University of Pune

Faculty of Commerce Bachelor Computer Application (Pattern 2008)

B.C.A. Semester III and IV (w.e.f. 2009-10)

Course Code	Subject/Paper title
Sem. III	
301	Numerical Methods
302	Data Stricture using C
303	Software Engineering
304	Management Accounting
305	Relational Data Based Management System (RDBMS)
306	Computer Laboratory
Sem. IV	
401	Networking
402	Visual Basic
403	Inventory Management (SAD)
404	Human Resource Management
405	Object Oriented Programming using C++
406	Computer Laboratory

Statement showing equivalence of Papers/Subjects B. C. A. (Year 2003-04) course with B. C. A (Revised year 2008-09)

B. C. A. (Year 2003-04)		B. C. A. (Revised) (Year 2008-09)	
Code No.	Title Part I Sem I	Code No.	Equivalent Title of Subject/Paper Part I Sem I
101	Business Communication	101	Business Communication
102	Principles of Management	102	Principles of Management
103	Numerical Methods	301	Numerical Methods (Sem III)
104	Computer Fundamentals	104	Computer Fundamentals and Office Automation
105	Business Organization		-
106	Practicals	106	Computer Laboratory and Practical Work (OA+PPA)
	Sem II		Sem II
207	Organizational Behavior	201	Organizational Behavior
208	Programming Principles and Algorithms	103	Programming Principles and Algorithms
209	Elements of Statistics	202	Elements of Statistics
210	Office Automation	104	Computer Fundamentals and Office Automation
211	Business Environment		-
212	Practicals	206	Computer Laboratory and Practical Work (CP+DBMS)
	(B. C. A) Part II Sem III		**(B. C. A) Part II** Sem III
313	Computer Accounting with 'Tally'	105	Business Accounting (Sem I)
314	Networking	401	Networking (Sem IV)
315	'C' Programming	203	'C' Programming (Sem II)
316	DBMS & RDBMS	305	RDBMS
317	Management Information System		-
318	Practicals	306	Computer Laboratory and Practical Work (DS+RDBMS)
	Sem IV		Sem IV
419	Visual Basic	402	Visual Basic
420	Computer Architecture and Organization		-
421	Organizational Behavior	201	Organizational Behavior (Sem II)
422	Operating System	603	Introduction to SysPro and Operating System (SemVI)
423	Elements of Object Oriented Programming with C + +	405	Object Oriented Programming with C + +
424	Practicals	406	Computer Laboratory and Practical Work (VB+C++)

	(B. C. A) Part III Sem V		**(B. C. A) Part III** Sem V
525	Internet Technologies and Web Designing	501	Net Frame Works
526	Oracle		-
527	Entrepreneurship and Venture Management		-
528	E-commerce Application	601	E-commerce (Sem VI)
529	Services Management		-
530	Practicals	506	Computer Laboratory and Practical Work (Net + Core JAVA)
	Sem VI		Sem VI
631	Cyber Laws		-
632	Software Engineering	303	Software Engineering (Sem III)
633	JAVA	504	Core JAVA
634	Software Project Management	605	Project Work (Banking and Finance, Cost Analysis EDP, ERP etc.)
635	Project	505	Project Work (VB)
636	Project		-

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B.C.A. Sem – III
Subject: Numerical Methods (301)

Objectives:

1) To understand and Master the concepts, techniques & applications of Numerical Methods.
2) To develop the skills of solving real life problems by using Computer Programming.
3) To make students to understand the art of applying Mathematical techniques to solve some real life problems.
4) To gain knowledge of Numerical Computations.

Sr.No.	Topic	No. of Lectures
UNIT 1	Preliminary Concept of functions, limit, Derivative and Integration	4
UNIT 2	*Solution of Non linear Equations* 2.1 Introduction, 2.2 Bisection method - without derivation and convergence 2.3 Newton - Rapson Method - without derivation & convergence.	4
UNIT 3	**Interpolation** 3.1 Introduction, 3.2 Difference Operators - Forward , Backward , Shift (E), Relations between them. 3.3 Forward & Backward Difference tables. 3.4 Factorial notation. 3.5 Newton's Forward Difference & Backward Difference interpolation Formula (without proof) 3.6 Lagrange's formula for interpolation with unequally space points, (without proof)	10
UNIT 4	*Curve Fitting* 4.1 Introduction. 4.2 Least Square Method, Fitting Linear Equations, Fitting second degree polynomial functions.	4
UNIT 5	*Numerical Differentiation* 5.1 Introduction. 5.2 Numerical Differentiation. 5.3 Numerical Integration - A General Quadrature formula for Equidistance Ordinates, The Trapezoidal rule, Simpson's $1/3^{rd}$ rule, Simpson's $3/8^{th}$ rule.	8

