

**Detailed Syllabus**  
**(With effect from Academic Year 2017-2018)**

**Maharaja Krishnakumarsinhji Bhavnagar University**  
**BACHELOR OF SCIENCE IN IT (B.Sc IT)**

**BACHELOR OF SCIENCE - INFORMATION TECHNOLOGY (B.Sc.(IT))**

**Semester-IV (SY)**

Course No.	Course Type	Subject	Credit
B.Sc.(IT)-EC-401	ELECTIVE		02
B.Sc.(IT)-FC-401	FOUNDATION		02
B.Sc.(IT)-CC-401	CORE	WINDOW PROGRAMMING USING VB.NET	03
B.Sc.(IT)-CC-402	CORE	DATABASE CONCEPT AND TOOLS	03
B.Sc.(IT)-CC-403	CORE	COMPUTER NETWORK	03
B.Sc.(IT)-CC-404	CORE	OPERATING SYSTEM-II	03
B.Sc.(IT)-CC-405	CORE	PRACTICAL (BASED ON 401 AND 402)	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: B.Sc.(IT)-CC-401, B.Sc.(IT)-CC-402, B.Sc.(IT)-CC-403, B.Sc.(IT)-CC-404

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<b>B.Sc IT</b>		<b>Course: Window Programming Using VB.NET</b>		<b>Course No: B.Sc IT-CC-401</b>	
Semester: <b>04</b>		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		
<b>Unit-1</b>	<b>Introduction</b>	<b>9</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> <li>• Console Application</li> </ul>				
<b>Unit-2</b>	<b>Basic Controls</b>	<b>9</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>9</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>9</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>9</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, ReadWrite Properties</li> <li>• Constructor &amp; Destructor.</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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**BACHELOR OF SCIENCE IN IT (B.Sc IT)**

<b>B.Sc IT</b>		<b>Course: Database Concept &amp; Tools</b>	<b>Course No: B.Sc IT-CC-402</b>
Semester: <b>04</b>		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
<b>UNIT-1</b>	<b>DBMS AND RDBMS CONCEPTS</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Overview of DBMS and RDBMS</li> <li>• Three schema Architecture</li> <li>• Data models :Hierarchical Model, Network model, Relational model</li> <li>• Object relational model</li> </ul>		
<b>UNIT-2</b>	<b>INTRODUCTION TO ORACLE SERVER</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• ORACLE Server &amp; Instances</li> <li>• Database Structure &amp; Space Management</li> <li>• Memory &amp; Process Structure</li> <li>• Client Server Architecture – Distributed Database Processing</li> <li>• How Oracle Works</li> <li>• Dr. E.F.Codd's Rules</li> </ul>		
<b>UNIT-3</b>	<b>BASIC SQL*PLUS</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Basic Data Types of ORACLE</li> <li>• Data Definition Language (DDL)</li> <li>• Data Manipulation Language (DML)</li> <li>• Transaction Processing Language (TPL)</li> <li>• Data Constraints AND Types of Data Constraints</li> <li>• Inbuilt Functions and Oracle Operators.</li> </ul>		
<b>UNIT-4</b>	<b>ADVANCE SQL*PLUS</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Grouping of Data</li> <li>• Sub queries and Types of Sub queries</li> <li>• Join and types of join</li> <li>• Schema and Schema object: View, Sequence, index, synonyms.</li> </ul>		
<b>UNIT-5</b>	<b>INTRODUCTION TO DBA</b>	<b>9</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Role of DBA.</li> <li>• Users: Creating a new user, grant command, deleting user.</li> <li>• Privileges: System privileges, object privileges, Assigning object privileges to a user, Viewing User &amp; privileges, revoking a system &amp; an object privileges.</li> <li>• Role: Creating a role, Granting privileges &amp; roles to a role, granting role to a user, viewing the role of a user.</li> </ul>		
<b>Reference Books</b>			
<ol style="list-style-type: none"> <li>1. Ivan Bayross: SQL/PLSQL, The Programming Language of ORACLE, BPB Publication</li> <li>2. Learn Oracle 8i. By Jose A. Ramalho. Published by: BPB</li> <li>3. SQL in 21-Days - Techmedia</li> </ol>			

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**BACHELOR OF SCIENCE IN IT (B.Sc IT)**

