Paper No.	SUBJECT CODE	Type of Course	Course Name	Credit	Internal Marks	Term-End Marks	Total Marks
			SEMESTER – III				
EC-301	22689	Elective Course	Personality Development	2	30	70	100
FC-302	22690	Foundation Course	Business Communication –III	2	30	70	100
CC-303	22691	Core Course	Operating System	4	30	70	100
CC-304	22692	Core Course	Data and File Structure	4	30	70	100
CC-305	22693	Core Course	Object Oriented Programming with C++	4	30	70	100
CC-306	22694	Core Course	System Analysis and Design	4	30	70	100
CC-307	22695	Core Course	Practical Based On (304,305)	4	00	100	100
SEMESTER – IV							
EC-401	22696	Elective Course	Time Management	2	30	70	100
FC-402	22697	Foundation Course	Business Communication –IV	2	30	70	100
CC-403	22698	Core Course	Advance Operating System and Introduction to Linux	4	30	70	100
CC-404	22699	Core Course	Application Development using VB.NET	4	30	70	100
CC-405	22700	Core Course	Web Application Development using PHP	4	30	70	100
CC-406	22701	Core Course	Object Oriented Analysis And Design	4	30	70	100
CC-407	22702	Core Course	Practical Based On (404,405)	4	00	100	100

B.C.A. Course: Personality Development Course No: EC-301
Semester: 03 Type of Course: Elective Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 Marks
Credits: 02 Theory Hours: 30

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Emotional intelligence	8	18
	- What is emotional intelligence? - Emotional Quotient, Emotional, Enlightenment and Business, Emotional Literacy, Miscommunication, Validation - Human Emotional Needs - Developing your EQ		
Unit-2	Negotiation Skills	8	18
	- Negotiation Skills, Guidelines for Successful Negotiation - Negotiations and resolving Conflicts - Distributive Vs Integrative - The Intangibles, Some Tricks, Types of Negotiators, Soft, Hard and Principled Negotiation - Dealing with Difficult People		
Unit-3	Business and Social Etiquette	7	17
	- Introduction, Workplace Etiquette, Travel Etiquette, Formal Dressing Etiquette, Dining Etiquette, Wine matters - Being a Good Guest, Being a Good Host - The Etiquette of Gift Giving - Team Building: Team Building, Basic Team Organization and Characteristics - Team Motivation, Empowering People, Conditions of - Effective Team Building		
Unit-4	Customer Relationship Management	7	17
	- Customer Relationship Management (CRM) - What is CRM, Why CRM - How to Achieve a Better and Stronger Relationship with your Customer? - How to Achieve Customer Delight? - Customer Focused Selling		

Reference Books

1. David A. Whetten and Kim S. Cameron, Developing Management Skills, 8th Edition, Pearson
2. Felix, Oberman. From Hello to Hired: You're Guide to Resume Building and Interview Skills. How to land your ideal job, Kindle Edition, 2015
3. Richard Smith HOW TO GET HIRED: The Step-by-Step System: Standing Out from the Crowd and Nailing the Job You Want, 2015,
4. Emma Sue-Prince, The Advantage: The 7 soft skills you need to stay one step ahead, Pearson

Gulati, Sarvesh. Corporate Skills. New Delhi: Rupa and Co, 2010 and SOFTSPAN (India) PVT. LTD. New Delhi

B.C.A. Course: Business Communication- III Course No: FC-302
Semester: 03 Type of Course: Foundation Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 Marks
Credits: 02 Theory Hours: 30

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Listening –a communication tool	8	18
	- What is listening? Faults of listening How to improve listening skills? Approaches of listening.		
Unit-2	Group Communication	8	18
	- What is group? Group personality - Types of groups (formal and informal) - Role of communication in small group - How to make group discussion effective? Its advantages and disadvantages.		
Unit-3	Interview	7	17
	- Define interview - Features of interview - Types of interview - Guidelines for candidates to prepare for interview		
Unit-4	Orders and their execution	7	17
	- Characteristics of order letter - Placing an order letter - Acknowledging orders - Reply to orders - Cancelling the order		

Reference Books

1. "Essentials of Business Communication" Rajendra Pal and J.SC. Korhali – New Delhi
2. Business Communication. By Sathya Swaroop Debasish &Bhagaban Das. PHI Learning Private Limited. Delhi. 110092.
3. "Communication" By C.S. Rayudu. Himaliya Publishing House
4. Cracking the Coding Interview: by Gayle Laakmann McDowell

B.C.A. **Course:** Operating System **Course No:** CC-303
Semester: 03 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 Theory Hours: 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Basic concept of an operating system**	**16**	**18**
	- Definition and Function of operating systems. - Evolution of operating system: Batch system, Multi programmed system, time sharing and PCs. - Introduction to basic terms & batch processing system: Jobs, Processes files, command interpreter. - Different types of operating system-real time systems, parallel, distributed system. - Operating system structure-monolithic layered, virtual machine & Client server.		
Unit-2	**Process Management**	**16**	**18**
	- Processes: Definition, Process States , Process Control Block ,Context switching. - Process Scheduling: Definition, Scheduling objectives. - Types of Schedulers ,Scheduling criteria : CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) , - Scheduling algorithms : Pre emptive and Non , pre emptive , FCFS – SJF – RR		
Unit-3	**Deadlocks and Threads**	**14**	**17**
	- Definition, Deadlock characteristics, Deadlock Prevention. - Introduction of Deadlock Avoidance: banker's algorithm and problem solving, - Deadlock detection and Recovery. - Threads - Concept of multithreads, Benefits of threads – Types of threads.		
Unit-4	**Memory Management – Basic Memory Management and Virtual Memory**	**14**	**17**
	- Definition, Logical and Physical address Map. - Memory allocation: Contiguous Memory allocation – Internal and External fragmentation. - Paging: Principle of operation – Page allocation – Hardware support for paging – Protection and sharing – Disadvantages of paging. - Segmentation. - Introduction to Virtual Memory.		

	- Page Replacement policies, Optimal (OPT) , First in First Out (FIFO), Least Recently used (LRU)		

Reference Books

1. Silberschatz, Galvin and Gange: Operating System Concepts, Wesley.
2. Tanenbaum A.S., "Modern Operating Systems", 4th Edition, PHI, 2001
3. Stalling W, "Operating Systems", 6th edition, Prentice Hall India.