UNIT 6	**Numerical Solutions of Ordinary Differential Equations** 5.1 Introduction. 5.2 Picard's Method successive approximations. 5.3 Euler's & Modified Euler's Methods. 5.4 Runge Kutta Method (Second and fourth order).	8
UNIT 7	**Quantitative Techniques** 6.1 Linear Programming Problem - Formulation, Solution by Graphical Method. 6.2 Transportation Problem - Initial Basic Feasible solution by NWCM, LCM, VAM. 6.3 Assignment problem (Hungarian Method)	

Recommended Books :

1) Introductory methods of Numerical Analysis Prentice Hall of India - S.S. Sastry.
2) Computer Oriented Numerical Method Prentice Hall of India - V. Rajaraman.
3) Numerical Methods Tata Mc Graw-Hill publishing company - E Balagurusamy
4) Finite Difference and Numerical Analysis (S Chand & Comp Ltd.) - H.C. Saxena.
5) Operation Research - J.K. Sharma
6) Operation Research - V.K. Kapoor.

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B.C.A. Sem – III

Subject: Data Structure Using C (302)

Objectives:

1) To learn the systematic way of solving problems
2) To understand the different methods of organizing large amounts of data
3) To efficiently implement the different data structures
4) To efficiently implement solutions for specific problem Prerequisites
5) C Programming Language

Sr.No.	Topic	No. of Lectures
UNIT 1	**Basic Concept** 1.1 Pointers and dynamic memory allocation 1.2 Algorithm Analysis 1.2.1 Space Complexity 1.2.2 Time Complexity 1.2.3 Asymptotic Notation 1.3 Abstract Data Type	2
UNIT 2	**Arrays and Structure** 2.1 Linear Search, Binary Search(Recursive & iterative) 2.2 Evaluation of Polynomial 2.2.2 Polynomial representation 2.2.3 Polynomial Addition 2.3 Structures 2.3.1 Internal representation of structure 2.3.2 Self –referential structure	4
UNIT 3	**Stack and Queue** 3.1 Stack 3.1.1 Static and Dynamic Representation 3.1.2 Operation 3.1.3 Application of Stack 3.2 Evaluation of Expression 3.2.1 Evaluation of postfix expression 3.2.2 Infix to postfix 3.3 Queue 3.3.1 Static and Dynamic Representation 3.3.2 Operation 3.3.3 Priority Queue 3.3.4 Circular Queue (Implementation) 3.3.5 Application of Queue	6

UNIT 4	**Linked List** 4.1 Representation 4.2 Singly Linked list Creation, Insertion (Begin, Middle, End), Printing, Deleting(Begin, Middle, End) Traversing. 4.4 Doubly Linked list (Creation, Printing) 4.4 Circularly Singly Linked list (Creation, Printing)	9
UNIT 5	**Trees** 5.1 Trees 5.1.1 Definition 5.1.2 Terminology 5.1.3 Representation 5.2 Binary tree 5.2.1 Representation(Both) 5.2.2 Binary Tree Traversal Inorder, Preorder, Postorder (Recursive & Iterative) 5.3 Binary Search Tree (Implementation) 5.4 Heap 5.5 AVL / Height Balanced tree	6
UNIT 6	**Graphs** 6.1 Graphs 6.1.1 Representation 6.2.2 Adjacency Matrix and List Indegree , out degree of Graph 6.2 Graphs Operation 6.2.1 DFS, BFS (theory) 6.1 6.3 Spanning Tree	5
UNIT 7	**Hashing (No Program)** 7.1 Hashing Basic Concept 7.1.1 Hash Table 7.1.2 Hash Function 7.1.3 Overflow Handling	1
UNIT 8	**Sorting** 8.1 Bubble Sort 8.2 Insertion Sort 8.3 Selection Sort 8.4 Quick Sort(recursive, iterative) 8.5 Heap Sort(No Implementation) 8.6 Merge Sort	7

Recommended Books :

1) Data Structure and File Using C - Abhay Abhyankar.
2) Fundamental of Data Structure in C - Sahani.
3) Data Structure Using C - Radhakrishanan and Shrivastav.

