

KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

Re-accredited by NAAC with 'A+' Grade (4th Cycle)

College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF COMPUTER APPLICATIONS (UG)

COURSE OUTCOMES (CO)

BCA

For the students admitted in the Academic Year 2020-2021

Sub.Code: 20UCA101

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper C Programming			
Batch	Hours / Week	Total Hours	Credits
2020-2021	5	75	4

Course Objectives

1. To train the student to the basic concepts of the C-programming language.
2. To provide exposure to problem-solving through programming and to develop programming skills.
3. To impart adequate knowledge of programming languages and problem solving techniques.

Course Outcomes (CO)

K1 to K4	CO1	Developing programs using the control statements, Arrays and Strings.
	CO2	Understanding about the code reusability with the help of user defined functions.
	CO3	Developing programs using pointer, enumerated data types, function, Union and nested structures.
	CO4	Learning the file handling mechanism that is essential for storing and accessing data.

Sub.Code:20UCA1CL

Programme Code: 10	Bachelor of Computer Applications		
Title of the Paper C Programming Lab			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 2

Course Objectives

1. To introduce C Programming concepts to develop the programming knowledge.
2. To enhance their analyzing and problem solving skills and use the same for writing programs in C.
3. To guide the candidates to explore the fundamental building blocks in the programming language.

Course Outcomes (CO)

K1 to K4	CO1	Learning process helps in deep understanding the concepts of C language.
	CO2	Developing programs using control statements, Arrays and Strings.
	CO3	Enabling effective usage of arrays, structures, functions and pointers.
	CO4	Implementing the files and command line arguments.

Sub.Code: 20UCA202

Programme Code: 10	Bachelor of Computer Applications		
Title of the Paper	Object Oriented Programming with C++		
Batch 2020-2021	Hours / Week 4	Total Hours 60	Credits 4

Course Objectives

1. To perform object- oriented programming to develop solutions to problems demonstrating usage of control structures, modularity, I/O and other standard language constructs.
2. To develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.
3. To program using more advanced OOP's features such as objects, operator overloading, dynamic memory allocation, inheritance and polymorphism, File I/O.

Course Outcomes (CO)

K1 to K4	CO1	Understanding the features of C++ Programming.
	CO2	Understanding the advanced features of C++ specifically, Operator Overloading, Templates, Streams.
	CO3	Applying the major object-oriented concepts to implement programs, Inheritance and Polymorphism
	CO4	Implementing different Operations on Functions, Classes & Object, and Constructors.

Sub.Code : 20UCA203

Programme Code: 10	Bachelor of Computer Applications		
Title of the Paper Digital Fundamentals and Computer Organization			
Batch	Hours / Week	Total Hours	Credits
2020-2021	3	45	4

Course Objectives

1. To learn the concept of Digital Circuits, Circuit Constructions and Simplifications of Boolean function
2. To know the concept of Multiplexers, Flip-Flops and Registers and to familiarize the Memory Hierarchy and Peripheral Devices.
3. To understand the concepts of different types of languages and InstructionFormats.

Course Outcomes (CO)

K1 to K4	CO1	Understanding the Number systems and conversions in Digital ComputerSystem.
	CO2	Understanding the concepts of Boolean expressions, Logic Gates and to applythe methods to simplifying the Boolean expression.
	CO3	Applying the knowledge to perform arithmetical operations usingvariouslogical circuits.
	CO4	Designing and implementing various Synchronous and Asynchronous datatransfer and peripheral devices.

Sub.Code:20UCA2CM

Programme Code: 10	Bachelor of Computer Applications		
Title of the Paper Object Oriented Programming With C++ Lab			
Batch	Hours / Week	Total Hours	Credits
2020-2021	3	45	2

Course Objectives

1. To develop programming skills using object - oriented concepts.
2. To develop the ability to write a program to solve specific problems.
3. To practice the fundamental methodology to implement file and I/O stream concepts.

Course Outcomes (CO)

K2 to K4	CO1	Designing programs using appropriate predefined functions and classes in C++.
	CO2	Developing applications using Friend functions, Inheritance and polymorphism.
	CO3	Developing a C++ application using the concepts of Templates.
	CO4	Implementing stream I/O, Files and usage of the available classes to handle stream objects.

Sub.Code: 20UCA304

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper Operating Systems			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 4

Course Objectives

1. To understand the structures of modern computers.
2. To understand the purpose and usage of functions in operating systems.
3. To cover the details of concurrent processes, multi-threads, CPU scheduling, memory management file system, storage subsystem, and input/output management.

