

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

**BCA**

**Program Outcomes**

**P01 Knowledge:** Acquire knowledge in computer application theory, algorithm principles, mathematical foundations and statistical analysis in the design and modelling of computer based systems.

**P02 Problem Solving:** Analyze and apply latest technologies to solve problems in the areas of computer applications.

**P03 Skills:** Apply programming, technical and professional skills to become a software entrepreneur.

**P04 Adaptability:** Adapt to the fast changing world of information technology needs.

**P05 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.

**P06 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.

**P07 Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**P08 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**

**PS01** 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(2016-19 & 2017-20)**

**Semester I:**

<b>Name of the Course</b>	<b>Discrete Mathematics</b>
<b>Course Code</b>	<b>BCA141</b>
CO1	To familiarise the concept of sets and its pictorial representation and its properties
CO2	To familiarise the concept of permutations and combinations
CO3	To familiarise the concept of Graphs and Trees
CO4	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>
CO1	Write basic programs on their own using C.
CO2	Get equipped to use control statements, decision making and looping statements.
CO3	Use the concepts of arrays, strings and functions
CO4	Use the concepts of structure, unions, pointers and preprocessors

<b>Name of the Course</b>	<b>Fundamentals of Information Technology</b>
<b>Course Code</b>	<b>BCA143</b>
CO1	Be familiarized with basic components of a Computer System.
CO2	Be familiarized with basic Operating System & Database concepts
CO3	Get knowledge about networks & its Components.
CO4	Be familiarized about internet and its applications.

<b>Name of the Course</b>	<b>General English</b>
<b>Course Code</b>	<b>BCA144</b>
CO1	Acquire basic foundation of grammar and its usage.
CO2	Improve communication skills
CO3	Improve writing skills
CO4	Develop study skills

<b>Name of the Course</b>	<b>Information Systems Theory and Applications</b>
<b>Course Code</b>	<b>BCA145</b>
CO1	Be familiarized with the basics of Information System concepts.
CO2	Learn planning and development of Information Systems .
CO3	Be solving the problems and finding out solutions by decision making in an organization.
CO4	Learn marketing research process 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	Write basic C++ programs on their own.
CO2	Get equipped to use the functions and object oriented programming concepts.
CO3	Use the concepts of inheritance and polymorphism.
CO4	Use the concepts of templates and exception handling.

<b>Name of the Course</b>	<b>IT Hardware</b>
<b>Course Code</b>	<b>BCA242</b>
CO1	Be familiar with computer, hardware, software and bus structure, Be able to identify the different motherboard components connected to a computer
CO2	Be familiar with processors, power supply and power protection systems with backup
CO3	Be able to assemble a system and install various drivers and operating systems.
CO4	Be able to troubleshoot and understand the basics of boot sequences, methods and startup utilities

<b>Name of the Course</b>	<b>Effective Documentation and Presentation</b>
<b>Course Code</b>	<b>BCA243</b>
CO1	Acquire Comprehension skills
CO2	Improve reference skills.
CO3	Acquire Correspondence skills for day to day business operations.
CO4	Acquire advanced writing skills.

<b>Name of the Course</b>	<b>Data Analysis</b>
<b>Course Code</b>	<b>BCA244</b>
CO1	Be able to collect and analyze data.
CO2	Apply Statistical Methods for analyzing data.
CO3	Be familiar to perform statistical tests for analyzing data.
CO4	Compute and interpret Correlation Analysis, regression lines and multiple regression analysis with applications.

<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	Be able to plan and control projects.
CO3	Be able to make best decisions for investments.
CO4	Be ready to do marketing and sales with respective to products

<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>Effective Communication</b>
<b>Course Code</b>	<b>BCA341</b>
CO1	Be equipped with better writing skills.
CO2	Be equipped with aural skills.
CO3	Be equipped with oral skills.
CO4	Be equipped with presentation skills for effective communications.

