



CHOICE BASED CREDIT SYSTEM
Credit and Semester System Syllabus

BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)

Structure for B.C.A. – CBCS Programme

Semester-III (SY)

COURSE NO.	COURSE TYPE	SUBJECT	CREDIT
BCA-EC-301	ELECTIVE	Disaster Management	02
BCA-FC-302	FOUNDATION	Business Communication – III	02
BCA-CC-303	CORE	Operating System	03
BCA-CC-304	CORE	Data and File Structure	03
BCA-CC-305	CORE	Object Oriented Programming with C++	03
BCA-CC-306	CORE	System Analysis and Design	03
BCA-CC-307	CORE	Practical (Based on BCA-CC-304 & BCA-CC-305)	12
TOTAL			28

Internal Continuous Evaluation:

1. There will be Internal Continuous Evaluation in Theory papers of Core Course.
2. There will be 30 marks for Assignments in Course No: BCA-CC-303, BCA-CC-304, BCA-CC-305, BCA-CC-306



B.C.A.
SEMESTER - III

Paper EC: 301

Title of the Paper: **Disaster Management**

Credits: **02**

Total Marks: 100 Marks
Semester End Examination 70 Marks
Continuous Internal Evaluation: 30 Marks

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
1	Introduction to Natural Disaster Introduction to Disaster Management. Types, Trends, Causes, Consequences and Control of Disasters Geological Disasters: earthquakes, landslides, tsunami, mining Hydro-Meteorological Disasters: Floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves. Biological Disasters: Epidemics, pest attacks, forest fire. Technological Disasters: Chemical, industrial, radiological, nuclear. Man-made Disasters: Building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters. Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters. Earthquake Introduction, Examples of Earthquake from the record, Precautions taken during Earthquake, Richter scale. Destruction caused by earthquake, Earthquake prone zone of India.	09	14
2	Land slide Causes of landslide, Types of landslide Sliding forces, Clues to land slides Prevention of landslides, Damage caused by land slide. Tsunami Introduction Tsunami in India, Precautions taken during Earthquake Destruction caused by tsunami	09	14
3	Flood Types of flood Causes of flood, Damage caused by flood Protective steps against flood, What to do after flood Organization involved in flood relief Major flood records in India Rain Water Harvesting Introduction Need for rain water harvesting, Method for rain water harvesting	09	14



4	Cyclone Introduction Cyclones of India, Cyclones prone areas of India Destruction caused by cyclones Fire and Fire Prevention Precaution for fire, What to do and not to do during fire. Fire safety Management.	09	14
5	Drought Introduction Types of drought, Causes of drought Impact of drought, Drought management Disaster Management in India Disaster Management Act 2005 - Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national), Non-Government and Inter-Governmental Agencies	09	14

:: REFERENCE BOOK::

1. **Paryavaran Adhyayan** – University Grants Commission Oriental longman private limited.
2. **Paryavaran and Aapatti Vyavasthapan [Gujarati]**, Modi C D & others (2006). Swami prakashan, Patan-384265
3. **Paryavaran and disaster management [Gujarati]**, Patel J C (2006). Parshwa publication, Ahmedabad-380001
4. **Disaster Management**, K Ramana Murthi, 2004. Dominant Publishers and Distributors, New Delhi.
5. **Concept of Ecology**: N. Arumugam Saras publication.



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NAAC Accreditation Grade "B"
(With effect from Academic Year: 2017-18)

