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

OPTIMIZATION TECHNIQUES (BCA C6001)

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: OPERATIONS RESEARCH-AN INTRODUCTION

Definitions of Operations Research, Characteristics of Operations Research Approach. **[Q-1]**

UNIT 2: LINEAR PROGRAMMING- APPLICATIONS AND MODEL FORMULATION

Graphical Solution Methods of LP Problem., Structure of Linear Programming Model, Advantages of Using Linear Programming, Limitations of Linear Programming, Applications Areas of Linear Programming, General Mathematical Model of Linear Programming Model, Guidelines on Linear Programming Model Formulation,Examples of LP Model Formulation. **[Q-2]**

UNIT 3: LINEAR PROGRAMMING- THE SIMPLEX METHOD

Introduction, Standard Form of an LP Problem, Simplex Algorithm (Maximization Case), Simplex Algorithm (Minimization Case). **[Q-2]**

UNIT 4: TRANSPORTATION & ASSIGNMENT PROBLEM

Introduction, Mathematical Model of Transportation Problem, The Transportation Algorithm, Methods for Finding Initial Solution.

Introduction, Mathematical Model of Statement Assignment Problem, Solution Methods of Assignment Problem. **[Q-2]**

UNIT 5: PROJECT MANAGEMENT-PERT AND CPM

Introduction, Basic Differences between PERT and CPM, Phases of Project Management, PERT/CPM Network Components and Precedence Relationships, Critical Path Analysis. **[Q-1]**

TEXT BOOK:

1. J.K Sharma- Operations Research Theory & Applications, 3rd Edn, Macmillan India Ltd., New Delhi-2007.

REFERENCE BOOK:

1. H.A. Taha-Operations Research: An Introduction, Pearson Education, New Delhi, 2006.

PRINCIPLE OF MANAGEMENT (BCA C6002)

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: NATURE OF MANAGEMENT
Meaning, Definition, it's nature purpose, importance & Functions, Management as Art and Science, Concepts of management-Administration-Organization, Management Skills, Levels of Management.
[Q-2]

UNIT 2: EVOLUTION OF MANAGEMENT THOUGHT
Contribution of F.W.Taylor, Henri Fayol, Elton Mayo, Peter Drucker to the management thought. Business Ethics & Social Responsibility: Concept, Shift to Ethics, Tools of Ethics. **[Q-1]**

UNIT 3: FUNCTIONS OF MANAGEMENT: PART-I
Planning – Meaning- Need & Importance, types, Process of Planning, Barriers to Effective Planning. Forecasting- Need & Techniques
Organizing – Elements of organizing & processes:
Types of organizations, Delegation of authority – Need, difficulties
Delegation – Decentralization
Staffing – Meaning & Importance
Direction – Nature – Principles
Communication – Types & Importance **[Q-3]**

UNIT 4: FUNCTIONS OF MANAGEMENT: PART-II
Motivation – Importance – theories
Leadership – Meaning –styles, qualities & function of leader
Controlling - Need, Nature, importance, Process & Techniques
Coordination – Need – Importance **[Q-2]**

TEXT BOOK:
1. Essential of Management – Horold Koontz and Iteinz Weibrich- McGrawhills International

REFERENTIAL BOOKS :
2. Management Theory & Practice – J.N.Chandan
3. Essential of Business Administration – K.Aswathapa, Himalaya Publishing House
4. Principles & practice of management – Dr. L.M.Parasad, Sultan Chand & Sons – New Delhi
5. Business Organization & Management – Dr. Y.K.Bhushan
6. Management: Concept and Strategies By J.S. Chandan, Vikas Publishing
7. Principles of Management, By Tripathi, Reddy Tata McGraw Hill
8. Business organization and Management by Talloo by Tata McGraw Hill

OPTIMIZATION TECHNIQUES (BCA C6003)

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: ACCOUNTING
Basic of Accounting, Accounting Terminology, Book keeping and Accounting, Accounting Standards, Double Entry System, Classification of Accounts, Rules for Debit and Credit. **[Q-2]**

UNIT 2: JOURNAL, LEDGER AND TRIAL BALANCE
Meaning of Journal, sub-Journals, Ledger, Trial Balance, Balancing of Ledger accounts. **[Q-2]**

UNIT 3: CASH BOOK AND SUBSIDIARY BOOKS OF ACCOUNTING
Kinds of cashbook, Purchase daybook, Sales daybook, Bills receivable book, Bills payable book. **[Q-1]**

