# Vikram University, Ujjain

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PGDCSA

## Syllabus for ~~PGDCA~~ 1 Year

**Semester 1st** Effective from July-2013 and onwards

| Paper Code | Title | Max. Marks |
|---|---|---|
| PGDCA 1-1P | Fundamentals of Computer | 100 |
| PGDCA 1-2P | 'C' Language | 100 |
| PGDCA 1-3P | Opreting System | 100 |
| PGDCA 1-4P | PC Packages | 100 |
| PGDCA 1-5P | System Analysis And Design | 100 |
| PGDCA 1-6P (Practical) | 'C' Language and PC Software Package | 50 |
| (Practical) 1-7P | Major ~~Minor~~ Project Phase-1st (Analysis Part) | 50 |
| | Total | 600 |

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## Syllabus for PGDCA 1 Year

**Semester IInd**

| Paper Code | Title | Max. Marks |
|---|---|---|
| PGDCA 2-7P | Web Designing (HTML,DHTML,XML) | 100 |
| PGDCA 2-8P | Visual Basic | 100 |
| PGDCA 2-9P | RDBMS Using oracle | 100 |
| PGDCA 2-10P | Computer Networking | 100 |
| PGDCA 2-11P | Internet & E-Commerce | 100 |
| PGDCA 2-12P (Practical) | Major ~~Software~~ Project Phase IInd (C Development part) | 100 |
| | Total | 600 |

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## PGDCA 1 - 1 P

## Fundamentals of Computer

UNIT-1

Number System : Decimal, Binary, Octal, Hex Representations & Their Conversions.
Coding System : BCD, ACCESS-3, GRAY, ASCII, EBCDIC, Logic Gates.

UNIT-2

Block Diagram & Components of Computer System : CU, ALU, Primary Memory : RAM-SRAM & DRAM, ROM-PROM, EPROM, EEPROM, Cache Memory Unified & Split. Secondary Memory : Magnetic- Floppy, Hard Disk, Magnetic Tape; Optical-CD, VCD, CD-R, CD-RW.

UNIT-3

History & Development of Computer, Generations of Computers, Types of Computers, Pentium & Power PC, Bus and its Types, I/O Port, Interconnections, Parallel Processing RAID.

UNIT-4

Input Devices : Keyboard, Mouse, Trackball, Joystick, Scanner, Digital Camera, MICR, OMR, Bar-Code Reader, Voice Recognizer, Light pen, Touch screen.

Output device : Monitors- Characteristics & Types, Digital, Analog, Size, Resolution, Pixel, Video Standard- VGA, SVGA, XGA.

Printers- Character Impact & Character Non Impact, Line Impact & Line Non Impact, Plotters, Speakers.

UNIT-5

Softwares : System & Application Software & Their Types.
Languages : Machine, Assembly & High Level languages, Generations of Languages.
Language Processor : Assembler, Interpreter, Compiler, Linker, Loader & Their Types.

REFERNCE :


| | |
|---|---|
| Fundamentals of Information Technology, | Leon |
| Fundamentals of Computers, | Abhay Jain Chandwani |
| Fundamentals of Computers, | Kamal Publishers |
| Digital Principals & Applications, | Malvino & Leach |
| Pc operation & Maintenance, | Govind rajalu |


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## C programming

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### UNIT-I

Programming Languages and Language Processors: -

Machine Language, Assembly language, Procedural Oriented, Problem Oriented & Natural Languages, Generations of Programming Languages, Structured Programming, Assembler, Compiler, Interpreter, Linker, Loader, Editors.

Different Tools for Programming: -

Features, Advantages & Disadvantages of Algorithms, Flowchart, Decision Table and Execution Table.

### UNIT-II

Introduction to C Language: -

History of 'C' Language, Structure and Rules for 'C' program, Header Files, Main (), Directory options for running C program, Editing Keys.

Basic terms of C: Tokens, Variables, Expressions, Constants & their types, Data Type, Storage classes, I/O Functions, Operators and their types.

### UNIT-III

Control Statements: -

- Decision control: If-Else,
- Case control: Switch
- Loop control: While, Do-While, For & Comparison among them.

Function:

Function Prototype, Defination, Parameter Passing, Recursion and their Uses.

Arrays

One-dimensional, Two-dimensional and Multidimensional Arrays.

Structure and Union:

Declaration, Initialization and Comparison between them.