Course Outcomes (CO)

K1 to K4	CO1	Understanding of design issues, mastering in functions, structures and history of operating systems
	CO2	Learning various Process Management Concepts including Scheduling, Synchronization, Multithreading and Deadlocks.
	CO3	Implementing the processes, resource control, physical and virtual memory, scheduling, I/O and files.
	CO4	Understanding about Resource Sharing among Users. Familiar with Protection and Security Mechanisms. Types of Operating Systems including Unix.

Sub.Code: 20UCA305

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper Data Structures and Algorithms			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 4

Course Objectives

1. To represent the way of defining Data.
2. To explain the fundamental techniques for designing and analyzing algorithms.
3. To study various algorithms of Sorting , Searching methods in Datastructures.

Course Outcomes (CO)

K1 to K4	CO1	Understanding data structures and the concepts of algorithms for dynamic programming.
	CO2	Applying the data structures algorithms for various applications.
	CO3	Demonstrating familiar data structure algorithms.
	CO4	Applying the computational complexity of various algorithms.

Sub.Code:20UCA306

Programme Code : 10	Bachelor of Computer Applications		
Title of the paper : Relational Database Management Systems			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 4

Course Objectives

1. To develop the knowledge in various Database concepts, queries, normalization and reports..
2. To study the physical and logical database design and modeling.
3. To learn procedural interfaces using SQL queries.

Course Outcomes (CO)

K1 to K4	CO1	Understanding the concepts of Database.
	CO2	Understanding the concept of data Integrity constraints.
	CO3	Applying various DDL and DML statements, joins queries, PL / SQL statements.
	CO4	Applying various types of database management systems for developing the program.

Sub.Code: 20UCA3CN

ProgrammeCode : 10	Bachelor of Computer Applications		
Title of the Paper : Relational Database Management Systems - Lab			
Batch	Hours / Week	Total Hours	Credits
2020-2021	5	75	2

Course Objectives

1. To understand the use of Structured Query Language (SQL) and its syntax.
2. To understand and apply the principles of data modeling using Entity Relationship and develop a good database design.
3. To study the concepts and techniques relating query processing using SQL engines.

Course Outcomes (CO)

K2 to K4	CO1	Designing the basic concepts of Database.
	CO2	Implementing data Integrity constraints in Database.
	CO3	Validating the various fundamental tasks to perform data Modeling.
	CO4	Implementing functions, packages, stored procedures and user defined exception.

Sub.Code: 20UCA407

Programme code : 10	Bachelor of computer applications		
Title of the paper Software Engineering			
Batch	Hours / Week	Total Hours	Credits
2019-2020	5	75	4

Course Objectives

1. To understand the basic theory of SoftwareEngineering.
2. To describe software engineering layered technology and Process framework.
3. To gain knowledge about quality control and how to ensure good qualitysoftware.

Course Outcomes (CO)

K1 to K4	CO1	Learning the fundamentals of software engineering concepts.
	CO2	Understanding common lifecycle processes such as waterfall model, spiral model, prototyping model, evolutionary models etc.,
	CO3	Applying the principles and techniques of software engineering in the architectural design, detail design, and implementation of software applications.
	CO4	Developing the software using different testing concepts.

Sub.Code: 20UCA408

ProgrammeCode : 10	Bachelor of Computer Applications		
Title of the Paper		Computer Networks	
Batch	Hours / Week	Total Hours	Credits
2020-2021	5	75	2

Course Objectives

1. To deal with basic ideas of networking domain.
2. To present the principles of Cryptography in Computer Networks.
3. To know the classical, advanced encryption standards and techniques, message authentication codes, digital signatures, email.

Course Outcomes (CO)

K1 to K4	CO1	Understanding cryptography and network security concepts and application.
	CO2	Applying security principle in system design.
	CO3	Detecting network security threats.
	CO4	Understanding the various cryptographic algorithms.

Sub.Code: 20UCA409

Programme code : 10	Bachelor of Computer Applications		
Title of the paper	Advanced Java Programming		
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To enhance the knowledge of object-oriented programming using the Java programming language
2. To understand the applets, files, swings and exception handling mechanisms.
3. To illustrate the various features of java.

Course Outcomes(CO)

K1 to K4	CO1	Applying java programming language for various programming Applications.
	CO2	Acquiring knowledge of the structure and model of the java programming language
	CO3	Implementing Applets for GUI Concepts.
	CO4	Analyzing the concepts of Threads, Swings and Files.