B.C.A.
SEMESTER – III

Paper FC: 301

Title of the Paper: **Business Communication - III**

Credits: **02**

Total Marks: 100 Marks

Semester End Examination 70 Marks

Continuous Internal Evaluation: 30 Marks

UNIT	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit- 1	<i>ORAL PRESENTATION SKILLS.</i> Meaning & purpose of Oral Presentation. Structuring the Presentation. Preparation before Presentation. Key Elements of Presentation. Introduction to presentation. Patterns of Presentation. Main Body of the Presentation. Concluding Presentation. Basic guidelines for Designing the Presentation.	09	14+06
Unit -2	<i>Listening : A COMMUNICATION TOOL</i> Introduction. What is Listening? Common Faults of Listening. How to Improve Listening Skills? Approaches to Listening.	09	14+06
Unit-3	<i>Group Communication.</i> Introduction. What is Group? Group Personality. Types of Groups: Formal and Informal. Why Groups? The Role of Communication in the Small Group. Look at the features that a Group Discussion possesses. How to make Group Discussion effective? Advantages and Disadvantages of Group Discussion.	09	14+06
Unit-4	<i>Interview</i> Meaning and Definition of Interview. Purpose of Interview. Essential Features of Interview. Methods of Interview. Styles of Interview. Types of Interview. Preparation of the Candidate for the Interview. Success Tips for the Candidate. Guidelines for the Candidate.	09	14+06
Unit-5	<i>Job Application and Resume Writing.</i> Introduction. Definition of Job Application Letter. Features of Job Application Letter. Types of Job Application Letter. Tips for Drafting an Application Letter. RESUME Resume Vs Curriculum Vitae. Types of Resumes. Potential Errors with Resume Writing. Essential Parts of a Resume. Ten Keys Points in Writing Effective Resume.	09	14+06

Reference Books.

- 1 Business Communication. Sathya Swaroop Debasish & Bhagaban Das. PHI Learning Private Limited. New Delhi.
- 2 Business Communication and Organization & Management. Rohini Aggarawal Taxman Publisher. New Delhi.
- 3 Business and Managerial Communication. Sailesh Sengupta. PHI Learning Private Limited. New Delhi.



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Recommended reading:

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



B.C.A.	Course: Operating System	Course No: BCA-CC-303	
Semester: 03	Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Basic concept of an operating system	9	14
	<ul style="list-style-type: none"> - 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	9	14
	<ul style="list-style-type: none"> - 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	9	14
	<ul style="list-style-type: none"> - 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 – I Basic Memory Management	9	14
	<ul style="list-style-type: none"> - 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. 		
Unit-5	Memory Management – II Virtual Memory	9	14
	<ul style="list-style-type: none"> - Segmentation. - Introduction to Virtual Memory. - Page Replacement policies, Optimal (OPT) , First in First Out (FIFO), Least Recently used (LRU) 		
Reference Books			
<ol style="list-style-type: none"> 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. 			



MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
NAAC Accreditation Grade "B"
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B.C.A.	Course: Data and File Structure	Course No: BCA-CC-304	
Semester: 03	Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Introduction to Data Structure and Sorting Techniques	09	14
	<ul style="list-style-type: none">- 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 Linklist	09	14
	<ul style="list-style-type: none">- 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	09	14
	<ul style="list-style-type: none">- 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)		
Unit-4	Linear Data Structure: Queue	09	14
	<ul style="list-style-type: none">- 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-5	Non Linear Data Structure: Tree and Graph	09	14
	<ul style="list-style-type: none">- 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 ListDefinition 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			
<ol style="list-style-type: none">1. Data and File Structure: Trembly & Sorenson.2. Expert in Data Structure With C: R.B.Patel.3. Data Structure using C: Aaron M. Tenenbaum.4. Data Structure through C: G.S.Baluja			



B.C.A.	Course: Object Oriented Programming with C++	Course No: BCA-CC-305	
Semester: 03	Type of Course : Core Course		
Marking Scheme:	External Examination: 70 + Internal Examination: 30 = 100		
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Principal Of Object Oriented Programming		
	<ul style="list-style-type: none">- 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	09	14
Unit-2	Basic C++ Programming		
	<ul style="list-style-type: none">- Function – Member function, Inline function, Friend function- Constructor – Types of constructor, characteristics of constructor, constructor overloading.- Destructor- Input/output statements- Declaration & Creation of Class and Object	09	14
Unit-3	Operator overloading and Type conversion		
	<ul style="list-style-type: none">- Basic of operator overloading- Types of operator overloading-Unary, Binary- Operator overloading using member function & friend function- Type conversion- Categories of type conversion	09	14
Unit-4	Inheritance		
	<ul style="list-style-type: none">- Basic of inheritance-- Types of inheritance- Single level, multiple, multilevel, hierarchical and hybrid- Constructor in derived class- Concept of Abstract class- Nesting of classes	09	14
Unit-5	Polymorphism		
	<ul style="list-style-type: none">- Basic of Polymorphism-Compile time & Runtime polymorphism- This pointer- Pointers to derived classes- Virtual and Pure virtual function- Virtual constructor and destructor	09	14
Reference Books			
<ol style="list-style-type: none">1. E-Balaguruswami: Object Oriented Programming with C++ Mc Graw-Hill2. 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: BCA-CC-306	
Semester: 03	Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit 1	System Concept	9	14
	<ul style="list-style-type: none">- 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	9	14
	<ul style="list-style-type: none">- Introduction to SDLC- Phases of SDLC- Application of SDLC Method- Limitation of SDLC Method- Introduction to SSADM		
Unit 3	Structured System Analysis and Design Method	9	14
	<ul style="list-style-type: none">- Need of SSADM- System survey- Structured analysis- Structured design- Advantages of SSADM- System Prototype Method (SPM)		
Unit 4	Input/ Output Design & Fact Finding Techniques	9	14
	<ul style="list-style-type: none">- Input - data capture objectives.- Data verification & Validation- Interactive screen- Output - Design of Output & its Objectives- FFT - Interview, Questionnaire, Record Inspection, Observations.		
Unit 5	Analysis & Design Tools	9	14
	<ul style="list-style-type: none">- DFD, Symbols uses in DFD, Physical & Logical Design- Decision table & tree- Data Dictionary- HIPO chart, Warnier/Orr diagrams- Structured English		
Reference Book:			
<ol style="list-style-type: none">1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Std. Edn2. 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: BCA-CC-307
Semester: 03	Type of Course: Core Course	
Marking Scheme: External Examination: 100 + Internal Examination: 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 304	90	50
Unit-2	Practical Based on 305	90	50