### UNIT-IV

Dynamic Memory Allocation:

Heap, Malloc, Calloc, Free (), Pointer variable, Address operator, Pointer arithmetic, Pointer to function, Pointer to Pointer, Pointer to Array, Pointer to structure, Self referential structure, Call by value and Call by reference, Drawback of pointer, Storage classes and Library function.

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UNIN-V

Enumerated data type files, Types of files in C,
Defining, Opening and Closing a file, Input-Output operation on files, Different file access modes, Creation of files using structure, File-copy and Merging of files. Random access to files, Error handling during I/O operation.

REFERNCE: Programming With C – By: E. Balaguruswami
Programming In C – By: Denn Richee
Playing With C – Kamal Prakashan

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# Operating System

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## UNIT-I

Introduction to OS:

Definition, Types, Functions, Features: Batch Processing, Multiprogramming, Multiuser, Multitasking, Multiprocessing.

Process:

Life Cycle, PCB, IPC, Critical section problems, Semaphore, Monitors.

## UNIT-II

Deadlock:

Reasons, Methods for Removing deadlocks, Bankers Algorithm.

Process Scheduling:

Preemptive and Nonpreemptive scheduling like: FCFS, SJF, Round Robin, Priority Based, MLQ.

RTS: Real Time OS and its scheduling methods.

## UNIT-III

Memory Management:

Static and Dynamic memory management, Internal & External Fragmentation Problem, Paging, Segmentation, Demand paging.

File & disk Management:

File and Directory concepts and their types, File allocation Methods, Free space management methods, Disk Scheduling Methods.

## UNIT-IV

DOS (Disk Operating System):

DOS Basics:

Booting, Post, BIOS, FAT, COM, EXE & Batch File, Pipes, Filters.

DOS Commands:

Internal:

DIR, MD, CD, RD, COPY, DEL, REN, VOL, VER, DATE, TIME, CLS, PATH, TYPE, PROMPT.

External:

CHKDSK, DOSKEY, XCOPY, MOVE, TREE, DELTREE, LABLE, APPEND, FORMAT, UNFORMAT, PRINT, FDISK, SORT, MORE, ATTRIB, EDIT, SYS, DISKCOPY, DISKCOMP, BACKUP, RESTORE.

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UNIT-V

Linux:

History & Features, Linux Structure, File System, Various flavours of Linux, Process creation and process identifiers, Profile and login files, Kernel & Shell.

Linux Commands:

ls, cat, who, who am i, cal, clear, date, banner, bc, ced, mkdir, rm, rmdir, tty, cp, mv, chmod, chgrp, chown, cmp, find, ps, kill, wc.

REFERNCE: Operating System By Bhat
Operating System By Achut Godbole
Operating System By Tanenbaum
Concepts Of Operating System - Kamal Prakashan
Linux Complete By BPB Publications

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## PC Software

### UNIT-I

Windows 95/98:

Features, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin.

Accessories:

Calculator, Notepad, Paint, WordPad, Windows, Explorer & Folder, Multiple users features of Windows, Dial-Up Networking.

Various Types Files & Application Format: Pdf, Avi, Wav, Zip, Wmf, Mp3, Mpe, Mpa, Mtf

### UNIT-II

Word Processor-MSWORD

Introduction to MS Word:

Features, Creating, Saving, Opening, Deleting files in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Printing document, Editing document with Edit Menu.

Formatting Documents:

Paragraph formats, Aligning Text & Paragraph, Borders & Shading, Headers & Footers, Macros.

### UNIT-III

Spreadsheet- MSEXCEL

Worksheet:

Features, Creating, Saving, Opening, Deleting, Quitting.

Toolbars: -

Menus, Keyboard Shortcuts.

Working with single and multiple workbook:

Copying, Adding, Moving, Deleting.

Working with Formulas & Cell referencing:

Autosum, Copying formulas, Absolute & Relative addressing.

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## UNIT-IV

### MSEXCEL

Formatting Worksheet:-
Autoformat, alignment, Character styles, Columnwidth, Date format, Borders & Colours, Currencies sign.

Previewing & Printing worksheet:-
Page setting, Print titles, Adjusting margines, Page break, Headers and Footers.

Graphics & Charts:-
Using Wizards, Various charts type formatting grid lines, & Legends, Previewing & Printing charts.

Functions:-
Database, Date & Time, Maths & Trigonometry, Statistical, Text and Logical.

## UNIT-V

### Presentation Graphics – MS Power Point

Features and Basic terms, Creating presentation by using Wizards, Toolbars, Menus & Different Views.