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B.C.A. Sem – III

Subject: Software Engineering (303)

Sr.No.	Topic	No. of Lectures
UNIT 1	**Introduction to System Concepts** 1.1 Definition , Elements of System 1.2 Characteristics of System 1.3 Types of System 1.4 System Concepts	4
UNIT 2	**Introduction to Software Engineering** 2.1 Definition Need for software Engineering 2.2 Software Characteristics 2.3 Software Qualities (McCall's Quality Factors)	4
UNIT 3	**Requirement Analysis** 3.1 Definition of System Analysis 3.2 Requirement Anticipation 3.3 Knowledge and Qualities of System Analyst 3.4 Role of a System Analyst 3.5 Feasibility Study And It's Types 3.6 Fact Gathering TeUNIT 3.7 User Transaction Requirement, User design Requirements. 3.8 SRS(System Requirement Specification)	6
UNIT 4	**Software Development Methodologies** 4.1 SDLC (System Development Life Cycle) 4.2 Waterfall Model 4.3 Spiral Model 4.4 Prototyping Model	6
UNIT 5	**Analysis and Design Tools** 5.1 Entity-Relationship Diagrams 5.2 Decision Tree and Decision Table 5.3 Data Flow Diagrams (DFD) 5.4 Data Dictionary 5.4.1 Elements of DD 5.4.2 Advantage of DD 5.5 Pseudo code 5.6 Input And Output Design 5.7 CASE STUDIES (Based on Above Topic) (At least 4 case Studies)	10

UNIT 6	**Structured System Design** 6.1 Modules Concepts and Types of Modules 6.2 Structured Chart 6.3 Qualities of Good Design 6.3.1 Coupling, Types of Coupling 6.3.2 Cohesion, Types of Cohesion	6
UNIT 7	**Software Testing** 7.1 Definition, Test characteristics 7.2 Types of testing 7.2.1 Black-Box Testing 7.2.2 White-Box Testing 7.2.3 Stress Testing 7.2.4 Performance Testing	4

Recommended Books :

1) Software Engineering - Roger s. Pressman.
2) SADSE (System Analysis Design) - Prof. Khalkar and Prof. Parthasarathy.

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B.C.A. Sem – III

Subject: Management Accounting (304)

Objectives:

To impart basic knowledge of Management Accounting

Sr.No.	Topic	No. of Lectures
UNIT 1	**Introduction** **Major types of Accounting** 1) Financial Accounting 2) Cost Accounting 3) Management Accounting Management Accounting Need, Essentials of Management Accounting, Importance, Objectives, Scope, Functions, Principal systems and Techniques, Advantages, Limitations, Distinction between Financial Accounting and Management Accounting, Distinction between Cost Accounting and Management Accounting.	6
UNIT 2	Analysis and Interpretation of Financial Statement ***Methods of Analysis*** Comparative Statements Common Size Statement Trend Percentage or Trend Ration (Horizontal Analysis) Ratios Fund Flow Statement ***Ratio Analysis*** Meaning of Ratio Necessity and Advantages of Ratio Analysis Interpretation of Ratios Types of Ratio i) According to the nature of items i) Balance Sheet Ratios ii) Revenue Statements or Profit and Loss Account Ratios iii) Inter Statement or Composite Ratios ii) Functional Classification i) Liquidity Ratios	12

	ii) Leverage Ratios iii) Activity Ratios iv) Profitability Ratios Problems	
UNIT 3	**Fund Flow Statement and Cash Flow Statement** Meaning of Funds, Fund Flow Statement, Flow of Funds, Working Capital, Causes of changes in working Capital, Proforma of Sources and Application of Funds, Proforma of Adjusted Profit and Loss Account	8
UNIT 4	**Working Capital** Meaning, Objective and Importance, Factors determining requirement of Working Capital, Sources of Working Capital, Computation of Working Capital	6
UNIT 5	**Marginal Costing** Meaning and Definition of Marginal cost and Marginal Costing, Contribution, Profit Volume Ratio, Advantages of Marginal Costing, Limitation, Problems	8
UNIT 6	**Budget and Budgetary Control** Meaning of Budget and Budgetary Control, Definition, Nature of Budget and Budgetary Control, Objective of Budget and Budgetary Control, Limitations of Budget and Budgetary Control, Steps in Budgetary Control **Types/classification of Budgets** According to Time i) Short Term ii) Long Term According to Flexibility i) Flexible ii) Fixed	8

