

## **Bhavan's Vivekananda College**

of Science, Humanities and Commerce  
Sainikpuri, Secunderabad – 500 094  
Autonomous College, Affiliated to Osmania University  
Re-Accredited with 'A' grade by NAAC

### **Bachelor of Computer Application**

#### **Program Outcomes:**

**PO1 Knowledge:** Acquire knowledge in computer application theory, algorithm principles, mathematical foundations and statistical analysis in the design and modelling of computer based systems.

**PO2 Problem Solving:** Analyze and apply latest technologies to solve problems in the areas of computer applications.

**PO3 Skills:** Apply programming, technical and professional skills to become a software entrepreneur.

**PO4 Adaptability:** Adapt to the fast changing world of information technology needs.

**PO5 Communication:** Communicate effectively on problems, issues and solutions with community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO6 Ethics & Environment:** Apply ethical principles and commit to professional ethics and responsibilities and norms in research and the functional areas, understand the issues of environmental context and sustainable development.

**PO7 Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO8 Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context of socio, economic and technological changes.

**Program Specific Outcomes:**

**PSO1** To prepare graduates who will have a successful professional career in the software industry, government, academia, research and other domains where computer applications are deployed.

**PSO2** Provide effective and efficient real time solutions by using client/server programming languages such as advanced java programming, web programming.

**PSO3** Creating a team work environment to develop application software.

**Course Outcomes: Batch (2019-22)****Semester I:**

<b>Name of the Course</b>	<b>Environmental Studies</b>
<b>Course Code</b>	<b>BCA141</b>
C01	To familiarise the concept of sets and its pictorial representation and its properties
C02	To familiarise the concept of permutations and combinations
C03	To familiarise the concept of Graphs and Trees
C04	To familiarise the concept of Full Adder, Half Adder, Multiplexers

<b>Name of the Course</b>	<b>Programming in 'C'</b>
<b>Course Code</b>	<b>BCA142</b>
C01	Develop simple programs
C02	Implement different control statements.
C03	Program the concepts of arrays, strings and functions.
C04	Apply the concepts of structures, unions, pointers, preprocessor directives and files.

<b>Name of the Course</b>	<b>Fundamentals of Information Technology</b>
<b>Course Code</b>	<b>BCA143</b>
C01	Identify and locate components of a computer.

CO2	Compare basic programming languages and analyze database concepts.
CO3	Classify different types of networks and topologies.
CO4	Execute online transactions using Internet.

<b>Name of the Course</b>	<b>General English</b>
<b>Course Code</b>	<b>BCA144</b>
CO1	Use Grammatical structures and build necessary vocabulary for enhancing communicative ability which strengthens the required employability.
CO2	Apply knowledge of grammar for enhancing technical writing ability.
CO3	Compose coherent texts for personal and professional contexts.
CO4	Analyze and make inferences based on comprehension of a text.

<b>Name of the Course</b>	<b>Information Systems Theory and Applications</b>
<b>Course Code</b>	<b>BCA145</b>
CO1	Interpret the basic concepts of Information System and plan to develop Information Systems.
CO2	Identify and analyze functional business areas.
CO3	Plan the decision making in different business areas.
CO4	Illustrate Information Security issues and Human Resource Management.

<b>Name of the Course</b>	<b>Programming in C Lab</b>
<b>Course Code</b>	<b>BCA142P</b>
CO1	Developing logic skills using control and looping statements
CO2	'C' concepts implemented with a practical approach (arrays, strings, functions, structure, union, pointers, preprocessors)

<b>Name of the Course</b>	<b>Fundamentals of Information Technology Lab</b>
<b>Course Code</b>	<b>BCA143P</b>
CO1	Acquire basic knowledge of creation documents and presentation effectively.
CO2	Acquire basic knowledge in business calculations, analysis & Database Concepts.

**Semester II:**

<b>Name of the Course</b>	<b>Programming in C++</b>
<b>Course Code</b>	<b>BCA241</b>
CO1	Acquire knowledge in basics of C++, Control Flow and Functions.
CO2	Solve problems using Object-Oriented Programming concepts.
CO3	Use suitable examples in Inheritance and Polymorphism for real-time implementation.
CO4	Investigate various errors in Exception Handling and create Templates.

<b>Name of the Course</b>	<b>IT Hardware</b>
<b>Course Code</b>	<b>BCA242</b>
CO1	Identify different mother board components, hardware, software and bus structure.
CO2	Interpret memory types, input, output devices and power protection systems
CO3	Analyze data storage devices like HDD, Optical storage and installation of various types of disk drives and sound cards
CO4	Apply knowledge for assembling a system, installing various drivers and Operating Systems.

