

UNIVERSITY OF KOTA, KOTA

BACHELOR OF COMPUTER APPLICATION (BCA) 2013

1. Courses of Study and Examination

I Year

| Paper | Paper Name | Lecture | Duration of exam. (hours) | Max. Marks | | Total |
|-----------------------|--|---------|---------------------------|------------------|---------------------|------------|
| | | | | University Exam. | Internal Assessment | |
| Paper-I (BCA-01) | Introduction to Information Technology | 3 | 3 | 75 | 25 | 100 |
| Paper-II (BCA-02) | Basic Mathematics | 3 | 3 | 75 | 25 | 100 |
| Paper-III (BCA-03) | Problem Solving through C Programming | 3 | 3 | 75 | 25 | 100 |
| Paper-IV (BCA-04) | Business Communication | 3 | 3 | 75 | 25 | 100 |
| Paper-V (BCA-05) | PC Software Packages | 3 | 3 | 75 | 25 | 100 |
| | Practical | | | | | |
| Practical-I (BCA-07) | PC Software Lab | 3 | 6 | 100 | - | 100 |
| Practical-II (BCA-08) | Programming Lab | 3 | 6 | 100 | - | 100 |
| | TOTAL | | | 575 | 125 | 700 |

2. Scheme of Instruction :

Each year shall be of ten months (150 working days) duration. Details of lecture hours per week shall be as follows:

Theory : Three hours/week for each Paper

Practical : Students are required to work in the Laboratory for 10 hours/week for each practical under four hours/week faculty guidance for each practical paper.

3. Examination Scheme:

- University shall conduct examinations only after completion of 150 working days of instruction in a year.
- Each theory paper shall be of 100 marks (75 marks for written examination of 3 hrs duration and 25 marks for internal assessment).
- Each practical paper shall be of 100 marks.
- The internal marks will be awarded by committee consisting of Head of the Department, the faculty concerned.

Theory:

- Assignments :** 40% of the Internal assessment marks for each theory paper will be awarded on the basis of performance in the assignments regularly given to the students, and its records.
- Internal Examination:** 40% of the total Internal Assessment marks for each theory paper will be awarded on the basis of performance in written examination conducted by the faculty, one at the end of fourth month and another at the end of eighth month.
- Seminar/Oral examination :** 10% of the total internal assessment marks for each paper will be awarded on the basis of performance either in a seminar or internal viva-voce.
- Overall performance :** 10% of the total internal assessment marks will be awarded for each paper on the basis of performance and conduct in the classroom.

Note: Detailed breakup of Internal Marks awarded as per above guidelines must be submitted to the university in a tabular format for each paper. Department/College must preserve answer books of internal examination for a period one year from the date of examination and must be presented to the university as and when required.

- I division with distinction :** 75% or more marks in the aggregate and provided the candidate has passed all the papers and examinations in the first attempt.
- I division :** 60% or more marks but fails to satisfy the criteria for being classified as first division with distinction laid in (a).
- II division :** All other than those included in (a) and (b) above. A candidate must pass the examinations within five years of the initial admission to the first year of the course.

B.C.A. (First Year) 2013

BCA - 01: Introduction to Information Technology

Time : 3 Hrs.

Max. Marks: 75

UNIT - I

Computer Basics: Algorithms, A Simple Model of a Computer, Characteristics of Computers, Problem-solving Using Computers.

Data Representation: Representation of Characters in computers, Representation of Integers, Representation of Fractions, Hexadecimal Representation of Numbers, Decimal to Binary Conversion, Error-detecting codes.

Input & Output Devices: Description of Computer Input Units, Other Input Methods, Computer Output Units.

UNIT - II

Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access Memory, Physical Devices Used to Construct Memories, Magnetic Hard Disk, floppy Disk Drives, Compact Disk Read Only Memory, Magnetic Tape Drives.

Processor: Structure of Instructions, Description of a Processor, A Machine Language Program, An Algorithm to Simulate the Hypothetical computer.

