- Algebra Operation, Modification of database, Views.
4. **Relational Database Design**: - Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization: 1NF, 2NF, BCNF, 3NF, 4NF, 5NF.
5. **Introduction to RDBMS Software - Oracle**

   5.1 Introduction: - Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL* PLUS.

   5.2 DDL and DML: Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views: What is Views, Create, Drop and Retrieving data from views.

   5.3 Security: - Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

   5.4 PL-SQL/TSQL: Block Structure in PL-SQL/TSQL, Variable and constants, Running PL-SQL/TSQL in the SQL *PLUS, Data base Access with PL-SQL/TSQL, Exception Handling, Record Data type in PL-SQL/TSQL, Triggers in PL-SQL/TSQL.

Suggested Books :

1. Data base system : Korth & Silberschatz.
2. Data Base Management System : Alexies & Mathews
3. An Introduction to Data base System : C.J. Date
4. Data Base Management System : Raguramakrishnan.
5. Data Base Management System : Elmasri & Nawathe.

PRACTICAL

Note- Syllabus of Practical Exam - "**Office Automation**" is as follows, also the contents of **DBMS (SQL/Oracle)** should be included for practicals.

1. **Windows 98/XP/2000**

   Windows Concepts, Features, Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin.

   Accessories : Calculator, Notepad, Paint, WordPad, Character Map.

   Explorer : Creating folders and other Explorer facilities.

   Object Linking & Embedding, Understanding OLE, Embed/Ling Using Cut and Paste, Object, Manage Embedded/Linked Object.

   Communication : Dialup Networking, Phone Dialer.

   Installation of various devices and Operating system like Windows/Linux.
2. **Office S/W : Word Processing, Spreadsheet, Power Point & Outlook Express**

   Word **:** Creating, Editing, & Previewing Documents, Formatting, Advanced Features, Using Thesaurus, Mail Merge, Table & Charts, Handling Graphics, Converting Word Documents into other Formats.

   Excel : Worksheet Basics, Creating, Opening, & Moving in Worksheet, Working with Formula & Cell referencing, Absolute & Relative addressing, Working with Ranges,

Formatting of Worksheet, Graphs & Charts, Database, Function, and Macros.

Power Point : Creating a presentation, Modifying visual Elements, Adding objects, Applying Transitions, animations and linking, Preparing handouts, presenting a slide show.

Outlook Express : Configuring mail-Inbox, Outbox, Drafts, (To, Cc, Bcc); Understanding & maintaining address book/Contacts, POP, IAMP, calendar/scheduler.

Foxpro

Preparing Database files, access & retrieval of records in a data base file, inserting & deleting of records. Programming preliminaries. Sorting & Indexing. Development of programs LOOPING, Branching, report making.

Tally

Setting up Ledger & Groups. Study of recording of transactions in the 'Voucher'. (According to Golden rules). Study of 'Final A/C preparation & displaying in different mode/format'. Study of alteration & Deletion of ledger/Groups. Study of cash & fund flow, day book, sales register, purchase register, bills receivable/Payable etc. Study of data security & backing up data. Outline of entry for Income Tax, ED, VAT, ST/ CST, PF, Gratuity, Bonus, Loans & Depreciation etc.

[Practical Exams to be conducted to test the proficiency of the candidate in each of the above syllabus-modules including the practicals based on DBMS (SQL/Oracle)]

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION, 2010-2011
[DURATION - ONE YEAR - FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theory and two practical course in the each semester. There shall be grading system of awards.

SECOND SEMESTER :

PGDCA	:	**GUI - Programming in Visual Basic.**
PGDCA	:	**Programming in Java.**
PGDCA	:	**Electives 1. Essential of E -Commerce**
PGDCA	:	**Practicals based**
PGDCA	:	**Project**

GUI - PROGRAMMING IN VISUAL BASIC

1. **Introduction to visual Basic**
   Editions of Visual Basic, Event Driven Programming, Terminology, Working environment, project and executable files ,Understanding modules, Using the code editor window, Other code navigation features, Code documentation and formatting, environment options, code formatting option, Automatic code completion features.
2. **Creating Programs**
   Introduction to objects, Controlling objects, Properties, methods and events, Working with forms, Interacting with the user: MsgBox function, InputBox function, Code statements. Managing forms, Creating a program in Visual Basic, Printing.
3. **Variable and Procedures**
   Overview of variables, Declaring, Scope, arrays, User-defined data types, constants working with procedures, Working with dates and times, Using the Format function, Manipulating text strings.
4. Controlling Program Execution
   Comparison and logical operators, If...Then statements, Select Case Statements looping structures, Using Do...Loop structures, For...Next statement, Exiting a loop.

