Government College, Chhachhrauli (Yamuna Nagar)

COURSE : BACHELOR OF COMPUTER APPLICATIONS (BCA)

Program Outcome
Bachelor of Computer Applications (BCA) is a three-year degree program recognized by Kurukshetra University, Kurukshetra and follows the syllabus prescribed by the university. After completing the three-year degree program, students will be able to attain Programming Skills, Critical Thinking Skills and Employability Skills in the field of Software/IT industry. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate program of their choice.

Course Outcome
Year: 1st Semester: 1st
Course: BCA-111 Computer and Programming Fundamentals
Students will learn about • The Organization & Operation of a Computer System • Functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices • System software and Application software • Developing Algorithms for solving for different problems • Using the internet safely, legally, and responsibly
Course: BCA-112 Windows and PC Software
Students will learn about • Understanding Windows operating System • Understanding Spreadsheet Software basics
Course: BCA-113 Mathematical Foundations-I
Students will learn about • Propositional theory fundamentals • Various binary operations on Groups, Subgroups, Rings • Theory of Matrices and their laws, ranking, eigen value/vector
Course: BCA-114 Logical Organization of Computers-I
Students will learn about • Understanding Number Systems, Binary Arithmetic Calculation • How to design Logical Gates, design of Circuits, design of K-Map • How to design Encoder, Decoder, Multiplexer, Demultiplexer
Course: BCA-115 Communicative English
After successful completion of the course the students will be able to understand • The importance of certain skills of composition i.e. letter writing, email writing, fax

writing and text messages in conveying the message in desired manner • The importance of language in the development of literature and vice versa • Various types of literary genres and their role in the development of literature, culture and language and in understanding the complexity of various social issues • The importance of certain grammatical components in daily use to effectively conveying the message
Course: BCA-116 Programming in C
Upon successful completion of the course, Students will be able to • Learning to write programs in C • Learn and develop various controls and branching of logics under various cases using language control structures • Write programs in C language to generate various situations and solving daily routing arithmetic and logical concepts
Year: 1st Semester: 2nd
Course:BCA-121 Advanced Programming in C
Upon successful completion of the course, students will be able to • Develop algorithm for arithmetic and logical problems and write programs in C • Understand the concept of arrays, pointer and other user defined structures • Handle strings and files
Course:BCA-122 Logical Organization of Computers – II
Students will learn about • How to design Filp Flops, Registers, Counters. • Understand the concept of Addressing Modes, Instruction Sets, DMA
Course:BCA-123 Mathematical Foundations-II
Students will learn about • Basics of Set theory • Differential Equations, their types such as ordinary and linear • Applications of differential equations to geometry
Course:BCA-124 Office Automation Tools
Students will learn about • Desktop Publishing using PageMaker • Understanding Word processing Software basics • Understanding Presentation Software basics
Course:BCA-125 Structured System Analysis and Design
Students will learn about • Describe principles, concepts and practice of System Analysis and Design process • Explain the processes of constructing the different types of information systems

- Understand the various software development life cycle models and system documentation
- Learn the concept of system testing, evaluation and performance

Course:BCA-126 Personality Development

After successful completion of the course the students will be able to understand:

- The importance of language for effective communication and transmission of information, ideas, thoughts and emotions in the desired manner
- The value of Personality traits and how to polish their inherent personality traits in order to present themselves according to the situations
- The importance of personal hygiene, body language and art of good conversation and intelligent listening so as to make good impression on others
- The meaningfulness of certain grammatical components like resume writing, review and how to use these in official written communication

Course:BCA-131 Lab-I Based on BCA-112 & BCA-124

Students will learn about

- Hands-on experience of Windows Operating System
- Working with Desktop Publishing
- Developing Word processing, Spreadsheet Processing and Presentation documents

Course:BCA-132 Lab – II Based on BCA-116 & BCA-121

Learning Outcomes: Upon successful completion of the course, Students will be able to

- Learning to write programs in C
- Write programs in C language to generate various situations and solving daily routing arithmetic and logical concepts
- Programming about the concept of arrays, pointer and other user defined structures
- Developing programs using strings and files

Year: 2nd Semester: 3rd

Course:BCA-231 Object Oriented Programming Using C++

Students will learn about

- Understand Object-oriented Programming Concepts
- Understand Tokens in C++, Control Structures, Functions, Classes
- Understand Constructors , Operator Overloading

Course:BCA-232 Data Structures

Students will learn about

- Use appropriate data structures for problem solving and programming
- Use algorithmic foundations for solving problems and programming
- Apply appropriate searching and/or sorting techniques for application development
- Develop programming logic and skills

Course:BCA-233 Computer Architecture

Students will learn about

- Explain the organization of basic computer, its design and the design of control unit
- Demonstrate the working of central processing unit and RISC and CISC Architecture
- Describe the operations and language f the register transfer, micro operations and input- output organization
- Understand the organization of memory and memory management hardware

Course:BCA-234 Software Engineering

Students will learn about

- Understand the basic concepts of software engineering
- Understand the requirement analysis and importance of SRS documentation
- Understand the designing principles of software product
- Understand the process of Software development
- Understand and plan the Software development
- Understand and implement the Coding
- Apply various software measures and metrics for estimation

Course:BCA-235 Fundamentals of Data Base Systems

Students will learn about

- Database Systems and its architecture
- Various Database Models
- Relational Database Management System

Course:BCA-236 Computer Oriented Numerical Methods

Students will learn about

- Numerical methods for solving mathematical problems
- Various numerical approximation techniques
- Numerical algorithms used and their implementation on computer
- Locating error in these methods and as well the analysis to be performed

