

# **BHAVNAGAR UNIVERSITY**

## **BHAVNAGAR**

**(NACC Accreditation Grade “B”)**

### **CREDIT AND SEMESTER SYSTEM**

### **SYLLABUS**

### **P.G.D.C.A.**

**(In Force From Academic Year: 2010-2011)**

तमसो मा ज्योतिर्गमय



**Credit & Semester System Syllabus**  
**Post Graduate Diploma in Computer Application (P.G.D.C.A.)**

<b>Semester-I</b>							
<b>Paper No.</b>	<b>Title of the Paper</b>	<b>Practical</b>	<b>Max. Marks</b>	<b>Min. Marks Required To Pass</b>	<b>Period of One hr. Per Week</b>	<b>Exam hrs.</b>	<b>No. of Credit</b>
101	PC Software.		100	40	3	3	3
102	Computer Programming & Problem solving Using C.		100	40	3	3	3
103	Logical Organization of Computer.		100	40	3	3	3
104	Visual Programming with Database Concepts.		100	40	3	3	3
105	Practical.	100	100	40	6	3	6
<b>Semester-II</b>							
<b>Paper No.</b>	<b>Title of the Paper</b>	<b>Practical</b>	<b>Max. Marks</b>	<b>Min. Marks Required To Pass</b>	<b>Period of One hr. Per Week</b>	<b>Exam hrs</b>	<b>No. of Credit</b>
201	Internet & Scripting Languages.		100	40	3	3	3
202	System Analysis & Design.		100	40	3	3	3
203	RDBMS & Client Server Programming.		100	40	3	3	3
204	Visual Programming on .NET Platform.		100	40	3	3	3
205	Practical.	100	100	40	6	3	6



Credit & Semester System Syllabus

**P.G.D.C.A.**  
**SEMESTER –I**

<b>Paper 101:</b>	<b>PC Software:</b>	<b>Credit: 03</b>
<b>Unit – 1</b>	<b>Introduction:</b> <ul style="list-style-type: none"><li>♣ Introduction to Personal Computer</li><li>♣ Concept of Hardware, Software, Program</li><li>♣ Data Processing languages</li><li>♣ Operating System Basics (Over view of DOS Based &amp; Window Based)</li><li>♣ Classification of Software</li><li>♣ Computer Applications</li></ul>	
<b>Unit – 2</b>	<b>Word Processing – I:</b> <ul style="list-style-type: none"><li>♣ Introduction to word Processor</li><li>♣ Examples of Word Processor Packages</li><li>♣ Use of Word Processor</li></ul>	
<b>Unit – 3</b>	<b>Word Processing – II:</b> <ul style="list-style-type: none"><li>♣ Creating, Editing, Formatting of documents</li><li>♣ Search, Goto &amp; Replacement of Text</li><li>♣ Special Printing Features</li><li>♣ Mail Merge Facility</li><li>♣ Spelling &amp; Grammar checking facility</li><li>♣ Advantage &amp; Application of Word Processor.</li><li>♣ Other Advance Features of Word Processor.</li></ul>	
<b>Unit – 4</b>	<b>Spreadsheet:</b> <ul style="list-style-type: none"><li>♣ Introduction to spreadsheet</li><li>♣ Advantages &amp; Features of spreadsheet</li><li>♣ Packages on different OS Platforms</li><li>♣ Building Spreadsheet using Formulas, Condition &amp; Calculations</li><li>♣ Built in functions (Mathematical, Statistical, Financial, Logical, Date &amp; Time and Text)</li><li>♣ Writing Macros &amp; Spreadsheet Menus to build User Interface to the spreadsheet Application</li><li>♣ Graph Plotting Facilities</li><li>♣ Database facility (Auto Filter, Advance Filter, Sort, Validation, Subtotal &amp; Pivot Table and Chart)</li></ul>	
<b>Unit – 5</b>	<b>Presentation software:</b> <ul style="list-style-type: none"><li>♣ Importance of Presentation S/w.</li><li>♣ Introduction to Power Point.</li><li>♣ Concept of Slide and Presentation</li><li>♣ Different Slide Layouts</li><li>♣ Different Slide Views</li><li>♣ Slide Show Menu</li><li>♣ Working with Text &amp; Pictures</li><li>♣ Presentation of Slide show with animation</li></ul>	

**Reference Book:** PC Software for Window made simple by **R. K. Taxali**



**Paper 102: Computer programming & Problem Solving using C:**

**Credit: 03**

**Unit – 1**

**Introduction:**

- ♣ Introductory concepts
- ♣ Application areas
- ♣ Stored program concept
- ♣ Editors.
- ♣ Programming Languages (High & Low languages, Machine Language)
- ♣ Language Translators (Compiler, Interpreter and Assembler)

**Unit – 2**

**Logical Development:**

- ♣ Problem Analysis, Flow charts, algorithm.
- ♣ Variables, expression & its manipulation.
- ♣ Data types in high level languages, operators.
- ♣ I/O statements, Assignment Statement.

