

BHAKTA KAVI NARSINH MEHTA UNIVERSITY - JUNAGADH

(Gujarat) INDIA



CURRICULAM FOR
Post Graduate Diploma in Computer Application (PGDCA)
(Semester - 1)
Effective From June – 2018

BHAKTA KAVI NARSINH MEHTA UNIVERSITY**Post Graduate Diploma in Computer Application (PGDCA)**

[1 Year - Two Semester Full Time Program]

Ordinance, Regulations and Examination Scheme:**Ordinance:**

- O. – PGDCA – 1** Candidate seeking admission to the Post Graduate Diploma in Computer Science and Application must have a Bachelor degree of minimum three years duration or equivalent from any recognized university.
- O. – PGDCA – 2** The duration of the course will be full time one academic year. The examination for the post graduate diploma in computer science and applications will be conducted under the semester system. For this purpose, the academic year will be divided into two semesters. No candidate will allowed joining any other course simultaneously.
- O. – PGDCA – 3** No candidates will be admitted to any semester examination for PGDCA unless it is certified by the head, computer centre that he has attended courses of study to the satisfaction of the head of the institute recognized for teaching courses of study in post graduate diploma in computer science and applications.
- O. – PGDCA – 4** Candidate desirous of appearing at any semester examination of the post graduate diploma in computer science and applications must forward their applications in the prescribed form to the controller of examination, through the head of institute on or before the date prescribed for the purposes under the relevant ordinance.
- O. – PGDCA – 5** After successful passing semester - 1 candidate awarded CCC certificate, after passing semester - 1 and semester - 2 candidates will be awarded CCC+ certificate.

Regulations:

- R. – PGDCA - 1** A candidate fails in any number of subjects in the first semester examination will be permitted to continue his studies at a subsequent semester.

The standard of passing the P.G.D.C.A. degree examination will be as under:

- R. – PGDCA - 2**
- (1) To pass any semester examination of the P.G.D.C.A. degree, a candidate must obtain at least 40% marks in the university examination separately in each course of theory and practical.
 - (2) Class will be awarded based on Earned Grade Point, SGPA and CGPA as per rules of University.

Marks and credit hours of each course

- R. – PGDCA - 3**
- Marks of Internal examination, university examination and credit hours will be as under:
 - 1. Total marks of each theory course are 100 (university examination of 70 marks + internal examination of 30 marks).
 - 2. Marks of each unit in the course are equal (i.e. 14 Marks). Total marks of each

course are $14 \times 5 = 70$ for university examination.

3. Credit hours (lectures) for each unit in the course are equal (i.e. 12 hours). Total credit hours (lectures) of each course are $12 \times 5 = 60$.

4. Total marks of each practical and project-viva course are 100. No internal examination of marks in practical and project-viva courses.

Structure of Question Paper

- Question Paper contains 5 questions (each of 14 marks). Every question will be asked from corresponding unit as specified in the syllabus of each course. (i.e. Question-1 from Unit No. 1 and remaining questions from their corresponding units)
 - Every question is divided in Three parts like (a), (b), (c)
 - Part (a) contains Three objective type questions (not MCQ) like definition, reason, answer in one line, answer in one word etc., each of one marks and no internal option.
 - Part (b) contains Three questions each of Three marks and student will attempt any Two out of Three.
 - Part (c) contains two questions each of Five marks and student will attempt any one out of two.
- R. – PGDCA - 4**
- R. – PGDCA - 5** The following is the syllabus of various courses to be studied for the Post-graduate Diploma in Computer Science and Applications.

BHAKTA KAVI NARSINH MEHTA UNIVERSITY
Post Graduate Diploma in Computer Application
[1 Years - Two Semester Full Time Program]

Semester – 1

Code	Course Name	No. Of Lectures/ Lab (Per Week)	Credit
CS - 01	Programming In C	5	5
CS - 02	Networking, Internet & Web Page Development	5	5
CS - 03	Comp. Fundamentals & Emerging Tech.	5	5
CS - 04	Office Automation Tools & Packages	5	5
CS - 05	Practical – 1 (Based On CS - 01)	5	5
CS - 06	Practical – 2 (Based On CS - 02 & CS – 04, Libre Office)	5	5
Total Credits of Semester - 1			30

CS - 01: PROGRAMMING IN C

Objective: To develop basic programming skill, concept of memory management and file concept.

