SARDAR PATEL UNIVERSIT`Y

BCA

Proposed Syllabus under CBCS

(effective from June 2010)

SEMESTER-I		
	TITLE	**NO. OF CREDITS**
Core Courses	**US01CBCA01 :** Fundamentals of Computer Programming Using C	**3**
	US01CBCA02 : Computer Organization	**3**
	US01CBCA03 : PC Software	**3**
	US01CBCA04 : Web Designing Fundamentals	**3**
	US01CBCA05 : Practicals	**6**
Foundation Courses	**US01FBCA01 :** Communication Skills in English-I	**2**
	US01FBCA02 : Mathematics-I	**2**
Elective	**US01EBCA01 :** Digital Computer Electronics **US01EBCA02 :** Information Technology in Businesses	**2**
	Total Credits	**24**

SEMESTER-II		
	TITLE	**NO. OF CREDITS**
Core Courses	**US02CBCA01 :** Advanced C Programming and Introduction to Data Structures	**3**
	US02CBCA02 : Systems Analysis and Design	**3**
	US02CBCA03 : Database Management Systems	**3**
	US02CBCA04 : Web Application Development	**3**
	US02CBCA05 : Practicals	**6**
Foundation Courses	**US02FBCA01 :** Communication Skills in English-II	**2**
	US02FBCA02 : Mathematics-II	**2**
Elective	**US02EBCA01 :** Desktop Publishing **US02EBCA02 :** RDBMS for small scale organizations **US02EBCA03 :** Management Information Systems **US02EBCA04 :** Business Data Processing Through COBOL	**2**
	Total Credits	**24**

BCA-II

Course : US02CBCA01
(Advanced C Programming and Introduction to Data Structures)

Effective from June - 2010

Credits : 3
Lectures per week : 3

All units carry equal weightage.

Unit 1. *Usage of Pointers*

- Introduction and usage of pointers
- Declaration, initialization and dereferencing of pointer variables
- Pointers and addresses
- Pointers and function arguments
- Returning multiple values through pointers, Dynamic memory allocation, Pointers and arrays, Pointer arithmetic

Unit 2. *Structures and Unions*

- Basics of structures, Structures and functions, Structures and arrays, Pointers to structures, Nested structures
- Unions
- Typedefs

Unit 3. *File Handling*

- Introduction and Usage
- Operations on files, File access modes, Handling text files

Unit 4. *Introduction to Data Structures*

- Introduction to data structures, their usage, applications and advantages
- Primitive and non-primitive data structures and operations on them
- Linear and non-linear data structures

Unit 5. *Linked Lists*

- Introduction to linked lists
- Types of linked lists
- Singly linked lists, Doubly linked lists, Circular linked lists
- Applications of linked lists

Unit 6. *Stacks and Queues .*

- Introduction to stacks, operations on stacks
- Applications of stacks
- Queues and their uses
- Types of queues : Simple queues, Circular queues, Double ended queues

MAIN REFERENCE BOOKS :

1. Kernighan B., Ritchie D. : The C Programming Language, Prentice Hall, 1988
2. Cooper H. & Mullish H : The Sprit of C, Jaico Publication House, New Delhi.
3. Balaguruswami : Programming in ANSI C., Tata McGraw Hill Publication.

Course : US02CBCA02
(Systems Analysis and Design)

Effective from June - 2010

Credits : 3
Lectures per week : 3

All units carry equal weightage.

Unit 1. The Concepts of System & Systems Analysis

- The concept of a system
- The elements and characteristics of a system
- Types of systems
- Meaning of systems analysis
- Role of a systems analyst

Unit 2. Systems Development Life Cycle (SDLC)

- SDLC - Introduction
- Stages of systems analysis : Problem identification, Feasibility study and cost benefit analysis, System requirement analysis
- Stages of systems design : System design specification and programming, System implementation, follow up, maintenance, Evaluation of a system

Unit 3. Structured Systems Analysis and Design Method

- Structured Systems Analysis and Design (SSADM) – need and meaning
- SSADM Methodology : System survey, Structured analysis, Structured Design, Hardware study, System Implementation, Maintenance
- Advantage s of SSADM.
- System design control.