Structure for B.C.A. – CBCS Programme

Semester-IV(SY)

COURSE NO.	COURSE TYPE	SUBJECT	CREDIT
BCA-EC-401	ELECTIVE	Nano-Materials & Nano-Technology	02
BCA-FC-402	FOUNDATION	Business Communication – IV	02
BCA-CC-403	CORE	Advanced Operating System and Linux	03
BCA-CC-404	CORE	Application Development Using Vb.Net	03
BCA-CC-405	CORE	Web Application Development Using PHP	03
BCA-CC-406	CORE	Object Oriented Analysis and Design	03
BCA-CC-407	CORE	Practical (Based on BCA-CC-404 & BCA-CC-405)	12
TOTAL			28

Internal Continuous Evaluation:

1. There will be Internal Continuous Evaluation in Theory papers of Core Course.
2. There will be 30 marks for Assignments in Course No: BCA-CC-403, BCA-CC-404, BCA-CC-405, BCA-CC-405



B.C.A.
SEMESTER – IV

BCA-EC-401: Nano-Materials & Nano-Technology

Credit: 02

Total Marks: 100 Marks
Semester End Examination 70 Marks
Continuous Internal Evaluation: 30 Marks

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
1	Introduction and preparation Introduction to Nanomaterials, Optical, magnetic and chemical properties of Nanomaterials, Preparation of Nanoparticles: Chemical Approaches: Chemical reduction: sonochemical synthesis, Sol-Gel Synthesis, Self assembly. Physical Approaches, Aerosol, Laser vaporization and vapour deposition, sputtering.	09	20
2	Nanostructured materials Quantum dots, wells & wires, Carbon Nanotubes (CNTs), Single walled carbon nanotubes (SWCNTs), Multiwalled carbon nanotubes (MWCNTs), Graphene, Fullerenes. Metal Oxide nanoparticles (NPs), Nanorods, Nanotubes and Nanofibers, Semiconductor quantum dots Polymer NPs.	09	20
3	Characterization Techniques for Nanomaterials-1: Particle size Analyser (Laser scattering), Optical Microscopy, Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Scanning Tunnel Microscopy (STM).	09	20
4	Characterization Techniques for Nanomaterials-2: Particle size Analyser (Laser scattering), Optical Microscopy, Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Scanning Tunnel Microscopy (STM), X-ray Diffraction (XRD), Auger Emission Spectroscopy, Electron Spectroscopy for Chemical analysis (ESCA)	09	20
5	Application of Nanomaterials: Application Solar energy conversion and catalysis, Polymer with a special architecture: Liquid crystalline systems, Application in displays and other devices, Advanced organic materials, data storage, Photonics, Chemical and biosensors, Nanomedicine and Nanobiotechnology.	09	20

:: REFERENCE BOOK ::

1. Introduction To Nanotechnology: Understanding The Essentials, By Risal Singh And Shipra Mital Gupta
2. Textbook of Nanoscience And Nanotechnology, Textbook By B.S. Murty, Baldev Raj, James Murday, And P. Shankar