5. **Working with Controls**
Types of controls, Overview of standard controls, ComboBox and ListBox, OptionButton and Frame controls Menu, Status bars, Toolbars, Advanced standard controls, ActiveX controls, Insertable objects, Validation.

6. Error Trapping & Debugging
Overview of run-time errors, error handling process, The Err object, Errors and calling chain, Errors in an error-handling routine, Inline error handling, Error-handling styles, General error-trapping options Type of errors, Break mode Debug toolbar, Watch window, Immediate window, Local window, Tracing program flow with the Call Stack.

7. **Sequential and Random Files:**
Saving data to file,basic filling, data analysis and file, the extended text editor, Random access file,The design and codeing.

8. **Data Access Using the ADO Data Control**
Overview of ActiveX data Objects, Visual Basic data access features, Relational database concepts Using the ADO Data control to access data, Overview of DAO, RDO, Data Control, structured query language (SQL), Manipulating data Using Data Form Wizard.

9. **Report Generation:**
Overview of Report, Data Report, Add groups, Data Environment, Connection to database Introduction to Crystal Report Generator.

10. **Advances Tools:**
Overview of drag and drop, Mouse events, Drag-and drop basics, Date Time Control, Calendar, Print Dialog, MDI(Multiple Document Interface).

BOOK RECOMMENDED:

Mastering Visual Basic 6 Fundamentals	–	By Microsoft
Mastering in Visual Basic	–	By BPB Publications.
Introduction to VB Programming	–	V. K. Jain

Programming In JAVA

Maxmarks-100

UNIT-I **Introduction :**
Genesis of java, importance to the Internet, overview of features.
OOP :
OOP features, data types, control structures, arrays, methods and classes, nested & inner classes, string and String Buffer class, Wrapper Class, vectors,

UNIT-II **Inheritance :**
Basics type,, method Override, using abstract and final classes, using super.
Packages and Interfaces :
Defined CLASSPATH, importing packages, implementing interface.

UNIT-III **Exception Handling :**
Fundamental: exception types, using try and catch, throwing exceptions, defined exceptions.
Multithreaded Programming :
Java spread model, creating threads, thread priorities, synchronization. Suspending resuming and stopping threads.

UNIT-IV **Input/Output:**
Basic Streams, Byte and Character Stream, predefined streams, reading and writing from console and files. Using standard Java Packages (lang, util, io)
JDBC :
Setting the JDBC connectivity with backend database.

UNIT-V **Applets :**

Fundamentals, life cycle, overriding update, HTML APPLET tag, passing parameters. Developing single applets.

Introduction to AWT :

Window fundamentals, creating windowed, programs waking with graphics, using AWT controls, menus. Delegation event model, handling mouse and keyboard events.

BOOKS RECOMMENDED:

1. Java complete reference - by Patrick naughten & Mesut Scpdit. [TMH]
2. Java Primer - by E.Balaguruswami
3. Java Programming - Khalid Mughal

Essentials of E -Commerce

1. **Introduction to Electronic Commerce** –The scope of E-commerce; Size, growth and future projection of E-commerce market Worldwide and in India; Internet and its impact on traditional businesses; Definition of E-commerce; Business models in E –Commerce environment; Case studies. *Emergence of E-commerce* - E-commerce on private networks, Electronic Data Interchange (EDI), What is EDI, EDI in action, EDI basics, EDI standards, financial EDI, FEDI for international trade transaction, FEDI payment system within the US, ACH credit transfer payment system FEDI, application of EDI, benefits of EDI, Electronics Payment system, E-commerce on the web, E-commerce in india,
2. **Internet, Security and E-Commerce:** Security of Data/Information in Internet/web environment; Client security, Network security; Virus protection and Hacking; Security Measures: Authentication, Integrity, Privacy, Non-repudiation; Public information, Private information, firewall tunnels, encryption, secret key encryption, public key encryption, digital signature. Case studies. *E-commerce Payment Systems* – E-Commerce Payment Models: Pure and Hybrid E-Commerce Payment Models; Credit Card; Debit Cards; Pre-paid Card; Online debit to the accounts; and Alternative Payment Systems employing Electronic Clearing System of Reserve Bank of India. Case studies.
3. **Business–to-Business (B2B), Business-to-Consumer (B2C); Business-to-Business-to-Consumer (B2B2C) and Consumer-to-Consumer (C2C) E-Commerce** – How E-Commerce business practices differ from traditional business practices; Inter organizational transaction; Business transaction cycle, different types of transactions in E-commerce environment; Electronic markets, advantages and disadvantages of E-Market, Future of E-Markets; Inter- Organizational E-Commerce transactions; Advantages and Disadvantages of Inter-Organizational E-Commerce. Business-to-Consumer E-Commerce transactions; advantages and disadvantages of B2C E-Commerce transactions. *Application of E-Commerce in India:* Internet banking; Online Trading; E-Governance and E-Government etc. Case Studies.
4. **HTML Basics & Web Site Design Principles –**
Concept of a Web Site, Web Standards, What is HTML? HTML Versions, Naming Scheme for HTML Documents , HTML document/file, HTML Editor , Explanation of the Structure of the homepage , Elements in HTML Documents ,HTML Tags, Basic HTML Tags, Comment tag in HTML, Viewing the Source of a web page, How to download the web page source? XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet language (XSL), Some tips for designing web pages, HTML Document Structure, HTML Document Structure-Head Section, Illustration of Document Structure,<BASE> Element,<ISINDEX> Element,<LINK> Element ,META ,<TITLE> Element,<SCRIPT> Element ,Practical Applications, *HTML Document Structure-Body Section*:-Body ele-

