



**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
<b>TOTAL</b>			<b>28</b>

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



4	<b>Cyclone</b> Introduction Cyclones of India, Cyclones prone areas of India Destruction caused by cyclones <b>Fire and Fire Prevention</b> Precaution for fire, What to do and not to do during fire. Fire safety Management.	09	14
5	<b>Drought</b> Introduction Types of drought, Causes of drought Impact of drought, Drought management <b>Disaster Management in India</b> 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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**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. <b>RESUME</b> 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.



**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. Korlhali - 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>B.C.A.</b>	<b>Course:</b> Operating System	<b>Course No:</b> BCA-CC-303	
<b>Semester:</b> 03	<b>Type of Course :</b> Core Course		
<b>Marking Scheme:</b> External Examination: 70 + Internal Examination: 30 = 100			
<b>Credits:</b> 03	<b>Theory Sessions per Week:</b> 03	<b>Teaching Hours:</b> 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
<b>Unit-1</b>	<b>Basic concept of an operating system</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition and Function of operating systems.</li><li>- Evolution of operating system: Batch system, Multi programmed system, time sharing and PCs.</li><li>- Introduction to basic terms &amp; batch processing system: Jobs, Processes files, command interpreter.</li><li>- Different types of operating system-real time systems, parallel, distributed system.</li><li>- Operating system structure-monolithic layered, virtual machine &amp; Client server.</li></ul>		
<b>Unit-2</b>	<b>Process Management</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Processes: Definition, Process States , Process Control Block ,Context switching.</li><li>- Process Scheduling: Definition, Scheduling objectives.</li><li>- Types of Schedulers ,Scheduling criteria : CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) ,</li><li>- Scheduling algorithms : Pre emptive and Non , pre emptive , FCFS – SJF – RR</li></ul>		
<b>Unit-3</b>	<b>Deadlocks and Threads</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition, Deadlock characteristics, Deadlock Prevention.</li><li>- Introduction of Deadlock Avoidance: banker’s algorithm and problem solving,</li><li>- Deadlock detection and Recovery.</li><li>- Threads - Concept of multithreads, Benefits of threads – Types of threads.</li></ul>		
<b>Unit-4</b>	<b>Memory Management – I Basic Memory Management</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition, Logical and Physical address Map.</li><li>- Memory allocation: Contiguous Memory allocation – Internal and External fragmentation.</li><li>- Paging: Principle of operation – Page allocation – Hardware support for paging – Protection and sharing – Disadvantages of paging.</li></ul>		
<b>Unit-5</b>	<b>Memory Management – II Virtual Memory</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Segmentation.</li><li>- Introduction to Virtual Memory.</li><li>- Page Replacement policies, Optimal (OPT) , First in First Out (FIFO), Least Recently used (LRU)</li></ul>		
<b>Reference Books</b>			
<ol style="list-style-type: none"><li>1. Silberschatz, Galvin and Gange: Operating System Concepts, Wesley.</li><li>2. Tanenbaum A.S., “Modern Operating Systems”, 4th Edition, PHI, 2001</li><li>3. Stalling W, “Operating Systems”, 6th edition, Prentice Hall India.</li></ol>			