**Unit – 3**

**Structured Programming & Advance Computing:**

- ♣ Statements – Sequential, Conditions & Loop statements.
- ♣ Methods of structured programming,
- ♣ UDF

**Unit – 4**

**Complex Data Types:**

- ♣ Arrays, String handling.
- ♣ Structure, Pointer, Union, Storage memory.
- ♣ Register References, Command line arguments.

**Unit – 5**

**File Handling:**

- ♣ I/O statements
- ♣ File access in r, w, r+, w+, a, a+ Modes

**Reference Book:-**

1. E. Balaguruswami : Programming with ANSI C, Tata McGraw-Hill Publishing Co. Ltd
2. Yashwant Kanitkar: Let Us C.



**Paper 103: Logical Organization of Computer:**

**Credits: 03**

**Unit – 1**

**Introduction:**

- ♣ Block Diagram of a simple computer and its functions of different unit.
- ♣ Representation of information
- ♣ Number Systems
- ♣ Integer & Floating Point representation.
- ♣ Character codes(ASCII & EBCDIC)

**Unit – 2**

**Processor, Memory and Input/ Output:**

- ♣ Instruction Execution
- ♣ CPU Organization
- ♣ Parallel Instruction Execution
- ♣ Microprocessor chip(8088) & Buses
- ♣ Example of typical Microprocessor
- ♣ Memory : Main Memory, Secondary Memory, Types & Organization
- ♣ Input/Output Types of I/O devices, Controllers.

**Unit – 3**

**Gates and Boolean Algebra:**

- ♣ Gates.
- ♣ Boolean Algebra, Truth Tables.
- ♣ Preparing a Truth Table using circuit.
- ♣ Preparing circuit for given table (SOP & POS)
- ♣ De Morgan's Theorems, Use of De Morgan's theorems to implement
  1. SOP using NAND gates, and
  2. POS using NOR gates.

**Unit – 4**

**Basic Digital Logical Circuits:**

- ♣ Integrated circuits.
- ♣ Combinational Circuits-(Encoder, Decoder, Multiplexer, De-multiplexer, Compotator).
- ♣ Arithmetic Circuit (Half Adder, Full adder, Binary adder/ sub tractor)

**Unit – 5**

**Registers & Counters:**

- ♣ Flip flops (D, JK, RS, and T).
- ♣ Registers (Buffer, Shifting, Control Shift)
- ♣ Counters (Up-Down, Ripple)

**Reference Book:-**

1. Tenenbaum A. S.: Structured Computer4 Organization, Prentice- Hall of India Pvt. Ltd.
2. Malvino A. P. : Digital Computer Electronics, 2<sup>nd</sup> Edition, Tata McGraw-Hill Publishing Co. Ltd.



**Paper 104: Visual Programming with Database Concepts: Credits: 03**

**Unit – 1 Visual Basic Overview and Introduction...**

- ♣ Introduction to integrated development environment
- ♣ Introduction to application wizard.
- ♣ How to manage V.B. Project & Forms.
- ♣ Introduction to Method & Events.
- ♣ Declaration of variable, types of variable, constant, procedures, subroutines, functions.
- ♣ Control flow statement, loop statement, Iteration.
- ♣ Designing menus, shortcut keys.
- ♣ Active X control: Textbox, Combo box, Command button, Option button, List box, Scroll bar, Label, Timer etc.
- ♣ Advance Active X Control

**Unit – 2 Multiple Document Interface (MDI) & Graphics with Visual Basic...**

- ♣ Introduction to MDI Form
- ♣ MDI built in capabilities
- ♣ Introduction to Image box, Picture box

**Unit – 3 Database programming with visual basic & error handling methods**

- ♣ Client server programming concepts
- ♣ Using ADO for database connectivity
- ♣ Database programming using MS-Access
- ♣ Create, Add, Delete, Update, Search, First, Last, Next, Previous, Sort calculated fields
- ♣ Error handling methods: On error go ton Label, on error go to line#, On error resume next.
- ♣ Getting en error using error code & error description