<b>Name of the Course</b>	<b>Gender Sensitization</b>
<b>Course Code</b>	<b>BCA243</b>
CO1	Identify ways and means by which the course learnt can be put into practice
CO2	Ability to open up and give viewpoints freely on gender bias

<b>Name of the Course</b>	<b>Data Communication and Networking</b>
<b>Course Code</b>	<b>BCA244</b>
CO1	Summarize the basic Networking concepts.
CO2	Distinguish between different types Multiplexing techniques and Switching techniques.
CO3	Compare Error Detection and Error Correction techniques.
CO4	Interpret basic Routing Protocols.

<b>Name of the Course</b>	<b>Organizations and Functions</b>
<b>Course Code</b>	<b>BCA245</b>
CO1	Analyze concepts and demonstrate skills that are fundamental to organizational development and leadership.

CO2	Identify the best decisions for investments.
CO3	Inculcate marketing and sales capabilities.
CO4	Analyze the best financial Institutions.
<b>Name of the Course</b>	<b>Programming in C++ Lab</b>
<b>Course Code</b>	<b>BCA241P</b>
CO1	Able to write example programs for control statements, arrays, functions and OOPS concepts.
CO2	Able to implement concepts of Exception handling and Templates.

<b>Name of the Course</b>	<b>IT-Hardware Lab</b>
<b>Course Code</b>	<b>BCA242P</b>
CO1	Be able to identify the different motherboard components and other parts of the computer to assemble a computer
CO2	Be able to format and install the operating system, setup various drivers and operating systems.

### Semester III:

<b>Name of the Course</b>	<b>System Analysis and Logical Design</b>
<b>Course Code</b>	<b>BCA342</b>
CO1	Analyze different types of skills that are required for a System Analyst.
CO2	Identify and select System Development Projects.
CO3	Determine System Requirements & draw Data Flow Diagrams.
CO4	Draw Decision Trees & Tables and also able to acquire knowledge on designing Interfaces & Dialogues.

<b>Name of the Course</b>	<b>Operating Systems</b>
<b>Course Code</b>	<b>BCA343</b>
CO1	Be familiarized with the basic Structure of Operating Systems.
CO2	Be equipped with knowledge about process, synchronization and scheduling.
CO3	Be familiarized with the basic functions of Operating Systems such as Process Management and Synchronization, Deadlocks, Memory Management.
CO4	Enhance their knowledge to use Virtual Memory and the structure of most common file systems.

<b>Name of the Course</b>	<b>Object Oriented Programming with Java</b>
<b>Course Code</b>	<b>BCA344</b>
CO1	Be familiarized with java fundamentals
CO2	Develop java programs relating to control statements, arrays, strings and vectors
CO3	Develop java programs relating to packages and interfaces
CO4	Develop java programs relating to multi-threaded programs and exception handling.

<b>Name of the Course</b>	<b>Mobile Computing</b>
<b>Course Code</b>	<b>BCA345</b>
CO1	Acquire knowledge on Multiplexing and Modulation Techniques.
CO2	Acquire knowledge on Medium Access Control and IEEE Standard 802.11.
CO3	Familiarize with functionalities of Mobile Network Layer and Mobile Transport Layer.
CO4	Familiarize with functionalities of WAP and

	Wireless Markup Language Scripting.
<b>Name of the Course</b>	<b>Operating Systems Lab</b>
<b>Course Code</b>	<b>BCA343P</b>
CO1	Acquire knowledge on the basic Unix commands.
CO2	Be able to develop programs through the Unix terminal.

<b>Name of the Course</b>	<b>Object Oriented Programming with Java Lab</b>
<b>Course Code</b>	<b>BCA344P</b>
CO1	Develop java applications using arrays, strings and inheritance
CO2	Develop java applications using multithreading and exception handling.

#### **Semester IV:**

<b>Name of the Course</b>	<b>Internet Protocols</b>
<b>Course Code</b>	<b>BCA442</b>
CO1	Be familiarized with fundamental concepts of IP addressing, Subnetting and various routing methods.
CO2	Be familiarized with Fragmentation, ARP, SMTP.
CO3	Acquire the knowledge about TCP operations.
CO4	Acquire knowledge on Domain Name System.

<b>Name of the Course</b>	<b>Database Management System</b>
<b>Course Code</b>	<b>BCA443</b>
CO1	Acquire knowledge on database concepts.
CO2	Familiarize with concepts of normalization.
CO3	Interact with Database using SQL (lab).