<b>Name of the Course</b>	<b>Data Communication and Networking</b>
<b>Course Code</b>	<b>BCA342</b>
CO1	Be familiarized with fundamental concepts and terminologies in networking, seven layers of OSI model and digital transmission.
CO2	Be familiarized with analog transmission, transmission media and know about FDM, TDM. (Multiplexing techniques) and switching networks.
CO3	Acquire a sound knowledge about data link layer functionalities such as error detection, DLL protocols, LANs and connecting LANs.
CO4	Have a thorough understanding in functionalities of network layer such as addressing, internet protocols, mapping, forwarding, delivering and routing.

<b>Name of the Course</b>	<b>Operating Systems</b>
<b>Course Code</b>	<b>BCA343</b>
CO1	To impart knowledge of operating system services before learning how these services are implemented.
CO2	To understand a process and how it is synchronized and scheduled.
CO3	Be Familiarized with the different approaches of memory management.
CO4	Be able to familiarize with the structure and organization of file system.



<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>Gender Sensitization</b>
<b>Course Code</b>	<b>BCA345</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
CO3	Propagate ideas of gender sensitisation at the personal and professional level.
CO4	Examine the effectiveness of the legal rights that are framed under Indian constitution to prevent gender discrimination.

<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>Environmental Studies</b>
<b>Course Code</b>	<b>BCA441</b>
CO1	Ability to get the message across that over-exploitation of Earth will lead to destruction of Humanity.
CO2	Ability to connect with real-life situations through field trips and social service.
CO3	Ability to take initiatives and explore innovative ways to conserve biodiversity and natural resources
CO4	Examine the various acts under environmental legislation that have been framed to save the earth.

<b>Name of the Course</b>	<b>Mobile Computing</b>
<b>Course Code</b>	<b>BCA442</b>
CO1	Acquire knowledge on Multiplexing and Modulation Techniques.
CO2	Acquire knowledge on Medium Access Control and IEEE Standard 802.11.
CO3	Be familiar with functionalities of Mobile Network Layer and Mobile Transport Layer.
CO4	Be familiar with functionalities of WAP and Wireless Markup Language Scripting.

<b>Name of the Course</b>	<b>Database Management System</b>
<b>Course Code</b>	<b>BCA443</b>
CO1	To impart knowledge of basic database concepts.
CO2	Be able to represent data through ER and EER Models
CO3	Gain knowledge about Concurrent transactions, backup and recovery techniques
CO4	Understand technical and managerial roles of Database Administration & Data Administrator.

<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>System Analysis and Logical Design</b>
<b>Course Code</b>	<b>BCA445</b>
CO1	Be able to analyze different types of skills that are required for a System Analyst.
CO2	Be able to identify and select System Development Projects.
CO3	Be able to determine System Requirements & draw Data Flow Diagrams.
CO4	Be able to draw Decision Trees & Tables and also able to acquire knowledge on designing Interfaces & Dialogues.

<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>Internet Protocols</b>
<b>Course Code</b>	<b>BCA541</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>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	Students will be able to design static web pages and design simple web pages using scripting language (JavaScript).
CO2	Students will be able to design dynamic web pages using DHTML and design web pages using XML.

<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>Information Security</b>
<b>Course Code</b>	<b>BCA641a</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>System and Network Administration</b>
<b>Course Code</b>	<b>BCA642a</b>
CO1	Students will acquire knowledge on UNIX Essential Administrative Tools and Techniques, Startup and Shutdown process.
CO2	Students will acquire knowledge on User and Groups Account Management and Managing System Resources.
CO3	Students will acquire knowledge on Maintenance of File System, Secondary Storage Devices and Backup Techniques.
CO4	Students will Be familiar with functionalities of TCP/IP and E-Mail.

<b>Name of the Course</b>	<b>Software Testing</b>
<b>Course Code</b>	<b>BCA643a</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>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.