AJK COLLEGE OF ARTS AND SCIENCE
An Eco-friendly College
STARS RISE HERE...
An ISO Certified Institution - 21001 : 2018
An Institution Accredited by NAAC
Affiliated to Bharathiar University, Coimbatore. Approved by Govt. of Tamilnadu.
Recognized by UGC, New Delhi under section 2(f) and 12(B).
14 YEARS OF ACHIEVING EXCELLENCE

Programme Name: BACHELOR OF COMPUTER APPLICATIONS (BCA)
Program Code: 22J

Graduate attributes:

GA1	Domain Knowledge	**Knowledge**
GA2	Domain Analysis	
GA3	Design and Development of Solutions	
GA4	Communication Skills	**Skills**
GA5	Innovative and Entrepreneurial Skills	
GA6	Leadership and Management Skills	
GA7	Individual and Team Work	**Attitude**
GA8	Ethical and Social Responsibility	
GA9	Life-long Learning	

Programme Educational Objectives (PEOs)	
The **BCA** program describe accomplishments that graduates are expected to attain within five to seven years after graduation	
PEO 1	To impart advance knowledge about various sub-domains related to the field of computer applications
PEO 2	To provide the strong character to uphold the spiritual and cultural values of our country to make students acceptable to both industries and higher education.
PEO 3	Graduates will be capable of attaining higher position in their professional carrier, capable to do quality research by strengthening their mathematical, scientific and basic engineering fundamentals.
PEO 4	Graduate will be capable of adopting the changing technologies, tools, and industrial environment.
PEO 5	Graduates will promote collaborative learning and spirit of team work through multidisciplinary projects and diverse professional activities.

Programme Specific Outcomes (PSOs)	
After the successful completion of BCA program, the students are expected to	
PSO 1	Develop proficiency in problem solving and logical thinking skill.
PSO 2	To impart the knowledge of programming languages, web designing, networking and Software development cycle.
PSO 3	Enrich the communicative ability to present orally throughout all the stages of Software development process
PSO 4	Learn latest development and technologies in IT and Communications system.

PSO 5	Implementation of professional engineering solutions for the betterment of society keeping the environmental context in mind, be aware of professional ethics and be able to communicate effectively.

Programme Outcomes (POs)	
On successful completion of the BCA program	
PO1	**Disciplinary knowledge:** Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.
PO2	**Scientific reasoning/ Problem analysis**: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.
PO3	**Problem solving:** Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
PO4	**Environment and sustainability:** Understand the impact of software solutions in environmental and societal context and strive for sustainable development.
PO5	**Modern tool usage:** Use contemporary techniques, skills and tools necessary for integrated solutions.
PO6	**Ethics:** Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.
PO7	**Cooperation / Team Work:** Function effectively as member or leader on multidisciplinary teams to accomplish a common objective.
PO8	**Communication Skills:** An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.
PO9	**Self-directed and Life-long Learning:** Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.
PO10	Enhance the research culture and uphold the scientific integrity and objectivity

COURSE OUTCOME (CO's)

SEMESTER - I

Course Name: Computing Fundamentals and C Programming

#	Course Outcome	
CO1	Learn about the Computer fundamentals and the Problem solving	**K2**
CO2	Understand the basic concepts of C programming	**K2**
CO3	Describe the reason why different decision making and loop constructs are available for iteration in C	**K3**
CO4	Demonstrate the concept of User defined functions , Recursions , Scope and Lifetime of Variables, Structures and Unions	**K4**
CO5	Develop C programs using pointers Arrays and file management	**K3**

Course Name: Programming Lab- C

#	Course Outcome	
CO1	Remember and Understand the logic for a given problem and to generate Prime numbers & Fibonacci Series **(Program-1,2,3)**	K1, K2
CO2	Apply the concepts to print the Magic square, Sorting the data , Strings, Recursive functions and Pointers **(Program-4,5,6,8,10)**	K2, K3
CO3	Remember the logic used in counting the vowels in a sentence **(Program-7)**	**K1**
CO4	Apply and Analyze the concepts of Structures and File management **(Program-9,11,12)**	K3&K4

Course Name: Digital Fundamental and Computer Architecture

#	Course Outcome	
CO1	Learn the basic structure of number system methods like binary, octal and hexadecimal and understand the arithmetic and logical operations are performed by computers.	K3
CO2	Define the functions to simplify the Boolean equations using logic gates.	K1
CO3	Understand various data transfer techniques in digital computer and control unit operations.	K2
CO4	Compare the functions of the memory organization	K4
CO5	Analyze architectures and computational designs concepts related to architecture organization and addressing modes	K4