Unit 4. Input/Output Design & Fact Gathering Techniques

- Input : Data capture objectives, Data verification and validation
- Output : Design principles of output, Output objectives
- Fact finding techniques : Interviewing, Questionnaires, Record inspection, Observation

Unit 5. Data Flow Diagrams and System Flowcharts

- Data Flow Diagrams (DFDs) – meaning and significance
- Symbols used in DFDs, constructing a DFD with illustration
- Physical and logical DFDs
- Use of system flowcharts

Unit 6. Computer Assisted System Engineering (CASE) Tools

- CASE : an introduction
- CASE components : Diagramming Tools, Information repository, Interface generator, Code generator, Management tools
- Benefits of CASE, limitations of CASE

MAIN REFERENCE BOOKS :

1. S. Parthasarthy & B. W. Khalkar : System Analysis & Design, 1st Edition, Master Ed. Cons., Nashik .
2. James A. Senn : Analysis & Design of Information System 2nd Edition, McGraw-Hill Int.

Course : US02CBCA03
(Database Management Systems)

Effective from June - 2010

Credits : 3
Lectures per week : 3

All units carry equal weightage.

Unit 1. *Introduction*

- File processing concepts
- Basics of databases
- Database Management System – meaning, components, advantages, disadvantages
- Aims of database technology : Data independence, Data redundancy control, Data Sharing, Data integrity
- Database life cycle, Data Dictionary

Unit 2. *Working with Database Files*

- Concepts of database, fields, records
- Creation of a database file
- Data types
- Adding, listing, editing, replacing and deleting data
- Modify structure of a database file

Unit 3. *Ordering and Locating Records*

- Sorting vs Indexing
- Searching

Unit 4. *Working with Built-in Functions*

- Arithmetic functions, Date and time functions, String manipulation functions, Logical functions, Database related functions, Miscellaneous functions

Unit 5. *Command Files*

- Creating, editing and executing command files
- Making decision
- Loops
- Working with multiple database files at a time

Unit 6. *Advanced Features*

- Screens
- Reports
- Labels.
- Working with menus

MAIN REFERENCE BOOKS :

1. Desai, Bipin C. : Introduction to database systems, West Publishing Co., 1990.
2. R. K. Taxali. : Programming in FoxPro 2.5, BPB Publication.
3. Manual of DBMS Package.

Course : US02CBCA04
(Web Application Development)

Effective from June - 2010

Credits : 3
Lectures per week : 3

All units carry equal weightage.

Unit 1. *Introduction to DHTML*

- What is DHTML?
- Applications of DHTML
- Components of DHTML
- Scripting : introduction, client-side v/s server-side

Unit 2. *Cascading Style Sheets*

- Introduction
- Ways of specifying style – inline, internal, external
- Font, color, background, text, border, margin and list related attributes
- Use of classes, spans, divs
- Working with layers

Unit 3. *Using JavaScript-I*

- Introduction to JavaScript
- Applications and advantages of JavaScript
- Using JavaScript on a webpage
- JavaScript basics – syntax, data types and literals, type casting, variables, operators, arrays

Unit 4. *Using JavaScript-II*

- Flow control statements
- Built-in functions
- Working with strings, numbers, dates & times, etc.
- User interaction through dialog boxes
- User-defined functions

Unit 5. *Document Object Model*

- Introduction to DOM
- Understanding objects in HTML
- DOM hierarchy
- Manipulating objects

Unit 6. *HTML Forms*

- Working with HTML forms
- Basic form elements
- Event handling

MAIN REFERENCE BOOKS :

1. Ivan Bayross, "Web Enabled Commercial Applications Development using HTML, DHTML, Javascript, Perl CGI"
2. Wilton P. : Beginning JavaScript, 2nd Edition, Wiley DreamTech, 2004
3. Danny Goodman, Machael Morrison , "JavaScript Bible", 3rd edition

Course : US02CBCA05

Effective from June - 2010

Credits : 6
Laboratory hours per week : 12

University examination duration : 4 Hours

Part-I : Weightage-50%

- Development of applications using features covered in US02CBCA01

Part-II : Weightage-50%

- Practical based on FoxPro and DHTML

Sample Practical Exercises:

[A] ***FOXPRO***

- Development of simple applications like payroll, banking, inventory, transportation systems, examination systems, monitoring systems etc.

[B] ***DHTML***

- Development of Dynamic Web Pages

Course : US02FBCA01
(Communication Skills in English-II)

Effective from June - 2010

Credits : 2

All units carry equal weightage.