**Unit – 4 Database Concepts:**

- ♣ File Processing System
- ♣ Aims of Database Technology
- ♣ Key words (Data, Information, Database, DBMS& RDBMS, Entity, Attribute, Tuple, Domain set)
- ♣ Relationship between Entities
- ♣ Detailed Study of ER- Diagram
- ♣ Database Normalization (1st, 2nd & 3rd)
- ♣ Database Technology used in client-server
- ♣ Responsibilities of DBA
- ♣ Managing database with simple database problems (Data Redundancy, Data Integrity, Data Consistency)

**Unit – 5 Database Management:**

- ♣ Creating Database, Tables, Queries, different database constraints
- ♣ Defining Keys (Primary, secondary Unique, foreign) relationship among the tables
- ♣ MS Access Functions:
  1. Conversion Functions – (Asc(), Datevalue(), Day(), Month(), Weekday(), Year())
  2. Date & Time Functions –(Date(), Dateadd(), Datediff(), Now(), Time(),Dateserial())
  3. Mathematical Functions – (Into(), Log(), Pound(), Sqr(), Sgn())
  4. Text Functions – (Left(), Right(), Instr(), Len(), Ltrim(), Rtrim(), Mid(), Strcom())



**Reference Books: -**

1. Steven Holzner: **Visual Basic 6.0** Programming Black Book: DreamTech Publication.
2. Breadyly: Programming **VB 6.0**. TMH Pub.
3. The Complete Reference Microsoft Office Access 2007 Virginia Andersen
4. Database Management System by Bipin C Desai.

**Paper 105: Practical:**

**Credits: 06**

**Practical Based on following papers:**

	<b>Weight</b>
1. Paper 101: PC Software	{30%}
2. Paper 102: Computer Programming & Problem solving Using C.	{30%}
3. Paper 104: Visual Programming with Database Concepts.	{40%}



Credit & Semester System Syllabus  
**P.G.D.C.A.**  
**SEMESTER –II**

**Paper 201: Internet & Scripting Languages: Credits: 03**

**Unit – 1 Internet Concepts:**

- ♣ Internet-A network of networks
- ♣ Types of networks (Internet, Intranet, Extranet) and its environment
- ♣ Various services available on Internet
- ♣ Concept of web server
- ♣ Concept of mail server
- ♣ Internet Applications

**Unit – 2 Internet Connections, Protocols & Securities:**

- ♣ Types of Internet connection. (Dial Up, Leased Line, ISDN, Broadband Connectivity though DSL & WiMax)
- ♣ Protocols (TCP/IP, FTP)
- ♣ Firewall
- ♣ Virus
- ♣ Cryptography

**Unit – 3 Web Page design through scripting Language (HTML):**

- ♣ Document Layout
- ♣ Header Elements
- ♣ Block Oriented Elements
- ♣ Lists
- ♣ links (Inline, Hyperlink)
- ♣ Images
- ♣ forms
- ♣ tables
- ♣ Special Controls (Textbox, Button, Radio Button, Check Box)

**Unit – 4 Web Page design through scripting Language (VB Script):**

- ♣ Introduction
- ♣ Data Types
- ♣ Variable, Constant, and Operators
- ♣ Conditional and Loping Statements
- ♣ Dictionary Object
- ♣ Error Object

**Unit – 5 Concepts of other web design scripting languages:**

- ♣ Dynamic HTML
- ♣ XML
- ♣ PHP
- ♣ WML
- ♣ CGI

**Reference Books:**

1. Duglass Comer: Internet & Introduction Prentice
2. Evan Bayross: Developing Using HTML, DHTML
3. Ned Snell : Teach your Self to Create Web Pages in 24 hours



**Paper 202: System Analysis & Design: Credits: 03**

**Unit – 1 Introduction**

- ♣ Role of Technology in Business
- ♣ Business system concept.
- ♣ Categories of Information Systems.
- ♣ Different System Development Strategies

**Unit – 2 System Planning & Requirement Analysis:**

- ♣ Source of project request
- ♣ Project Selection & Review Techniques
- ♣ Steering committee, Information systems committee, User-group committee
- ♣ Fact finding techniques
- ♣ Analysis tools – Decision Tree, Decision Table, Structured English.
- ♣ Data flow diagrams.
- ♣ Data dictionary.