Recommended Books :

1) R. N. Anthony, G. A. Walsh:: Management Accounting
2) M. Y. Khan,. K. P. Jain:: Management Accounting
3) I. M. Pandey::Management Accounting (Vikas)
4) J. Betty: Management Accounting
5) Sr. K. Paul: Management Accounting
6) Dr. Jawaharlal:: Management Accounting
7) S. N. Maheshwari:: Principles of Management Accounting
8) R. K. Sharma and Shashi K. Gupta: Management Accounting
9) Horngren: Introduction to Management Accounting (Pearson)

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B.C.A. Sem – III

Subject: RDBMS(RELATIONAL DATABASE MANAGEMENT SYSTEMS) (305)

Objectives:

This course provides an introduction to the relational model. We will cover basic relational database design, conceptual data modeling practices, some relational database management system , operation and fundamental Structured Query Language (SQL).

Sr.No.	Topic	No. of Lectures
UNIT 1	**Introduction To RDBMS** 1.1 Introduction to Popular RDBMS Product And their Features 1.2 Difference Between DBMS and RDBMS 1.3 Relationship among application programs, RDBMS	2
UNIT 2	**PLSQL** 2.1 Overview of PLSQL 2.2 Data Types 2.3 PLSQL Blocks 2.3.1 % type, % rowtype 2.3.2 Operators, Functions, comparison, numeric, character, date 2.3.3 Control Statement 2.4 Exceptional Handling 2.4.1 Predefined 2.4.2 No_data_found, cursor_already_open, dup_val_on_index ,storage_error, Program_error, zero_divide, invalid_cursor, login_denied, invalid_number, too_many_rows, DBMS_output, user defined exceptions 2.5 Functions , procedures 2.6 Cursor 2.6.1 Definition 2.6.2 Types of cursor- implicit, explicit(with attributes) 2.6.3 Parameterized cursor 2.7 Triggers 2.8 Packages	20

UNIT 3	**Transaction Management** 3.1 Transaction Concept 3.2 Transaction Properties 3.3 Transaction States 3.4 Concurrent Execution 3.5 Serializability 3.5.1 Conflict Serializability 3.5.2 View Serializability 3.6 Recoverability 3.6.1 Recoverable Schedule 3.6.2 Cascadless Schedule	6
UNIT 4	**Concurrency Control** 4.1 Lock Based Protocol 4.1.1 Locks 4.1.2 Granting of Locks 4.1.3 Two Phase Locking Protocol 4.2 Timestamp Based Protocol 4.2.1 Timestamp 4.2.2 Timestamp ordering protocol 4.2.3 Thomas's Write Rule 4.3 Validation Based Protocol 4.4 Deadlock Handling 4.4.1 Deadlock Prevention 4.4.2 Deadlock Detection 4.4.3 Deadlock Recovery	6
UNIT 5	**Recovery System** 5.1 Failure Classification 5.1.1 Transaction Failure 5.1.2 System Crash 5.1.3 Disk Failure 5.2 Storage Structures 5.2.1 Storage Types 5.2.2 Data Access 5.3 Recovery & Atomicity 5.3.1 Log based Recovery 5.3.2 Deferred Database Modification 5.3.3 Immediate Database Modification 5.3.4 Checkpoints 5.4 Recovery with Concurrent Transaction 5.4.1 Transaction Rollback 5.4.2 Restart Recovery 5.5 Remote Backup System	6

UNIT 6	**Graphs** 6.1 Graphs 6.1.1 Representation 6.2.2 Adjacency Matrix and List Indegree , out degree of Graph 6.2 Graphs Operation 6.2.1 DFS, BFS (theory) 6.2 6.3 Spanning Tree	5

Recommended Books :

1) Database System Concepts 5th Edition - Silberschatz, Korth, Sudershan.
2) Database Management System - Bipin Desai

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B.C.A. Sem – IV

Subject: Networking (401)