Working with Slides:
Create, Move, Copy, Delete, Duplicate, Lay-Outing of Slide, Zoom.

Printing Presentation:-
Printing Slides, Notes, Handouts and Outlines.

REFERNCE: Office97 Interactive Course by Greg Perry, Techmedia
PC Software Kamal Prakashan
Microsoft Office97 by Gini Courter & Annette Marquis, BPB

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# System Analysis & Design

## UNIT – I

System and its types, Different Software Engineering Models, Preliminary Investigation for System, Feasibility Study and its types, Cost/ Benefit Analysis and its methods, Information finding Methods,

## Unit –II

Analysis: Tools for Structured Analysis: Flow Chart, DFD, Data Dictionary, Decision Tree, Decision Table.

## Unit –III

Design: Input, Output, Form, Database, File.
Testing: Black Box, White Box, Alpha, Beta, Unit, Integration, and System, SQA.

## Unit -IV

Implementation: Methods of Deployment, System Conversion, User Training Post Implementation: Planning, Maintenance, Extendibility, Replacement. Case -Study for a Project.

## Unit - V

UML (Unifying Modeling Language):
Concept of UML, UML Symbols, Basic UML Terms,
UML Diagrams: Use – Case, Sequence, Collaboration, Object, Class, Package, State Chart, Activity etc.

REFERNCE: System Analysis & Design, By: Awad
Software Engineering, By: Pressman
Software Engineering, By: James S Sen
OOAD & Software Engineering, By: Rumbaugh Publication

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## Web Designing

UNIT-I

Webpage, Websites, HTML: HTML Tags Related To: Text, List, Tables, Frames Hyperlink, Multimedia, Style Sheets.

UNIT-II

HTML: Event Handling, Meta, DIV & SPAN tags, DOM,
DHTML (Without Scripting Language), Introduction to XML with examples.

UNIT-III

Java Script:
Data Types, Operators, Keywords, Control Structures and Loops, Arrays, Inbuilt Functions and their types.

UNIT-IV

Java Script:
User defined functions, calling function by HTML, Object properties & Methods, Hidden Fields & Cookies, Design a Website with dynamic Web Pages.

UNIT-V

Client-Server Computing, Distributed Computing, Introduction to ASP, JSP, CGI, PERL, WML, WAP.

REFERNCE: HTML IN 24 Hours Tech Media
Java Script Complete BPB
Programming In Web Designing By: V. Jain
Web Designing – Kamal Prakashan

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# Visual Basic Programming

## Unit –I

Introduction: Concept of Front End, Back End, GUI, About VB
Basics of VB: New Project Window, VB Project, IDE, Different Components of IDE: Project Explorer, Property Window, Tool Box, From Layout Window, object Browser: Tool Box, Menu Editor, Image List, Form Design Run Time & Design Time Properties.
Menus: File Menu, Format Menu, Help Menu.

## Unit–II

- Token's: Variables, Constants, Data Types.
- Statements: Control Statements, Coding Statements & Style i.e. E.D.P. Different Types of Procedure's.
  Input/ Output Statement: (MsgBox) and (Input Box).
- Array's, Collection and Types.
- Programming with Objects / Controls.
  Error handling: Types of Error, Exception, Method's & Functions

## Unit–III

Graphics & Multimedia: Function, Command's, Method's to Impliment Graphical & Multimedia Feature's in the Application.
Activex Components: Basic Activex Components, Advance Active Components, Text Formatting Properties.
Timer Control, Mouse Pointer & Cursors, Control array, Multiple Document Interface.
Implementation of VB Functions.

## Unit–IV

Database Programming with VB: Connectivity, Connectivity Tools: Data Control, ADODC, ADODB, Data Environment, Connection Type, Data Bound Control's: Single value, Multi-Value, Multi- Column.
Report: Introduction to Report, Types of Reports, Report in VB, Grouping, Use of SQL, Executing SQL.

## Unit – V

Text Files: Types of Files in VB, Modes of Files, Different File Operation's Scripting Control & File System Object Moving, Updating, Deleting From File.
Introduction to VB Script, ASP and Window Programming.

REFERNCE: Mastering Visual Basic By Evangels Petroutsos, BPB Publications
Basics of Visual Basic- Kamal Prakashan
Beginning Visual Basic by Peter Wright, Sheoff Publishers

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# RDBMS USING ORACLE

## UNIT-I

**DBMS:**

Definition, Schemas, Instance, Catalog, Meta-Data, Three-Levels, Different Users, Architecture.