UNIT - III

Binary Arithmetic: Binary Addition, Binary Subtraction, Signed Numbers, Two's Complement Representation of Numbers, Addition/Subtraction of Numbers in 2's Complement Notation, Binary Multiplication, Binary Division, Floating Point Representation of Numbers, Arithmetic Operations with Normalized Floating Point Numbers.

Computer Architecture: Interconnection of Units, Processor to Memory communication, I/O to Processor Communication, Interrupt Structures, Multiprogramming, Processor Features, Reduced Instruction , Set Computers (RISC), Virtual Memory.

UNIT-IV

Software Concepts: Types of Software, Programming Languages, Software (Its Nature & Qualities), Programming Languages.

Operating Systems: History & Evolution, A Brief History of Linux, A Brief History of MS-DOS, A Brief History of Windows System.

UNIT - V

Computer Generation & Classifications: First Generation of Computers, The Second Generation, The Third Generation, The Fourth Generation, The Fifth Generation, Moore's Law, Classification of computers, Distributed Computer System, parallel computers.

Internet: Network, Client and Servers, Host & Terminals, TCP/IP, World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services, Case Study, Intranet.

Text book:

Suggested Books

1. P.K.Sinha " Introduction to Information Technology",
2. V. Rajaraman, Fundamentals Of Computers, 3rd Edition , PHI Publications
3. Nasib S. Gill, Essentials of Computer & Network Technology, Khanna Publications.
4. Deepak Bharihoke, Fundamentals of Information Technology, Excel Books.

BCA - 02: Basic Mathematics

Time : 3 Hrs.

Max. Marks: 75

UNIT - I

SETS: Sets, subsets, equal sets, null set, universal set, finite & infinite sets, open & closed sets etc., operations on sets, partition of sets, Cartesian product of sets.

UNIT - II

RELATIONS : relation, properties of relations, equivalence relation, equivalence relation with partition, partial order relation, maximal and minimal points, glb, lub, chains and antichains, pigeonhole principle.

UNIT - III

FUNCTIONS : Function, domain & range, onto, into and one-to-one functions, composite functions, inverse functions, introduction of algebraic, trigonometrical, logarithmic, exponential, hyperbolic functions, zeroes of functions. Limits and continuity.

UNIT - IV

DIFFERENTIATION: Derivative, derivatives of sum, differences, product & quotients, chain rule, derivatives of composite functions, logarithmic differentiation, Rolle's theorem, mean value theorem, expansion of functions (Maclaurin's & Taylor's.), indeterminate forms, L'Hospitals rule, maxima & minima, concavity, asymptote, singular points, curve tracing, successive differentiation & liebnitz theorem.

UNIT - V

INTEGRATION: [TF – (4.1-)], [SNI – ()] Integral as limit of a sum, Riemann sum, fundamental theorem of calculus, indefinite & definite integrals, methods of integration substitution, by parts, partial fractions, integration of algebraic and transcendent functions, reduction formulae for trigonometric functions, Gamma and Beta functions.

BCA -03: Problem Solving through C Programming

Time : 3 Hrs.

Max. Marks: 75

UNIT- I

Algorithm and algorithm development: Definition and properties of algorithm, flow chart symbols, conversion of flow chart to language, example of simple algorithms. Program design, errors : syntax error, runtime error, logic error, debugging, program verification, testing, documentation and maintenance.

Introduction to C: Variables and arithmetic expressions, the for statement, symbolic constants, character input and output, arrays, functions, arguments- call by value, character arrays, external variables and scope.

Types, Operators and Expressions: Variable names, data type and sizes, constants, declarations, arithmetic operators, relational and logical operators, type conversions, increment and decrement operators, bitwise operators, assignment operators and expressions, conditional expressions, precedence and order of evaluation.

UNIT- II

Control Flow: Statements and blocks, if-else, else-if, switch, loops- while and for, loops- do-while, break and continue, goto and labels.

Functions and Program Structure: Basics of function, functions returning non-integers, external

variables, scope rules, header files, static variables, register variables, block structure, initialization, recursion, the C preprocessor.