Unit : 1

Introduction of C Language

- Introduction to Programming
- Various Computer Languages
- History & Overview of C Language
- Difference between traditional C and modern C
- C character set
- C tokens
 - Keywords
 - Constants
 - Strings
 - Identifiers and variables
 - Operators
- All 8 operators & Hierarchy of operators
- Data types in c
- Type casting & Type Conversion
- PRE-PROCESSORS IN C

Introduction of Logic Development Tools

- Introduction of Logic & Basic of Algorithm.
- Basics of Flow Chart
- Dry-run and its Use.
- Other Logic development techniques (Algorithm and Flowchart Based on Programming)

Unit : 2

Branching & Looping

- Decision structure
 - If statements(All Types)
 - Switch statement
 - Conditional ternary operator
- Looping Structures
 - For loop
 - Do...while loop
 - While loop
 - Nesting of loops
- Jumping statements
 - Break statement
 - Continue statement
 - Go to statements

Unit : 3

Library Functions

- Introduction of Library Function
- Brief View of Header Files(stdio.h, conio.h, math.h, string.h, stdlib.h, ctype.h, graphic.h, process.h, dos.h)
- Types of library functions

String Function:	strcpy, strncpy, strcat, strncat, strchr, strcmp, strncmp, strlen, strstr
Mathematical Functions:	ceil, div, exp, fabs, floor, fmod, log, pow, sqrt
Date & Time Functions:	clock, time, gmtime, localtime
Graphics Functions:	initgraph, closegraph, arc, line, circle, ellipse, getx, putx, setcolor, setbkcolor
I/O Formatting Functions:	printf, scanf, getc, getchar, gets, putc, putchar, puts
Miscellaneous Functions:	delay, clrscr, isalnum, isalpha, isdigit, islower, isprint, isspace, isupper, toupper, tolower
Standard Library functions:	abs, atof, atol, exit, free, rand
Memory Allocation Functions:	malloc, realloc, calloc

User Define Functions (udf)

- Concept of User Define Function
- Types of user defined functions
- call by value & call by reference
- Nesting & Recursion
- Storage classes

Unit : 4

Array

- Concept of Array
- Types of arrays
 - Single dimensional array
 - Two dimensional array
 - Multi-dimensional array
- String arrays
- Array with functions using UDF
- Use of Arrays in Programming

Structures

- Concept of Structure
- Initializations and declarations
- Array with structures
 - Array of Structure
 - Array Within Structure
- Udf with structures
- Nested structures
- Introduction to union
- Difference between Structure & Union

Unit : 5

Pointers

- Concept of Pointers
- Pointer to Variables
- Pointer to Array
- Pointer within Array
- Pointer To Structure
- Pointers within structure
- Pointer to Pointer
- Use of pointers in Dynamic Programming

File Handling

- Concept of data files

- Importance of file handling
- I/O Operation
- Command line arguments

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	Programming in ANSI C	E. Balaguruswami
2	Let Us C	Yashwant Kanetkar.
3	Working with C	Yashwant Kanetkar.
4	Programming in C	Schaum Series publication.

Web site References :

- <https://www.tutorialspoint.com/cprogramming/index.htm>
- <http://www.eskimo.com/~scs/cclass/notes/top.html>
- <http://c-faq.com/>
- <http://www.learn-c.org/>
- https://www.tutorialspoint.com/cprogramming/cprogramming_tutorial.pdf
- <https://www.w3schools.in/c-tutorial/>
- <https://www.javatpoint.com/c-programming-language-tutorial>

CS – 02 : NETWORKING & INTERNET ENVIRONMENT

Objective: To understand basic terms of computer networks and Internet, to give knowledge of Scripting languages like HTML, CSS and Java Script

Unit : 1

Introduction to Computer Network

- Basics of Computers
- Computer Network
- Type of Computer Network
- Network Topology
- OSI Reference Model (Introduction)
- TCP/IP
- Internet Terminology
- ISP (Internet Service Provider)
- Intranet
- VSAT (very small aperture terminal)URL