B.C.A.
SEMESTER – IV

FOUNDATION COURSE:

BCA-FC-402: Business Communication – IV

Credit: 02

Total Marks: 100 Marks
Semester End Examination 70 Marks
Continuous Internal Evaluation: 30 Marks

UNIT	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit- 1	<i>Communication: An Overview.</i> Meaning & Definition of Communication. Nature & Attributes of Communication. Purpose of Communication. Types of Communication. Internal & External Communication. Channels of Communication. Verbal & Non Verbal Communication.	09	14+06
Unit -2	<i>Written Communication.</i> Introduction. Essentials of a Good Business Letter. Basis Considerations while Writing Business Letters. Parts of Business Letter. Styles & Layout of Business Letter.	09	14+06
Unit-3	<i>Corporate Communication.</i> Corporate & Communication. Defining Corporate Communication. Employee Relations & Communication. Crisis & Disaster: Managing & Communicating.	09	14+06
Unit-4	<i>Conflict and Negotiation in Organizations.</i> What is Conflict? Defining Conflict. Origins of Conflict. Guidelines for Effective Conflict Management. Guidelines for Effective Conflict Management. Conflict and Negotiations in Industrial Relations. Guidelines for successful Negotiations Rights & Wrong.	09	14+06
Unit-5	<i>Tenses</i> Introduction of Tenses. Verb Forms. Active & Passive Voice.	09	14+06

Reference Books

- 1 Business Communication. Sathya Swaroop Debasish & Bhagaban Das. PHI Learning Private Limited. New Delhi.
- 2 Business Communication and Organization & Management. Rohini Aggarawal Taxman Publisher. New Delhi.
- 3 Business and Managerial Communication. Sailesh Sengupta. PHI Learning Private Limited. New Delhi.
- 4 A Practical English Grammar. A.J. Thomson & A.V. Martinet. Oxford University Press. New Delhi.



Recommended 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 – HomaiPradhan, Bhende D.S., Thakur Vijaya
5. Business Communication (Principles, Methods and Techniques) Nirmal Singh - Deep & Deep Publications Pvt. Ltd., New Delhi.
6. Business Communication - Dr. S.V. Kadvekar, Prin. Dr. C. N. Rawal and Prof. Ravindra Kothavade - Diamond Publications, Pune.
7. Business Correspondence and Report Writing - R. C. Sharma, Krishna Mohan - Tata McGraw-Hill Publishing Company Limited, New Delhi.
8. Business Communication and Organisational Management – RohiniAggrawal – Taxman
9. Business Communication Strategies – MonipallyMathukutty M.- Tata McGraw –Hill Publishing Company Limited, New Delhi.
10. Handbook of Communication – Narula Uma
11. A Handbook of Commercial Correspondence – A. Ashley – Oxford University Press
12. Business Communication and Organisationaland Management – C.B.Gupta
13. Comprehensive Business Communication – SarojKarnik, P.P.Mehta,- P.V.Kulkarni



B.C.A. Course: Advanced Operating System and Linux Course No: BCA-CC-403			
Semester: 04 Type of Course : Core Course			
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03		Theory Sessions per Week: 03	
Teaching Hours: 45 Hours			
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	File Management	9	14
	<ul style="list-style-type: none"> - File format, Characteristics of file, File operations, File system structure, - File access methods: Sequential , direct and Index sequential. 		
Unit-2	Directory Management	9	14
	<ul style="list-style-type: none"> - 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-3	I/O Management	9	14
	<ul style="list-style-type: none"> - 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-4	Introduction to Unix and Linux Operating System (Open Source)	9	14
	<ul style="list-style-type: none"> - 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-5	File Structure and Linux Shells.	9	14
	<ul style="list-style-type: none"> - 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			
<ol style="list-style-type: none"> 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 Programing, BPB Publication 			