**Unit – 3 Design of Output & Input:**

- ♣ Output objectives, types of output, Key output questions
- ♣ Output format – Detailed report & Summary report, Tabular output & Graphics output
- ♣ Input validation
- ♣ Error Checking methods Error messages
- ♣ Dialogue design – Menu driven dialogues, Data entry dialogues.

**Unit – 4 Database Design**

- ♣ Storage media
- ♣ Database and conventional environments
- ♣ System development in database environment
- ♣ Design of Database - Normalization

**Unit – 5 Software Design, Testing & Implementation**

- ♣ Top-Down structure of modules, Coupling & Cohesion, Span of control, Module size, Shared modules
- ♣ Software Design tools – Structured flowcharts, HIPO, Warnier/Orr diagrams
- ♣ Level of testing – Unit testing, Systems testing, & Special systems testing.
- ♣ Methods of system conversion – parallel systems, direct conversation, pilot system, phasein.

**Reference Book:**

1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Std. Edn



**Paper 203: RDBMS & Client Server Programming.**

**Credits: 03**

**Unit – 1            Structured Query Language (SQL \* PLUS)**

- ♣ Tables, Primary Key, Foreign Key, Indexes
- ♣ Data Definition Language : Create, Alter, Truncate, Drop
- ♣ Data Manipulation Language : Insert, Update, Delete
- ♣ Database Constraints.

**Unit – 2            Database Objects & Function:**

- ♣ View, Sequence, Synonyms
- ♣ Transaction Control Language : Commit, Rollback, Save point
- ♣ Data Control Language : Grant, Revoke
- ♣ Database Index
- ♣ General SQL Function(Character, Arithmetic, Date, Conversion)

**Unit – 3            Procedure Language with Data Manipulation:**

- ♣ Parts of PL/SQL block (Declaration, Execution, Exception, Error Handling)
- ♣ Writing PL/SQL Code: Input/Output statements.
- ♣ If-Then-Else
- ♣ Cursor for Loop
- ♣ While Loop and Simple for Loop
- ♣ Error Handling

**Unit – 4            Advance RDBMS Objects:**

- ♣ Stored Procedures
- ♣ Functions
- ♣ Packages
- ♣ Triggers.

**Unit – 5            Introduction to Oracle Server:**

- ♣ Physical and Logical database
- ♣ Oracle instance
- ♣ Database Structure & Space Management
- ♣ Memory & Process Structure
- ♣ Process Architecture
- ♣ Client/Server Architecture : Distributed Processing

**Reference Book:-**

1. SQL, PL/SQL The Programming Language of Oracle by Ivan Bayross, 3<sup>rd</sup> Edition
2. Learn Oracle 8i by Jose A Ramalho



**Paper 204: Visual Programming on .NET Platform: Credits: 03**

**Unit – 1 Introduction:**

- ♣ The .NET Frame Work
- ♣ Common Language Runtime
- ♣ Visual Basic language- Operators, Conditions& Loops
- ♣ Procedure & Functions
- ♣ Understanding Scope
- ♣ Exception Handling

**Unit – 2 Getting Started with VB.NET:**

- ♣ Concept of event handling
- ♣ Creating forms in application
- ♣ Adding the controls to the form (Textbox, Rich textbox, Label & Link Label)
- ♣ Other Common Controls-(Buttons, Check Box, Radio Buttons, List Box, Combo box, Scrollbars & Timer)

**Unit – 3 Object Oriented Programming:**

- ♣ Class & Object
- ♣ Fields, Properties, Events & Methods
- ♣ Abstraction, Encapsulation, Inheritance & Polymorphism
- ♣ Overloading, Overriding, & shadowing
- ♣ Constructors & Destructors

**Unit – 4 Web Application in VB.NET:**

- ♣ Working with web forms and web form controls (Button, Textbox, Labels, Literals, Place Holder)
- ♣ Using other controls in web form (Check Box, Radio Buttons, Labels, Panels, List box, Link & Hyperlink)
- ♣ HTML Client controls & server Controls

**Unit – 5 Database Access with ADO.NET:**

- ♣ Accessing data with Server Explorer
- ♣ Accessing data with Adopters & datasets
- ♣ Working with ADO.NET

**Paper 205: Practical: Credits: 06**

**Practical based on following papers:**

	<b>Weight</b>
1. Paper: 201 Internet & Scripting Languages.	{30%}
2. Paper: 203 RDBMS & Client Server Programming.	{30%}
3. Paper: 204 Visual Programming on .NET Platform	{40%}