

## Department of BCA (Bachelor of Computer Application)

Duration : 3 Years Affiliation : ABVV, Bilaspur (C.G.)

S.No.	Department of Computer Applications	After successful completion of three years degree program in BCA
1.	<b>Programme Outcomes</b>	<ol style="list-style-type: none"><li>1- Enabled students to develop problem solving competence while using computer.</li><li>2- Skills and analytical abilities in computer based solutions developed in students.</li><li>3- To Act as a Bridge between Academic and Industry by involving the Industry needs in every aspects of learning and training.</li><li>4- Developed awareness about automation.</li><li>5- Trained students in professional skills.</li><li>6- Understood the issues of Green Computing.</li><li>7- Developed the skills necessary in career of Computer Applications.</li><li>8- Develop practical skills to provide solutions to Industry, Society and Business.</li></ol>
2.	<b>Programme Specific Outcome</b>	<ol style="list-style-type: none"><li>1- Produced knowledgeable and skilled human resources which employable in IT and ITES.</li><li>2- Imparted knowledge required for planning, designing and building Complex Application Software Systems.</li><li>3- Provided support to automated systems or application.</li><li>4- Produced entrepreneurs who developed customized solutions for small and medium Enterprises.</li><li>5- To engage in Professional Development and to pursue Post Graduation in the field of IT(Information Technology) and Computer Application.</li></ol>

**Course Outcomes of BCA (Bachelor of Computer Applications)**  
**BCA - I**

<b>S.No.</b>	<b>Course</b>	<b>Outcomes</b>
<b>1</b>	<b>Paper- III Discrete Mathematics</b>	<ol style="list-style-type: none"><li>1. Mathematical reasoning: Students are expected to use mathematical reasoning in order to read, comprehend, and construct mathematical arguments. Students will learn basic concepts of mathematical logic and proof.</li><li>2. Combinatorial analysis: Students will count or enumerate objects and perform combinatorial analysis.</li><li>3. Discrete structures: Students will learn the basic concepts of sets, permutations, relations, graphs, trees and finite state machines. Students will represent discrete objects and relationships using abstract mathematical structures.</li><li>4. Algorithmic thinking: Students will verify whether an algorithm works well and perform analysis in terms of memory and time.</li><li>5. Applications and modeling: Discrete mathematics has been used in numerous applications. Students will formulate and model problems with the concepts and techniques of discrete mathematics.</li></ol>
<b>2</b>	<b>Paper- IV Computer Fundamental and Concepts of Software</b>	<ol style="list-style-type: none"><li>1. Use technology ethically, safely, securely, and legally.</li><li>2. Identify and analyze computer hardware, software, and network components.</li><li>3. Design basic business web pages using current HTML/CSS coding standards.</li><li>4. Install, configure, and remove software and hardware.</li><li>5. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems.</li><li>6. Apply standard statistical inference procedures to draw conclusions from data.</li><li>7. Retrieve information and create reports from relational databases.</li><li>8. Make intelligent computer purchase decisions.</li><li>9. Analyze compression techniques and file formats to determine effective ways of securing, managing, and transferring data.</li></ol>

3

**Paper- V**  
**PC Software Packages and**  
**Programming in C**

1. Demonstrate a basic understanding of computer hardware and software.
2. Demonstrate problem-solving skills.
3. Apply logical skills to programming in a variety of languages.
4. Utilize web technologies.
5. Present conclusions effectively, orally, and in writing.
6. Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.
7. Demonstrate an understanding of computer programming language concepts.
8. To be able to develop C programs on linux platform.

