Vinoba Bhave University, Hazaribag

UNIVERSITY DEPARTMENT OF COMPUTER APPLICATIONS
VINOBA BHAVE UNIVERSITY, HAZARIBAG

COURSE STRUCTURE
CHOICE BASED CREDIT SYSTEM

The proposed CBCS system has the potential of providing a choice of a wide spectrum of subjects/branches of subjects to students in pursuit of achieving their cherished goals. This system has been globally accepted and now has become the need of the day. The UGC also has provided guidelines to the Universities for consideration and implementation of CBCS.

The University Department of Computer Applications proposes the following courses and credits to be initiated at BCA w.e.f. the session 2018 – 21. The proposed system may be modified/improved in future according to the requirements.

CORE Papers for BCA

Semester – I

Paper Code	Title	Credit	Marks
BCA F1001	Business Communications	4	100
BCA F1002	Basic Mathematics-I	5	100
BCA F1003	Business Practices And Management	4	100
BCA C1004	Introduction to Computer Science	4	100
BCA C1005	Problem Solving and Programming in C	5	100
Sessional			
BCA P1006	Computer Basics and PC Software Lab	1	50
BCA P1007	C Programming Lab	1	50
BCA P1008	Communication Skill Lab	1	50

Semester – II

Paper Code	Title	Credit	Marks
BCA F2001	Basic Mathematics II	4	100
BCA F2002	Environmental Science	4	100
BCA C2003	Database Management System	5	100
BCA C2004	Object Oriented Programming using C++	5	100
BCA C2005	Logic Design	4	100
Sessional			
BCA P2006	C ++ Programming Lab	1	50
BCA P2007	Database Management System Lab	1	50
BCA P2008	Circuit Design Lab	1	50

Semester – III

Paper Code	Title	Credit	Marks
BCA C3001	Data Structure using C	5	100
BCA C3002	Java Programming	4	100
BCA C3003	Computer Architecture	5	100
BCA C3004	System Analysis and Design	4	100
BCA C3005	Probability and Statistics	4	100
Sessional			
BCA P3006	Data Structure Lab	1	50
BCA P3007	Java Programming Lab	1	50
BCA P3008	Statistical Lab	1	50

Semester – IV

Paper Code	Title	Credit	Marks
BCA C4001	Multimedia	4	100
BCA C4002	Operating System	5	100
BCA C4003	HTML	4	100
BCA C4004	Visual Programming	4	100
BCA C4005	Computer Networks	5	100
Sessional			
BCA P4006	Multimedia Lab	1	50
BCA P4007	Visual Programming Lab	1	50
BCA P4008	HTML Lab	1	50

Semester – V

Paper Code	Title	Credit	Marks
BCA C5001	Internet Concept and Web Design	4	100
BCA C5002	Design and Analysis of Algorithms	5	100
BCA C5003	Linux Programming	5	100
BCA C5004	Computer Oriented Numerical Methods	4	100
	Elective – I	4	100
Sessional			
BCA P5005	Internet Concept and Web Design Lab	1	50
BCA P5006	Numerical Method Lab	1	50
BCA P5007	Linux Programming Lab	1	50

Semester – VI

Paper Code	Title	Credit	Marks
BCA C6001	Optimization Techniques	4	100
BCA C6002	Principle of Management	4	100
BCA C6003	Accounting and Financial Management	5	100
BCA C6004	Network Security	5	100
	Elective – II	4	100
Sessional			
BCA C6005	Project	2	100
BCA C6006	TALLY Lab	1	50

BUSINESS COMMUNICATION (ENG F1001)

TIME-3 hr **FULL MARKS-70** **CREDIT-4**

The question paper shall consists of two sections: A and B. **Section A** will have eight (08) questions, out of which four (04) questions will be answered and will carry 10 marks each. **Section B** will consists of 10 short answer type questions which will cover the entire syllabus and will carry 30 marks in all., each short-answer type questions carrying 3 marks.

Unit 1: Communication Overview

Introduction to Communication, Development of Communication, Principles of Communication, Process of Communication, Barriers to Communication, The Ten Commandments, The Listening Process, Difference between Listening and Hearing, Types of Listening, Deterrents to the Listening Process, Factors that help in Listening. **[Q-2]**

Unit 2: Grammar and Comprehension

Syntax-Use of Articles in Science, The Verbs, The Prepositions, Tense, Active and Passive Construction, Common Errors, Double blanks in a Sentences, Sentence Rearrangement, Closure Test, Antonyms and Synonyms, Comprehensions. **[Q-2]**

Unit 3: Business Correspondence

Drafting official and business letter, Circulars and official order instruction, Drafting minutes and agenda of the meeting, Formal report, Paragraph Writing, Use of Charts, Graphs and Table. **[Q-2]**

Unit 4: Employment Communication

Resumes and Cover Letters: Introduction, Writing a Resume, Writing Job Application Letters, Other Letters about Employments, Effective Presentations, Steps to a Successful Presentation. **[Q-1]**