Model: Different Features, Advantages & Disadvantages of Network, Hierarchical, Relational & Object-Oriented Models.

## UNIT-II

ER Model:

Types of Attributes, Entity & Entity Sets, Symbols, Keys, Mapping, Degree of Relationship, Generalization, Specialization, Aggregation, Conversion of ER Schema into Relational Schema.

## UNIT-III

Normalization:

Multivalue Attributes & INF, Function Dependence & INF, Transitive dependence & 3NF, BCNF (3½ NF), MVD & 4NF, JD & 5NF.

## UNIT-IV

SQL (Using ORACLE):

Query Languages:

SQL, QUEL & QBE with Practical Examples, DDL, DML & DCL Commands, Types of Oracle Join, Types of Functions.

## UNIT-V

SQL * PLUS

Different Types Of SELECT, Data Constraints: Primary Key, Foreign Key, NULL, UNIQUE, CHECK, Subqueries, View, Index, Sequence, Granting & Revoking Permissions.


REFERENCE:

| | |
|---|---|
| Database Management System | By: Hoffer |
| ORACLE 8i | By: Ivan Bayross |
| The ORACLE Complete | By: Oracle Press |
| Concepts Of Database Management System | By: Kamal Prakashan |
| Database Management System | By: C. J. DATE |


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# Computer Networking

## UNIT-I

Communications & its types:
Analog & Digital, Synchronous & Asynchronous, Connection Oriented & Connectionless, Serial & Parallel, Wire & Wireless.

OSI Model:
Features, Functions Protocols of Different Layers.
Transmission Media: Bounded & Unbounded with Their Types.

## UNIT-II

LAN, MAN&WAN: Features, Advantages & Disadvantages.

Network Topologies: Features, Advantages & Disadvantages of BUS, RING, STAR, TREE MESH
Network Architecture:
Ethernet, Token Bus, Token Ring, FDDI, ARC Net.

## UNIT-III

Network Layer Functions:
IP Addressing & Sub netting, Switching Packet Formation (Datagram & Virtual Circuit)
Routing Algorithm: Static & Dynamic like: Shortest Path, Flooding, Flow Based, DVM, LSR.

## UNIT – IV

Data Link & Transport Layer:
Error Detection & Correction: LRC, VRC, CRC, Checksum, Hamming Code. Character Oriented & Bit – Oriented Protocol (HDLC) Line Discipline, Flow Control Similarities & Differences between Data Link & Transport Layers.

## UNIT –V

TCP/IP Protocol Suite: TCP, IP, ARP, RARP, BGP, UDP, ICMP, DNC, RIP, OSPF, FTP, SMTP, NFS, TELNET, DHCP, WINS.
IPX/SPX Protocol Suite.
Apple Talk Protocol Suite


REFERNCE: Computer Networks By Stallings
Computer Networks By: Tenenbom
Data Network & Communication By: Miller
Computer Networks By: Kamal Prakashan


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## Internet & E- Commerce

### Unit -I

Internet, Intranet & Extranet: Features, Advantages & Disadvantages.

Connectivity Devices:

MODEM, Repeater, Hub, Bridge, Router, Switch, Gateway Their Working & Types.

### Unit- II

History &Architecture of Internet, Types of Internet A/Cs.

Internet Addressing: IP Address, Domain Name, E-Mail & URL.

ISP/IAP: Types, Criteria For Selection, Facts gather from ISP, Online Services.

### Unit- III

WWW, W3C, HTTP, FTP, SMTP, POP3, Web Sites, Internet Relay Chart.

E-Mail: Working, Composing, Attachment, Smileys, Netiquette, Microsoft Outlook: Menus & Features.

### Unit- IV

Web Browser: Internet Explorer, Netscape Navigator, Web Server, Proxy Server, Internet Viruses, Internet Security, Firewall, Encryption, Decryption, Digital Signature, Digital Certificate, Search Engines.

### Unit- V

E-Commerce & M-Commerce: Types of E-Commerce, Functions, Technologies: EDI, PDF, Bar Code etc, E-Business, Difference between E-Commerce & E-Business, Advantages & Disadvantages of E-Commerce, M-Commerce.

REFERNCE: Internet for Dummies – Pustak Mahal, New Delhi
Internet & Web Technology –Kamal Prakashan
The Internet Complete Reference – TATA McGRAW HILL
How The Internet Works – By: Preston Gralla

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