Sub.Code: 20UCA4CO

Programme code : 10	Bachelor of computer applications		
Title of the paper	Advanced Java Programming Lab		
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To implement the advanced Java language syntax and semantics.
2. To implement concepts such as variables, conditional and iterative execution methods.
3. To make students to excel in coding, compiling and execute programs while learning advanced programming concepts.

Course Outcomes (CO)

K2 to K4	CO1	Applying the concepts of control structures, inheritance, method overriding in Java.
	CO2	Implementing the concept of interface, packages, multithreading and applets.
	CO3	Manipulating the operations using PL/SQL statements
	CO4	Validating the database using triggers.

Sub.Code: 20UCA4A4

Programme Code : 10	Bachelor of Computer Applications		
Title of the paper	Organizational Behavior And Marketing		
Batch	Hours / Week	Total Hours	Credits
2020-2021	6	90	5

Course Objectives

1. To specify the intellectual and behavioral competencies that graduates should process.
2. To enable the students to insight in to the management techniques prevailing in the corporate world.
3. To be aimed at preparing young graduates to take up challenging careers in business and industry and enables them to pursue higher studies thereafter.

Course Outcomes (CO)

K1 to K4	CO1	Preparing and delivering effective role of marketing in modern management.
	CO2	Identifying and analyzing product life cycle and developing new products and product characteristics.
	CO3	Applying knowledge of pricing kinds of pricing and factors affecting changes in price.
	CO4	Applying motivational theories to improve the leadership qualities.

Sub.Code:20UCA510

Programme code : 10	Bachelor of computer applications		
Title of the paper	Visual Programming		
Batch	Hours / Week	Total Hours	Credits 5
2020-2021	5	75	

Course Objectives

1. To gain the practical aspects for developing Graphical UserInterface.
2. To provide a consistent object-oriented programmingenvironment.
3. To provide application development using .Netframework.

Course Outcomes (CO)

K1 to K4	CO1	Learning the concepts of Visual Basic and .Net
	CO2	Summarizing the advantages of Controls in VB
	CO3	Demonstrating the concepts of .NET Framework
	CO4	Designing and developing the distributed data driven applications and C# console applications.

Sub.Code: 20UCA511

Programme code : 10	Bachelor of computer applications		
Title of the paper	Artificial Intelligence And Expert Systems		
Batch	Hours / Week	Total Hours	Credits 5
2020-2021	5	75	

Course Objectives

1. To learn the concepts of Artificial Intelligence.
2. Create awareness of informed search and exploration methods.
3. To demonstrate AI techniques for knowledge representation, planning and uncertainty Management.

Course Outcomes (CO)

K1 to K4	CO1	Understand the concept of AI
	CO2	Analyze and evaluate informed search and exploration methods.
	CO3	Apply AI techniques for knowledge representation, planning and uncertainty Management.
	CO4	Analyze and develop knowledge of decision making and learning methods for real time application

Sub.Code:20UCA512

Programme Code:10	Bachelor of Computer Applications		
Title of the paper Data Mining And Warehousing			
Batch	Hours / Week	Total Hours	Credits
2020-2021	5	75	5

Course Objectives

1. To learn the basic concepts of Data Mining algorithms, methods and tools.
2. To develop and apply critical thinking, problem-solving, and decision-making skills.
3. To discover interesting patterns, analyze supervised and unsupervised models and estimate the accuracy of the algorithms.

Course Outcomes (CO)

K1 to K4	CO1	Knowing the data mining principles and techniques.
	CO2	Understanding the concept of raw data processing using data mining algorithms.
	CO3	Learning data mining algorithms to build analytical applications.
	CO4	Gaining information's to extract patterns and to solve problems.

Programme code : 10	Bachelor of computer applications		
Title of the paper Visual Programming Lab			
Batch	Hours / Week	Total Hours	Credits 5
2020-2021	5	75	

Course Objectives

1. To gain the practical aspects of application development using fundamentals of ASP. Net and C#.
2. To know the concepts of web server controls, form validation, tracking and session handling.
3. To develop programs using error handling, inheritance, delegates, file operations and ADO.net Connectivity.

Course Outcomes (CO)

K1 to K4	CO1	Understanding and implementing the concepts of Visual Basic.
	CO2	Applying the behavior of various objects and classes in .Net.
	CO3	Implementing the concepts of decision and iteration using control structures.
	CO4	Designing and developing the applications using .Net Technologies

Sub.Code: 20UCA613

ProgrammeCode:10	Bachelor of Computer Applications		
Title Of The Paper: Web Designing			
Batch	Hours / Week	Total Hours	Credits
2020-2021	6	75	4

Course Objectives

1. To understand website development in a user friendly manner.
2. To improve the visual design and content structuring.
3. To understand the concept of Bootstrap to develop their web development skill.