Year: 2nd Semester: 4th

Course:BCA-241 Advanced Data Structures

Students will learn about

- Basic ability to analyze algorithms and to determine algorithm correctness and time efficiency class
- Master a variety of advanced abstract data type (ADT) and data structures and their implementations
- Master different algorithm design techniques (brute-force, divide &conquer, greedy, etc.)
- Ability to apply and implement learned algorithm design techniques and data structures

to solve problems
Course:BCA-242 Advanced Programming using C++
Students will learn about • Understand Virtual Function and Pure Virtual Function • Understand Different types of Inheritance • How to Control Errors with Exception Handling
Course:BCA-243 E-Commerce
Students will learn about • Basic concepts of E-Commerce, features, principles and types such as b2b, b2c, c2c, b2g, g2h, g2c • E-Governance and its models, Applications in B2C(Business to Customer) • Various online services such as travel tourism, financial, banking and stock trading system • Architectural models of B2B , marketing issues in B2B, Emerging models in India
Course: BCA-244 Relational Data Base Management System
Students will learn about • Relational Database Model Concepts • Functional Dependencies • SQL and PL/SQL fundamentals
Course:BCA-245 Computer Oriented Statistical Methods
Students will learn about • Basics of Statistics, Measure of dispersion, Deviation types (Quartile, Mean etc.) • The concepts of probability distributions, its types such as Binomial, Poisson etc. • Significance of Regression, its analysis • Sampling theory, Hypothesis testing and its significance
Course:BCA-246 Management Information System
Students will learn about • Fundamentals of Management strategies • Importance of knowledge in Management information systems • Exposure to Some basic decision support systems and information systems
Course:BCA -251 Lab – I Based on BCA-231 & BCA-242
Students will learn about • Basic C++ Program using i/o variables and structures • Implementation of object oriented programming concepts using class and objects • Development of applications using stream I/O and file I/O. • Exceptional handling concepts
Course:BCA -252 Lab – II Based on BCA-232 & BCA-241

At the end of this lab session, the student will be able to • Design and analyze the time and space efficiency of the data structure • Identity the appropriate data structure for given problem • Have practical knowledge on the applications of data structures
Year: 3rd Semester: 5th
Course:BCA-351 Web Designing Fundamentals
Upon successful completion of the course, students will be able to • Structure of Internet and Web • Use simple features of HTML to create, save and view basic web pages
Course:BCA-352 Operating System-I
Students will come to know about • Describe the important computer system resources and the role of operating system in their management • Understand the process management policies and scheduling of processes by CPU • Analyze the Deadlock situations and their handling methods • Describe and analyze the memory management and its allocation policies • Concepts of File management and File system implementation
Course:BCA-353 Artificial Intelligence
Students will learn about • Core concepts of Artificial Intelligence • Basic principles used in solutions to AI based problems • Application of AI techniques to real-world problems to develop intelligent systems • Designing an Expert System, Knowledge Base, Inference, Rule-base system
Course:BCA-354 Computer Networks
Students will learn about • Fundamentals of computer networking such as types of Networks, Topologies, Connections and Services • Working of reference models of data communication such as OSI and TCP/IP • Working of Networking Devices such as Hub, Repeater, Switch, Bridge, Router and Gateway • Routing algorithms/strategies used by router
Course:BCA-355 Programming Using Visual Basic
Students will learn about • Event-driven Programming Concepts • Basic Constructs of Visual Basic Programming Language
Course:BCA-356 Multimedia Tools
Students will come to know about

- Understand multimedia in respect to many application including business, schools, home, education, and virtual reality
- Work with all aspects of images
- Work with all aspects of sound
- Work with all aspects of video

Year: 3rd Semester: 6th

Course:BCA-361 Web Designing Using Advanced Tools

Students will learn about

- Creating web pages using HTML, Cascading Style Sheets and VBScript.
- Writing XML documents and Schemas.

Course:BCA-362 Operating System-II

Students will learn about

- Critical Section, Semaphore based Solutions to Bounded buffer, Reader Writer, Dining Philosopher problems
- Various types of Disk Scheduling Algorithms (FCFS, SJF, LOOK, SCAN etc.)
- Various Linux/UNIX commands
- Effective use of Linux utilities
- File system, Process and Signal Management
- Shell programming

Course:BCA-363 Computer Graphics

Students will learn about

- Understanding the basics of computer graphics, different graphics systems and applications of computer graphics.
- Learn various algorithms for scan conversion of line, circle and ellipse.
- Use of 2D and 3D geometric transformations on objects
- Discussion of different clipping algorithm and Projection such as Parallel/Perspective views

Course:BCA-364 Internet Technologies

Students will learn about

- Understand the concept of Internet
- Learn about various protocols
- Learn about working on Internet
- Learn and work on various Internet Applications

Course:BCA-365 Advanced Programming with Visual Basic

Students will learn about

- Advanced Constructs of Visual Basic Programming Language
- File Handling using Visual Basic Programming Language

• Database Handling using Visual Basic Programming Language
Course:BCA-366 Programming in Core Java
Students will learn about • JVM basics, Data types and Operators, Strings • Basic concepts of classes and objects • Fundamentals of OOPs as well as the purpose and usage principles of Inheritance, polymorphism, encapsulation etc. • The concept of Exceptional Handling/Event Handling & Java I/O Handling
Course:BCA-371 Lab – I Based on BCA-351 & 361
Students will learn about • Using HTML features to create, save and view basic web pages • Creating web pages using HTML, Cascading Style Sheets and VBScript • Writing XML documents and Schemas • Using Macromedia Flash, Macromedia Dreamweaver, PHP and Microsoft FrontPage
Course:BCA-372 Lab – II Based on BCA-355 & 365
Students will learn about • Understanding Visual Basic Integrated Development Environment (IDE) • Developing programs using Visual Basic Programming Language