CO4	Acquire knowledge on client/server architectures, distributed databases and database administration.
<b>Name of the Course</b>	<b>GUI Programming and Data Structures (Using Java)</b>
<b>Course Code</b>	<b>BCA444</b>
CO1	Develop programs using applets, event handling mechanisms and layout managers.
CO2	Develop programs using swing components
CO3	Develop programs using Collection of classes
CO4	Develop programs using legacy classes, utility classes and graphics

<b>Name of the Course</b>	<b>Artificial Intelligence</b>
<b>Course Code</b>	<b>BCA445</b>
CO1	Acquire knowledge in Artificial Intelligence.
CO2	Adopt different learning methods & concepts in Natural Language Processing.
CO3	Solve different searching problems.
CO4	Identify Natural Language Processing and expert systems.

<b>Name of the Course</b>	<b>Database Management System Lab</b>
<b>Course Code</b>	<b>BCA443P</b>
CO1	Be able to understand the basic SQL commands.
CO2	Be able to query the database through SQL functions, nested queries, Joins, etc.,

<b>Name of the Course</b>	<b>GUI Programming and Data Structures (Using Java) Lab</b>
<b>Course Code</b>	<b>BCA444P</b>
CO1	Develop java applications using applets and

	swings
CO2	Develop java applications using Collection classes and interfaces

**Semester V:**

<b>Name of the Course</b>	<b>Object Oriented System Development</b>
<b>Course Code</b>	<b>BCA542</b>
CO1	Acquire knowledge on UML features.
CO2	Be able to draw various UML diagrams.
CO3	Be familiar with objects relationships, attributes and methods.
CO4	Be familiar with quality assurance and security to applications.

<b>Name of the Course</b>	<b>Web Technologies</b>
<b>Course Code</b>	<b>BCA543a</b>
CO1	Be able to design static webpages.
CO2	Be able to develop client-side scripting using Javascript.
CO3	Develop applications using DHTML.
CO4	Develop XML applications with styles.

<b>Name of the Course</b>	<b>Advanced Java Programming</b>
<b>Course Code</b>	<b>BCA544a</b>
CO1	Develop programs using JDBC.
CO2	Develop programs using Java Servlets.
CO3	Develop programs using Java Server Pages.
CO4	Develop programs using JSTL and JSF Tags.

<b>Name of the Course</b>	<b>Web Technologies Lab</b>
<b>Course Code</b>	<b>BCA543aP</b>
CO1	Develop static web pages.

CO2	Develop applications using Javascript, DHTML and XML.
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<b>Name of the Course</b>	<b>Advanced Java Programming Lab</b>
<b>Course Code</b>	<b>BCA544aP</b>
CO1	Develop java applications using JDBC and Servlets
CO2	Develop java applications using Java Server Pages

**Semester VI:**

<b>Name of the Course</b>	<b>Software Testing</b>
<b>Course Code</b>	<b>BCA642</b>
CO1	Be able to learn different cycles of testing and to analyze the bugs.
CO2	Be able to learn how to build and establish software testing methodology.
CO3	Be able to test different phases.
CO4	Be able to implement configuration of software management.

<b>Name of the Course</b>	<b>Information Security</b>
<b>Course Code</b>	<b>BCA643a</b>
CO1	Be familiar with the priority given to Security in Information System.
CO2	Acquire knowledge on various Security related laws and risk management in Information System
CO3	Acquire knowledge to plan for security by implementing security technology.
CO4	Be familiar with various Cryptographic Algorithms and Tools.

<b>Name of the Course</b>	<b>E-Commerce</b>
<b>Course Code</b>	<b>BCA644a</b>
CO1	Be able to analyse the role of E-commerce on Independent Third Parties & Impact of E-Commerce on Business Models.
CO2	Be able to analyze about EDI & Risks of Insecure Systems.
CO3	Be able to analyze about Risk Management & Internet Standards.
CO4	Be able to work With Firewalls & Online Payment System.

### Course Matrix

Name of the Program: BCA											
Name of the Course: Environmental Studies									Course Code: BCA 141		
Semester: I									Year: I		
Academic Year: 2019-20									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	-	2	2	2	3	2	3	2	-	2
CO2	-	2	1	2	2	2	3	3	2	-	2
	0	1	1.5	2	2	2.5	2.5	3	2	0	2

Name of the Program: BCA											
Name of the Course: Programming in 'C'									Course Code: BCA 142		
Semester: I									Year: I		
Academic Year: 2019-20									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	1	-	1	-	1	1	2	2	-
CO2	3	3	2	2	1	1	1	2	2	2	3
CO3	3	3	2	2	1	2	2	2	2	2	3
CO4	3	3	3	2	1	2	2	3	2	2	3
	2.75	2.5	2	1.5	1	1.25	1.5	2	2	2	2.25