SEMESTER - II

Course Name: C++ Programming

#	Course Outcome	
CO1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
CO2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
CO3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
CO4	Discover the usage of pointers with classes	K4
CO5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

Course Name: Programming Lab C++

#	Course Outcome	
CO1	Define the different programming paradigm such as procedure oriented and object oriented programming methodology and conceptualize elements of OO methodology	K1
CO2	Illustrate and model real world objects and map it into programming objects for a legacy system.	K2
CO3	Identify the concepts of inheritance and its types and develop applications using overloading features.	K3
CO4	Discover the usage of pointers with classes	K4
CO5	Explain the usage of Files, templates and understand the importance of exception Handling	K5

Course Name: Internet Basics Lab

#	Course Outcome	
CO1	Understand the fundamentals of Internet and the Web concepts	K2
CO2	Explain the usage of internet concepts and analyze its components.	K2
CO3	Identify and apply the online information resources	K3
CO4	Inspect and utilize the appropriate Google Apps for education effectively	K3,K4

SEMESTER - III

Course Name: Data Structures

#	Course Outcome	
CO1	Understand the basic concepts of data structures and algorithms	K1-K2
CO2	Construct and analyze of stack and queue operations with illustrations	K2-K4
CO3	Enhance the knowledge of Linked List and dynamic storage management.	K2-K3
CO4	Demonstrate the concept of trees and its applications	K2-K3
CO5	Design and implement various sorting and searching algorithms for applications and understand the concept of file organizations	K1-K4

Course Name: Java Programming

#	Course Outcome	
CO1	The competence and the development of small to medium sized application programs that demonstrate professionally acceptable coding	K1-K2
CO2	Demonstrate the concept of object oriented programming through Java	K2-K4
CO3	Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handling and data persistence to develop java program	K3
CO4	Develop java programs for applets and graphics programming	K3
CO5	Understand the fundamental concepts of AWT controls, layouts and events	K1-K2

Course Name: Programming Lab - Java

#	Course Outcome	
CO1	Understand the basic concepts of Java Programming with emphasis on ethics and principles of professional coding	K1, K2
CO2	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	**K2**
CO3	Create data files and Design a page using AWT controls and Mouse Events in Java programming Implement the concepts of code reusability and debugging.	K2, K3
CO4	Develop applications using Strings, Interfaces and Packages and applets	**K3**
CO5	Construct Java programs using Multithreaded Programming and Exception Handling	**K3**

Course Name: Skill based Subject1: Web Programming

#	Course Outcome	
CO1	Understand the basic concepts of Internet, WWW, browsers and Email and protocols.	K1
CO2	Understand and apply the HTML, HTML elements and formatting styles	K1-K3
CO3	Knowledge on creating tables, forms and DHTML	K3
CO4	Understand the structure of XML document, DTD and Schema	K1-K3
CO5	Knowledge on working with SML, Style sheets and XSL	K1-K4

SEMESTER - IV

Course Name: System Software and operating System

#	Course Outcome	
CO1	Know the program generation and program execution activities in detail	K1
CO2	Understand the concepts of Macro Expansions and Gain the knowledge of Editing processes	K2-K3
CO3	Remember the basic concepts of operating system	K1
CO4	Understand the concepts like interrupts, deadlock , memory management and file management	K2
CO5	Analyze the need for scheduling algorithms and implement different algorithms used for representation, scheduling, and allocation in DOS and UNIX operating system.	K1-K4

Course Name: Linux and Shell Programming

#	Course Outcome	
CO1	Describe the architecture and features of Linux Operating System and distinguish it from other Operating System.	K1
CO2	Develop Linux utilities to perform File processing, Directory handling, User Management and display system configuration	K2-K3
CO3	Develop shell scripts using pipes, redirection, filters and Pipes	K2
CO4	Apply and change the ownership and file permissions using advance Unix commands.	K3
CO5	Build Regular expression to perform pattern matching using utilities and implement shell scripts for real time applications.	K3-K6