B.C.A.		Course: Application Development Using VB.NET	Course No: BCA-CC-404	
Semester: 04		Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100				
Credits: 03		Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight	
Unit-1	Introduction	09	14	
	<ul style="list-style-type: none"> - .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, Datatype, Type Casting, control structure, looping statement, array, function & procedure, Exception Handling. 			
Unit-2	Basic Controls	09	14	
	<ul style="list-style-type: none"> - 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. 			
Unit-3	Advance Control	09	14	
	<ul style="list-style-type: none"> - MDI & SDI form, Main Menu Strip & Context Menu. - Rich text box, Picture box, Date time Picker. - Track bar, Notify Icon, Progress Bar, Tool tip - Built In Dialog box (Open File Dialog, Save File Dialog, Color Dialog, Font Dialog, Folder Browser Dialog) 			
Unit-4	Database Connectivity	09	14	
	<ul style="list-style-type: none"> - 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-5	Object Oriented Programming	09	14	
	<ul style="list-style-type: none"> - Class, Object & it's characteristics - Inheritance, Polymorphism. - Function Overloading - Properties: Read Only Properties, Write Only Properties. - Constructor & Destructor. - Small application development. 			
Reference Books				
<ol style="list-style-type: none"> 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: BCA-CC-405	
Semester: 04		Type of Course : Core Course	
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03		Teaching Hours: 45 Hours	
Theory Sessions per Week: 03			
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Introduction	09	14
	<ul style="list-style-type: none"> - Fundamental of webpage, website and apache server - Static and Dyanamic Website - Introduction of PHP-Features, Advantages and Limitations - Data Type, Variable, Constant - Operator in PHP 		
Unit-2	Basic of PHP	09	14
	<ul style="list-style-type: none"> - Conditional Statement - Looping Statement - Array- Types of Array(Numeric, Associative, Multi-dimensional) - PHP Server variables - Built-in-functions: <ul style="list-style-type: none"> o String (print(), echo(), chr(), trim(), ltrim(), rtrim(), soundex(), str_word_count(), strcmp(), strstr(), strlen(), strpos(), strrev(), substr(), strtoupper(), strtolower(), ucfirst(), ucwords(), substr_replace()) o Mathematical (abs(), sqrt(), log(), floor(), ceil(), pow(), max(), min()) o Date/Time (Date(), time(), getdate(), gettimeofday(), localtime(), checkdate()) 		
Unit-3	Working with form	09	14
	<ul style="list-style-type: none"> - Form elements- TextBox, TextArea, Password, RadioButton, Check Box, Combo Box, Image - Buttons - Submit and Reset - Uploading File to webserver - POST & GET method - PHP include and require statement 		
Unit-4	Cookie, Session and Error Handling	09	14
	<ul style="list-style-type: none"> - Basic of Cookie-Setting Cookies, Accessing Cookies, Deleting Cookies. - Basic of Session- Starting a Session, Destroying a session. - Error Handling- Try, Catch and Throw block, die() function - Page redirection in PHP 		
Unit-5	Database Connectivity	09	14
	<ul style="list-style-type: none"> - PHP-MySQL architecture - Database interaction -Creating and connecting database - Executing commands- Selecting, Inserting, Updating, Deleting - Small application development 		
Reference Books			
<ol style="list-style-type: none"> 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: BCA-CC-406			
Semester: 04 Type of Course : Core Course			
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100			
Credits: 03		Theory Sessions per Week: 03	
Teaching Hours: 45 Hours			
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	SYSTEM DESIGN	9	14
	<ul style="list-style-type: none"> - Introduction to database? - System development in database environment - Design of database – Normalization - Principles of Software Design 		
Unit-2	SYSTEM TESTING & IMPLEMENTATION	9	14
	<ul style="list-style-type: none"> - System Testing - Testing Strategies - Types of system testing - Level of Testing - System conversion methods – parallel, direct cut over, pilot & phase-in method. 		
Unit-3	OBJECT ORIENTED MODEL	9	14
	<ul style="list-style-type: none"> - 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-4	OBJECT ORIENTED ANALYSIS & DESIGN	9	14
	<ul style="list-style-type: none"> - 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-5	MODELING & IMPLEMENTATION STRATEGIES	9	14
	<ul style="list-style-type: none"> - 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			
<ol style="list-style-type: none"> 1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Std. 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: BCA-CC-407
Semester: 04	Type of Course: Core Course	
Marking Scheme: External Examination: 100 + Internal Examination: 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 404	90	50
Unit-2	Practical Based on 405	90	50



CHOICE BASED CREDIT SYSTEM
Credit and Semester System Syllabus

Structure for B.C.A. – CBCS Programme

Semester-V (TY)