<b>B.C.A.</b>	<b>Course:</b> Data and File Structure	<b>Course No:</b> BCA-CC-304	
<b>Semester:</b> 03	<b>Type of Course :</b> Core Course		
<b>Marking Scheme:</b> External Examination: 70 + Internal Examination: 30 = 100			
<b>Credits:</b> 03	<b>Theory Sessions per Week:</b> 03	<b>Teaching Hours:</b> 45 Hours	
<b>Unit</b>	<b>Detailed Syllabus</b>	<b>Teaching Hours</b>	<b>Marks/Weight</b>
<b>Unit-1</b>	<b>Introduction to Data Structure and Sorting Techniques</b>	<b>09</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition of Data Structure, Classification of Data Structure (Linear, Non Linear)</li><li>- Applications, Aims and Goals of Data Structure, Sparse Matrix.</li><li>- Representation of Array in Memory: Row-Major and Column-Major order.</li><li>- Address calculation of elements of one and two-dimensional arrays.</li><li>- Sorting and Merging Methods: Insertion Sort, Shell Sort, Quick Sort, Merge Sort.</li></ul>		
<b>Unit-2</b>	<b>Linear Data Structure : Doubly Linklist</b>	<b>09</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Introduction to Linked list and its types.</li><li>- Introduction of Doubly Linked list.</li><li>- Advantages and Disadvantages of Doubly linked list.</li><li>- Application of Doubly linked list.</li><li>- Different between single and double link list.</li><li>- Operation on Doubly Linked list.(insert, update, delete, display Algorithm and program)</li></ul>		
<b>Unit-3</b>	<b>Linear Data Structure: Stack</b>	<b>09</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition of Stack, Applications of Stack.</li><li>- Stack Operations using Array (Push, Pop, Peep, Display)</li><li>- Stack Operations using Linked List (Push, Pop, Peep, Display) (Algorithm and Program of All Stack Operations using Array and Linked List)</li><li>- Polish Notation: Conversion of Expression (Prefix, Infix, Postfix) ( using hand or stack method)</li></ul>		
<b>Unit-4</b>	<b>Linear Data Structure: Queue</b>	<b>09</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Definition of Queue, Applications of Queue.</li><li>- Queue Operations using Array (Insert, Update, Delete, Display)</li><li>- Queue Operations using Linked List (Insert, Update, Delete, Display) (Algorithm and Program of All Queue Operations using Array and Linked List)</li><li>- Circular Queue using Array.</li><li>- Concept of Priority Queue and Double Ended Queue.</li></ul>		
<b>Unit-5</b>	<b>Non Linear Data Structure: Tree and Graph</b>	<b>09</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Concept of Binary Tree, Representation of Binary Tree: Sequential and Linked List.</li><li>- Types of Binary Tree : Strictly, Full, Complete, in complete,</li><li>- Creation of Binary Tree - Binary Tree Traversal : Pre order, In order, Post order (using recursion)Definition of Graph and its terminologies</li><li>- Representation of Graph : Adjacency Matrix, Adjacency List</li><li>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)</li></ul>		
<b>Reference Books</b>			
<ol style="list-style-type: none"><li>1. Data and File Structure: Trembly &amp; Sorenson.</li><li>2. Expert in Data Structure With C: R.B.Patel.</li><li>3. Data Structure using C: Aaron M. Tenenbaum.</li><li>4. Data Structure through C: G.S.Baluja</li></ol>			



