

SARDAR PATEL UNIVERSITY

BCA

Proposed Syllabus under CBCS
(effective from June 2011)

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 : Business Data Processing Through COBOL	} 2
	US02EBCA02 : RDBMS for small scale organizations	
	US02EBCA03 : Management Information Systems	
Total Credits		24

NOTE : New ordering of elective courses, i. e. **US01EBCA03** : Desktop Publishing and **US02EBCA01** : Business Data Processing Through COBOL will be effective from June, 2012.

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Semester-II

Course Code : US02CBCA01

(Advanced C Programming and Introduction to Data Structures)

Credits : 3

Lectures per week : 3

All units carry equal weightage.

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

2. Structures, Unions and File Handling

- Basics of structures, Structures and functions, Structures and arrays, Pointers to structures, Nested structures
- Unions
- Typedefs
- Introduction to File Handling and Usage
- Operations on files, File access modes, Handling text files

3. 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
- Introduction to stacks, operations on stacks
- Applications of stacks

4. Queues and Linked Lists

- Queues and their uses
- Types of queues : Simple queues, Circular queues, Double ended queues
- Introduction to linked lists
- Types of linked lists
- Singly linked lists, Doubly linked lists, Circular linked lists
- Applications of linked lists

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)

Credits : 3

Lectures per week : 3

All units carry equal weightage.

1. The Concepts of System & System Development Life Cycle (SDLC)

- The concept of a system
- The elements and characteristics of a system
- Types of systems
- Meaning of systems analysis
- Role of a systems analyst
- Systems Development Life Cycle (SDLC) – An 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

2. 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
- Advantages of SSADM.
- System design control

3. 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

4. Data Flow Diagrams and CASE Tools

- Data Flow Diagrams (DFDs) – meaning and significance
- Symbols used in DFDs, constructing a DFD with illustration , Illustration case study
- Physical and logical DFDs
- Use of system flowcharts
- Computer Assisted System Engineering (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)

Credits : 3

Lectures per week : 3

All units carry equal weightage.

1. Introduction to DBMS

- 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
- Concepts of database, fields, records
- Creation of a database file
- Data types
- Modify structure of a database file

2. Working with Database Files

- Adding, listing, editing, replacing and deleting data
- Sorting vs Indexing
- Searching

3. Built-in Functions & Command Files

- Arithmetic functions, Date and time functions, String manipulation functions, Logical functions, Database related functions, Miscellaneous functions
- Creating, editing and executing command files
- Making decision
- Loops

4. Advanced Features

- Working with multiple database files at a time
- 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)

Credits : 3

Lectures per week : 3

All units carry equal weightage.

1. Introduction to DHTML & Cascading Style Sheets

- What is DHTML?
- Applications of DHTML
- Components of DHTML
- Scripting : introduction, client-side v/s server-side
- Introduction to Cascading Style Sheets (CSS)
- Ways of specifying style – inline, internal, external

2. Advanced CSS & Basics of JavaScript

- Font, color, background, text, border, margin and list related attributes
- Use of classes, spans, divs
- Working with layers
- Introduction to JavaScript
- Applications and advantages of JavaScript
- Using JavaScript on a webpage

3. Advanced JavaScript

- JavaScript basics – syntax, data types and literals, type casting, variables, operators, arrays
- Flow control statements
- Built-in functions
- Working with strings, numbers, dates & times, etc.
- User interaction through dialog boxes
- User-defined functions

4. Document Object Model & HTML Forms

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

Credits : 6
Laboratory hours per week : 12

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)

Credits : 2
Lectures per week : 2

All units carry equal weightage.

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

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.)

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)

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 Education
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)

Credits : 2

Lectures per week : 2

All units carry equal weightage.

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.

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.

3. Combinatorial Analysis

- Counting principle, binomial coefficients; permutations and combinations.

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. I. 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

Course : US02EBCA01
(Business Data Processing Through COBOL)

Credits : 2

Lectures per week : 2

All units carry equal weightage.

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

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

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

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. Sarada, Pitamber Publishing Company
4. Schaum's Outline Series : Theory and Problems of Data Processing, McGraw Hill Publication

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

Credits : 2

Lectures per week : 2

All units carry equal weightage.

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

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

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

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)

Credits : 2

Lectures per week : 2

All units carry equal weightage.

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

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

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

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.