Unit : 2

Application of Internet

- World Wide Web (WWW)
- Types of Search Engine
- Remote Login
- Electronic Mail (Email)
- Concept and use of : E-Commerce, E-Business, E-Governance, Mobile Commerce
- Website Basics (WebPages; Hyper Text Transfer, Domain name server, Protocol, File Transfer Protocol, Domain Names; URL , Protocol Address; Website[Static, Dynamic, Responsive], Web browser, Web Servers; Web Hosting, web portal, domain name server
- Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers
- Types of Payment System (Digital Cash, Electronic Cheque, Smart Card, Debit/Credit Card)

Unit : 3

Basic of HTML & Advance HTML 5

- Fundamental of HTML
- Basic Tag and Attribute
- The Formatting Tags
- The List Tags & Link Tag
- inserting special characters,
- adding images and Sound,
- Table & Frame in HTML
- Forms
- HTML 5 Document Structure & Syntax (section, article, aside, header, footer, nav, dialog)
 - Attributes of HTML 5
 - Web Form (datetime, date, month, week, time, number, range, email, url)
- Audio / Video

Unit : 4

Cascading Style Sheet & CSS 3

- Introduction to CSS
- Types of Style Sheets
- Class, ID Selector
- CSS Text & Font Properties
- CSS Background Properties
- CSS List Properties
- CSS Margin & Padding Properties
- CSS Comments
- CSS 3
 - Border Property
 - Background & Gradient Property
 - Drop Shadow Property
 - 2D & 3D Transform Property
 - Transition Property

Unit : 5

Java Script

- Introduction to JavaScript
- Variables
- JavaScript Operators
- Conditional Statements
- JavaScript Loops
- JavaScript Break and Continue Statements
- Dialog Boxes
- JavaScript User Define Function & Built in Function (string, Maths, Array, Date)
- Events (onclick, ondblclick, onmouseover, onmouseout, onkeypress, onkeyup, onfocus, onblur, onload, onchange, onsubmit, onreset)
- Form Validation & E-mail Validation

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	HTML in 10 steps or less	Laurie Ann Ulrich, Robert G. Fuller
2	Internet The Complete Reference	Young.
3	World Wide Web Design with Html	C Xavier.
4	Internet for Every One	Leon.
5	Practical Html 4.0	Lee Philips.
6	MCSE Networking Essential Training Guides.	
7	Mastering In FrontPage	BPB

Web site References :

- <https://www.javatpoint.com/html-tutorial>
- <https://www.tutorialspoint.com/html/index.htm>
- <https://www.w3schools.com/html/>
- <https://www.csstutorial.net/>

CS – 03 : COMP. FUNDAMENTALS & EMERGING TECH.

Objective: To aware basics of computer and emerging technology

Unit : 1**Introduction of Computers**

- Basics of Computers
 - What is Computer?
 - Characteristics of Computer
 - Data Processing Cycle(Data → Process →information)
- Classification of Computer by Data Processed
 - Analog, Digital and Hybrid Computers
- History and Generations of Computers
 - First to Fifth Generation Computers
- Classification of Computer by Processing Capabilities
 - Micro, Mini, Mainframe and Super Computers
- History and Generations of Computers .
 - First to Fifth Generation Computers
- Simple Model of Computer
 - Input Devices
 - CPU (Central Processing Unit)
 - Arithmetic & Logic Unit
 - Control Unit
 - Internal Memory
- Output Devices
- Secondary Storage Devices

Internal/External parts used with Computer Cabinet

- Introduction to Mother board
- Types of Processors .
 - Dual Core, Core 2 Duo, i2, i3, etc ...
- Memory structure and Types of Memory
 - RAM (SRAM, DRAM, DDR.)
 - ROM (ROM, PROM, EPROM, EEPROM,Cache)
- Slots
 - ISA Slots / PCI Slots / Memory Slots/SATA
- Sockets
- Cables
 - Serial Cable / Parallel Cable / USB Cable/HDMI
- Ports
 - USB (2.0 &3.0)/ Serial / Parellel
- Power Devices :UPS
- Graphic Cards
- Network card, Sound Card