<b>B.C.A.</b>	<b>Course:</b> Object Oriented Programming with C++	<b>Course No:</b> BCA-CC-305	
<b>Semester:</b> 03	<b>Type of Course :</b> Core Course		
<b>Marking Scheme:</b>	External Examination: 70 + Internal Examination: 30 = 100		
<b>Credits:</b> 03	<b>Theory Sessions per Week:</b> 03	<b>Teaching Hours:</b> 45 Hours	
<b>Unit</b>	<b>Detailed Syllabus</b>	<b>Teaching Hours</b>	<b>Marks/Weight</b>
<b>Unit-1</b>	<b>Principal Of Object Oriented Programming</b>		
	<ul style="list-style-type: none"><li>- Introduction of OOP, OOP V/s POP</li><li>- Concept of OOP – Object, Class, Inheritance, Encapsulation, Polymorphism, Abstraction ,Message Passing</li><li>- Structure Of C++ Program</li><li>- Tokens in C++</li><li>- Data type, Constant, Variable, Statement &amp; Operators</li></ul>	<b>09</b>	<b>14</b>
<b>Unit-2</b>	<b>Basic C++ Programming</b>		
	<ul style="list-style-type: none"><li>- Function – Member function, Inline function, Friend function</li><li>- Constructor – Types of constructor, characteristics of constructor, constructor overloading.</li><li>- Destructor</li><li>- Input/output statements</li><li>- Declaration &amp; Creation of Class and Object</li></ul>	<b>09</b>	<b>14</b>
<b>Unit-3</b>	<b>Operator overloading and Type conversion</b>		
	<ul style="list-style-type: none"><li>- Basic of operator overloading</li><li>- Types of operator overloading-Unary, Binary</li><li>- Operator overloading using member function &amp; friend function</li><li>- Type conversion</li><li>- Categories of type conversion</li></ul>	<b>09</b>	<b>14</b>
<b>Unit-4</b>	<b>Inheritance</b>		
	<ul style="list-style-type: none"><li>- Basic of inheritance-</li><li>- Types of inheritance- Single level, multiple, multilevel, hierarchical and hybrid</li><li>- Constructor in derived class</li><li>- Concept of Abstract class</li><li>- Nesting of classes</li></ul>	<b>09</b>	<b>14</b>
<b>Unit-5</b>	<b>Polymorphism</b>		
	<ul style="list-style-type: none"><li>- Basic of Polymorphism-Compile time &amp; Runtime polymorphism</li><li>- This pointer</li><li>- Pointers to derived classes</li><li>- Virtual and Pure virtual function</li><li>- Virtual constructor and destructor</li></ul>	<b>09</b>	<b>14</b>
<b>Reference Books</b>			
<ol style="list-style-type: none"><li>1. E-Balaguruswami: Object Oriented Programming with C++ Mc Graw-Hill</li><li>2. Robert Lafore: Object Oriented Programming with C++ Galgotia Publications.</li><li>3. Rajaraman: Object Oriented Programming with C++ New age International</li></ol>			





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

<b>B.C.A.</b>	<b>Course:</b> System Analysis And Design	<b>Course No:</b> BCA-CC-306	
<b>Semester:</b> 03	<b>Type of Course :</b> Core Course		
<b>Marking Scheme:</b> External Examination: 70 + Internal Examination: 30 = 100			
<b>Credits:</b> 03	<b>Theory Sessions per Week:</b> 03	<b>Teaching Hours:</b> 45 Hours	
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
<b>Unit 1</b>	<b>System Concept</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Introduction to system</li><li>- Characteristics and elements of system</li><li>- Types of system</li><li>- System analysis</li><li>- System analyst &amp; its role.</li><li>- CBIS, Information system and categories of information system.</li><li>- System users.</li></ul>		
<b>Unit 2</b>	<b>System Development Strategies</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Introduction to SDLC</li><li>- Phases of SDLC</li><li>- Application of SDLC Method</li><li>- Limitation of SDLC Method</li><li>- Introduction to SSADM</li></ul>		
<b>Unit 3</b>	<b>Structured System Analysis and Design Method</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Need of SSADM</li><li>- System survey</li><li>- Structured analysis</li><li>- Structured design</li><li>- Advantages of SSADM</li><li>- System Prototype Method (SPM)</li></ul>		
<b>Unit 4</b>	<b>Input/ Output Design &amp; Fact Finding Techniques</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Input - data capture objectives.</li><li>- Data verification &amp; Validation</li><li>- Interactive screen</li><li>- Output - Design of Output &amp; its Objectives</li><li>- FFT - Interview, Questionnaire, Record Inspection, Observations.</li></ul>		
<b>Unit 5</b>	<b>Analysis &amp; Design Tools</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- DFD, Symbols uses in DFD, Physical &amp; Logical Design</li><li>- Decision table &amp; tree</li><li>- Data Dictionary</li><li>- HIPO chart, Warnier/Orr diagrams</li><li>- Structured English</li></ul>		
<b>Reference Book:</b>			
1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Std. 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			



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<b>B.C.A.</b>	<b>Course:</b> Practical	<b>Course No:</b> BCA-CC-307
<b>Semester:</b> 03	<b>Type of Course:</b> Core Course	
<b>Marking Scheme:</b> External Examination: 100 + Internal Examination: 00 = 100 Marks		
<b>Credits:</b> 12	<b>Practical Sessions per Week:</b> 12	<b>Teaching Hours:</b> 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