Name of the Program: BCA

Name of the Course: Fundamentals of Information Technology									Course Code: BCA 143		
Semester: I									Year: I		
Academic Year: 2019-20									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	1	1	1	1	1	2	2	1	1
CO2	2	2	2	2	2	1	2	2	1	1	1
CO3	2	2	2	2	2	1	2	3	1	1	1
CO4	2	3	2	2	2	1	3	3	1	1	1
	2	2	1.75	1.75	1.75	1	2	2.5	1.25	1	1

Name of the Program: BCA											
Name of the Course: General English									Course Code: BCA 144		
Semester: I									Year: I		
Academic Year: 2019-20									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	-	1	2	3	-	2	3	2	-	-
CO2	-	-	2	3	3	3	3	3	2	-	3
CO3	-	-	2	1	3	3	2	3	3	1	2
CO4	3	1	2	2	3	3	2	3	3	2	2
	0.75	0.25	1.75	2	3	2.25	2.25	3	2.5	0.75	1.75

Name of the Program: BCA											
Name of the Course: Information Systems Theory and Applications									Course Code: BCA 145		
Semester: I									Year: I		
Academic Year: 2019-20									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	-	1	2	3	2	3	3	2	-	3
CO2	2	2	2	2	3	2	3	2	2	-	3
CO3	2	2	2	2	3	2	3	2	2	-	3
CO4	3	3	2	3	3	2	3	3	2	-	3
	2.25	1.75	1.75	2.25	3	2	3	2.5	2	0	3

Name of the Program: BCA											
Name of the Course: Programming in C Lab								Course Code: BCA 142P			
Semester: I								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	1	2	2	3	2	2	3
CO2	3	3	3	3	1	3	2	3	1	2	3
	3	3	2.5	2.5	1	2.5	2	3	1.5	2	3

Name of the Program: BCA											
Name of the Course: Fundamentals of Information Technology Lab								Course Code: BCA 143P			
Semester: I								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	1	1	3	1	1	1	2	1	2
CO2	3	2	2	1	2	1	1	2	2	1	2
	2.5	1.5	1.5	1	2.5	1	1	1.5	2	1	2

Name of the Program: BCA											
Name of the Course: Programming in C++								Course Code: BCA 241			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	2	2	2	1	2
CO2	3	3	3	2	2	1	2	2	3	2	3
CO3	3	3	3	3	3	1	2	2	3	2	3
CO4	3	3	3	2	2	1	2	2	3	2	3
	2.75	2.75	2.75	2.25	2.25	1	2	2	2.75	1.75	2.75

Name of the Program: BCA											
Name of the Course: IT Hardware								Course Code: BCA 242			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	1	2	2	2	2	2
CO2	2	2	2	2	2	1	2	2	3	2	2
CO3	2	1	2	2	2	1	1	1	2	2	2
CO4	3	2	2	2	3	1	2	3	2	2	2
	2.5	1.75	2	2	2.25	1	1.75	2	2.25	2	2

Name of the Program: BCA											
Name of the Course: Gender Sensitization								Course Code: BCA 243			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	-	3	2	-	3	3	3	3	-	2
CO2	-	-	2	2	3	2	2	2	2	-	2
	0	0	2.5	2	1.5	2.5	2.5	2.5	2.5	0	2

Name of the Program: BCA											
Name of the Course: Data Communication and Networking								Course Code: BCA 244			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	1	1	1	1	-	2	1	2	1
CO2	2	2	2	2	1	1	1	3	2	2	2
CO3	3	2	2	2	1	2	2	3	2	3	2
CO4	3	2	2	2	1	2	2	3	2	2	3
	2.5	2	1.75	1.75	1	1.5	1.25	2.75	1.75	2.25	2

Name of the Program: BCA											
Name of the Course: Organizations and Functions								Course Code: BCA 245			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	1	2	2	2	2	3	3	2	-	2
CO2	1	1	2	3	2	2	3	3	3	1	3
CO3	-	1	2	2	1	2	3	3	3	-	1
CO4	-	-	1	3	2	2	3	2	2	-	1
	0.25	0.75	1.75	2.5	1.75	2	3	2.75	2.5	0.25	1.75

Name of the Program: BCA											
Name of the Course: Programming in C++ Lab								Course Code: BCA 241P			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	2	2	3	1	3
CO2	3	3	3	2	2	1	2	2	3	1	2
	2.5	2.5	2.5	2	2	1	2	2	3	1	2.5

Name of the Program: BCA											
Name of the Course: IT-Hardware Lab								Course Code: BCA 242P			
Semester: II								Year: I			
Academic Year: 2019-20								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	2	3	2	1	3
CO2	2	2	2	2	1	1	2	2	2	1	2
	2	2	2	2	1.5	1	2	2.5	2	1	2.5