Unit : 2**Input Devices**

- Introduction
- Types of Input Devices
 - Keyboard / Mouse / Trackball / Glide - Pad / Game Devices Joystick, etc.) / Light Pen / Touch Screen / Mic (Sound Input) / Camera (Photo and Video Input) / POS (Point of Sale) Terminal (Scanners, etc)
 - MIDI(Musical Instrument Digital Interface) Keyboard,

- Wireless Devices (Keyboard, Mouse, etc)
- Types of Scanners
 - OMR, MICR, OBR

Output Devices

- Introduction
- Types of Output Devices
- Types of Monitors
 - CRT Display Units
 - LCD
 - LED
 - OLED
- Types of Printers
 - Impact (Dot Matrix Printer, Daisy Wheel Printer)
 - Non Impact(Ink Jet Printer, Laser Printer)
- Plotters
- Other Devices
 - Fascimile(FAX)
 - Headphone
 - SGD (Speech Generating Device)
 - COM (Computer Output Microfilm)
 - Google Glass

Unit : 3

Data Storage

- Introduction
- Types of Magnetic Storage Devices
 - Floppy Disk/ Hard Disk / Magnetic Tape / Magnetic Disks
- Storage Mechanism of Magnetic Storage Devices
 - Tracks / Sectors / Clusters / Cylinders
- Reading / Writing Data to and from Storage Devices
- Seek Time / Rotational Delay - Latency / Access
- Time /Response Time
- Other Storage Devices
 - USB - Pen Drive/CD/DVD/Blu-Ray Disk. Flash Memory, Cloud Storage(Like Google Drive, OneDrive)

Unit : 4

Numbering System and Codes

- Introduction to Binary Codes /
 - Nibble / Bit / Byte / Carry Bit / Parity Bit / Sign Bit
 - KB / MB / GB / TB / HB (etc ...)
- Types of Numbering System
 - Binary / Octal/Decimal / Hex-Decimal
- Conversion
 - Binary to Octal, Decimal and Hexa-Decimal
 - Decimal to Binary, Octal and Hexa-Decimal
 - Octal to Binary, Decimal and Hexa-Decimal
 - Hexa-Decimal to Binary, Octal and Decimal
- Binary Arithmetic
 - Addition
 - Subtraction (1's Complement and 2's Complement)

- Division .
- Multiplication
- Types of Codes
 - ASCII/BCD / EBCDIC / UniCode
- Parity Check
 - Event Parity System / Odd Parity System

Languages, Operating Systems and Software Packages

- Introduction
- Translator (Assembler / Compiler / Interpreter)
- Types of Languages
 - Machine Level Language
 - Assembly Level Language
 - High Level Language (3GL, 4GL, 5GL, etc.)
- Types of Operating Systems
 - Batch Operating System
 - Multi Processing Operating System
 - Time Sharing Operating System
 - Online and Real Time Operating System

Unit : 5

Emerging Technologies and Virus

- Different Communication methods
 - GIS / GPS / COMA / GSM/ VOLTE
- Communication Devices
 - Cell Phones / Modem / Infrared / Bluetooth / WiFi / LiFi
- Virus
 - Introduction to Virus and related terms
 - Origin and History
 - Types of Virus
 - Problems and Protection from Virus
- Cloud Computing
 - What is Cloud Computing?
 - Characteristic & Service Models(Iaas, Paas, Saas)
 - Architecture
 - Security & Privacy

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	Computer Fundamentals	By P.K.Sinha
2	Fundamental of IT for BCA	By S.Jaiswal
3	Engineering Physics	By V.K.Gaur
4	Teach Yourself Assembler	By Goodwin.

Web site References :

- <https://www.javatpoint.com/computer-fundamentals-tutorial>
- https://www.tutorialspoint.com/computer_fundamentals/index.htm
- https://www.tutorialspoint.com/computer_fundamentals/computer_fundamentals_tutorial.pdf
- http://www.kvadilabad.org/admin/downloads/1788662251computer_fundamentals_tutorial.pdf

CS – 04 : Office Automation Tools & Packages

Objective: To Basic Knowledge of Computer

Unit :1

INTRODUCTION TO GUI BASED OPERATING SYSTEM

- Introduction
- Basics of Operating System
 - Operating system
 - Basics of popular operating system (LINUX, WINDOWS)
- File and Directory Management
- Types of files
- The User Interface
 - Task Bar
 - Icons
 - Start Menu
 - Running an Application
- Operating System Simple Setting
- Changing System Date And Time
- Changing Display Properties(Wallpaper, Screen Resolution, Screen Saver, etc)