5.

ments and its attributes: Background; Background Color; Text; Link; Active Link (ALI
Visited Link (VLINK); Left margin; Top margin ,Organization of Elements in the Bo
of the document: Text Block Elements; Text Emphasis Elements; Special Element
Hypertext Anchors; Character-Level Elements; Character References ,Text Bl
Elements: HR (Horizontal Line); Hn (Headings) ; P (Paragraph); Lists; ADDRES
BLOCKQUOTE; TABLE; DIV (HTML 3.2 and up) ; PRE (Preformatted); FORM ,
Emphasis Elements, Special Elements — Hypertext Anchors ,Character-Level Eleme
line breaks (BR) and Images (IMG),Lists ,ADDRESS Element, BLOCKQUOTE Elem
TABLE Element ,COMMENTS in HTML ,CHARACTER Emphasis Modes, Logica
Physical Styles ,Netscape, Microsoft and Advanced Standard Elements List, FO
BASEFONT and CENTER.

5. **Image, Internal and External Linking between WebPages**
Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT
CENTER
Insertion of images using the element IMG (Attributes: SRC (Source), WIDTH, HEIG
ALT (Alternative), ALIGN),IMG (In-line Images) Element and Attributes; Illustrations
IMG Alignment, Image as Hypertext Anchor, Internal and External Linking between W
Pages
Hypertext Anchors ,HREF in Anchors ,Links to a Particular Place in a Document ,NA
attribute in an Anchor ,Targeting NAME Anchors ,TITLE attribute, Practical IT Applicat
Designing web pages links with each other, Designing Frames in HTML. Practi
examples.

6. **Creating Business Websites with Dynamic Web Pages** – Concept of static web pag
and dynamic web pages, Introduction to scripting, Types of Scripting languages, Script
Files, Client Side Scripting with VB/Jscript/JavaScript, Practical examples of Client s
scripting. Identifying Objects & Events, and Creating & Implementing Common Metho
Hosting & promotion of the web site, Domain Name Registration, Web Space allocat
, Uploading / Downloading the website- FTP, cute FTP. Web Site Promotion Sea
Engines, Banner Advertisements.

RECOMMEND BOOKS –

1. Business on the net - by Kamlesh N. Agarawala , Amit Lal & Deeksha Agarawa
Macmillan India Ltd.).
2. Introduction to HTML by Kamlesh N. Agarwala, O.P.Vyas, Prateek A. Agarwala. (Kit
Mahal Publications).
3. ASP Developer's Guide – by Greg Buczek (TATA McGraw Hill).
4. Information Technology Act 2000: www.mit.gov.in/it-bill.htm

ONLINE RESOURCES

Indian Case Studies: URL's of some of the websites
India's first e-Commerce B2C e-tailer: www.fabmart.com
India's first online trading netpreneurs www.icicidirect.com
India's first alternative payment alternative: www.billjunction.com
Indian online grocery establishments: www.fabmart.com; www.sangam.co
www.subiksha.com; and www.myfoodworld.com for example.
India bank's offering Internet banking services: www.icicibank.com; www.hdfcbank.co
www.gtb.com , for example.
www.ncsa.uiuc.edu/General/Internet/www.

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