Unit 1. *Oral Communication Skills*

- Effective presentation skills: Preparation, Putting the message across, body language, proxemics and kinesics, dealing with nerves, using visual aids
- Language of Meetings and participating in a Seminar
- Telephone Techniques

Unit 2. *Job Skills*

- Writing Job Application and CV
- Interviews Skills i.e. general preparation for an interview, types of questions generally asked in interviews, types of interviews, importance of nonverbal aspect.
- Self-development skills i.e. assertiveness, stress management, time management
- Interpersonal skills: team development Skills i.e. team talk dynamics, communication in teams, leadership skills, giving feedback, (Johari window etc.)

Unit 3. *Writing Skills*

- Issues in writing Business Letters i.e. structure and types of business letters, letters of inquiry, complaint, adjustment and regret.
- Report Writing Skills i.e types of reports, characteristics of a good report, preparing and organizing a report and individual reports (a report about the need to computerize the activities of your department)

Unit 4. *Individual Project*

- Students should be made to work individually on detailed project. The topic for the project should be selected from the ones enlisted in syllabi of the first and second semesters.

MAIN REFERENCE BOOKS :

1. Rajendra Pal and J S Korlahalli, Essentials of Business Communication, Sultan Chand & sons
2. www.britishcouncil.com
3. Chrissie Wright, Communication Skills, Jaico Publication
4. Sunita Mishra and C.Murali Krishna, Communication Skills for Engineers, Pearson Eduation
5. Meenakshi Raman & Sangita Sharma, Technical Communication; Principles and Practice , Oxford University Press
6. On We Go, BBC's audio-visual course

Course : US02FBCA02
(Mathematics-II)

Effective from June - 2010

Credits : 2
Lectures per week : 2

All units carry equal weightage.

Unit 1. *Graph Theory*

- Graph and multi graphs; degree of a vertex; paths; connectedness; connected components; cut points; bridges; complete graphs; regular graphs; matrices and graphs.

Unit 2. *Planner Graphs and Trees*

- Planner graphs; maps and regions; Euler's formula (only statement); non planner graphs; colored graphs; coloring of maps; trees. spanning trees.

Unit 3. *Combinatorial Analysis*

- Counting principle, binomial coefficients; permutations and combinations.

Unit 4. *Co-ordinates and Data Analysis*

- Co-ordinates in R^2 and Equation of line in the form ax +by = c. Measures of dispersions; range; quartile deviation; mean deviations, standard deviations; measure of skewness; correlation coefficients; regression : method of least square.

MAIN REFERENCE BOOKS :

1. S. Lipschutz and M. l. Lipson, Discrete Mathematics, Schaum's Series (International Edition 1992)
2. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science (Prentice Hall Series in Automatic Computation)
3. Narsingh Deo, Graph Theory
4. S. C Gupta, Fundamentals of Statistics, Himalaya Publishing House 2004
5. S. P Gupta, Statistical Methods, Sultan Chan and sons, 2004

Elective

Course : US02EBCA01
(Desktop Publishing)

Effective from June - 2010

Credits : 2
Lectures per week : 2 Hours

All units carry equal weightage.

Unit 1. *Introduction*

- Publishing – meaning and planning
- Graphics and desktop publishing
- Publication purpose and effectiveness
- Introduction to a popular desktop publishing software and key features

Unit 2. *Using DTP Software-I*

- Working with document - creating, saving, printing, etc.
- Working with tools and pallets, navigation
- Working with margins, indents, tabs and ruler
- Working with text , paragraph and graphics

Unit 3. *Using DTP Software-II*

- Working with multipage documents
- Working with master pages, hyperlinks
- Working with frames, text frames
- Using tables

Unit 4. *Using DTP Software-III*

- Using styles and story board
- Working with objects, forms
- Working with templates
- Importing and exporting

MAIN REFERENCE BOOKS :

1. Jain S. : PageMaker 7 Training Guide, BPB, 2008
2. Busch : Teach Yourself PageMaker 6.5 for Mac & Windows, BPB, 2002
3. Connally C. : PageMaker (R) 7 – The Complete Reference, McGraw-Hill/Osborne Media, 2002
4. Manuals of relevant software packages

Course : US02EBCA02
(Working with RDBMS for Small Scale Organizations)

Effective from June - 2010

Credits : 2
Lectures per week : 2 Hours

All units carry equal weightage.