Unit : 2

WORD PROCESSING (Microsoft Word)

- Introduction to Word Processing Software
- Objectives
- Word Processing Basics
- Opening Word Processing Package
 - Menu Bar
- Opening and closing Documents
 - Opening Documents
 - Save and Save as
 - Page Setup
 - Print Preview
 - Printing of Documents
- Text Creation and manipulation
- Document Creation
 - Editing Text
 - Text Selection
 - Cut, Copy and Paste
 - Font and Size selection
 - Alignment of Text
 - Adding Clip Art Pictures
 - Adding Images
 - Inserting Other Objects
- Formatting the Text
 - Paragraph Indenting
 - Bullets and Numbering
 - Changing case
- Using Format Painter
- Creating Columns inside a Page

- Page Layout and Margins
 - Setting Page Size
 - Changing Page Orientation
 - Setting Page Margins
 - Header and Footers
 - Inserting Watermark
- Table Manipulation
 - Draw Table
 - Changing cell width and height
 - Alignment of Text in cell
 - Delete / Insertion of row and column
 - Border and shading

Unit : 3

SPREAD SHEET (Microsoft Excel)

- Introduction to Spreadsheet Software
- Objectives
- Difference Between Worksheet and WorkBook
- Introduction to Rows, Columns, Cells
- Introduction to NameBox, Formula Bar
- Elements of Electronic Spread Sheet
 - Opening of Spread Sheet
 - Printing of Spread Sheet
 - Saving Workbooks
- Manipulation of Cells
 - Entering Text, Numbers and Dates
 - Creating Text, Number and Date Series
 - Editing Worksheet Data
 - Inserting and Deleting Rows, Column
 - Changing Cell Height and Width
 - Changing Borders and Colors of Cells
- Page Layout and Margins
 - Setting Page Size
 - Changing Page Orientation
 - Setting Page Margins
- Using Formulas
- Different Library functions (sum(), average(), count(), left(), right(), mid(), if(), or(), and(), not(), date(), now(), time())
- Introduction to Charts

Unit : 4

PRESENTATION (Microsoft Powerpoint)

- Introduction
- Objectives
- Introduction to Slides
- Basics
 - Using PowerPoint
 - Opening A PowerPoint Presentation
 - Saving A Presentation

- Creation of Presentation
 - Creating a Presentation Using a Template
 - Creating a Blank Presentation
 - Entering and Editing Text
 - Inserting And Deleting Slides in a Presentation
- Preparation of Slides
 - Adding Clip Art Pictures
 - Inserting Other Objects
 - Resizing and Scaling an Object
 - Working with Color and Line Style
 - Adding Movie and Sound
 - Adding Headers and Footers
- Presentation of Slides
 - Viewing A Presentation
 - Choosing a Set Up for Presentation
 - Printing Slides And Handouts
- Slide Show
 - Running a Slide Show
 - Transition and Slide Timings
 - Automating a Slide Show

Unit : 5

Database and its Objects(Microsoft Access)

- Introduction to Access Database and its Objects
- Introduction to Tables
- Introduction to Query
- Introduction to Forms, Reports, Macros and Modules, Page
- Creating Database & Tables
 - Creating & Saving databases
 - Creating & Saving Tables
 - Working with data including insert, modify and delete records
- Navigating Database including records, find and replace
- Different types of Access data types
 - Primary keys
 - Foreign key
 - Composite key
 - Candidate key
- Defining relationship and setting up the referential integrity (Cascade update and Cascade Delete)

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1		
2		

Web site References :

- <https://support.office.com/>

CS – 05	PRACTICAL – 1 (Based on CS - 01) Programming in C Language	100 Marks
CS – 06	PRACTICAL – 2 (Based on CS – 02, CS – 04, Liber Office) HTML-5, CSS-3, MS - Word, MS - Excel, MS - Power Point, MS-Access and Macromedia Dream weaver & Liber Office	100 Marks
Note : ▪ Each session is of 3 hours for the purpose of practical Examination. ▪ Practical examination may be arranged before or after theory exam		