Course Name: Programming Lab - Linux and Shell Programming

#	Course Outcome	
CO1	Develop Linux utilities to perform File processing, Directory handling and User Management	**K1, K2**
CO2	Understand and develop shell scripts using pipes, redirection, filters, Pipes and display system configuration	**K2-K3**
CO3	Develop simple shell scripts applicable to file access permission network Administration	**K3**
CO4	Apply and change the ownership and file permissions using advance Unix commands.	K4-K5
CO5	Create shell scripts for real time applications.	**K6**

Course Name: Skill based Subject2: Lab – Web Programming

#	Course Outcome	
CO1	Understand the problems and create applications in basics of web programming	**K2-K4, K6**
CO2	Understand and develop Web pages with formatting styles.	**K2-K3**
CO3	Apply the features in HTML to present the details given	**K3**
CO4	Analyze the problem, apply the concept for developing applications	K4-K5
CO5	Create web sites of real time applications	**K6**

SEMESTER - V

Course Name: RDBMS & ORACLE

#	Course Outcome	
CO1	Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization	**K1-K2**
CO2	Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.	**K1-K3**
CO3	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions.	**K1-K4**
CO4	Understand and use built-in functions and enhance the knowledge of handling multiple tables	**K1-K3**
CO5	Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	**K2-K4**

Course Name: Visual Basic

#	Course Outcome	
CO1	Demonstrate fundamental skills in utilizing the tools of a visual environment such as command, menus and toolbars.	**K1**
CO2	Implement SDI and MDI applications using forms, dialogs and other types of GUI components.	**K2**
CO3	Understand the connectivity between VB with MS-ACCESS database.	**K3**
CO4	Implement the methods and techniques to develop projects.	**K4**
CO5	Attain a good practical skill of managing ODBC and Data Access Objects	**K2-K4**

Course Name: Programming Lab- Visual Basic & Oracle

#	Course Outcome	
CO1	Understand the concepts of Visual Basic.	**K1**
CO2	Learn the advantages of Controls in VB	**K2**
CO3	Design and develop the event- driven applications using Visual Basic framework.	**K3**
CO4	Apply the knowledge of database methods.	**K4**
CO5	Learn basics of PL/SQL and develop programs using Cursors, Exceptions,Procedures and Functions	**K6**

Course Name: Elective 1- Introduction to Compiler Design

#	Course Outcome	
CO1	Understand the use of translators and complier, structure of a compiler	**K1**
CO2	Understand and apply the context free grammars and parsing techniques	**K1-K4**
CO3	Understand and remember the syntax directed translations, intermediate codes	**K2**
CO4	Understand the run time storage schems, error detection and recovery	**K3**
CO5	Understand and apply knowledge on code optimization and code generator	**K2-K4**

Course Name: Elective 1- PHP & Scripting Languages

#	Course Outcome	
CO1	Understand the basics of .VB script and Java script	**K1**
CO2	Understand the I/O handling, data validation, Activex control and validation	**K2**
CO3	Understand and remember the java script objects, form validations, cookies and plugins	**K2**
CO4	Understand the sever side scripting language basics	**K3**
CO5	Knowledge on PHP objects, cookies, connecting remote files, and database connections	**K2-K4**

Course Name: Elective 1- PYTHON Programming

#	Course Outcome	
CO1	Remembering the concept of operators, data types, looping statements in Python programming.	**K1**
CO2	Understanding the concepts of Input / Output operations in file..	**K2**
CO3	Applying the concept of functions and exception handling	**K3**
CO4	Analyzing the structures of list, tuples and maintaining dictionaries	**K4**
CO5	Demonstrate significant experience with python program development environment	**K4-K6**

Course Name: Skill based Subject3: Case tools concepts and Applications

#	Course Outcome	
CO1	Understand the basic concepts of software engineering	K1
CO2	Apply the software engineering models in developing software applications	K2-K3
CO3	Implement the object oriented design in various projects	K4
CO4	Knowledge on how to do a software project with in-depth analysis.	K3
CO5	To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.	K1-K4

SEMESTER - VI

Course Name: Graphics & Multimedia

#	Course Outcome	
CO1	Explain applications, principles, commonly used and techniques of computer graphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.	**K2**
CO2	Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces, Hidden Line/surface elimination techniques	**K3**
CO3	Studies concepts of Multimedia Systems, Text, Audio and Video tools	**K3**
CO4	Compressing audio and video using MPEG-1 and MPEG-2	**K4**
CO5	Creates Animation with special effects using algorithms	**K6**