B.C.A. **Course:** Data and File Structure **Course No**: CC-304
Semester: 03 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction to Data Structure and Sorting Techniques**	**16**	**18**
	- Definition of Data Structure, Classification of Data Structure (Linear, Non Linear) - Applications, Aims and Goals of Data Structure, Sparse Matrix. - Representation of Array in Memory: Row-Major and Column-Major order. - Address calculation of elements of one and two-dimensional arrays. - Sorting and Merging Methods: Insertion Sort, Shell Sort, Quick Sort, Merge Sort.		
Unit-2	**Linear Data Structure : Doubly Link list**	**16**	**18**
	- Introduction to Linked list and its types. - Introduction of Doubly Linked list. - Advantages and Disadvantages of Doubly linked list. - Application of Doubly linked list. - Different between single and double link list. - Operation on Doubly Linked list.(insert, update, delete, display Algorithm and program)		
Unit-3	**Linear Data Structure: Stack and Queue**	**14**	**17**
	- Definition of Stack, Applications of Stack. - Stack Operations using Array (Push, Pop, Peep, Display) - Stack Operations using Linked List (Push, Pop, Peep, Display) (Algorithm and Program of All Stack Operations using Array and Linked List) - Polish Notation: Conversion of Expression (Prefix, Infix, Postfix) (using hand or stack method) Definition of Queue, Applications of Queue. - Queue Operations using Array (Insert, Update, Delete, Display) - Queue Operations using Linked List (Insert, Update, Delete, Display) (Algorithm and Program of All Queue Operations using Array and Linked List) - Circular Queue using Array. - Concept of Priority Queue and Double Ended Queue.		

Unit-4	Non Linear Data Structure: Tree and Graph	14	17
	- Concept of Binary Tree, Representation of Binary Tree: Sequential and Linked List. - Types of Binary Tree : Strictly, Full, Complete, in complete, - Creation of Binary Tree - Binary Tree Traversal : Pre order, In order, Post order (using recursion) Definition of Graph and its terminologies - Representation of Graph : Adjacency Matrix, Adjacency List Definition of Tree, Basic Tree Terminology (Root, Node, Degree of Node, Degree of Tree, Leaf Node, Non Terminal Node, Siblings, Level of Tree, Edge, Path, Depth, Forest)		

Reference Books

1. Data and File Structure: Trembly & Sorenson.
2. Expert in Data Structure with C: R.B.Patel.
3. Data Structure using C: Aaron M. Tanenbaum.
4. Data Structure through C: G.S.Baluja

B.C.A. **Course:** Object Oriented Programming with C++ **Course No:** CC-305
Semester: 03 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Principal Of Object Oriented Programming**	**16**	**18**
	- Introduction of OOP, OOP V/s POP - Concept of OOP – Object, Class, Inheritance, Encapsulation, Polymorphism, Abstraction ,Message Passing - Structure Of C++ Program - Tokens in C++ - Data type, Constant, Variable, Statement & Operators - Function – Member function, Inline function, Friend function - Input/output statements - Declaration & Creation of Class and Object		
Unit-2	**Constructor, Operator overloading and Type conversion**	**16**	**18**
	- Constructor – Types of constructor, characteristics of constructor, constructor overloading. - Destructor - Basic of operator overloading - Types of operator overloading-Unary, Binary - Operator overloading using member function & friend function		
Unit-3	**Type Conversion and Inheritance**	**14**	**17**
	- Type conversion - Categories of type conversion - Basic of inheritance- - Types of inheritance- Single level, multiple, multilevel, hierarchical and hybrid - Constructor in derived class - Concept of Abstract class - Nesting of classes		
Unit-4	**Polymorphism**	**14**	**17**
	- Basic of Polymorphism-Compile time & Runtime polymorphism - This pointer - Pointers to derived classes - Virtual and Pure virtual function - Virtual constructor and destructor		

Reference Books
1. E-Balagurusamy: Object Oriented Programming with C++ Mc Graw-Hill 2. Robert Lafore: Object Oriented Programming with C++ Galgotia Publications. 3. Rajaraman: Object Oriented Programming with C++ New age International

B.C.A. **Course:** System Analysis and Design **Course No: CC**-306
Semester: 03 **Type of Course :** Core Course
Marking Scheme: External Examination**:** 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit 1	**System Concept**	**16**	**18**
	– Introduction to system – Characteristics and elements of system – Types of system – System analysis – System analyst & its role. – CBIS, Information system and categories of information system. – System users.		
Unit 2	**System Development Strategies**	**16**	**18**
	– Introduction to SDLC – Phases of SDLC – Application of SDLC Method – Limitation of SDLC Method – Introduction to SSADM, Need of SSADM – System survey – Structured analysis – Structured design – Advantages of SSADM – System Prototype Method (SPM)		
Unit 3	**Input/ Output Design & Fact Finding Techniques**	**14**	**17**
	– Input – data capture objectives. – Data verification & Validation – Interactive screen – Output - Design of Output & its Objectives – FFT – Interview, Questionnaire, Record Inspection, Observations.		
Unit 4	**Analysis & Design Tools**	**14**	**17**
	– DFD, Symbols uses in DFD, Physical & Logical Design – Decision table & tree – Data Dictionary – HIPO chart, Warnier/Orr diagrams – Structured English		

Reference Book:
1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Stdt. Edn 2. S. Parthasarthy & B. W. Khalkar: System Analysis & Design 1st Edition, Master Ed.Cons. 3. Yourdon E. and Constantine L. L : Structured Analysis & Design Yourdon press NY

B.C.A.	**Course:** Practical	**Course No:** CC-307
Semester: 03	**Type of Course:** Core Course	
Marking Scheme: External Examination: 100 + Internal Evaluation: 00 = 100 Marks		
Credits: 04	**Practical Sessions per Week:** 08	**Practical Hours:**120 Hours

Unit	**Detailed Syllabus**	**Teaching Hours**	**Marks/ Weight**
Unit-1	Practical Based on 304	60	50
Unit-2	Practical Based on 305	60	50

B.C.A. Course: Time Management Course No: EC-401
Semester: 04 Type of Course: Elective Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 Marks
Credits: 02 Theory Hours: 30