Sr.No.	Topic	No. of Lectures
UNIT 1	**Basics of Computer Networks** 1.1 Computer Network 1.1.1 Definition 1.1.2 Goals 1.1.3 Applications 1.1.4 Structure 1.1.5 Components 1.2 Topology 1.2.1 Types of Topology 1.3 Types of Networks 1.3.1 (LAN, MAN, WAN, Internet) 1.3.2 Broadcast & Point-To-Point Networks 1.4 Communications Types 1.4.1 (Synchronous ,Asynchronous) 1.5 Modes of Communication : 1.5.1 (Simplex 1.5.2 Half Duplex 1.5.3 Full Duplex) 1.6 Server Based LANs & Peer-to-Peer LANs (Comparison of both) 1.7 Protocols and Standards	10
UNIT 2	**Network Models** 2.1 Design issues of the layer 2.2 Protocol Hierarchy 2.3 ISO-OSI Reference Model : 2.3.1 Functions of each layer) 2.4 Terminology 2.4.1 SAP 2.4.2 Connection Oriented & connectionless services 2.4.3 Peer Entities 2.5 Internet Model (TCP/IP) 2.5.1 Layers, 2.5.2 Ports, Protocol Stack 2.6 Comparison of ISO-OSI & TCP/IP Model	7

UNIT 3	**Transmission Media** 3.1 Classes of Transmission Media 3.1.1 Guided Media(Wired) : 3.1.1.1 Coaxial Cable, Physical Structure, Standards, BNC Connector, Applications 3.1.1.2 Twisted Pair : Physical Structure, UTP Vs STP, Connectors, Applications. 3.1.1.3 Fiber Optics Cable : Physical Structure, Propagation Modes (Single Mode & Multimode), Fiber Sizes, Connectors , Applications , Advantages & disadvantages 3.1.2 Unguided Media(Wireless) 3.1.2.1 Electromagnetic Spectrum For Wireless Communication 3.2 Propagation Methods 3.2.1 (Ground, Sky, Line-Of-Sight) 3.3Wireless Transmission 3.3.1 Radio Waves 3.3.2 Infra-Red, 3.3.3 Micro-Wave 3.4 Wireless LANs (IEEE802.11) Architecture 3.4.1 MAC Sub layer 3.4.2 Frame Format 3.4.3 Frame Types 3.5 Bluetooth 3.5.1 Architecture (Piconet, Scatternet, Bluetooth Layers) 3.5.2 Applications	12
UNIT 4	**Network Connectivity Devices** 4.1 Categories of Connectivity Devices 4.1.1 Passive & Active Hubs 4.1.2 Repeaters 4.1.3 Bridges (Transparent Bridges, Spanning Tree, Bridges, Source Routing Bridges) 4.1.4 Switches (2-Layer Switch, 3-Layer Switch(Router) 4.1.5 Gateways 4.1.6 Network Security Devices (firewalls , Proxy Server)	5

UNIT 5	**Components of LAN** 5.1 Network Interface Cards(NIC) 5.2 Network Adapters 5.2.1 Components of NIC 5.2.2 Functions of NIC 5.2.3 Types of NIC (Ethernet, ARCNET, Token Ring) 5.2.3.1 Ethernet : Basic Features, Types, Cable, Topologies, IEEE 802.3, IEEE 802.4, IEEE 802.5 Frame format)	4
UNIT 6	**Internet Basics** 6.1 Concept of Intranet & Extranet 6.2 Internet Information Server(IIS) 6.3 Web Server 6.4 World Wide Web(WWW) Architecture, Web Documents 6.5 Search Engines 6.6 Internet Service Providers(ISP)	2

Recommended Books :

1) Computer Networks - Andrew Tanenbaum (III Edition)
2) Data Communications & Networking - Behrouz Ferouzan (III Edition)
3) Complete Guide to Networking - Peter Norton

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B.C.A. Sem – IV

Subject: Visual Basic (402)

Sr.No.	Topic	No. of Lectures
UNIT 1	**Getting started with V. B.** 1.1 Installing of V. B., Object Oriented Concept 1.3 Event Driven Programming Language 1.3 Reviewing the Basics pf forms and Controls 1.3 Working with properties 1.4.1 Studying the Events o a Form 1.4.2 Working code for events 1.4.3 Planning the Design	4
UNIT 2	**Operators** 2.1 Uses of operators 2.2 Data types 2.2.1 Number , long ,Boolean ,doubles ,variant , string 2.2.2 User defined data types 2.3 Variables 2.4 Constant 2.5 Expression	4
UNIT 3	**Control Structures And Iterations** 3.1 If 3.2 Select Case 3.3 Iterations 3.3.1 While 3.3.2 For 3.3.3 Until 3.4 Array 3.4.1 Control Array 3.5 Functions(Built in and user defined)	4