4

**Paper- VI**  
**Data Structure**

- 1- Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms .
- 2- Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
- 3- Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs.
- 4- Demonstrate different methods for traversing trees.
- 5- Compare alternative implementations of data structures with respect to performance.
- 6- Compare and contrast the benefits of dynamic and static data structures implementations.
- 7- Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack.
- 8- Design and implement an appropriate hashing function for an application.
- 9- Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

**Course Outcomes of BCA (Bachelor of Computer Applications)**  
**BCA – II**

<b>S.No.</b>	<b>Course</b>	<b>Outcomes</b>
1	<b>Paper- III Operating System</b>	<p>1-To understand the objectives, structure and functions of operating system.</p> <p>2-To learn about concept of processes, threads and its scheduling algorithms.</p> <p>3-To understand design issues in process synchronization and deadlock management.</p> <p>4-To study various memory management schemes.</p> <p>5-To learn about concept file and I/O management in detail.</p>
2	<b>Paper- IV Digital Electronics and Microprocessor</b>	<p>1- Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.</p> <p>2- To understand and examine the structure of various number systems and its application in digital design.</p> <p>3- The ability to understand, analyze and design various combinational and sequential circuits.</p> <p>4- Ability to identify basic requirements for a design application and propose a cost effective solution.</p> <p>5- The ability to identify and prevent various hazards and timing problems in a digital design.</p> <p>6- To develop skill to build, and troubleshoot digital circuit.</p>
3	<b>Paper- V Computer Networks and Cyber Technology</b>	<p>1- Describe the functions of each layer in OSI and TCP/IP model.</p> <p>2- Explain the functions of Application layer and Presentation layer paradigms and Protocols.</p> <p>3- Describe the Session layer design issues and Transport layer services.</p> <p>4- Classify the routing protocols and analyze how to assign the IP addresses for the given network.</p> <p>5- Describe the functions of data link layer and explain the protocols.</p> <p>6- Explain the types of transmission media with real time.</p>

4

**Paper- VI**  
**Object Oriented Programming**  
**Using C++**

- 1- Understand object oriented programming.
- 2- Be able to explain the difference between object oriented programming and procedural programming.
- 3- Be able to program using C++ features such as Class, objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling, etc.
- 4- Be able to build C++ classes using appropriate encapsulation and design principles.
- 5- Improve problem solving skills.
- 6- Be able to apply object oriented or non-object oriented techniques to solve bigger computing problems.

5

**Paper -VII**  
**Computer Graphics and**  
**Multimedia**

- 1- Introduction: History of computer graphics, graphics architectures and software, imaging: pinhole camera, human vision, synthetic camera, modeling vs rendering.
- 2- Geometric transformations: affine transformations (translation, rotation, scaling, shear), homogeneous coordinates, concatenation, current transformation and matrix stacks.
- 3- Three dimensional graphics: classical three dimensional viewing, specifying views, affine transformation in 3D, projective transformations.

**Course Outcomes of BCA (Bachelor of Computer Applications)  
BCA – III**

S.No.	Course	Outcomes
1	<b>Paper- III Computer Organization and Architecture</b>	1- Describe the fundamental organisation of a computer system. 2- Explain the functional units of a processor  3- Explain addressing modes, instruction formats and program control statements .  4- Distinguish the organization of various parts of a system memory hierarchy.  5- Describe basic concept of parallel computing.  6 Describe fundamentals concepts of pipeline and vector processing.
2	<b>Paper- IV Software Engineering</b>	1-To investigate principles of Object Oriented Software Engineering from analysis to testing.  2- o learn software development life cycle for object oriented solutions for real world problems.  3- o learn software development life cycle for object oriented solutions for real world problems.
3	<b>Paper- V Introduction to RDBMS (Oracle)</b>	1- Describe the fundamental elements of relational database management systems.  2- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. 3- Design ER-models to represent simple database application scenarios.  4- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.  5- Improve the database design by normalization.  6- Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.
4		1- Students are able to developa dynamic webpages by the use

of the .JAVA Script and HTML.

**Paper- VI**  
**Web Technology**

2- Students will be familiar with client server architecture and able to develop a web applications.

3- Students will gain the skills and project based experience needed for entry into web application and development careers.

5

1- Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.

**Paper- VII**  
**Numerical Analysis**

2- Apply numerical methods to obtain approximate solutions to mathematical problems.

3- Analyse and evaluate the accuracy of common numerical methods.

4- Implement numerical methods in Matlab.