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Introduction	8	18
	- Setting goals - Making goals smart - Plan your success		
Unit-2	Working with time	8	18
	- Evaluate priorities - Analyze your current use of time - Deal with procrastination		
Unit-3	Work environment	7	17
	- Managing your work environment - Identify time bandits - Brainstorm solutions for time bandits		
Unit-4	Meetings	7	17
	- Manage your meetings effectively - Organize your workplace - Learn to delegate- the ABC's of delegation - Learn to say 'NO' - Manage stress effectively		

Reference Books

1. Matt Kane: SURGE your guide to put any idea into action
2. Atul gawande : the checklist manifesto how to get things right
3. David Allen : getting things done: the art of stress free productivity

B.C.A. Course: Business Communication-IV Course No: FC-402
Semester: 04 Type of Course: Foundation Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 Marks
Credits: 02 Theory Hours: 30

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Management Communication	8	18
	- Introduction. - Need For Organizational Communication. - Importance of Organizational Communication. - Principles of Effective Organizational Communication. - Causes for Poor Organizational Communication.		
Unit-2	Written Communication	8	18
	- Introduction. - Essentials of a Good Business Letter. - Basic Considerations while Writing Business Letters. - Parts of Business Letter. - Styles & Layout of Business Letter.		
Unit-3	Corporate Communication.	7	17
	- Corporate & Communication. - Defining Corporate Communication. - Employee Relations & Communication. - Crisis & Disaster - Managing & Communicating		
Unit-4	Conflict and Negotiation in Organizations	7	17
	- What is Conflict? Defining Conflict. - Origins of Conflict. - Guidelines for Effective Conflict Management. - Conflict and Negotiations in Industrial Relations. - Guidelines for successful Negotiations Rights & Wrong.		

Reference Books

1. "Communication: By C.S. Rayudu. Himalaya Publishing House. New Delhi. Chapter No: 08 'Management Communication'. Page No: 216 to 250
2. "Communication: By C.S. Rayudu. Himalaya Publishing House. New Delhi. Chapter No: 04 'Written Communication'. Page No: 146 – 181
3. "Business and Managerial Communication" By Sailesh Sengupta. PHI Learning Private LTD. New Delhi. 110001. Chapter No: 19 'Corporate Communication'. Page No: 529 to 559.
4. "Business and Managerial Communication" By Sailesh Sengupta. PHI Learning Private LTD. New Delhi. 110001. Chapter No: 18 'Conflict & Negotiation In Organization'. Page No: 492 to 528

B.C.A. **Course:** Advance Operating System and Intro. to Linux **Course No:** CC-403
Semester: 04 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**File Management and Directory Management**	**16**	**18**
	– File format, Characteristics of file, File operations, File system structure, – File access methods: Sequential, direct and Index sequential. – Directory structure: single level, two level, tree level , – Directory operations, directory implementation: Linear list, Hash table – Disk Space Allocation Method: Continuous, Linked, Index, Free Space Management.		
Unit-2	**I/O Management**	**16**	**18**
	– Typical PC Bus structure, Pooling and Interrupts, DMA Controller, Kernel I/O Subsystem: I/O Scheduling, Buffering, Caching, Spooling, Error Handling. – Mass Storage Structure and Disk scheduling algorithm (FIFO, SSTF, SCAN, C- SCAN.)		
Unit-3	**Introduction to Unix and Linux Operating System (Open Source)**	**14**	**17**
	– History of Unix Operating System Definition of Kernel, Shell, File, Process, – System Calls., Linux Operating System, Features of Unix and Linux Operating System, Application area of Linux Operating System , Various Linux Flavors, Desktop Environment : (a) X Window Basics (b) KDE Basics (c) GNOME Basics, Advantages and Disadvantages of Linux		
Unit-4	**File Structure and Linux Shells.**	**14**	**17**
	– Understanding File system hierarchy standard, Directory Commands, File and Directory commands, Understanding Job (process). – Process Commands, User commands: Misc Commands, Keyboard commands using ctrl key.		

Reference Books

1. Silberschatz, Galvin and Gange: Operating System Concepts, Wesley.
2. Tanenbaum A.S., "Modern Operating Systems", 4th Edition, PHI, 2001
3. Stalling W, "Operating Systems", 6th edition, Prentice Hall India.
4. Sumitabha Das: Concepts and Application of UNIX 4th edition Tata McGraw Hill
5. Yashwant Kanitkar: Unix Shell Programming, BPB Publication

B.C.A. **Course:** Application Development Using VB.NET **Course No:** CC-404
Semester: 04 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction**	**16**	**18**
	– .Net Framework, Common Language Runtime – Feature & Advantages of CLR. – JIT & It's Types : Pre-JIT, Econo-JIT, Normal-JIT – Introduction to Integrated Development Environment (IDE) – Programming Construct – Variable, Data type, Type Casting, control structure, looping statement, array, function & procedure, Exception Handling.		
Unit-2	**Basic Controls and Advance Control**	**16**	**18**
	– Introduction of form. – Label, Textbox, Button. – Link Label, Combo box, List box, Checkbox, Radio button, Scrollbar. – Timer Control, Group box, Panel – Event Handling, Method & Property of controls. – MDI & SDI form, Main Menu Strip & Context Menu. – Rich text box, Picture box, Date time Picker. – Track bar, Notify Icon, Progress Bar, Tool tip		
Unit-3	**Dialog Box and Database Connectivity**	**14**	**17**
	– Built In Dialog box (Open File Dialog, Save File Dialog, Color Dialog, Font Dialog, Folder Browser Dialog) – ADO.Net Architecture. – Create database using MS Access and accessing database using server explorer. – Database connectivity using programming code. – Database binding with Data Grid View & combo box. – Crystal Report.		
Unit-4	**Object Oriented Programming**	**14**	**17**
	– Class, Object & it's characteristics – Inheritance, Polymorphism. – Function Overloading – Properties: Read Only Properties, Write Only Properties. – Constructor & Destructor. – Small application development.		

