BACHELOR OF COMPUTER APPLICATION (BCA)
II Year 2013

1. Courses of Study and Examination

Paper	Paper Name	Duration of exam. (hours)	Max. Marks		Total
			University Exam.	Internal Assessment	
Paper-I (BCA-201)	Digital Electronics	3	75	25	100
Paper-II (BCA-202)	Database Management System	3	75	25	100
Paper-III (BCA-203)	Fundamentals of Operating Systems	3	75	25	100
Paper-IV (BCA-204)	Web Technology I	3	75	25	100
Paper-V (BCA-205)	Business Organization and Management	3	75	25	100
Practical-I (BCA-206)	Database Management Lab	3	100	-	100
Practical-II (BCA-207)	Web Technology Lab	3	100	-	100
	TOTAL		575	125	700

BCA 201: Digital Electronics

Time : 3 Hrs. **Max. Marks: 75**

Unit -I

Overview of electronics: Electronic components-Resistor, capacitor and Inductors, Semiconductor devices: Diodes, transistors (BJT and FET). Integrated circuits, Popular IC packages, Analog vs digital electronics, Transistor as a switch.

Boolean algebra and Logic gates: Representation of values and complements, AND, OR, NOT operators, D'Morgans theorem-simplifying expressions-simple problems

Unit -II

Logic gates: Truth tables of AND, OR, NOT, XOR, XNOR, NAND, NOR gates, Combining logic circuits for expressions using NAND and NOR gates, Logic circuit families and characteristics, SSI,, MSI, LSI and VLSI circuits.

Combination and sequential circuits: (Simple block diagrams , truth tables and IC packages only required). Adders, decoders, multiplexers, encoder circuits , Flip-flops: different types-RS, clocked RS, JK, D and T flip flops, Master slave flip flops, edge and level triggering, Multivibrators- astable, bistable, monostable, counters-ripple and decade. Registers, latches and Tristate buffers

Unit -III

Building blocks of a computer system: Basic building blocks-I/O, memory, ALU, Control and their interconnections, Control unit and its functions- Instruction-word, Instruction and execution cycle, organizational sequence of operation of control registers; controlling of arithmetic operations; branch, skip, jump and shift instructions, ALU-its components.

Unit -IV

Addressing techniques and registers: Addressing techniques-Direct, immediate addressing; paging, relative, Indirect and indexed addressing. Memory buffer register; accumulators; Registers-Indexed, General purpose, Special purpose; overflow, carry, shift, scratch registers; stack pointers; floating point; status information and buffer registers

Unit -V

Memory: Main, RAM, static and Dynamic, ROM, EPROM, EAROM, EEPROM, Cache and Virtual memory.
Interconnecting System components: Buses, Interfacing buses, Bus formats-address, data and control, Interfacing keyboard, display, auxiliary storage devices, and printers. I/O cards in personal computers.

Suggested Books
1. A.S.Tannenbaum : Structured Computer Organization
2. Thomas C. Bartee : Digital Computer Fundamentals
3. Duglus V Hall : Microprocessors and Interfacing: programming and Hardware

BCA 202: Database Management Systems

Time : 3 Hrs. **Max. Marks: 75**

Unit -I

Introduction : Purpose of the data base system, data abstraction, data model, data independence, data definition language, data manipulation language, data base administrator, data base users, overall structure.

Unit -II

ER Model : entities, mapping constrains, keys, E-R diagram, reduction E-R diagrams to tables, generation, aggregation, design of an E-R database scheme.

Unit -III

Relational Model : The catalog, base tables and views. Relational Data Objects **-** Domains and Relations: Domains, relations, kinds of relations, relations and predicates, relational databases.

Relational Data Integrity - Candidate keys and related matters: Candidate keys. Primary and alternate keys. Foreign keys, foreign key rules, nulls. Candidate keys and nulls, foreign key and nulls.

Unit -IV

The SQL Language: Data definition, retrieval and update operations. Table expressions, conditional expressions, embedded SQL, Loins.

Views: Introduction, what are views for, data definition, data manipulation, SQL support.

