



Structure for B.C.A. – CBCS Programme

**Semester-IV (SY)**

<b>COURSE NO.</b>	<b>COURSE TYPE</b>	<b>SUBJECT</b>	<b>CREDIT</b>
BCA-EC-401	ELECTIVE		02
BCA-FC-401	FOUNDATION		02
BCA-CC-401	CORE	Advanced Operating System and Linux	03
BCA-CC-402	CORE	Application Development Using Vb.Net	03
BCA-CC-403	CORE	Web Application Development Using PHP	03
BCA-CC-404	CORE	Object Oriented Analysis and Design	03
BCA-CC-405	CORE	Practical (Based on BCA-CC-402 & BCA-CC-403)	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-401, BCA-CC-402, BCA-CC-403, BCA-CC-404



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<b>B.C.A. Course: Advanced Operating System and Linux Course No: BCA-CC-401</b>			
<b>Semester: 04 Type of Course : Core Course</b>			
<b>Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100</b>			
<b>Credits: 03 Theory Sessions per Week: 03 Teaching Hours: 45 Hours</b>			
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
<b>Unit-1</b>	<b>File Management</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- File format, Characteristics of file, File operations, File system structure,</li><li>- File access methods: Sequential , direct and Index sequential.</li></ul>		
<b>Unit-2</b>	<b>Directory Management</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Directory structure: single level, two level, tree level ,</li><li>- Directory operations, directory implementation: Linear list, Hash table</li><li>- Disk Space Allocation Method : Continuous, Linked, Index, Free Space Management.</li></ul>		
<b>Unit-3</b>	<b>I/O Management</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Typical PC Bus structure, Pooling and Interrupts, DMA Controller , Kernel I/O Subsystem: I/O Scheduling, Buffering, Caching, Spooling, Error Handling.</li><li>- Mass Storage Structure and Disk scheduling algorithm (FIFO, SSTF, SCAN, C- SCAN.)</li></ul>		
<b>Unit-4</b>	<b>Introduction to Unix and Linux Operating System (Open Source)</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- History of Unix Operating System Definition of Kernel, Shell, File, Process,</li><li>- 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</li></ul>		
<b>Unit-5</b>	<b>File Structure and Linux Shells.</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"><li>- Understanding File system hierarchy standard, Directory Commands, File and Directory commands, Understanding Job (process).</li><li>- Process Commands, User commands: Misc Commands, Keyboard commands using ctrl key.</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><li>4. Sumitabha Das: Concepts and Application of UNIX 4th edition Tata McGraw Hill</li><li>5. Yashwant Kanitkar: Unix Shell Programing, BPB Publication</li></ol>			



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<b>B.C.A.</b>		<b>Course:</b> Application Development Using VB.NET	<b>Course No:</b> BCA-CC-402	
<b>Semester:</b> 04		<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>Introduction</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– .Net Framework, Common Language Runtime</li> <li>– Feature &amp; Advantages of CLR.</li> <li>– JIT &amp; It's Types : Pre-JIT, Econo-JIT, Normal-JIT</li> <li>– Introduction to Integrated Development Environment (IDE)</li> <li>– Programming Construct – Variable, Datatype, Type Casting, control structure, looping statement, array, function &amp; procedure, Exception Handling.</li> </ul>			
<b>Unit-2</b>	<b>Basic Controls</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Introduction of form.</li> <li>– Label, Textbox, Button.</li> <li>– Link Label, Combo box, List box, Checkbox, Radio button, Scrollbar.</li> <li>– Timer Control, Group box, Panel</li> <li>– Event Handling, Method &amp; Property of controls.</li> </ul>			
<b>Unit-3</b>	<b>Advance Control</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– MDI &amp; SDI form, Main Menu Strip &amp; Context Menu.</li> <li>– Rich text box, Picture box, Date time Picker.</li> <li>– Track bar, Notify Icon, Progress Bar, Tool tip</li> <li>– Built In Dialog box (Open File Dialog, Save File Dialog, Color Dialog, Font Dialog, Folder Browser Dialog)</li> </ul>			
<b>Unit-4</b>	<b>Database Connectivity</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– ADO.Net Architecture.</li> <li>– Create database using MS Access and accessing database using server explorer.</li> <li>– Database connectivity using programming code.</li> <li>– Database binding with Data Grid View &amp; combo box.</li> <li>– Crystal Report.</li> </ul>			
<b>Unit-5</b>	<b>Object Oriented Programming</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Class, Object &amp; it's characteristics</li> <li>– Inheritance, Polymorphism.</li> <li>– Function Overloading</li> <li>– Properties: Read Only Properties, Write Only Properties.</li> <li>– Constructor &amp; Destructor.</li> <li>– Small application development.</li> </ul>			
<b>Reference Books</b>				
<ol style="list-style-type: none"> <li>1. Steven Holzner: Visual Basic .NET Programming Black Book DeramTech Press.</li> <li>2. Rod Stephens: Visual Basic 2005 Programmer's</li> </ol>				