Reference Books

1. Steven Holzner: Visual Basic .NET Programming Black Book DeramTech Press.
2. Rod Stephens: Visual Basic 2005 Programmer's

B.C.A. **Course:** Web Application Development Using PHP **Course No:** CC-405
Semester: 04 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction**	**16**	**18**
	– Fundamental of webpage, website and apache server – Static and Dynamic Website – Introduction of PHP-Features, Advantages and Limitations – Data Type, Variable, Constant – Operator in PHP		
Unit-2	**Basic of PHP**	**16**	**18**
	– Conditional Statement – Looping Statement – Array- Types of Array(Numeric, Associative, Multi-dimensional) – PHP Server variables – Built-in-functions: ○ **String**(print(),echo(),chr(),trim(),ltrim(),rtrim(),soundex(),str_word_count(),strcmp(),stristr(),strstr(),strlen(), strpos(), strrev(), substr(), strtoupper(), strtolower(), ucfirst(),ucword(),sucbstr_replace()) ○ **Mathematical**(abs(),sqrt(),log(),floor(),ceil(),pow(), max(),min()) ○ **Date/Time**(Date(),time(),getdate(),gettimeofday(), localtime(),checkdate())		
Unit-3	**Working with form , Cookie and Session**	**14**	**17**
	– Form elements- TextBox, TextArea, Password,RadioButton, Check Box, Combo Box, Image – Buttons – Submit and Reset – Uploading File to web server – POST & GET method – PHP include and require statement – Basic of Cookie-Setting Cookies, Accessing Cookies, Deleting Cookies. – Basic of Session- Starting a Session, Destroying a session.		

Unit-4	Database Connectivity and Error Handling	14	17
	– PHP-MySQL architecture – Database interaction –Creating and connecting database – Executing commands- Selecting, Inserting, Updating, Deleting – Small application development – Error Handling- Try, Catch and Throw block, die() function – Page redirection in PHP		

Reference Books

1. Ivan Bayross,Sharanam Shah:PHP 5.1 For Beginners,Sh off Publishers & Distributors(SPD)
2. Janet Valade: PHP5 & MYSQL Projects, Wiley Dreamtech
3. Dave W. Mercer: Beginning PHP5,Wiley India Edition
4. Steven Holzer: The Complete Reference PHP,Tata McGRAW-HiLL,New Delhi.

B.C.A. **Course:** Object Oriented Analysis and Design **Course No:** CC-406
Semester: 04 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 04 **Teaching Hours:** 60

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**SYSTEM DESIGN, SYSTEM TESTING & IMPLEMENTATION**	**16**	**18**
	- Introduction to database? - System development in database environment - Design of database – Normalization - Principles of Software Design - System Testing - Testing Strategies - Types of system testing - Level of Testing - System conversion methods – parallel, direct cut over, pilot & phase-in method.		
Unit-2	**OBJECT ORIENTED MODEL**	**16**	**18**
	- What is object oriented model? - Characteristics of OOM – class & object, Link & association, Generalization & Inheritance. - Benefits of OOM - Introduction to OOA & Advantages & Disadvantages of OOA		
Unit-3	**OBJECT ORIENTED ANALYSIS & DESIGN**	**14**	**17**
	- Analysis Techniques – Object Modeling, Dynamic Modeling & Functional Modeling. - Object design process, steps & solution - Defining classes & its implementation, inheritance, association & object representation. - Breaking system into sub system & managing data store.		
Unit-4	**MODELING & IMPLEMENTATION STRATEGIES**	**14**	**17**
	- Object modeling – identifying object classes, user object model, object modeling notations. - Dynamic modeling – state diagram - Functional modeling – steps of constructing function model, DFD - Structural Diagram – what is structural diagram & class Diagram - Implementation strategies		

Reference Books
1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Stdt. Edn 2. Yourdon E. and Constantine L. L : Structured Analysis & Design Yourdon press NY 3. Object Oriented Analysis and Design by James Rumbaugh, Michael Blaha, William Premerlain, Frederick Eddy, William Lorensen

B.C.A. **Course:** Practical **Course No:** CC-407
Semester: 04 **Type of Course:** Core Course
Marking Scheme: External Examination: 100 + Internal Evaluation: 00 = 100 Marks
Credits: 04 **Practical Sessions per Week:** 08 **Practical Hours:**120 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Practical Based on 402	60	50
Unit-2	Practical Based on 403	60	50

Structure for B.C.A. – CBCS Programme

Semester-V (TY)

COURSE	COURSE	SUBJECT	CREDIT
BCA-EC-501	ELECTIVE	IT Project Management	02
BCA-FC-502	FOUNDATION	Business Communication –V	02
BCA-CC-503	CORE	Software Engineering	03
BCA-CC-504	CORE	Web Application Development Using Asp.Net	03
BCA-CC-505	CORE	RDBMS Using Oracle 1	03
BCA-CC-506	CORE	Data Communication and Networking	03
BCA-CC-507	CORE	Practical (Based on BCA-CC-504 & BCA-CC-505)	12
		TOTAL	28

B.C.A. **Course:** IT PROJECT MANAGEMENT **Course No:** BCA-EC-501
Semester: 05 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 02 **Theory Sessions per Week:** 02 **Teaching Hours:** 30 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction AND IT Project**	**8**	**18**
	- Definition of the project - Project specification and parameters. - Goals of IT Project Management. - Project management life cycle - Introduction to types of Project. - Overview of Project Planning. - Project Analysis. - Software Estimation.		
Unit-2	**Activity Planning**	**8**	**18**
	- Project Management Activity. - Project Coast Estimation. - Project Planning. - Project Scheduling.		
Unit-3	**Risk Management**	**7**	**17**
	- Risk Management: Resource Allocation –Monitoring and control. - Team Management. - Role and Responsibilities in Project Team - Project Tracking.		
Unit-4	**Case Study**	**7**	**17**
	- Institute Management System, Inventory - Management System, Hospital Management System, - Hotel Management System, Etc…..		

Reference Books

1. John J. Rakos, “Software Project Management”, 1998, Prentice Hall
2. Walker Royce, “Software Project Management”, 2001, Pearson Education.
3. Roger S. Pressman, “Software Engineering”, 2001, McGraw Hill.
4. Jack T. Marchewka, Information Technology Project Management,4th Edition.
5. Mike Cotterell, Bob Hughes- Software Project Management- McGraw Hill 5th Edition.

B.C.A.