COURSE NO.	COURSE TYPE	SUBJECT	CREDIT
BCA-EC-501	ELECTIVE		02
BCA-FC-502	FOUNDATION		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-I	03
BCA-CC-506	CORE	Data Communication and Networking	03
BCA-CC-507	CORE	Practical (Based on BCA-CC-504 & BCA-CC-504)	12
TOTAL			28

Internal Continuous Evaluation:

1. There will be Internal Continuous Evaluation in Theory papers of Core Course.
2. There will be 30 marks for Assignments in Course No: BCA-CC-503, BCA-CC-504, BCA-CC-505, BCA-CC-506



B.C.A.		Course: Software Engineering	Course No: BCA-CC-503	
Semester: 05		Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100				
Credits: 03		Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight	
Unit-1	Introduction	9	14	
	<ul style="list-style-type: none"> - 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 			
Unit-2	Software Requirement Analysis & Specification	9	14	
	<ul style="list-style-type: none"> - Define Software Requirements - Need For SRS - Role of SRS - Requirement Process -Problem Analysis ,Requirement Specifications, Validation 			
Unit-3	Software Planning & Designing	9	14	
	<ul style="list-style-type: none"> - 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-4	Coding & Testing	9	14	
	<ul style="list-style-type: none"> - Programming Practice - Testing Fundamentals (errors, fault & failure) - Levels of Testing - Testing Methods 			
Unit-5	UML	9	14	
	<ul style="list-style-type: none"> - 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			
<ol style="list-style-type: none">1. Pankaj Jalote: An Integrated Approach to Software Engineering, Narosa Publication2. Joseph Schmuller: Teach Your Self UML in 24 Hours, Techmedia Publication3. Roger Pressman: Software Engineering, McGraw-Hill Publication4. Object Oriented Modeling and Designing with UML, Michael R Blaha & James R Rumbaugh - Pearson			



MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
NAAC Accreditation Grade "B"
(With effect from Academic Year: 2017-18)

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 Examination: 30 = 100			
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Introduction	09	14
	<ul style="list-style-type: none">- 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.		
Unit-2	Basic Controls	09	14
	<ul style="list-style-type: none">- Label, Button and Textbox.- List Controls: Dropdownlist, listbox, checkbox list, radiobutton list, BulletedList.- Radio button, checkbox.- File upload and Image control.- Hyperlink, table, panel and wizard		
Unit-3	Advance controls	09	14
	<ul style="list-style-type: none">- Navigation controls using menu, treeview and sitemap path.- Validation Controls- Ad Rotator- Login Controls.- Master Page, Theme and CSS.		
Unit-4	Working with Database	09	14
	<ul style="list-style-type: none">- 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, details view and data list control.		
Unit-5	AJAX & Web services	09	14
	<ul style="list-style-type: none">- 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 Examination: 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	09	14
	<ul style="list-style-type: none"> – Overview of DBMS and RDBMS – Three schema Architecture – Data models: Hierarchical Model, Network model, Relational model. 		
Unit-2	INTRODUCTION TO ORACLE SERVER	09	14
	<ul style="list-style-type: none"> – ORACLE Server & Instances – Database Structure & Space Management – Memory & Process Structure – Client Server Architecture – Distributed Database Processing – How Oracle Works 		
Unit-3	BASIC SQL*PLUS	09	14
	<ul style="list-style-type: none"> – 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-4	ADVANCE SQL*PLUS-I	09	14
	<ul style="list-style-type: none"> – Data Constrains – Types of Data Constrains. – In Built Functions: Aggregate, Numeric, String, Data/Time, Conversion. – Grouping of Data 		
Unit-5	ADVANCE SQL*PLUS-II	09	14
	<ul style="list-style-type: none"> – 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			
<ol style="list-style-type: none"> 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 Examination: 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	09	14
	<ul style="list-style-type: none">- 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	09	14
	<ul style="list-style-type: none">- 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		
Unit-3	Local Area Network Technology and Networking Devices		
	<ul style="list-style-type: none">- 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-4	Network Model	09	14
	<ul style="list-style-type: none">- 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-5	Network Applications	09	14
	<ul style="list-style-type: none">- 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			
<ol style="list-style-type: none">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 Examination: 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 NO.	COURSE TYPE	SUBJECT	CREDIT
BCA-EC-601	ELECTIVE		02
BCA-FC-602	FOUNDATION		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