Unit -V

File and system structure : overall system structure, file organisation, logical and physical file organization, sequential and random, hierarchical, inverted, multi list, indexing and hashing, B-tree index files.

Suggested Book

1. Date C.J., Database Systems, Addision Wesley.
2. Korth, Database Systems Concepts, McGraw Hill.

BCA 203: Fundamentals of Operating Systems

Time : 3 Hrs. **Max. Marks: 75**

Unit -I

Introduction: What is an operating system? Mainframe, desktop, multiprocessor, distributed, clustered, real-time and handheld systems.
Operating System Structures: System components, operating system services, system calls, systems programs, system structure, virtual machines.

Unit -II

Process: Process concept, process scheduling, operations on processes, cooperating processes. Inter process communication.

Unit -III

CPU Scheduling: Basic concepts, scheduling criteria, scheduling algorithms, algorithm evaluation.
Process Synchronization: The critical section problem, semaphores, classical problems of synchronization.

Unit -IV

Memory Management: Swapping, contiguous memory allocation, paging, segmentation, segmentation with paging.

Unit -V

Virtual Memory: Demand paging, page replacement, allocation of frames, thrasing.

Suggested Book

1. Silberschatz G.G., Operating System Concepts, John Wiley & Sons Inc.

BCA 204: Web Technology I

Time : 3 Hrs. **Max. Marks: 75**

Unit -I

Introduction to Internet Basic

The Basic of the Internet, Concepts of Domain, IP Addressing, Resolving Domain Names, Overview of TCP/IP and its Services, WWW.

Unit -II

Designing Pages with HTML

Introduction to HTML, Essential Tags, Deprecated Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Lists and their Types, Attributes of Image Tag,

Unit -III

Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, Links to External Documents, Different Section of a Page and Graphics, Footnote and e-Mailing, Creating Table, Frame, Form and Style Sheet.

Unit -IV

DHTML

Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.

Unit -V

Front Page

Front Page Basics , Web Terminologies, Phases of Planning and Building Web Sites, The FTP, HTTP and WPP, Features, Front Page Views, Adding Pictures, Backgrounds, Links, Relating Front Page to DHTML.

Books Suggested

1. HTML Black Book – Steven Holzner – Dreamtech Press
2. HTML, Java Script, DHTML, PERL, CGI – Evan Bayross - BPB

BCA 205: Business Organization and Management

Time : 3 Hrs. **Max. Marks: 75**

Unit -I

Business –Meaning and Contents, Business as a system , Business and Legal and Economic Environment, Forms of Business Organization (meaning, merits & demerits)
Management- Management Principles, Henry fayol's principles of management, Taylor's Scientific Management, Management Process, Basic Functions (in short),Meaning, Nature and Process, Role of Manager

Unit -II

Organizational Behaviour- Need of Understanding human behaviour in organizations, Challenges and opportunities for OB, Contributing disciplines to the field of OB Conceptual Models of OB

Unit -III

Managing Personnel- HRM- Meaning and Functions, Man Power Planning, Job Analysis and Design, Training, Career Planning & Development, Motivation, Compensation Management
Managing Finance-Concept of fixed and Working Capital, Main Sources of Finance ,Accounting, Meaning, Users, Budgeting- Meaning ,Type of Budgets

Unit -IV

Managing Production- Basic Concepts ,Objectives, Elements of Productions, Planning, and Control.

Unit -V

Managing Sales and Marketing- Basic Concepts of marketing, Sales Promotions (including Salesmanship)

Suggested Books

1. B.P. Singh & T.N. Chabbra, Business Organisation and Management Functions, Dhanpat Rai & Co. 2000.
2. Philip Kotler, Marketing Management –(9^{th} Ed.) Prentice Hall of India.
3. Dr. S.N. Maheshwari, Financial Management – Principles and Practice (6^{th} revised Ed.) S. Chand & Sons.
4. Stephen P. Robbins, Organisational Behaviour (8^{th} Ed.) Prentice Hall of India.

BCA 206: Practical I: Database Management Lab.

Experiments based on the paper BCA 202.

BCA 207: Practical II: Web Technology Lab.

Experiments based on the paper BCA 204.