Course No: FC-502 BUSINESS COMMUNICATION – V Credits: 02

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
01	*Banking Correspondence:* 1 Bird's eye view of banking sector in India. 2 Types of banks and bank Accounts. 3 Functions of banks. 4 Elements of Good banking. 5 *Letters Between Banks and their Clients* : 6 Customer asking for Stop payment of cheque/demand draft. 7 Bank manager's reply to the stop payment request. 8 Customer asking for loan. 9 Loan granted/not granted by the bank. 10 Customer's complaint of dishonourment of cheque in spite of sufficient balance in his account. 11 Banker's reply explaining the reason for dishonoring of the cheque. 12 Customer requesting the bank manager to issue a duplicate key of his safe deposit vault. 13 Banker's reply explaining him the relevant procedure for obtaining the duplicate key of safe deposit vault.	09	14
02	*Insurance Correspondence: (Life Insurance)* 1 Basic Principles of Insurance. 2 Definition of Life Insurance. 3 Life Insurance terminology. 4 Various types of Life Insurance policies. 5 Letters between LIC and Policy Holders. 6 Policy holder intimating the insurance company regarding change of residential address. 7 Policy holder requesting for a duplicate copy of policy. 8 Policy holder asking for the surrender/paid up value of his policy. 9 LIC's reply to the policy holder regarding the surrender value. 10 paid-up values and advising him against surrendering his policy. 11 Nominee's letter asking for guidance from LIC office regarding the procedure for lodging a valid claim on natural demise/accidental death of the policy holder. 13 LIC granting/rejecting of the death claim. 14 LIC intimating the policy holder about lapsing of his policy. 15 LIC intimation to policy holder for revival of lapsed policy.	09	14
03	*Selected Business Terms* C.O.D.; C.W.O.; C.I.F.; F.O.B.; F.O.R.; E.&O.E.; Cartage, Freight; Excise Duty; Custom Duty; V.A.T; Performa Invoice; Invoice; Trademark; Hypothecation; Ex - warehouse; Debit Note; Credit Note;	09	14

	Pilferage; Demurrage; Power of Attorney; Consignment, Bill of Lading; Bonded Warehouse; Certificate of origin; Advice Note; Letter of Credit (L/C); Warranty.		
04	*Agency Correspondence:* 1 Need of agents. 2 Agent as a Connecting link between Principal/ Manufacturer and the Consumer. 3 Kinds of Agents. 4 Letters between Principal and the Agents. 5 Agent applying for Agency. 6 Appointing of an agent by Principal. 7 Agent's suggestion to the principal for improving market share of the product. 8 Principal's reminder to the agent for improving sales in his territory. 9 Agent's demand for increase in commission and other facilities. 10 Termination of agency by the principal.	09	14
05	*Sales Letters* 1 Importance of Sales Letter OR Sales Letter as Ambassador of Businessmen. 2 A-I-D-C-A; Pattern. 3 Sales Letters on various white goods & daily utility products. eg. Washing machine; Television, Water purifiers, etc. Colour LCD; Two wheelers; four wheelers etc.	09	14

Reference / Text –Books / Additional Reading:

1. Business Communication - K. K. Sinha - Galgotia Publishing Company, New Delhi.
2. Media and Communication Management - C. S. Rayudu - Himalaya Publishing House, Bombay.
3. Essentials of Business Communication - Rajendra Pal and J. S. Korlhalli - Sultan Chand & Sons, New Delhi.
4. Business Communication – Rai&Rai, Himalaya Publishing House, Mumbai
5. Business Communication – Homai Pradhan, Bhende D.S., Thakur Vijaya
6. Business Communication (Principles, Methods and Techniques) Nirmal Singh - Deep & Deep Publications Pvt. Ltd., New Delhi.
7. Business Communication - Dr. S.V. Kadvekar, Prin. Dr. C. N. Rawal and Prof. Ravindra Kothavade - Diamond Publications, Pune.
8. Business Correspondence and Report Writing - R. C. Sharma, Krishna Mohan Tata McGraw-Hill Publishing Company Limited, New Delhi.
9. Business Communication and Organisational Management – Rohini Aggrawal – Taxman
10. Business Communication Strategies – Monipally Mathukutty M.- Tata McGraw Hill Publishing Company Limited, New Delhi.
11. Handbook of Communication – Narula Uma
12. A Handbook of Commercial Correspondence – A. Ashley – Oxford University Press.
13 Business Communication and Organizational and Management – C.B.Gupta.
14 Comprehensive Business Communication – Saroj Karnik, P.P.Mehta,-P.V.Kulkarni

MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
(With effect from Academic Year: 2019-20)

B.C.A. **Course:** Software Engineering **Course No:** BCA-CC-503
Semester: 05 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction, Software Requirement Analysis & Specification**	**12**	**18**
	– Define -Software & Software Engineering – Software Engineering Approach – Phase Development Process, Project Management – Software Process & It's Characteristics – Software Development Process Models – Water Fall Model, Prototyping, Iterative Enhancement, Spiral Model – Define Software Requirements – Need For SRS – Role of SRS Requirement Process -Problem Analysis ,Requirement Specifications, Validation		
Unit-2	**Software Planning & Designing**	**11**	**18**
	– Team Structure – Egoless team, Chief Programmer Team, Controlled Decentralized Team – Quality Assurance Plan – Verification & Validation, Inspection & Review – Risk Management – types of risk management – System Design principles. – Module level concepts - Coupling & Cohesion – Design Methodology - Structure Chart – Functional approach vs. Object Oriented Approach		
Unit-3	**Coding & Testing**	**11**	**17**
	– Programming Practice – Testing Fundamentals (errors, fault & failure) – Levels of Testing – Testing Methods		
Unit-4	**UML**	**11**	**17**
	– Fundamental of UML – Associations, Multiplicity, Qualified Association, – Reflexive Association, Inheritance & Generalization, Dependencies – Component of UML – Class Diagram, Object Diagram, Use Case Diagram, Activity Diagram – Case study –Library management system, ticket reservation system, hospital management system.		