Unit 1. *Introduction to the RDBMS Package*

- RDBMS for small scale organizations – Introduction and applications
- Working with menus, toolbars and other components
- Working with databases – creation and saving
- Creating a table object

Unit 2. *Working with Data Operations and Establishing Relationships*

- Inserting data into tables
- Operations on data – adding, deleting, editing, sorting, etc.
- Creating a primary key
- Creating Relationship between tables

Unit 3. *Working with Queries, Forms and Reports*

- Working with Query – creation, editing, saving, specifying criteria, multiple-table queries, different types of queries
- Using forms and reports – creating, modifying, saving, etc.
- Using AutoForm, AutoReport

Unit 4. *Using Miscellaneous Features*

- Creating mailing labels and charts
- Data Import and Export facility
- Database security
- Database utilities
- Overview of macros and modules

MAIN REFERENCE BOOKS :

1. Virginia Andersen : Microsoft Office Access 2003 : The complete reference, McGraw Hill, 2003
2. Progue, Irwin, Roardon : Microsoft Office Access 2003 Bible, Wiley Publishing Inc., 2004
3. Manuals of relevant software packages

Course : US02EBCA03
(Management Information Systems)

Effective from June - 2010

Credits : 2
Lectures per week : 2 Hours

All units carry equal weightage.

Unit 1. *Information Systems – Introduction and Types*

- Introduction to information Systems – introduction and types
- Office automation systems
- Transaction processing systems
- Management information systems
- Decision support systems
- Executive information systems
- Expert systems

Unit 2. *Management Information Systems*

- Management Information Systems (MIS) – Importance and Evolution
- Logical foundations of MIS, Typical MIS
- Information and managerial effectiveness
- Business information systems
- Business functions and information needs of business
- Pitfalls in MIS System

Unit 3. *Information Systems Environment*

- Systems theory
- Classic view of organization
- Transitional views
- Modern organization theory
- Major organizational considerations
- Managerial roles
- Decision making models
- Role of information systems in decision
- The impact of computers on organizations and individuals

Unit 4. *Information Systems and Managerial Process*

- Managerial decision making
- Decision making environment
- Planning and Security for IT infrastructure
- Portfolio approach and identifying its proposals
- Evaluating IT investments and information systems

MAIN REFERENCE BOOKS :

1. Muneesh kumar: Business Information Systems - Vikas Publishing.
2. E Turban: Management Information Systems and Decision Support Systems – Tata McGraw Hill.
3. Sadagopan: Management Information Systems - Narosa Publications.

Course : US02EBCA04
(Business Data Processing Through COBOL)

Effective from June - 2010

Credits : 2
Lectures per week : 2

All units carry equal weightage.

Unit 1. Introduction

- Structured programming concepts
- Meaning of the terms : record, file
- Introduction to COBOL, divisions and their uses
- Data division entries : level structure, picture clause, value clause, editing characters, classes & categories of data, special-names paragraph, usage clause, justified clause

Unit 2. COBOL Programming - I

- Verbs used for arithmetic operations: Add, Subtract, Multiply, Divide, Compute, Add corresponding, Subtract corresponding
- Data movement verb : Move
- Input and output verbs
- Goto, Stop, Open, close, read, write, accept, display
- Categories of COBOL statements

Unit 3. COBOL Programming - II

- Conditions, If statement, Go To with Depending phrase, Perform statement, Exit statement
- Redefines, renames, qualification of data, sign clause
- OCCURS clause and subscripting, assigning values to table elements, multi-dimensional tables
- PERFORM verb and table handling, SORT verb, MERGE verb, Examine verb, Inspect verb, String and Unstring verbs
- Cobol subprograms

Unit 4. Introduction to File Organization

- Introduction to file organization
- Types of files : Sequential file organization, Random or direct organization, Indexed sequential organization
- Addition and deletion of records in indexed file
- Direct addressing
- File updation

MAIN REFERENCE BOOKS :

1. Roy. M. K. & Dastidar Ghosh. D. : Cobol Programming, Tata McGraw Hill Publications Comp.. 1982
2. Philipakis and Kazmier : Information System through Cobol, 2nd Edition, McGraw Hill Int. Editions
3. Cobol Programming with Business Applications By N. L. Sarda, Pitamber Publishing Company
4. Schaum's Outline Series : Theory and Problems of Data Processing, McGraw Hill Publication