Unit 5: Group Discussion and Interviews

Introduction to Group Discussion, Qualities looked for GD, Strategies for GD, Use of persuasive strategies including some rhetorical devices(for emphasizing for instance being polite and firm handling question and taking in criticism of self), Effective interview, Enrichment of English Vocabulary-Borrowing, Words formation and its methods. **[Q-1]**

TEXT BOOK:

1. Effective Communication Skills: The Foundations for Change by John Nielsen

REFERENCE BOOKS:

1. Business Correspondence & Report Writing, Sharma, TMH Pub.
2. Business Communication, Kaul, PHI Publication.

BASIC MATHEMATICS-I (BCA F1002)

TIME-3 hr **FULL MARKS-70** **CREDIT-5**

The question paper shall consists of two sections: A and B. **Section A** will have eight (08) questions, out of which four (04) questions will be answered and will carry 10 marks each. **Section B** will consists of 10 short answer type questions which will cover the entire syllabus and will carry 30 marks in all., each short-answer type questions carrying 3 marks.

Unit 1: Differential Calculus

Successive differentiation, Leibnitz Theorem, Taylor's theorem with Lagrange's forms of remainders, Expansion of a function of one variable in Taylors and Meclanrin's infinite series. Maxima and Minima of one variable, partial Derivatives, Euler's theorem, change of variables, total differentiation, Errors and approximation. Taylor's series in two variables. Maxima and Minima of two or more variables.
[Q-3]

Unit 2: Integral Calculus

Definite integral and its application for area, length and volume. Multiple integrals. Change of order of integration. Transformation of integral from Cartesian to polar. Applications in areas, volume and surfaces. **[Q-3]**

Unit 3: Differential Equation

First degree and first order Differential equation: Higher order differential equation with constant coefficients. Linear partial differential equation of first order P.D.E. of higher with constant coefficients.
[Q-2]

TEXT BOOKS:

1. Das BC and Mukherjee, Differential Calculus, Calcutta, U.N. Dhar Publishers.
2. Das BC and Mukherjee, Integral Calculus, Calcutta, U.N. Dhar Publishers.
3. Grewal B.S., Higher Engineering Mathematics, Delhi Khanna Publishers.

BUSINESS PRACTICES AND MANAGEMENT (BCA F1003)

TIME-3 hr **FULL MARKS-70** **CREDIT-4**

The question paper shall consists of two sections: A and B. **Section A** will have eight (08) questions, out of which four (04) questions will be answered and will carry 10 marks each. **Section B** will consists of 10 short answer type questions which will cover the entire syllabus and will carry 30 marks in all., each short-answer type questions carrying 3 marks.

Unit 1: Concepts of Business

Business Environment- Macro and Micro Environment, Business System, Forms of Business Organization - Sole trader, Partnership, Companies HUF and Co-operative organization. **[Q-2]**

Unit 2: Organization structure

Meaning and importance, Nature and Types of Organization, Forms of Organization, Formal and Informal Organization, Line and staff Agency, Theories of Organization- Human Relations theory, Bureaucratic theory. **[Q-2]**

Unit 3: Management

Meaning, definition and importance, Management concept, functions, Principles of management and Management Process. Planning- concepts and its types, Decision making concept, Management by objectives (M.B.O.). Motivation-Concepts and theories, Leadership- Concepts and styles. **[Q-2]**

Unit 4: Organizing

Concepts, Nature and Significance, Authority and responsibility, Centralization and Decentralization, CommunicationNature, Process and types of communication networks. Managerial control - concepts and Process, Techniques of control. **[Q-2]**

Text Book:

1. Sharma Sudhir and Bansal, “Principles of Management”, Anamika Publishers.

Reference Books:

1. Sharma, R. K. and Gupta, S. K., “Business Organisation and Management”, Kalyani Publishers.
2. Sharma, N. K., “Current issues in Management”, Indus Valley Publication.
3. Singh, U.K. and Dewan J.M., “Business Management”, Management Executives Handbook Series.
4. Michael A. Hitt, Black, J. Stewart, “Management”, Pearson Education.

INTRODUCTION TO COMPUTER SCIENCE (BCA C1004)

TIME-3 hr **FULL MARKS-70** **CREDIT- 4**

The question paper shall consists of two sections: A and B. **Section A** will have eight (08) questions, out of which four (04) questions will be answered and will carry 10 marks each. **Section B** will consists of 10 short answer type questions which will cover the entire syllabus and will carry 30 marks in all., each short-answer type questions carrying 3 marks.