Reference Books

1. Pankaj Jalote: An Integrated Approach to Software Engineering, Narosa Publication
2. Joseph Schmuller: Teach Your Self UML in 24 Hours, Techmedia Publication
3. Roger Pressman: Software Engineering, McGraw-Hill Publication
4. Object Oriented Modeling and Designing with UML, Michael R Blaha & James R Rumbaugh - Pearson

B.C.A. **Course:** Web Application Development Using ASP.NET **Course No:** BCA-CC-504
Semester: 05 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 **Credits:** 03
Theory Sessions per Week: 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction and Basic Controls**	**12**	**18**
	– Introduction of IDE. – Introduction of web forms & Page event life cycle. – Global application class & web.config file. – Advantages and features of asp.net. – State management using view state, query string, session and cookies. – Label, Button and Textbox. – List Controls:Dropdownlist, listbox, checkbox list, radiobutton list,BulletedList. – Radio button, checkbox.		
Unit-2	**Advance controls**	**11**	**18**
	– File upload and Image control. – Hyperlink, table, panel and wizard – Navigation controls using menu, treeview and sitemap path. – Validation Controls – Ad Rotator – Login Controls. – Master Page, Theme and CSS.		
Unit-3	**Working with Database**	**11**	**17**
	– ADO.NET architecture. – Introduction of Server Explorer and its Features. – Create database using sql server express and access with server explorer. – Connectivity using code and sql data source. – Data controls using grid view, form view, det**ails view and data list control.**		
Unit-4	**AJAX & Web services**	**11**	**17**
	– Introduction of AJAX : History, Advantages, Application – AJAX architecture. – AJAX basic controls- ScriptManager, ScriptManagerProxy, UpdatePanel, UpdateProgress and timer. – Introduction of web services. – Create and deploy web services.		

Reference Books

1. ASP.NET Black BOOK Published By Dreamtech Press
2. ASP.NET UNLEASHED By STEPHEN WALTHER

B.C.A. **Course:** RDBMS using Oracle-I **Course No:** BCA-CC-505
Semester: 05 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**DBMS AND RDBMS CONCEPTS & INTRODUCTION TO ORACLE SERVER**	**12**	**18**
	– Overview of DBMS and RDBMS – Three schema Architecture – Data models: Hierarchical Model, Network model, Relational model. – ORACLE Server & Instances – Database Structure & Space Management – Memory & Process Structure – Client Server Architecture – Distributed Database Processing – How Oracle Works		
Unit-2	**BASIC SQL*PLUS**	**11**	**18**
	– Introduction of SQL, Characteristics of SQL. – Basic Data Types of ORACLE, Oracle Operators. – Data Definition Language (DDL) – Data Manipulation Language (DML) – Data Control Language (DCL) – Transaction Processing Language (TPL) – Query Generation using Clause: Where, Between, Distinct, Like, Order by, IN,NOTIN		
Unit-3	**ADVANCE SQL*PLUS-I**	**11**	**17**
	– Data Constrains – Types of Data Constrains. – In Built Functions: Aggregate, Numeric, String, Data/Time, Conversion. – Grouping of Data		
Unit-4	**ADVANCE SQL*PLUS-II**	**11**	**17**
	– Sub queries and Types of Sub queries – Join and types of join – Union, Intersect and minus Clause – Schema and Schema objects: View, Sequence, index, synonyms.		

REFERENCE BOOKS

1. Learn Oracle 8i. By Jose A. Ramalho. Published by:BPB
2. SQL in 21-Days - Techmedia
3. PL/SQL in 21 Days - Techmedia
4. SQL, PL/SQL:THE PROGRAMMING LANGUAGE OF ORACLE By Evan Bayross

B.C.A. **Course:** Data Communication and Networking **Course No:** BCA-CC-506
Semester: 05 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Data Communication Fundamentals**	**12**	**18**
	- Introduction of Ancient, Electronic and Computerized Methods of Communication. - Digital and Analog Data - Data transmission Modes (Simplex, Half Duplex and Full Duplex) - Types of Transmission media: Guided and Unguided - Guided Transmission Media: Twisted Pair, Coaxial Cables, Fiber Optics. - Unguided Transmission Media: Radio Waves and Micro Waves		
Unit-2	**Introduction to Computer Network , Local Area Network Technology and Networking Devices**	**11**	**18**
	- Meaning of the basic terms: – Network, Internetwork, Protocol. - Types of Connection (Point to Point and Multipoint.) - Types of Computer Network (LAN, MAN, WAN). - Different types of Server: File Server, Application Server, Mail Server, Web Server, Database Server - Introduction and Characteristics of LAN. - LAN Topologies : Bus, Ring, Star, Tree, Mesh - Functions of Various Networking Components: Repeater, Hub, Switch, Router, Bridge, and Gateway		
Unit-3	**Network Model**	**11**	**17**
	- Switching Technique: Circuit, Packet, and Message Switching - Layered Tasks: Sender, Receiver. - OSI Reference Model. - Connection Less Vs Connection Oriented, Reliable Vs Unreliable Connections - IP Packet Format and IP Addressing(IPV4)		
Unit-4	**Network Applications**	**11**	**17**
	- Domain Name System: DNS Basics, Characteristics, Working Of DNS, DNS Hierarchy. - File Transfer Protocol: FTP Basics, FTP Modes, FTP Commands. - Email: Email Basics, Email Structure, How Email Works? - Email Protocol :SMTP,IMAP, MIME and POP - HTTP Protocol & UDP Protocol.		

Reference Books

1. Data Communication and Networking, Author – Satish Jain / M. Jain, ISBN – 81-7656-484-2, BPB Publication.
2. Data Communication and Networking, Author – Behrouz Forouzan, Tata McGraw Hill Publication

B.C.A.	**Course:** Practical	**Course No:** BCA-CC-507
Semester: 05	**Type of Course:** Core Course	
Marking Scheme: External Examination: 100 + Internal Evaluation: 00 = 100 Marks		
Credits: 12	**Practical Sessions per Week:** 12	**Teaching Hours:**180 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Practical Based on 504	90	50
Unit-2	Practical Based on 505	90	50

Structure for B.C.A. – CBCS Programme

Semester-VI (TY)