Course Outcomes (CO)

K1 to K4	CO1	Understanding the use of HTML tags.
	CO2	Learning and using Cascading Style Sheet..
	CO3	Understanding the concept of JavaScript.
	CO4	Designing and Developing web pages using HTML,CSS,JavaScript and BootStrap

Sub.Code:20UCA614

Programme Code:10	Bachelor of Computer Applications		
Title of the paper:	Core Paper 14 - Information Security		
Batch 2022-2023	Hours / Week 6	Total Hours 90	Credits 5

Course Objectives

1. To enable the students to learn fundamental concepts of Computer Security.
2. To provide an understanding of principal concepts, technologies and basic approaches in information security.
3. To understand the concepts of security policies such as authentication, Integrity and confidentiality.

Course Outcomes (CO)

K1 to K5	CO1	Studying the basic concepts of security.
	CO2	Understanding the issues and technologies in information security.
	CO3	Learning various protection mechanisms.
	CO4	Analyzing tools and technology for combating threats to information assets.
	CO5	Evaluate the usage of Legal and Ethical Issues in Computer Security.

Sub.Code: 20UCA6CQ

ProgrammeCode:10	Bachelor of Computer Applications		
Title of the paper Web Designing Lab			
Batch	Hours / Week	Total Hours	Credits
20-21	6	75	2

Course Objectives

1. To implement the concepts in visual design and content structuring
2. To understand the concept of Bootstrap to develop their web development skill.
3. To facilitate students to create a website using HTML and Bootstrap

Course Outcomes (CO)

K2 to K4	CO1	Understanding the use of HTML tags.
	CO2	Learning and using Cascading Style Sheet..
	CO3	Understanding the concept of JavaScript.
	CO4	Designing and developing web pages using HTML,CSS,JavaScript and BootStrap

Project Work and Viva-voce

Sub.Code: 20UCA6Z1

ProgrammeCode:10		Bachelor of Computer Applications	
Core Project – Project Work & Viva - Voce			
Batch	Hours/Week	Total Hours	Credits
2020-2021	4	60	4

Course Objectives

1. To acquire the knowledge about selecting the task based on their courseskills.
2. To get the knowledge about analytical skill for solving the selectedtask.
3. To get confidence by implementing the task in a real timeprojects.

Course Outcomes (CO)

K3 to K5	CO1	Applying programming skill for solving the project.
	CO2	Analyzing the task and to collect the necessary information and software.
	CO3	Evaluating and Testing the task based on the software.
	CO4	Implementing the software for getting the Report.

Sub.Code:20UCA3S1

ProgrammeCode:10	Bachelor of Computer Applications		
Title of the Paper	Skill Based Subject 1 – Python Programming		
Batch 2020-2021	Hours / Week 2	Total Hours 30	Credits 3

Course Objectives

1. To introduce the fundamentals of PythonProgramming.
2. To teach about the concept of Functions inPython.
3. To impart the knowledge of formatting and escape sequencingcharacters

Course Outcomes (CO)

K1 to K4	CO1	Remember the syntax of looping statements.
	CO2	Understand the concept of python scripts.
	CO3	Apply the concept of functions and user defined functions in programming.
	CO4	Analyze the concept of operators and looping statements in programming.

Sub.Code : 20UCA4SL

ProgrammeCode:10	Bachelor of Computer Applications		
Title of the Paper Lab	Skill Based Subject 2 – Python Programming		
Batch 2020-2021	Hours / Week 2	Total Hours 30	Credits 3

Course Objectives

1. To gain knowledge about the concepts of pythonprogramming.
2. To understand the concepts of Built-in functions and User-definedfunctions.
3. To develop programs using Stringfunctions.

Course Outcomes (CO)

K2 to K4	CO1	Apply different types of operators in programming.
	CO2	Implement the concepts of built-in functions in programming.
	CO3	Analyze the use control structures in programming.

Sub.Code:20UCA6S3

Programme code : 10	Bachelor of Computer Applications		
Title of the paperLinux Programming Lab			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To gain knowledge about the usage of shell scripting.
2. To teach the concepts of using arithmetic operations and looping.
3. To impart knowledge about the creation of files and directories.