UNIT 4	**Working with Controls** 4.1 Adding controls on form 4.2 Working with Properties and Methods of each Controls 4.3 Creating an application 4.4 Creating an application with multiple from 4.4.1 Displaying forms in a program 4.4.2 Using variables to manipulate forms 4.4.3 Creating MDI applications 4.4.4 Coding for events in a form 4.4.5 Event occurring when form unloaded 4.4.6 Coding Events for control 4.4.7 Extending forms through Custom Properties and Methods 4.4.8 Creating a properties in a form 4.4.9 Creating a method in a form	9
UNIT 5	**Working with ActiveX Controls** 5.1 Creating Status Bar For your program 5.2 Working with Progress Bar 5.3 Working with Toolbar 5.4 Setting up the Image List Controls 5.4.1 Working with design Environment 5.4.2 Adding and Deleting Images with code 5.4.3 Study of Different Dialog Boxes	7
UNIT 6	**Menus** 6.1 Creating a menu System 6.1.1 Designing The Menu 6.1.2 Creating the menu with the menu Editor 6.1.3 Adding shortcut and Access keys to menu items 6.1.4 Using other menu item properties 6.2 Creating and accessing pop-up menu 6.2.1 Creating pop-up menu 6.2.2 Activating pop-up menu 6.3 Modifying Menus At Run-time 6.3.1 Changing Menu Item Properties 6.3.2 Enabling Menu Item in response to program state 6.4 Adding Menu Items at Run-time 6.4.1 Adding Menu Items for MDI Child Form 6.4.2 Using Menu Item Arrays	6

UNIT 7	**Working With Database** 7.1 Data Control 7.1.1 Studying the Properties and methods of Data Control 7.1.2Connectivity with MS-Access 7.1.3 Operations of database through coding 7.2 ADO Data Control 7.2.1 Advantages of ADODC over DC 7.2.2 Studying the properties and Methods of ADODC 7.2.3 Connectivity with MS-Access 7.2.4 Connectivity with Oracle 7.2.5 Report Generation 7.3 Developing ADO application through ADODC and coding 7.4 Report Generation	6

Recommended Books :

1) Mastering Visual Basic
2) Visual Basic Black Book
3) Learn VB in 21 days

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B.C.A. Sem – IV

Subject: Inventory Management (SAD) (403)

Sr.No.	Topic	No. of Lectures
UNIT 1	**Management of Inventory** 1.1 Nature of Inventories 1.2 Need to hold Inventories 1.3 Objective of Inventory Management 1.4 Inventory Management Techniques(EOQ Model) 1.5 Analysis of Investment in Inventory 1.6 Selective Inventory control-ABC Analysis 1.7 The Inventory Management Process 1.8 EOQ : Illustrative Problems 1.9 Order Point 1.10 Pricing of raw materials & valuation of stocks 1.11 Monitoring & control of Inventories 1.12 Criteria for judging the Inventory system	10
UNIT 2	**Protecting Inventory** 2.1 Introduction 2.2 Legal Duties 2.3 The Plan 2.4 The Assessment 2.5 Theft	6
UNIT 3	**The Basics of Bar Coding** 3.1 Introduction 3.2 Elements of a Bar Code Symbol 3.3 Symbologies – Bar Coding Structural Rules 3.4 Why Inventory Systems Fail and How To Fix Them 3.4.1 Introduction 3.4.2 Inventory Record Accuracy	6
UNIT 4	**System Development Tools** 4.1 Role and Benefits of case tools 4.2 Drawbacks of case tools 4.3 Taxonomy of case tools 4.4 Integrated Case Enviornment 4.5 Features of Turbo Analyst 4.6 Tools with which to uncover System Dysfunctions 4.6.1 Flowchart 4.6.2 Run chart 4.6.3 Logic chart 4.6.4 Variance Report	8

UNIT 5	**Reengineering** 5.1 Business Process Reengineering 5.1.1 Business Processes 5.1.2 BPR Model 5.2 Software Reengineering 5.2.1 Software Maintenance 5.2.2 Software Reengineering process Models 5.3 Reverse engineering 5.3.1 Reverse engineering to understand data 5.3.2 Reverse engineering to understand processing 5.3.3 Reverse engineering for user interfaces (Case Study : Inventory Control System for Departmental Store)	10

Recommended Books :

1) Financial Management - by I. M. Pandey 7th edition
2) Financial Management Theory & Practice - by Prasanna Chandra 6th edition
3) Essentials of Inventory Management - by Max Muller.
4) Financial Management - by M. Y. Khan & P. K. Jain, 5th Edition
5) Software Engineering - by Roger s. Pressman.
6) SADSE (System Analysis Design) –by Prof. Khalkar and Prof. Parthasarathy.