COURSE	COURSE	SUBJECT	CREDIT
BCA-EC-601	ELECTIVE	Multimedia & Application	02
BCA-FC-602	FOUNDATION	Business Communication-VI	02
BCA-CC-603	CORE	Network Security	03
BCA-CC-604	CORE	Core Java	03
BCA-CC-605	CORE	RDBMS Using Oracle -II	03
BCA-CC-606	CORE	Project Work	03
BCA-CC-607	CORE	Practical (Based on BCA-CC-604 & BCA-CC-605)	12
		TOTAL	28

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B.C.A. **Course: Multimedia & Application** **Course No: BCA-EC-601**
Semester: 06 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 02 **Theory Sessions per Week:** 02 **Teaching Hours:** 30 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Multimedia- the Concept.**	**8**	**18**
	Introduction Multimedia Definition and Main properties of multimedia system Combination of media Use of multimedia in Education, Entertainment, Advertisement, etc.		
Unit-2	**Components of Multimedia-1 (Text and Graphics)**	**8**	**18**
	Text Images and File Format Graphics and File Format - Basic concept, Digital image representation		
Unit-3	**Components of Multimedia-2**	**7**	**17**
	Digital Audio - Basic sound concept, representation of sound, audio formats Basic concept of Video Signal representation and Computer video format - Basic concept of animation and languages		
Unit-4	**Data Compression AND Multimedia Applications**	**7**	**17**
	Compression technique JPEG MPEG Storage Media Application of multimedia General Design Issues Planning of multimedia Design of Multimedia		

Reference Books

1. Multimedia: Computing, Communications and Application by Ralf Steinmetz and Klara Nahrshedt (Pearson Education Asia)

B.C.A.

SEMESTER-VI

Course No: FC-602 BUSINESS COMMUNICATION - VI

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
01	*Planning: Basic Managerial Activity.* 1 Introduction 2 Planning Defined. 3 Purpose of Planning. 4 The Basic Steps in Planning Process. 5 Types of Plans. 6 Advantages of Planning. 7 Limitation of Planning. 8 Principles of Planning.	09	14
02	*Notices, Agenda& Resolutions:* 1 Types of Joint Stock Company Meetings. 2 Structure of a Notice. 3 Preparation of Agenda. 4 Types of Resolution and its drafting. 5 Notices & Agenda of the following Joint Stock Company Meetings: · First Board Meeting · Routine Board Meeting · Statutory Meeting · Extraordinary General meeting · Meeting held prior to A.G.M. · Annual General Meeting	09	14
03	*Minutes Writing :(Joint Stock Cos.)* 6 · First Board Meeting 7 · Routine Board Meeting 8 · Statutory Meeting 9 · Extraordinary General meeting 10 · Meeting held prior to A.G.M. *11* · Annual General Meeting	09	14
04	*Advertising Theory and Practice.* 1 What is Advertising–Advertising? 2 Advertising as a Tool of Communication. 3 Designing the Message. 4 Advertising as Brand Building. 5 Role of Advertising in Modern Business World. 6 Ethics in Advertising. 7 Benefits of Advertising to Advertisers & Consumers. 8 Types of Advertising- Media Selection and Planning. 09 Internet as a media of Advertisement.	09	14

	10 The students have to prepare advertisement on Fast Moving Consumer Goods; White Goods in their own words about popular commodities and products available in market.		
05	*Insurance Correspondence: (Fire & Marine)* 1 Types of Fire and marine policies. 2 Losses and claims – Procedures involved in lodging of claims. <u>Fire and Marine Insurance Letters:</u> 3 Letter requesting cover for goods against fire/marine hazard. 4 Letter inviting a quotation for premium. 5 Insurance Company quoting a rate of premium. 6 Request for reduction in premium. 7 Notice about increase in premium rates by Insurance Company. 8 Lodging a claim for fire/marine policy. 9 Letter granting/refusing a claim 10 Letter contesting a claim made by policy holder. <u>Note:</u> The above letters cover fire and marine insurance topics individually.	09	14

Reference / Text –Books / Additional Reading:

1. Business Communication - K. K. Sinha - Galgotia Publishing Company, New Delhi.
2. Media and Communication Management - C. S. Rayudu - Himalaya Publishing House, Bombay.
3. Essentials of Business Communication - Rajendra Pal and J. S. Korlhalli - Sultan Chand & Sons, New Delhi.
4. Business Communication – Rai&Rai, Himalaya Publishing House, Mumbai
5. Business Communication – Homai Pradhan, Bhende D.S., Thakur Vijaya
6. Business Communication (Principles, Methods and Techniques) Nirmal Singh - Deep & Deep Publications Pvt. Ltd., New Delhi.
7. Business Communication - Dr. S.V. Kadvekar, Prin. Dr. C. N. Rawal and Prof. Ravindra Kothavade - Diamond Publications, Pune.
8. Business Correspondence and Report Writing - R. C. Sharma, Krishna Mohan Tata McGraw-Hill Publishing Company Limited, New Delhi.
9. Business Communication and Organizational Management – Rohini Aggrawal – Taxman
10. Business Communication Strategies – Monipally Mathukutty M.- Tata McGraw Hill Publishing Company Limited, New Delhi.
11. Handbook of Communication – Narula Uma
12. A Handbook of Commercial Correspondence – A. Ashley – Oxford University Press.
13 Business Communication and Organizational and Management – C.B.Gupta.
14 Comprehensive Business Communications – Saroj Karnik, P.P.Mehta,-P.V.Kulkarni

B.C.A. **Course:** Network Security **Course No:** BCA-CC-603
Semester: 06 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Network Security Fundamental.**	**12**	**18**
	- Concept of Computer Security, Challenges of Computer Security. - The OSI Security Architecture. - Types of Security Attacks: Active Attacks and Passive attacks - Security Services: Authentication, Access Control, Data Confidentiality, and Data Integrity. - A Model for Network Security.		
Unit-2	**Cryptography**	**11**	**18**
	- Concept of Cryptography. - Basic terms: Cryptography, Plaintext, Cipher text, Cipher, Key, Encryption and Decryption. - Cryptography Keys: Public Key and Private Key - Types of Cryptography: Symmetric key, Asymmetric key Cryptography. - Symmetric Cryptography: Substitutuonal and Transposition Cipher.		
Unit-3	**Network Device Securities and E-Mail**	**11**	**17**
	- Switch. - Router. - Network Management System. - Administrative Practice. - Centralize Account Management.		
Unit-4	**IP Security, Firewall and IP Security**	**11**	**17**
	- E-mail Security: S/MIME. - IP Security Overview. - IP Security Architecture. - Application and Benefits of IP Security. - IP Security Services. - Firewall: Introduction, Need for Firewall, Characteristics. - Types of Firewall. - Introduction to Virtual Private Network. - VPN Protocol. - Introduction to Wireless Network Security		