<b>B.Sc IT</b>		<b>Course: Computer Network</b>	<b>Course No: B.Sc IT-CC-403</b>	
Semester: <b>04</b>		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	
<b>Unit-1</b>	<b>Introduction &amp; Transmission Media</b>	<b>9</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>• Communication System</li> <li>• Analog &amp; Digital Data</li> <li>• Communication Channel</li> <li>• Twin Wire and Co-axial cable, Fiber Optic</li> <li>• Radio Waves &amp; Microwaves</li> </ul>			
<b>Unit-2</b>	<b>Optical Fiber Communication &amp; Satellite Communication</b>	<b>9</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>• Optical Source &amp; Light Detectors</li> <li>• Propagation in Fiber</li> <li>• Basic of Routing</li> <li>• FDDI &amp; DQDB</li> <li>• Satellite Link and Satellite Communication</li> </ul>			
<b>Unit-3</b>	<b>Data Networks &amp; Data Communication System</b>	<b>9</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>• Circuit Switching &amp; Packet Switching</li> <li>• PABX</li> <li>• Facsimile (Fax)</li> <li>• Introduction to ISDN</li> <li>• Multiplexing – FDM, TDM &amp; WDM</li> </ul>			
<b>Unit-4</b>	<b>Network Topology, Architecture &amp; Standards</b>	<b>9</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>• LAN, WAN, MAN</li> <li>• Basic Network Topologies</li> <li>• Ethernet, Token Bus &amp; Token Ring</li> <li>• IEEE Standards 802 For LAN and MAN</li> <li>• Introduction to Bluetooth</li> </ul>			
<b>Unit-5</b>	<b>Network Protocol and Firewall</b>	<b>9</b>	<b>14</b>	
	<ul style="list-style-type: none"> <li>• ATM &amp; X.25 Protocol</li> <li>• Inter-W</li> <li>• Bridges, Routers And Brouters, Gateways</li> <li>• Repeaters, Modems, Hubs and Switches</li> <li>• Firewall</li> </ul>			
<b>Reference Books</b>				
<ol style="list-style-type: none"> <li>1. Andrews Tananbaum: Computers Networks, PHI</li> <li>2. Michel and Miller: Introduction to Digital Data Communication</li> <li>3. James Martin: Telecommunication and Compute</li> </ol>				

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**BACHELOR OF SCIENCE IN IT (B.Sc IT)**

<b>B.Sc IT</b>		<b>Course: Operating System - II</b>		<b>Course No: B.Sc IT-CC-404</b>	
Semester: <b>04</b>		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		
<b>Unit-1</b>	<b>File &amp; I/O Management</b>	<b>9</b>	<b>14</b>		
	<ul style="list-style-type: none"> <li>• File Concept, Characteristics of file, File operations, File system structure</li> <li>• Access Methods - Sequential , direct and Index sequential</li> <li>• Directory Structure - single level, two level, tree level, Directory operations.</li> <li>• Overview of I/O System, Application of I/O Interface, I/O hardware and subsystem.</li> <li>• Disk scheduling algorithm (FIFO, SSTF, SCAN, CSCAN)</li> </ul>				
<b>Unit-2</b>	<b>Distributed Operating system</b>	<b>9</b>	<b>14</b>		
	<ul style="list-style-type: none"> <li>• Introduction and need for distributed OS</li> <li>• Architecture of Distributed OS</li> <li>• Models of distributed system</li> <li>• Remote procedure Calls</li> <li>• Distributed shared memory</li> </ul>				
<b>Unit-3</b>	<b>Introduction to Linux Operating System</b>	<b>9</b>	<b>14</b>		
	<ul style="list-style-type: none"> <li>• Introduction to Linux Operating System</li> <li>• History, Advantage &amp; Disadvantage of Linux Operating System.</li> <li>• Application area of Linux Operating System.</li> <li>• Linux Flavors</li> <li>• Desktop Environment – Xwindow, KDE &amp; GNOME.</li> </ul>				
<b>Unit-4</b>	<b>File Structure &amp; Commands</b>	<b>9</b>	<b>14</b>		
	<ul style="list-style-type: none"> <li>• File system hierarchy standard.</li> <li>• Linux architecture</li> <li>• Shell &amp; its types.</li> <li>• File &amp; directory Command</li> <li>• Process command</li> <li>• User command</li> <li>• Misc. Command</li> </ul>				
<b>Unit-5</b>	<b>Shell Script</b>	<b>9</b>	<b>14</b>		
	<ul style="list-style-type: none"> <li>• Introduction to Vi Editor</li> <li>• Mode of Vi Editor</li> <li>• Shell Variable, Shell Operator</li> <li>• Structure Language – Control structure, Iterating Statement and Array</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. Stallings 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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**BACHELOR OF SCIENCE IN IT (B.Sc IT)**

<b>B.Sc IT</b>				<b>Course: Practical</b>		<b>Course No: B.Sc IT-CC-405</b>	
<b>Semester: 03</b>				<b>Type of Course: Core Course</b>			
<b>Marking Scheme: External Examination: 100 + Internal Examination: 00 = 100 Marks</b>							
<b>Credits: 12</b>				<b>Practical Sessions per Week: 12</b>		<b>Teaching Hours:180Hours</b>	
<b>Unit</b>	<b>Detailed Syllabus</b>			<b>Teaching Hours</b>	<b>Marks/Weight</b>		
Unit-1	Practical Based on 401			<b>90</b>	<b>50</b>		
Unit-2	Practical Based on 402			<b>90</b>	<b>50</b>		