Name of the Program: BCA											
Name of the Course: System Analysis and Logical Design								Course Code: BCA 342			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	1	1	2	2	1	2	1	1	-	-
CO2	1	-	1	2	2	1	2	2	2	-	2
CO3	2	1	2	2	2	1	2	2	1	-	1
CO4	2	2	1	2	2	-	2	2	1	-	2
	1.5	1	1.25	2	2	0.75	2	1.75	1.25	0	1.25

Name of the Program: BCA											
Name of the Course: Operating Systems								Course Code: BCA 343			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	2	-	3	3	1	3	3	3	3	3
CO2	3	3	-	3	1	1	3	3	3	3	3
CO3	2	3	1	3	2	1	2	2	3	3	3
CO4	2	2	1	2	2	1	3	3	3	3	3
	2	2.5	0.5	2.75	2	1	2.75	2.75	3	3	3

Name of the Program: BCA											
Name of the Course: Object Oriented Programming with Java								Course Code: BCA 344			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	3	1	1	2	3	2	2	2
CO2	2	2	2	3	1	1	2	3	3	2	2
CO3	2	2	2	3	1	1	3	3	3	2	2
CO4	2	2	2	3	1	1	2	3	3	2	2
	2	2	2	3	1	1	2.25	3	2.75	2	2

Name of the Program: BCA											
Name of the Course: Mobile Computing								Course Code: BCA 345			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	3	1	2	3	3	1	2
CO2	2	3	3	2	3	2	2	3	3	3	2
CO3	3	3	3	3	3	2	3	3	3	3	2
CO4	3	3	3	3	3	1	3	3	3	3	3
	2.50	2.75	2.75	2.50	3.00	1.50	2.50	3.00	3.00	2.50	2.25

Name of the Program: BCA											
Name of the Course: Operating Systems Lab								Course Code: BCA 343P			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	2	2	2	2	2	2	2	2	2
CO2	2	1	2	2	2	2	2	2	2	2	2
	2	1	2	2	2	2	2	2	2	2	2

Name of the Program: BCA											
Name of the Course: Object Oriented Programming with Java Lab								Course Code: BCA 344P			
Semester: III								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	3	3	1	1	2	3	3	3	2
CO2	2	3	3	3	1	1	2	3	3	3	2
	2	2.5	3	3	1	1	2	3	3	3	2

Name of the Program: BCA											
Name of the Course: Internet Protocols								Course Code: BCA 442			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	2	3	3	3	3
CO2	3	1	2	3	2	3	2	3	3	3	3
CO3	3	2	3	3	2	3	2	3	3	3	3
CO4	3	2	3	3	2	3	2	3	3	3	3
	3	2	2.75	3	2.25	3	2	3	3	3	3

Name of the Program: BCA											
Name of the Course: Database Management System								Course Code: BCA443			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	1	2	2	2	2
CO2	2	2	2	2	2	1	1	2	2	2	2
CO3	2	2	2	2	2	1	1	2	2	2	2
CO4	2	2	2	2	2	1	1	2	2	2	2
	2	2	2	2	2	1	1	2	2	2	2

Name of the Program: BCA											
Name of the Course: GUI Programming and Data Structures (Using Java)								Course Code: BCA444			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	3	1	1	2	3	2	3	3
CO2	2	2	2	3	1	1	2	3	2	3	3
CO3	2	2	2	3	1	1	2	3	3	2	2
CO4	2	2	2	3	1	1	2	3	3	2	2
	2	2	2	3	1	1	2	3	2.5	2.5	2.5

Name of the Program: BCA											
Name of the Course: Artificial Intelligence								Course Code: BCA 445			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	2	3	1	2	2	3	3	3	1
CO2	3	3	2	3	1	2	3	3	3	3	2
CO3	3	3	3	2	2	2	2	3	3	2	2
CO4	3	3	3	3	2	3	3	3	3	2	2
	2.75	3	2.5	2.75	1.5	2.25	2.5	3	3	2.5	1.75

Name of the Program: BCA											
Name of the Course: Database Management System Lab								Course Code: BCA443P			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	1	2	2	2	2
CO2	2	2	2	2	2	1	1	2	2	2	2
	2	2	2	2	2	1	1	2	2	2	2

Name of the Program: BCA											
Name of the Course: GUI Programming and Data Structures (Using Java) Lab								Course Code: BCA444P			
Semester: IV								Year: II			
Academic Year: 2020-21								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	3	1	1	2	3	3	3	3
CO2	2	2	2	3	1	1	2	3	3	3	2
	2	2	2	3	1	1	2	3	3	3	2.5

Name of the Program: BCA											
Name of the Course: Object Oriented System Development									Course Code: BCA 542		
Semester: V									Year: III		
Academic Year: 2021-2022									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	1	2	-	1	2	1	3	2	2
CO2	2	1	1	1	1	1	2	1	2	1	1
CO3	2	1	1	1	1	-	1	2	2	1	2
CO4	2	1	2	3	1	-	2	2	2	3	2
	2	1	1.25	1.75	0.75	0.5	1.75	1.5	2.25	1.75	1.75