Internal Continuous Evaluation:

1. There will be Internal Continuous Evaluation in Theory papers of Core Course.
2. There will be 30 marks for Assignments in Course No: BCA-CC-603, BCA-CC-604, BCA-CC-605



MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
NAAC Accreditation Grade "B"
(With effect from Academic Year: 2017-18)

B.C.A.		Course: Network Security	Course No: BCA-CC-603	
Semester: 06		Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 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.	09	14	
	<ul style="list-style-type: none"> - 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	09	14	
	<ul style="list-style-type: none"> - 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: Substitutional and Transposition Cipher. 			
Unit-3	Network Device Securities	09	14	
	<ul style="list-style-type: none"> - Switch. - Router. - Network Management System. - Administrative Practice. - Centralize Account Management. 			
Unit-4	E-Mail and IP Security	09	14	
	<ul style="list-style-type: none"> - E-mail Security: S/MIME. - IP Security Overview. - IP Security Architecture. - Application and Benefits of IP Security. - IP Security Services. 			
Unit-5	Firewall and IP Security	09	14	
	<ul style="list-style-type: none"> - Firewall: Introduction, Need for Firewall, Characteristics. - Types of Firewall. - Introduction to Virtual Private Network. - VPN Protocol. - Introduction to Wireless Network Security. 			
Reference Books				
<ol style="list-style-type: none"> 1. Cryptography and Network Security, - William Stallings Person – Printice Hall Publication 2. Data Communication and Networking, - Author – Behrouz Forouzan, Tata McGraw Hill Publication 				



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NAAC Accreditation Grade "B"
(With effect from Academic Year: 2017-18)

B.C.A.	Course: Core Java	Course No: BCA-CC-604	
Semester: 06	Type of Course : Core Course		
Marking Scheme: External Examination: 70 + Internal Examination: 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	09	14
	<ul style="list-style-type: none">- 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	09	14
	<ul style="list-style-type: none">- 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	09	14
	<ul style="list-style-type: none">- 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.		
Unit-4	Packages and Interface	09	14
	<ul style="list-style-type: none">- Defining Package, Understanding of CLASSPATH.- Importing Packages.- Access Protection- Interfaces: Defining Interface, Implementing Interface.- Implementation of Multiple and Hybrid Inheritance using Interface.- Extending Interface.		
Unit-5	Exception Handling and Multi Threading Programming	09	14
	<ul style="list-style-type: none">- 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 Examination: 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	09	14
	<ul style="list-style-type: none"> - PL/SQL Block Structure - Control Structure - Implicit Cursor Programming - Explicit Cursor Programming - Parameterize Cursor and Cursor For loop 		
UNIT-2	Advance PL/SQL Programming	09	14
	<ul style="list-style-type: none"> - Exception Handling - Stored Procedure and Function - Trigger - Data Concurrency and locking - Package 		
UNIT-3	INTRODUCTION TO DBA	09	
	<ul style="list-style-type: none"> - 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. 		
UNIT-4	DBA Activity	09	14
	<ul style="list-style-type: none"> - Database Backup and Recovery - Types of Failure - Data structure used for Database recovery - Import and export 		
UNIT-5	Datawarehousing and Data Mining	09	14
	<ul style="list-style-type: none"> - 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			
	<ol style="list-style-type: none"> 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. Semester: 06 Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100 Credits: 03	Course: Project Work Type of Course : Core Course	Course No: BCA-CC-606
Detailed Syllabus		
<p>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.</p> <p>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</p>		
Preparing project report Student have to prepare project report according given suggestive structure of project report.		
<p>Title page Certificate of work Acknowledgment Table of content Table of Figures</p> <p>Chapter-1 (Introduction) Background, Objective, purpose , scope , applicability</p> <p>Chapter-2 (Requirement And Analysis) Problem definition, Requirement specification, Hardware Software Requirement. Planning and Scheduling</p> <p>Chapter-3 System design Over all System design using designing Tools Data Dictionary Input /Output Design</p> <p>Chapter -4 Testing and implementation Testing Approach used Test cases Implementation Approaches</p> <p>Chapter-5 Conclusion Limitation of system Future Scope of system Bibliography</p>		
Student have to prepare 2 – copies of report , 1 st copy has to submit in college for evaluation (must be in hard binding) and 2 nd 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 Examination: 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