Course Outcomes (CO)

K3 to K5	CO1	Applying the concepts of control structures in programming.
	CO2	Implementing the concepts of file operations in programming
	CO3	Analyzing the concept of dialog utilities in shell programming.

Sub.Code:20UCA5X1

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper Extra Departmental Course – Internet and Office Automation -LAB			
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 3

Course Objectives

1. To gain knowledge about the concepts of Internet
2. To understand the concepts of MS-Word, MS-Excel
3. To develop database using MS-Access and presentation using MS-PowerPoint

Course Outcomes(CO)

K1 to K5	CO1	Understanding and remember various menus in office automation
	CO2	Implementing the concepts of Internet techniques
	CO3	Applying the database components to develop table using MS-Access

Electives for Fifth and Sixth Semester

Programme code: 10	Bachelor of Computer Applications		
Title of the Paper		Elective Paper – Internet Of Things	
Batch 2020-2021	Hours/Week 6	Total Hours 90	Credits 5

Course Objectives

1. To learn the concepts of IOT and its protocols.
2. To learn how to analysis the data in IOT.
3. To develop IOT infrastructure for popular applications.

Course Outcomes (CO)

K1 to K4	CO1	Analyzing and evaluate the data received through sensors in IOT.
	CO2	Design and develop smart city in IoT
	CO3	Analyze various protocols for IoT.

Programme Code:10	Bachelor of Computer Applications		
Title of the paper		Elective paper :- Open Source Systems	
Batch 2020-2021	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To recognize the benefits and features of Open Source Technology.
2. To utilize open source software for developing a variety of software applications, particularly Web applications.
3. To understand concepts, strategies, and methodologies related to open source software development.

Course Outcomes (CO)

K1 to K4	CO1	To understand the use of various open source software available in the industry.
	CO2	To summarize the basic concepts of how a database stores information via tables.
	CO3	To learn how to use lists, tuples, and dictionaries in Python programs.
	CO4	To understand the appropriate applications of the Perl language.

ProgrammeCode:10	Bachelor of Computer Applications		
Title of the Paper	Android Applications and Development		
Batch 2020-2021	Hours / Week 6	Total Hours 90	Credits 5

Course Objectives

1. To learn the basics of Android and understand the application lifecycle.
2. To learn the power of background services, threads, and notifications.
3. To introduce the principles of inheritance, packages, interfaces files and basics of Swings and Android.

Course Outcomes (CO)

K1 to K4	CO1	Learning the working process of Android applications
	CO2	Developing Android tools for creating Icons
	CO3	Applying UI-rich apps using all the major UI components
	CO4	Implementing Animation Concepts and Techniques using XML and Android content providers for frame applications

ProgrammeCode:10	Bachelor of Computer Applications		
Title of the Paper		Virtual Reality	
Batch 2020-2021	Hours / Week 6	Total Hours 90	Credits 5

Course Objectives

1. Understand the Virtual environment.
2. To study about Virtual Hardware's and Software's
3. To develop Virtual Reality applications

Course Outcomes (CO)

K1 to K4	CO1	Understand thefeatures ofVirtual environment
	CO2	Understand theVirtual Hardware and software's
	CO3	Identify Virtual Reality toolkits
	CO4	ImplementVirtual Reality applications

Programme Code:10		Bachelor of Computer Applications	
Title of the paper		Big Data And Analysis	
Batch	Hours / Week	Total Hours	Credits
2020-2021	6	90	5

Course Objectives

1. To know the fundamental concepts of big data and analytics.
2. To explore tools and practices for working with big data.
3. To learn about stream computing and to know about the research that requires the integration of large amounts of data.

Course Outcomes (CO)

K1 to K4	CO1	Identify the difference between structured, semi-structured and unstructured data.
	CO2	Summarize the challenges of big data and how to deal with the same.
	CO3	Explain the significance of NoSQL databases.
	CO4	Explain about Hadoop Ecosystem.

Programme Code : 10	Bachelor of Computer Applications		
Title of the Paper	Cloud Computing and Azure		
Batch	Hours / Week	Total Hours	Credits
2020-2021	5	75	2

Course Objectives

1. To learn the concept of Cloud Computing basics.
2. To learn the Cloud storage and Standards .
3. To learn the concepts Azure and Azure documentation.

Course Outcomes (CO)

K1 to K4	CO1	Understand the concept of Cloud Computing
	CO2	Understand and deploy Web applications using Azure concept
	CO3	Acquire knowledge about Azure virtual machine and Azure storage
	CO4	Develop and test real time scenarios using Azure concept