Name of the Program: BCA											
Name of the Course: Web Technologies									Course Code: BCA 543a		
Semester: V									Year: III		
Academic Year: 2021-2022									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	1	3	3	3	2	3
CO2	3	3	3	3	3	1	3	3	3	3	3
CO3	3	3	3	3	2	1	2	3	3	3	3
CO4	2	2	3	2	1	1	2	3	3	2	3
	2.75	2.5	3	2.5	2	1	2.5	3	3	2.5	3

Name of the Program: BCA											
Name of the Course: Advanced Java Programming									Course Code: BCA 544a		
Semester: V									Year: III		
Academic Year: 2021-2022									Batch: 2019-22		
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	3	1	1	2	3	2	3	2
CO2	2	2	2	3	1	1	2	3	3	3	3
CO3	2	2	2	3	1	1	2	3	3	3	3
CO4	2	2	2	3	1	1	2	3	3	3	2
	2	2	2	3	1	1	2	3	2.75	3	2.5

Name of the Program: BCA											
Name of the Course: Web Technologies Lab								Course Code: BCA 543aP			
Semester: V								Year: III			
Academic Year: 2021-2022								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	2	2	3	1	3	3	2	2	3
CO2	3	3	3	2	3	1	3	3	3	3	3
	2.5	3	2.5	2	3	1	3	3	2.5	2.5	3

Name of the Program: BCA											
Name of the Course: Advanced Java Programming Lab								Course Code: BCA 544aP			
Semester: V								Year: III			
Academic Year: 2021-2022								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	3	1	1	2	3	2	3	3
CO2	2	2	2	3	1	1	2	3	2	3	3
	2	2	2	3	1	1	2	3	2	3	3

Name of the Program: BCA											
Name of the Course: Software Testing								Course Code: BCA 642			
Semester: VI								Year: III			
Academic Year: 2021-2022								Batch: 2019-22			
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	3	2	1	1	3	1	1	-	2
CO2	1	2	2	2	2	1	3	2	1	-	2
CO3	1	3	3	2	3	2	3	2	2	-	2
CO4	2	2	2	2	2	1	2	1	2	-	3
	1.5	2.5	2.5	2	2	1.25	2.75	1.5	1.5	0	2.25

Name of the Program: BCA											
Name of the Course: Information Security						Course Code: BCA 643a					
Semester: VI						Year: III					
Academic Year: 2021-2022						Batch: 2019-22					
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	2	3	2	2	3	3	2	-	2
CO2	2	1	3	3	2	2	3	3	2	-	2
CO3	2	2	2	3	2	2	2	3	2	-	2
CO4	2	2	2	3	2	2	2	3	2	1	2
	<b>2</b>	<b>1.5</b>	<b>2.25</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2.5</b>	<b>3</b>	<b>2</b>	<b>0.25</b>	<b>2</b>

Name of the Program: BCA											
Name of the Course: E-Commerce						Course Code: BCA 644a					
Semester: VI						Year: III					
Academic Year: 2021-2022						Batch: 2019-22					
	Program Outcomes								Program Specific Outcomes		
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	-	1	2	1	2	1	1	1	-	-
CO2	1	1	1	2	2	2	1	1	1	-	-
CO3	2	2	1	2	2	1	1	2	1	-	1
CO4	1	1	2	2	2	-	2	1	1	-	1
	<b>1.25</b>	<b>1</b>	<b>1.25</b>	<b>2</b>	<b>1.75</b>	<b>1.25</b>	<b>1.25</b>	<b>1.25</b>	<b>1</b>	<b>0</b>	<b>0.5</b>

## PROGRAM TARGETS

### Bhavan's Vivekananda College

of Science, Humanities and Commerce

Sainikpuri, Secunderabad - 500094

Autonomous College - Affiliated to Osmania University

Re-Accredited with 'A' grade by NAAC

Name of the Program: BCA

Batch : 2019-22

Course/POs	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
1 Environmental Studies	0.00	1.00	1.50	2.00	2.00	2.50	2.50	3.00	2.00	0.00	2.00
2 Programming in 'C'	2.75	2.50	2.00	1.50	1.00	1.25	1.50	2.00	2.00	2.00	2.25
3 Fundamentals of Information Technology	2.00	2.00	1.75	1.75	1.75	1.00	2.00	2.50	1.25	1.00	1.00
4 General English	0.75	0.25	1.75	2.00	3.00	2.25	2.25	3.00	2.50	0.75	1.75
5 Information Systems Theory and Applications	2.25	1.75	1.75	2.25	3.00	2.00	3.00	2.50	2.00	0.00	3.00
6 Programming in C Lab	3.00	3.00	2.50	2.50	1.00	2.50	2.00	3.00	1.50	2.00	3.00