Course Name: Project Work Lab

#	Course Outcome	
CO1	Formulate a real world problem and develop its requirements develop a design solution for a set of requirements.	**K3**
CO2	Test and validate the conformance of the developed prototype against the original requirements of the problem.	**K5**
CO3	Work as a responsible member and possibly a leader of a team in developing software solutions.	**K3**
CO4	Express technical ideas, strategies and methodologies in written form. Self-learn new tools, algorithms and techniques that contribute to the software solution ofthe project.	**K1-K4**
CO5	Generate alternative solutions, compare them and select the optimum one.	**K6**

Course Name: Programming Lab - Graphics & Multimedia

#	Course Outcome	
CO1	Understand the basic concepts of computer graphics.	**K1**
CO2	Design scan conversion problems using C and C++ programming.	**K2**
CO3	Apply clipping and filling techniques for modifying an object.	**K3**
CO4	Understand the concepts of different type of geometric transformation of objects in 2D.	**K4**
CO5	Understand and develop the practical implementation of modeling, rendering,viewing of objects in 2D	**K6**

Course Name: Elective 2- Computer Networks

#	Course Outcome	
CO1	Remember the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.	**K1**
CO2	Understand Internet structure and can see how standard problems are solved and the use of cryptography and network security.	**K2**
CO3	Apply knowledge of different techniques of error detection and correction to detect and solve error bit during data transmission.	**K3**
CO4	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	**K4**
CO5	Knowledge about different computer networks, reference models and the functions of each layer in the models	**K2-K4**

Course Name: Elective 2- Dot Net Programming

#	Course Outcome	
CO1	Understand the basics of .NET framework and the object oriented programming.	**K1**
CO2	Understand the procedures, File I/O, Error handling and Message queues.	**K2**
CO3	Understand and remember the components in VB.NET IDE, ADO.NET and also the window forms.	**K2**
CO4	Understand the HTML server controls, Web controls, Validation controls and state management and tracing.	**K3**
CO5	Knowledge on SOAP, building web services and deploying and publishing web services, Finding and consuming web services.	**K2-K4**

Course Name: Elective 2- Distributed Computing

#	Course Outcome	
CO1	Understand the concepts and techniques in distributed computing and client server computing.	**K1**
CO2	Understand the pros and cons of distributed processing, databases, challenges.	**K2**
CO3	Understand the design considerations in distributed computing	**K2**
CO4	Understand and analyse the client server network model, file server, printer server and email server.	**K3**
CO5	Understand and obtaining the Knowledge on distributed databases, R* project techniques.	**K2-K4**

Course Name: Elective 3- Internet of Things (IoT)

#	Course Outcome	
CO1	To understand the fundamentals of Internet of Things.	**K1**
CO2	To know the basics of communication protocols and the designing principles of Web connectivity.	**K2**
CO3	To gain the knowledge of Internet connectivity principles	**K2-K3**
CO4	Designing and develop smart city in IoT	**K2-K3**
CO5	Analyzing and evaluate the data received through sensors in IOT.	**K4-K5**

Course Name: Elective 3- Web Services

#	Course Outcome	
CO1	Understand about the distributed computing, web services, technologies and applications, XML document (WSDL) and the concepts of XML, protocol (SOAP), locating the remote web services	**K1**
CO2	Understand the concepts of UDDI and its specifications, Understand the concepts of system interface and its workflow, the common attacks.	**K2**
CO3	Examining the concepts of architecture of system to meet the user requirements and analyse the concepts of mobile and wireless services, Design and develop the real-world enterprise applications using web services.	**K3**
CO4	Analysing the steps necessary to build and deploy the web services.	**K4**
CO5	Applying the applications created based on the web services on different web servers.	**K4-K6**

Course Name: Elective 3- Software Testing

#	Course Outcome	
CO1	Explain the basic concepts and the processes that lead to software testing	**K2**
CO2	Design test cases from the given requirements using Black box testing techniques	**K3**
CO3	Identify the test cases from Source code by means of white box testing techniques	**K3**
CO4	Know about user acceptance testing and generate test cases for it	**K4**
CO5	Examine the test adequacy criteria to complete the testing process	**K4**

Course Name: Skill based Subject 4: Case tools Lab

#	Course Outcome	
CO1	Prepare the CASE tools for the given specification.	**K1, K2**
CO2	Understand and develop the UML diagram for real time applications.	**K2-K3**
CO3	Design the real time test cases	**K3**
CO4	Analyze the development of CASE tools	K4-K5
CO5	Design the CASE tools and generate VB code	**K6**