Reference Books

1. Cryptography and Network Security, - William Stallings Person – Printice Hall Publication
2. Data Communication and Networking, - Author – Behrouz Forouzan, Tata McGraw Hill Publication

MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
(With effect from Academic Year: 2019-20)

B.C.A. **Course: Core Java** **Course No:** BCA-CC-604

Semester: 06 **Type of Course :** Core Course

Marking Scheme: External Examination: 70 + Internal Evaluation : 30 = 100

Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction to Java**	**12**	**18**
	- History of Java, Features of Java, Applications of Java, Java Virtual Machine (JVM) and Byte Code, Buzz Words. - Basics Concept of OOP: Abstraction and Encapsulation, Inheritance and Polymorphism - Comparison Between C++ and Java. - Data types, Operators. - Control Statement, Array, and command line argument. - Structure of Java Programming.		
Unit-2	**Programming in Java**	**11**	**18**
	- Classes, Objects and Methods. - Polymorphism: Method Overloading. - Constructor: Concept of Constructor, Types of Constructor, Constructor Overloading. - Garbage Collection, Finalize() Method. - The 'this' keyword. - 'static' and 'final' keyword. - Access Control: Public, Private, Protected, Default.		
Unit-3	**Inheritance and Packages**	**11**	**17**
	- Inheritance Basic, Types of Inheritance. - Uses of 'super' keyword. - Method Overriding. - Run Time Polymorphism: Dynamic Method Dispatch. - Abstract Method and Class. -'final' Keyword with Inheritance. - Defining Package, Understanding of CLASSPATH. - Importing Packages. - Access Protection		
Unit-4	**Interface , Exception Handling and Multi Threading Programming**	**11**	**17**
	Interfaces: Defining Interface, Implementing Interface. - Implementation of Multiple and Hybrid Inheritance using Interface. - Extending Interface - Exception Handling Fundamentals, Types of Exceptions. - Try…catch Keyword, Multiple Catch Statements. - Throw, Throws, Finally Keywords. - Concept of Multi Threading, Thread Life Cycle. - The main Thread. - Creating Thread, Multiple Thread - Thread Priorities.		

Reference Book

1. Complete Reference Java by Herbert Schildt Publisher:TMH
2. Programming in JAVA by E-Balaguruswami
3. Java Programming Reference by Grant Palmer.

B.C.A. **Course:** RDBMS using Oracle-II **Course No:** BCA-CC-605
Semester: 06 **Type of Course :** Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation : 30 = 100
Credits: 03 **Theory Sessions per Week:** 03 **Teaching Hours:** 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
UNIT-1	**Basic PL/SQL Programming**	**12**	**18**
	- PL/SQL Block Structure - Control Structure - Implicit Cursor Programming - Explicit Cursor Programming - Parameterize Cursor and Cursor For loop		
UNIT-2	**Advance PL/SQL Programming**	**11**	**18**
	- Exception Handling - Stored Procedure and Function - Trigger - Data Concurrency and locking - Package		
UNIT-3	**INTRODUCTION TO DBA and DBA Activity**	**11**	**17**
	- Role of DBA. - Users: Creating a new user, grant command, deleting user. - Privileges: System privileges, object privileges, Assigning object privileges to a user, Viewing User & privileges, revoking a system & an object privileges. - Role: Creating a role, Granting privileges & roles to a role, granting role to a user, viewing the role of a user. - Database Backup and Recovery - Types of Failure - Data structure used for Database recovery Import and export		
UNIT-4	**Data warehousing and Data Mining**	**11**	**17**
	- Data ware housing Definition, usage and trends - DBMS vs. data warehouse, Data marts, Metadata - Data warehouse architecture - Design and construction of data warhouse - Introduction to data mining - Classification and Applications of data mining system		

REFERENCE BOOKS

1. Data Warehousing, Data Miniing and OLTP; Alex Berson, 1997, McGraw Hill.
2. Learn Oracle 8i. By Jose A. Ramalho. Published by:BPB
3. SQL in 21-Days - Techmedia
4. PL/SQL in 21 Days - Techmedia
5. SQL, PL/SQL:THE PROGRAMMING LANGUAGE OF ORACLE By Evan Bayross

B.C.A. **Course:** Project Work **Course No:** BCA-CC-606
Semester: 06 **Type of Course** : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100 **Credits:** 03

Detailed Syllabus

The objectives of the project is to help the student develop the ability to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and small business solution.
Internal Evaluation scheme: 30 Marks
Submission of project proposal
Progress Report every month (3 Progress Report)
Term End Evaluation 70 Marks:
PROJECT REPORT EVALUATION – 30 MARKS
ACTUAL PROJECT EVALUATION AND VIVA – 40 MARKS

Preparing project report
Student have to prepare project report according given suggestive structure of project report.

Title page
Certificate of work
Acknowledgment
Table of content
Table of Figures

Chapter-1 (Introduction)
- Background, Objective, purpose , scope , applicability

Chapter-2 (Requirement And Analysis)
- Problem definition, Requirement specification, Hardware Software Requirement.
- Planning and Scheduling

Chapter-3 System design
- Over all System design using designing Tools
- Data Dictionary
- Input /Output Design

Chapter -4 Testing and implementation
- Testing Approach used
- Test cases
- Implementation Approaches

Chapter-5
- Conclusion
- Limitation of system
- Future Scope of system
- Bibliography

Student have to prepare 2 – copies of report , 1st copy has to submit in college for evaluation (must be in hard binding) and 2nd copy for personal reference.

B.C.A.	**Course:** Practical	**Course No:** BCA-CC-607
Semester: 06	**Type of Course:** Core Course	
Marking Scheme: External Examination: 100 + Internal Evaluation: 00 = 100 Marks		
Credits: 12	**Practical Sessions per Week:** 12	**Teaching Hours:**180 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Practical Based on 602	90	50
Unit-2	Practical Based on 603	90	50