7	Fundamentals of Information Technology Lab	2.50	1.50	1.50	1.00	2.50	1.00	1.00	1.50	2.00	1.00	2.00
8	Programming in C++	2.75	2.75	2.75	2.25	2.25	1.00	2.00	2.00	2.75	1.75	2.75
9	IT Hardware	2.50	1.75	2.00	2.00	2.25	1.00	1.75	2.00	2.25	2.00	2.00
10	Gender Sensitization	0.00	0.00	2.50	2.00	1.50	2.50	2.50	2.50	2.50	0.00	2.00
11	Data Communication and Networking	2.50	2.00	1.75	1.75	1.00	1.50	1.25	2.75	1.75	2.25	2.00
12	Organizations and Functions	0.25	0.75	1.75	2.50	1.75	2.00	3.00	2.75	2.50	0.25	1.75
13	Programming in C++ Lab	2.50	2.50	2.50	2.00	2.00	1.00	2.00	2.00	3.00	1.00	2.50
14	IT-Hardware Lab	2.00	2.00	2.00	2.00	1.50	1.00	2.00	2.50	2.00	1.00	2.50
15	System Analysis and Logical Design	1.50	1.00	1.25	2.00	2.00	0.75	2.00	1.75	1.25	0.00	1.25
16	Operating Systems	2.00	2.50	0.50	2.75	2.00	1.00	2.75	2.75	3.00	3.00	3.00
17	Object Oriented Programming with Java	2.00	2.00	2.00	3.00	1.00	1.00	2.25	3.00	2.75	2.00	2.00
18	Mobile Computing	2.50	2.75	2.75	2.50	3.00	1.50	2.50	3.00	3.00	2.50	2.25
19	Operating Systems Lab	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
20	Object Oriented Programming with Java Lab	2.00	2.50	3.00	3.00	1.00	1.00	2.00	3.00	3.00	3.00	2.00
21	Internet Protocols	3.00	2.00	2.75	3.00	2.25	3.00	2.00	3.00	3.00	3.00	3.00
22	Database Management System	2.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	2.00

23	GUI Programming and Data Structures (Using Java)	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.50	2.50	2.50
24	Artificial Intelligence	2.75	3.00	2.50	2.75	1.50	2.25	2.50	3.00	3.00	2.50	1.75
25	Database Management System Lab	2.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	2.00
26	GUI Programming and Data Structures (Using Java) Lab	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	3.00	3.00	2.50
27	Object Oriented System Development	2.00	1.00	1.25	1.75	0.75	0.50	1.75	1.50	2.25	1.75	1.75
28	Web Technologies	2.75	2.50	3.00	2.50	2.00	1.00	2.50	3.00	3.00	2.50	3.00
29	Advanced Java Programming	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.75	3.00	2.50
30	Web Technologies Lab	2.50	3.00	2.50	2.00	3.00	1.00	3.00	3.00	2.50	2.50	3.00
31	Advanced Java Programming Lab	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.00	3.00	3.00
32	Software Testing	1.50	2.50	2.50	2.00	2.00	1.25	2.75	1.50	1.50	0.00	2.25
33	Information Security	2.00	1.50	2.25	3.00	2.00	2.00	2.50	3.00	2.00	0.25	2.00
34	E-Commerce	1.25	1.00	1.25	2.00	1.75	1.25	1.25	1.25	1.00	0.00	0.50
	<b>TOTAL</b>	<b>67.50</b>	<b>64.00</b>	<b>69.50</b>	<b>77.75</b>	<b>60.75</b>	<b>48.00</b>	<b>70.50</b>	<b>84.75</b>	<b>77.50</b>	<b>55.50</b>	<b>74.75</b>
	<b>PROGRAM OUTCOME TARGETS</b>	<b>1.99</b>	<b>1.88</b>	<b>2.04</b>	<b>2.29</b>	<b>1.79</b>	<b>1.41</b>	<b>2.07</b>	<b>2.49</b>	<b>2.28</b>	<b>1.63</b>	<b>2.20</b>

