

Department of Computer Science
University of Lucknow
Detailed Syllabus of BCA (Bachelor of Computer Application)
Semester-II

Paper Code: BCA201

Paper Name: PROGRAMMING IN C

UNIT I

Fundamentals of C programming, Programming Techniques and concepts, Overview of C, History and structure, C Character set, Identifiers and Keywords, Data-types, Data Types declarations, Constants and variables, expressions and statements and symbolic constants, Basic I/O, Preprocessor command: #include, define, preparing and running a complete C program.

UNIT II

Operator and expressions: Arithmetic, unary, logical, bit-wise, assignment, and conditional operators, library functions, Construction of loops and implementation, control statements: While, Do-while, for statements nested loops. If-else, switch, break, continue and go-to statements, comma operator.

UNIT III

Functions, function prototypes, Recursion, storage classes, automatic, external and static variables, Pointer: Declarations, Passing to a function, Operations on Pointers

UNIT IV

Arrays two dimensional and multidimensional arrays, Arrays of Pointers, Unions: Declarations, File handling: Open, Close, Create, Process, unformatted data file.

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Paper Code: BCA202

Paper Name: FOUNDATION COURSE IN MATHEMATICS FOR COMPUTING

UNIT I

Matrix: Operations on Matrices like Addition, subtraction, Multiplication, Adjoint and inverse of Matrix, Application in Solution Of Linear equations, Determinants

UNIT II

Calculus: Differentiations of important real valued functions of real valued functions of real variable, product rule, and quotient rule, Differentiations of inverse trigonometric function, Implicit Function, Second order derivatives.

UNIT III

Integration, nth derivative, Integration by substitution, Integration through partial fraction, Integration by parts, Definite Integration as limit of sum and its Properties

UNIT IV

Differential Equations, Solutions with separation variable, homogenous equation and first order linear differential equation with constant coefficient

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Paper Code: BCA203

Paper Name: INTRODUCTION TO DBMS—SQL

UNIT I

Data, Information and Knowledge, Introducing Databases and Different kinds of database users, Concept Of A Database, Interacting With A Database, Architecture Of A Database, Using Relational Databases, Basics Of Relational Databases, Using Relational Databases, Identifiers For Relations, characteristics of database, database system concepts and Data Independence, Content of Data Dictionary, Data administration function, DBMS, Concurrency control, Database security, Database recovery

UNIT II

Traditional Data Model – ANSI/SPRC 3-level Architecture, Overview of three Traditional models—Hierarchical, Network and Relational Models, Comparison of these models

UNIT III File organization technique—Random file organization technique, Multi key file organization technique, Entity relationship Model, ER Model

UNIT IV

Structured Query Language- Introduction, Data definition, views and queries in SQL, Specifying constraints and indexes in SQL, Data Manipulation, Data maintenance, Multiple Table Operations, Transaction integrity facilities,

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Paper Code: BCA204

Paper Name: FOUNDATION COURSE IN SCIENCE AND TECHNOLOGY

UNIT I

Science and Man, Science as a Human Endeavor, Science in Ancient World, Iron age, Science in Ancient India, Science in Medieval Times, Science in Modern India, The method of Science and Nature of Scientific Knowledge.

UNIT II

Universe, Universe as a system, Solar System, Origin of Species, Evolution of Man, Earth, Environment, Components of Environment, Changing Environment, Factor effecting environment, and Natural resources available on earth, Resource Utilization.

UNIT III

Scientific Possibilities and Social Realities in the field of, Food and Agriculture, Food and Nutrition, Health and disease, Role of Science in Solving these Problems

UNIT IV

Developments in Science and Technology, Effects of current developments of Science and Technology on Humans, Science and Technology in Industry, Perceptions and Aspirations, Science and Society

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Paper Code: BCA205

Paper Name: DIGITAL ELECTRONICS

UNIT I

Digital Electronics, Number systems, Logic gates: Inverter, AND, OR, NOR, XOR, XNOR, NAND, De Morgan's Theorems, Karnaugh Map, Boolean Algebra, Combinational and sequential Circuits.

UNIT II

Half Adder, full Adder, Binary Adder, Signed Binary numbers, 1's and 2's complement, 2's complement Adder Subtractor Parity generator, Comparators, Encoder, Decoder, Multiplexer, Demultiplexer

UNIT III

Flip Flops, RS latches, D-Flip Flop, T-Flip Flop, JK-Flip Flop, JK Master Slave Flip Flop, Edge triggered and Pulse triggered Flip Flops, Registers, shift registers.

UNIT IV

Binary Counters, Modulus of a Counter, design of different MOD counter, Random Access Memory, Read Only Memory, Multivibrators- Astable, Monostable, Bistable, Schmitt Trigger, Timer

Practicals:

1. To verify Different Logic Gates.
2. To verify different Flip-Flops.
3. To study Different types of Multivirators.
4. To study Timer - 555