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B.C.A. Sem – IV

Subject: Human Resource Management (404)

Objectives:

To acquaint the students with the Human Resource Management its different functions in an organization and the Human Resource Processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization.

Sr.No.	Topic	No. of Lectures
UNIT 1	**Introduction to H. R. M.** Definition and concept of H. R. M. and personnel Management H.R.M. and Human Resource Development Importance of H.R.M.- Activities and functions of HRM-Organization of H.R.M. department- Role of H.R.M Department Limitations of HRM-Challenges before H. R. M.	8
UNIT 2	**Human Resources Planning** Definition and objectives of Human Resource planning-process of Human Resource planning factors influencing estimation of Human Resources. Concept of Recruitment-Recruitment policy-Sources of Recruitment-Selection procedure – Promotion and demotion policy- Transfer policy.	8
UNIT 3	**Performance Appraisal** Concept and objectives of performance Appraisal- Process Performance Appraisal Methods- Uses and limitations of Performance Appraisal.	8
UNIT 4	**Training and Development** Meaning and Definition- Need-Objectives-Importance of Training-Training Methods-Evaluation of Training Programme. Concept of Management Development Management Development Process and methods Evaluation of Management Development Programme.	7
UNIT 5	**Wage and Salary Administration** Methods of wage payments-Employee Remuneration factors determining the level of remuneration- Profit sharing-Fringe Benefits and Employee services- Wages & Salary Administration	6
UNIT 6	**Introduction to Organizational Behaviour** Meaning- Definition- Scope- Disciplines Contributing to Orgainzational Behaviour -Models and Approaches of Organizational Behaviour.	7

Recommended Books :

1) A. M. Sharma - Personnel and Human Resource Management.
2) S. K. Bhatia - Personnel Management and Nirmal Sing - Human Resource Management.
3) Human Resource Management & Human Relations
4) P. C. Pardeshi - Human Resource Management.
5) C. B. Mamoria - Personnel Management

University of Pune

(Pattern – 2008) **w.e.f. 2009 – 10**

B.C.A. Sem – IV

Subject: Object Oriented Programming Using C++ (405)

Objectives:

1. Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design.
2. Write C++ programs that use: object-oriented concepts such as information hiding, constructors, destructors, inheritance

Sr.No.	Topic	No. of Lectures
UNIT 1	**An overview of C++** 1.1 Introduction of OOP features and Applications. Benefits 1.2 Beginning with C++ Applications , 1.3 A simple C++ program 1.4 Structure of C++ program 1.5 Creating a source file, compiling and Linking	2
UNIT 2	**Tokens, Expressions and control structures** 2.1 Introduction 2.2 Tokens, keywords, Identifiers and constants 2.3 Basic data types 2.4 User defined data types 2.5 Derived data types – Array, Pointer, function 2.6 Symbolic constant 2.7 Type Compatibility 2.8 Declaration of variables 2.9 Dynamic initialization of variable 2.10 Reference variable 2.11 Operator in C++ 2.12 Scope resolution operator 2.13 Member Referencing operators 2.14 Memory management operators 2.15 Manipulators 2.16 Type cast operators 2.17 Expression and their types 2.18 Special Assignment Expressions 2.19 Implicit conversions 2.20 Operator overloading 2.21 Operator precedence 2.22 Control structures – if-else, do-while, for , Switch	3

UNIT 3	**Functions in C++** 3.1 Introduction 3.2 The main() function 3.3 Function prototyping 3.4 Call by reference 3.5 Return by reference 3.6 Call by value 3.7 Inline function – Making an outside function Inline 3.8 Default arguments 3.9 Constant arguments 3.10 Function overloading 3.11 Math library functions 3.12 Friend and virtual functions	4

Recommended Books :

1) Programming With C++ - By . E. Balaguruswamy
2) Complete Reference - By Robert Lofore