## PROGRAM ATTAINMENTS

Bhavan's Vivekananda College of Science, Humanities and Commerce Sainikpuri, Secunderabad - 500094 Autonomous College - Affiliated to Osmania University Re-Accredited with 'A' grade by NAAC													
Name of the Program: BCA													
Batch : 2019-22													
			Program Outcomes								Program Specific Outcomes		
	Course/POs	Course Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
1	Environmental Studies	3	0.00	1.00	1.50	2.00	2.00	2.50	2.50	3.00	2.00	0.00	2.00
2	Programming in 'C'	3	2.75	2.50	2.00	1.50	1.00	1.25	1.50	2.00	2.00	2.00	2.25
3	Fundamentals of Information Technology	3	2.00	2.00	1.75	1.75	1.75	1.00	2.00	2.50	1.25	1.00	1.00
4	General English	3	0.75	0.25	1.75	2.00	3.00	2.25	2.25	3.00	2.50	0.75	1.75
5	Information Systems Theory and Applications	3	2.25	1.75	1.75	2.25	3.00	2.00	3.00	2.50	2.00	0.00	3.00
6	Programming in C Lab	3	3.00	3.00	2.50	2.50	1.00	2.50	2.00	3.00	1.50	2.00	3.00
7	Fundamentals of Information Technology Lab	3	2.50	1.50	1.50	1.00	2.50	1.00	1.00	1.50	2.00	1.00	2.00
8	Programming in C++	3	2.75	2.75	2.75	2.25	2.25	1.00	2.00	2.00	2.75	1.75	2.75
9	IT Hardware	3	2.50	1.75	2.00	2.00	2.25	1.00	1.75	2.00	2.25	2.00	2.00
10	Gender Sensitization	3	0.00	0.00	2.50	2.00	1.50	2.50	2.50	2.50	2.50	0.00	2.00
11	Data Communication and Networking	3	2.50	2.00	1.75	1.75	1.00	1.50	1.25	2.75	1.75	2.25	2.00
12	Organizations and Functions	3	0.25	0.75	1.75	2.50	1.75	2.00	3.00	2.75	2.50	0.25	1.75
13	Programming in C++ Lab	3	2.50	2.50	2.50	2.00	2.00	1.00	2.00	2.00	3.00	1.00	2.50
14	IT-Hardware Lab	3	2.00	2.00	2.00	2.00	1.50	1.00	2.00	2.50	2.00	1.00	2.50
15	System Analysis and Logical Design	3	1.50	1.00	1.25	2.00	2.00	0.75	2.00	1.75	1.25	0.00	1.25
16	Operating Systems	3	2.00	2.50	0.50	2.75	2.00	1.00	2.75	2.75	3.00	3.00	3.00

17	Object Oriented Programming with Java	3	2.00	2.00	2.00	3.00	1.00	1.00	2.25	3.00	2.75	2.00	2.00
18	Mobile Computing	3	2.50	2.75	2.75	2.50	3.00	1.50	2.50	3.00	3.00	2.50	2.25
19	Operating Systems Lab	3	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
20	Object Oriented Programming with Java Lab	3	2.00	2.50	3.00	3.00	1.00	1.00	2.00	3.00	3.00	3.00	2.00
21	Internet Protocols	3	3.00	2.00	2.75	3.00	2.25	3.00	2.00	3.00	3.00	3.00	3.00
22	Database Management System	3	2.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	2.00
23	GUI Programming and Data Structures (Using Java)	3	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.50	2.50	2.50
24	Artificial Intelligence	3	2.75	3.00	2.50	2.75	1.50	2.25	2.50	3.00	3.00	2.50	1.75
25	Database Management System Lab	3	2.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	2.00
26	GUI Programming and Data Structures (Using Java) Lab	3	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	3.00	3.00	2.50
27	Object Oriented System Development	3	2.00	1.00	1.25	1.75	0.75	0.50	1.75	1.50	2.25	1.75	1.75
28	Web Technologies	3	2.75	2.50	3.00	2.50	2.00	1.00	2.50	3.00	3.00	2.50	3.00
29	Advanced Java Programming	3	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.75	3.00	2.50
30	Web Technologies Lab	3	2.50	3.00	2.50	2.00	3.00	1.00	3.00	3.00	2.50	2.50	3.00
31	Advanced Java Programming Lab	3	2.00	2.00	2.00	3.00	1.00	1.00	2.00	3.00	2.00	3.00	3.00
32	Software Testing	3	1.50	2.50	2.50	2.00	2.00	1.25	2.75	1.50	1.50	0.00	2.25
33	Information Security	3	2.00	1.50	2.25	3.00	2.00	2.00	2.50	3.00	2.00	0.25	2.00
34	E-Commerce	3	1.25	1.00	1.25	2.00	1.75	1.25	1.25	1.25	1.00	0.00	0.50
	<b>TOTAL</b>		<b>67.50</b>	<b>64.00</b>	<b>69.50</b>	<b>77.75</b>	<b>60.75</b>	<b>48.00</b>	<b>70.50</b>	<b>84.75</b>	<b>77.50</b>	<b>55.50</b>	<b>74.75</b>