Unit 1: Introduction to Computers & Number Systems and Logic Gates
Introduction, Characteristics of Computers, Evolution of computers, Generation of Computers, Classification of Computers, The Computer System, Applications of Computers.
Introduction, Number Systems, Conversion between Number Bases, Arithmetic System, Signed and Unsigned Numbers, Concept of Overflow, Binary Coding, Logic Gates, Boolean algebra. **[Q-2]**

Unit 2: Computer Architecture & Primary Memory
Introduction, Central Processing Unit (CPU) Memory, Communication between Various Units of a Computer System. Introduction, Memory Hierarchy, Random Access Memory (RAM), Types of RAM, Read Only Memory (ROM), Types of ROM. **[Q-1]**

Unit 3: Secondary Storage, Input & Output Devices
Introduction, Classification of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Optical Disk, Magneto Optical disk. Introduction, Keyboard, Pointing Devices, Speech Recognition, Digital Camera, Scanners, Optical Scanners. Introduction, Classification of Output, Hard Copy Output Devices, Printers, Plotters, Computer Output Microfilm (COM), Soft Copy Output Devices, Monitors, Audio Output, Projectors, Terminals. **[Q-1]**

Unit 4: Computer Software & Operating System
Introduction, Software: Definition, Relationship between Software and Hardware, Software Categories, System Software, Application Software, Software Terminology. Algorithm, Flowchart, Pseudocode (P-Code), Evolution of Programming Languages, Classification of Programming Languages, Generations of Programming Languages, Operating System, Evolution of Operating System, Types of Operating System, Functions of an Operating System, Modern Operating Systems. **[Q-2]**

Unit 5: Data Communication, Computer Network & Internet Basics
Introduction, Data Communication, Transmission Media, Computer Network, Network Topologies, Communication Protocols, Network devices. Evolution of Internet, Basic Internet Terms, Getting Connected to Internet, Internet Applications, Electronic Mail: An Introduction How E-Mail Works, Searching the Web (Search Engines), Languages of Internet, Internet and Viruses. **[Q-2]**

TEXT BOOK:

1. Introduction to computer Science, ITL Education solution Limited, R&D Wing,PEARSON Education, Edition 2004

REFERENCE BOOK:

1. Rajaraman V. – Fundamental of Computers, Prentice Hall of India Pvt. Ltd., New Delhi – 2nd edition, 1996.

PROBLEM SOLVING AND PROGRAMMING IN C (BCA C1005)

TIME-3 hr **FULL MARKS-70** **CREDIT-5**

The question paper shall consists of two sections: A and B. **Section A** will have eight (08) questions, out of which four (04) questions will be answered and will carry 10 marks each. **Section B** will consists of 10 short answer type questions which will cover the entire syllabus and will carry 30 marks in all., each short-answer type questions carrying 3 marks.

UNIT 1: Introduction

History and Importance of C, Sample programming, Basic Structure and execution of C programs, Constants, Variables, and Data Types and various type of declarations, Different type operators and Expressions, Evaluation of Expressions, Operator Precedence and Associability, Mathematical Functions. **[Q-1]**

UNIT 2: Operators, Decision Making& Branching, Array and String

Managing Input and Output operations, Decision Making and Branching Decision Making and Looping. One – dimensional Arrays and their declaration and Initializations, Two-dimensional Arrays and their initializations, Multidimensional Arrays, Dynamic Arrays, String Variables, Reading and Writing Strings, Arithmetic Operations on characters, Putting Strings together, Comparison of Two Strings, String – handling functions, Table and other features of Strings. **[Q-2]**

UNIT 3: Function

Need and Elements for user –defined Functions, Definition of Functions, Return values and their types, Function calls and Declaration, Arguments and corresponding return values, Functions that return multiple values, Nesting of functions, Recursion, Passing arrays and strings to functions, The Scope, Visibility and Life time of variables. **[Q-2]**

UNIT 4: Structure & Union

Defining Structure, Declaring Structure Variable and Accessing Structure Members, Initialization of Structure, Comparing Structure Variables, Operation on Individual Members, Arrays of Structures, and Structures within structures, Structures and Functions, Unions, Size of Structures, Bit Fields. **[Q-1]**

UNIT 5: Pointer

Understanding Pointers, Accessing the Address of a Variable, Declaration and Initialization of Pointer Variables, Accessing a Variable through its Pointer, Chain of Pointers, Pointer Expressions, Pointer Increments and Scale Factor, Pointers and Arrays, Pointers and Character Strings, Arrays of Pointers, Pointers and Function Arguments, Functions Returning Pointers, Pointers to Functions, Pointers and Structures, File Management in C. **[Q-2]**

TEXT BOOK:

1. E. Balagurusamy – Programming in ANSI C, 3rd Edn. , TMH, New Delhi ; 2004

REFERENCE BOOK & WEBSITE:

1. Programming with C, B.S.Gottfried (TMH)
2. Y. Kanetkar – Let us C, 4th Edition, BPB Publication , New Delhi; 2002
3. www.spoken-tutorial.org, spoken tutorial IIT Bombay

COMPUTER BASICS & PC SOFTWARE LAB(BCA-P1006)

TIME-3 hr **FULL MARKS-50** **CREDIT-1**

Experiment problems of Computer Basics & PC Software lab will be from the theory classes of BCA C1004.

C PROGRAMMING LAB (BCA P1007)

TIME-3 hr **FULL MARKS-50** **CREDIT-1**

Experiment problems of C Programming lab will be from the theory classes of BCA C1005

COMMUNICATIONS SKILLS LAB (BCA P1008)

TIME-3 hr **FULL MARKS-50** **CREDIT-1**

Experiment problems of communication skill lab will be from the theory classes of BCA F1001.