UNIT 4: FINANCIAL ACCOUNTS
Trading account,, Profit & Loss account, Adjustments, Balance Sheet, Forms of balance Sheet, Assets and their classification, liabilities and their classification, uses and limitations, fund flow statement, cash flow statement. **[Q-1]**

UNIT 5: INTRODUCTION TO FINANCIAL MANAGEMENT
Meaning of Finance, Definition of Finance, Types of Finance, Definition of Financial Management,
Scope of Financial Management, Objectives of Financial Management, Approaches to Financial Management (Traditional and Modern Approaches), Functions of Finance Manager and Importance to Financial Management. **[Q-2]**

TEXT BOOKS:

1. Management Accounting – Manmohan Singh and Goel
2. Financial management- Pandey I. M.

REFERENCE BOOKS:

5. Hanif & Mukherjee-Modern Accountancy, TMH, New Delhi.
6. Maheshwari & Maheshwari- An Introduction to Accountancy, Vikas Publishing House Pvt.Ltd., New Delhi.

NETWORK SECURITY (BCA C6004)

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
Attack, Services and Mechanism, Model for Internetwork Security. **[Q-1]**

Unit 2: Cryptography
Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis; Public Key Encryption. **[Q-2]**

Unit 3: Digital signature
Overview, Digital Signatures and Authentication. **[Q-2]**
.

Unit 4: Web Security
Requirement, Secure Socket Layer, Transport Layer Security, and Secure Electronic Transactions.
[Q-1]

Unit 5: System Security
Intruders, Viruses and Relate Threats, Firewall Design Principles. **[Q-2]**

Referential Books:
1. W. Stallings, Networks Security Essentials: Application & Standards, Pearson Education, 2000.
2. W.Stallings, Cryptography and Network Security, Principles and Practice, Pearson Education, 2000.

PROJECT (BCA C6005)

TIME-3 hr **FULL MARKS-100** **CREDIT-2**

One month industrial project

TALLY LAB (BCA P6006)

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

Experiment problems of Tally Lab will be from the theory classes of BCA C6003

ELECTIVE - II

MANAGEMENT INFORMATION SYSTEM (BCA E6006)

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 MIS

The Technical and Business Perspective, Organization Structure, Evaluation of MIS through Information System, MIS Organization within the Company. **[Q-2]**

UNIT 2: INFORMATION SYSTEMS FOR DECISION MAKING

Evolution of an Information System, Basic Information Systems, Decision Making and MIS, Decision Assisting Information System, Concepts of Balanced MIS Effectiveness and Efficiency Criteria. **[Q-3]**

UNIT 3: DEVELOPMENT OF MIS

Methodology and Tools/Techniques for Systematic Identification, Evaluation and Modification of MIS. **[Q-1]**

UNIT 4: ADVANCED MIS

Concepts, Needs and Problems in Achieving Advanced MIS, DSS. **[Q-1]**

UNIT 5: PITFALLS IN MIS DEVELOPMENT

Fundamental Weakness, Soft Spots in Planning and Design Problems. **[Q-1]**

TEXT BOOK:

Murdic, Rose and Clagett- Information Systems for Modern Management, PHI, New Delhi.

REFERENCE BOOK:

Laudon-Laudon- Management Information Systems, Pearson Education, New Delhi.

ELECTIVE – II
ARTIFICIAL INTELLIGENCE (BCA E6007)

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.

Unit1:
Basic Problem solving methods: Production system-state space search, control strategies, heuristic search, forward and backward reasoning, Hill climbing techniques. **[Q-2]**

Unit2:
Knowledge Representation: Predicate logic, Resolution, Semantic nets, Conceptual Dependency, frames and scripts. **[Q-1]**

Unit3:
Solving Problems By Searching, Problem Solving Agents, Searching For Solutions; Uniform Search Strategies: Breadth First Search, Depth First Search, Best-First Search, A* Search. **[Q-2]**

Unit4:
AI languages: Important characteristics if AI languages- PROLOG, LISP. **[Q-1]**

Unit5:
Introduction to Expert Systems: Structure of an Expert System, Knowledge base, Design of an Expert system. **[Q-2]**

Text Book:

1. Ritch & Knight -Artificial Intelligence, TMH

Reference Books:

1. S. Russel and P. Norvig- Artificial Intelligence A Modern Approach, Pearson Education.

2. Patterson -Introduction to Artificial Intelligence & Expert Systems, PHI