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<b>B.C.A.</b>		<b>Course:</b> Web Application Development Using PHP	<b>Course No:</b> BCA-CC-403	
<b>Semester:</b> 04		<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>Introduction</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Fundamental of webpage, website and apache server</li> <li>– Static and Dyanamic Website</li> <li>– Introduction of PHP-Features, Advantages and Limitations</li> <li>– Data Type, Variable, Constant</li> <li>– Operator in PHP</li> </ul>			
<b>Unit-2</b>	<b>Basic of PHP</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Conditional Statement</li> <li>– Looping Statement</li> <li>– Array- Types of Array(Numeric, Associative, Multi-dimensional)</li> <li>– PHP Server variables</li> <li>– Built-in-functions:               <ul style="list-style-type: none"> <li>○ <b>String</b>(print(),echo(),chr(),trim(),ltrim(),rtrim(),soundex(),str_word_count(),strcmp(),stristr(),strsr(),strlen(),strpos(),strev(),substr(),strtoupper(),strtolower(),ucfirst(),ucword(),substr_replace())</li> <li>○ <b>Mathametical</b>(abs(),sqrt(),log(),floor(),ceil(),pow(),max(),min())</li> <li>○ <b>Date/Time</b>(Date(),time(),getdate(),gettimeofday(),localtime(),checkdate())</li> </ul> </li> </ul>			
<b>Unit-3</b>	<b>Working with form</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Form elements- TextBox, TextArea, Password,RadioButton, Check Box, Combo Box, Image</li> <li>– Buttons – Submit and Reset</li> <li>– Uploading File to webserver</li> <li>– POST &amp; GET method</li> <li>– PHP include and require statement</li> </ul>			
<b>Unit-4</b>	<b>Cookie, Session and Error Handling</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– Basic of Cookie-Setting Cookies, Accessing Cookies, Deleting Cookies.</li> <li>– Basic of Session- Starting a Session, Destroying a session.</li> <li>– Error Handling- Try, Catch and Throw block, die() function</li> <li>– Page redirection in PHP</li> </ul>			
<b>Unit-5</b>	<b>Database Connectivity</b>	<b>09</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>– PHP-MySQL architecture</li> <li>– Database interaction –Creating and connecting database</li> <li>– Executing commands- Selecting, Inserting, Updating, Deleting</li> <li>– Small application development</li> </ul>			
<b>Reference Books</b>				
<ol style="list-style-type: none"> <li>1. Ivan Bayross,Sharanam Shah:PHP 5.1 For Beginners,Sh off Publishers &amp; Distributors(SPD)</li> <li>2. Janet Valade: PHP5 &amp; MYSQL Projects,Wiley Dreamtech</li> <li>3. Dave W. Mercer: Beginning PHP5,Wiley India Edition</li> <li>4. Steven Holzer:The Complete Reference PHP,Tata McGRAW-HiLL,New Delhi.</li> </ol>				



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<b>B.C.A. Course: Object Oriented Analysis and Design Course No: BCA-CC-404</b>			
<b>Semester: 04 Type of Course : Core Course</b>			
<b>Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100</b>			
<b>Credits: 03 Theory Sessions per Week: 03 Teaching Hours: 45 Hours</b>			
Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
<b>Unit-1</b>	<b>SYSTEM DESIGN</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>- Introduction to database?</li> <li>- System development in database environment</li> <li>- Design of database – Normalization</li> <li>- Principles of Software Design</li> </ul>		
<b>Unit-2</b>	<b>SYSTEM TESTING &amp; IMPLEMENTATION</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>- System Testing</li> <li>- Testing Strategies</li> <li>- Types of system testing</li> <li>- Level of Testing</li> <li>- System conversion methods – parallel, direct cut over, pilot &amp; phase-in method.</li> </ul>		
<b>Unit-3</b>	<b>OBJECT ORIENTED MODEL</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>- What is object oriented model?</li> <li>- Characteristics of OOM – class &amp; object, Link &amp; association, Generalization &amp; Inheritance.</li> <li>- Benefits of OOM</li> <li>- Introduction to OOA &amp; Advantages &amp; Disadvantages of OOA</li> </ul>		
<b>Unit-4</b>	<b>OBJECT ORIENTED ANALYSIS &amp; DESIGN</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>- Analysis Techniques – Object Modeling, Dynamic Modeling &amp; Functional Modeling.</li> <li>- Object design process, steps &amp; solution</li> <li>- Defining classes &amp; its implementation, inheritance, association &amp; object representation.</li> <li>- Breaking system into sub system &amp; managing data store.</li> </ul>		
<b>Unit-5</b>	<b>MODELING &amp; IMPLEMENTATION STRATEGIES</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>- Object modeling – identifying object classes, user object model , object modeling notations.</li> <li>- Dynamic modeling – state diagram</li> <li>- Functional modeling – steps of constructing function model, DFD</li> <li>- Structural Diagram – what is structural diagram &amp; class Diagram.</li> <li>- Implementation strategies</li> </ul>		
<b>Reference Books</b>			
<ol style="list-style-type: none"> <li>1. James A Senn: Analysis and Design of Information Systems, McGraw Hill Intl. Std. Edn</li> <li>2. Yourdon E. and Constantine L. L : Structured Analysis &amp; Design Yourdon press NY</li> <li>3. Object Oriented Analysis and Design by James Rumbaugh, Michael Blaha, William Premerlain, Frederick Eddy, William Lorensen</li> </ol>			



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<b>B.C.A.</b>	<b>Course:</b> Practical	<b>Course No:</b> BCA-CC-405
<b>Semester:</b> 04	<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

<b>Unit</b>	<b>Detailed Syllabus</b>	<b>Teaching Hours</b>	<b>Marks/Weight</b>
Unit-1	Practical Based on 402	90	50
Unit-2	Practical Based on 403	90	50