UNIT - III

Pointer and Arrays: Pointers and addresses, pointers and function arguments, pointers and arrays, address arithmetic. Character pointers and functions, pointer arrays: pointers to pointers, multi-dimensional arrays, pointers vs. multi-dimensional arrays. Pointers to functions. Complicated declarations.

UNIT - IV

Structures: Basics of structures, structures and functions, arrays of structures, pointers to structures, self-referential structures, table lookup, typedef, unions, bit-fields.

UNIT - V

Input and Output: Standard input and output. Formatted output- print, variable length argument lists. Formatted input- scan, file access, error handling- stderr and exit, line input and output, miscellaneous functions.

Suggested Books

1. Deendayal R., Computer science Volume I and II, Second Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. Rajaraman V., Fundamentals of computers, Second Edition, Prentice Hall of India Private Limited, New Delhi.
3. Kernighan B.W. and Ritchie D.M., The C Programming Language, Prentice Hall of India Private Limited New Delhi.
4. Drogmey R., How to solve it by computers. Prentice Hall of India Private Limited , New Delhi.

BCA -04: Business Communications

Time : 3 Hrs.

Max. Marks: 75

UNIT - I

Concepts and Fundamentals : Meaning of communication, Importance of communication, Communication scope, Process of communication, Communication models and theories, Essentials of good communication - The seven Cs of communication, Factors responsible for growing importance of communication, Channels of communication, Verbal and Non-Verbal communication Formal and Informal communication Barriers of communication.

UNIT - II

Written Communication : Objectives of written Communication, Media of written communication, Merits and demerits of written communication, Planning business messages.

Writing Letters : Business letters, Office memorandum , Good news and bad news letters, Persuasive letters , Sales letters , Letter styles/ layout.

UNIT - III

Report Writing : Meaning & Definition, Types of report (Business report & Academic report) ,Format of report, Drafting the report ,Layout of the report, Essential requirement of good report writing.

UNIT - IV

Project Presentations : Advantages & Disadvantages, Executive Summary, Charts, Distribution of time (presentation, questions & answers, summing up), Visual presentation, Guidelines for using visual aids, Electronic media (power-point presentation).

UNIT - V

Arts of Listening : Good listening for improved communications, Art of listening, Meaning, nature and importance of listening, Principles of good listening, Barriers in listening.

Suggested Books

1. Communication by C.S. Rayudu, Himalaya Publishing House.
2. Communication Today - Understanding Creative Skill by Reuben Ray, Himalaya Publishing House.
3. Successful Communication by Malra Treece.
4. Business Communication Today by Bovee & Thill, McGraw Hill.
5. Principles of Business Communication by Murphy and Hilderbrandth.
6. Effective Communication Skills by O. N. Kaul & K. K. Sharma, Creative Publishers
7. Chicago Manual of style PHI.
8. Essentials of Business Communication by Rajendra Pal & J. S. Korlahalli, Sultan Chand & Sons.
9. Business Communication by K. K. Sinha.

BCA- 05 PC Software Packages

Time : 3 Hrs.

Max. Marks: 75

UNIT - I

DOS: Introduction, history & versions of DOS, DOS basics- Physical structure of disk, drive name, FAT, file & directory structure and naming rules, booting process, DOS system files, DOS commands- internal & external.

UNIT - II

Windows 95/98: Windows concepts, Features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories- Calculator, Notepad, Paint, Word-pad, Character Map, Windows Explorer, Entertainment, Managing Hardware & Software- Installation of Hardware & Software, Using Scanner, System Tools, Communication, Sharing Information between programs.

UNIT - III

Word Processing; MS-Word: Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Editing, Previewing, Printing, & Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto- Multiple Functions, Mail Merge, Handling Graphics, Tables & Charts, Converting a word document into various formats like- Text, Rich Text format, Word perfect, HTML etc.

UNIT - IV

Worksheet- MS-Excel: Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing worksheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets- concepts, creating and using.

UNIT - V

Introduction to Power Point: Creating slide show with animations.

Introduction to Front Page and Microsoft Access: Creating & using databases in Access.