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 2021-2022

Sub.Code: 21UCA101

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper	Core Paper 1 – C Programming		
Batch	Hours / Week	Total Hours	Credits
2021-2022	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 programmingskills.
3. To impart adequate knowledge of programming languages and problem solving techniques.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Determine efficient techniques in programming to solve various real time problems.

Sub.Code: 21UCA1CL

Programme Code: 10	Bachelor of Computer Applications		
Title of the Paper	**Core Practical 1 - C Programming Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**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 writingprograms in C.
3. To guide the candidates to explore the fundamental building blocks in the programming language.

Course Outcomes (CO)

K3 to K5	CO1	Learning process helps in deep understanding the concepts of C language.
	CO2	Applying the various basic programming constructs like decision making statements, looping statements, functions, structures , pointers etc.,
	CO3	Developing programs using control statements, Arrays and Strings.
	CO4	Enabling effective usage of arrays, structures, functions and pointers.
	CO5	Implementing the files and command line arguments.

Sub.Code: 21UCA202

Programme Code: 10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Paper 2 – Object Oriented Programming with C++**		
Batch **2021-2022**	**Hours / Week** **4**	**Total Hours** **60**	**Credits** **4**

Course Objectives

1. To perform object- oriented programming to develop solutions to problems demonstrating usageof 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, dynamicmemory allocation, inheritance and polymorphism, File I/O.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluate the usage of object oriented programming in terms of software reuse and managing complexity to solve real-world problems.

Sub.Code : 21UCA203

Programme Code: 10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Paper 3 – Digital Fundamentals and Computer Organization**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**3**	**45**	**4**

Course Objectives

1. To learn the concept of Digital Circuits, Circuit Constructions and Simplifications of Booleanfunction
2. To know the concept of Multiplexers, Flip-Flops and Registers and to familiarize the MemoryHierarchy and Peripheral Devices.
3. To understand the concepts of different types of languages and Instruction Formats.

Course Outcomes (CO)

K1 to K5	CO1	Understanding the Number systems and conversions in Digital Computer System.
	CO2	Understanding the concepts of Boolean expressions, Logic Gates and to apply the methods to simplifying the Boolean expression.
	CO3	Applying the knowledge to perform arithmetical operations using various logical circuits.
	CO4	Designing and implementing various Synchronous and Asynchronous data transfer and peripheral devices.
	CO5	Evaluate the working nature of digital system design and sequential circuits.

Sub.Code: 21UCA2CM

Programme Code: 10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Practical 2 – Object Oriented Programming With C++ Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**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)

K3 to K5	CO1	Apply the various basic programming constructs like decision making statements, Looping statements, functions, concepts like overloading, inheritance, polymorphism, virtual functions , constructors and destructors.
	CO2	Designing programs using appropriate predefined functions and classes in C++.
	CO3	Developing applications using Friend functions, Inheritance and polymorphism.
	CO4	Developing a C++ application using the concepts of Templates, stream I/O, Files and usage of the available classes to handle stream objects.
	CO5	Evaluate the implementation of command line arguments.

Sub.Code: 21UCA304

Programme Code:10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Paper 4 – Operating Systems**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**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, memorymanagement file system, storage subsystem, and input/output management.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluate the functionality of memory allocation and its policies.

Sub.Code: 21UCA305

Programme Code:10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Paper 5 – Data Structures and Algorithms**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**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 Data structures.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluate appropriate sorting/searching technique for given problem.

Sub.Code:21UCA306

Programme Code : 10	**Bachelor of Computer Applications**		
Title of the paper	**Core Paper 6 – Relational Database Management Systems**		
Batch **2021-2022**	**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 K5	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.
	CO5	Evaluate the usage of normalization in relational database management system.

Sub.Code: 21UCA3CN

Programme Code : 10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Practical 3 – Relational Database Management Systems Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**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 agood database design.
3. To studythe concepts and techniques relating query processing using SQL engines.

Course Outcomes (CO)

K3 to K5	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.
	CO5	Evaluate the trigger function to perform event.

Sub.Code: 21UCA407

Programme code : 10	**Bachelor of computer applications**		
Title of the paper	**Core Paper 7 – Software Engineering**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**4**

Course Objectives

1. To understand the basic theory of Software Engineering.
2. To describe software engineering layered technology and Process frame work.
3. To gain knowledge about quality control and how to ensure good quality software.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluating the ability of students to perform various lifecycle activities like Analysis, Design, Implementation, Testing and Maintenance.

Sub.Code: 21UCA408

Programme Code : 10	**Bachelor of Computer Applications**		
Title of the Paper	**Core Paper 8 – Computer Networks**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**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 authenticationcodes, digital signatures, email.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluating the challenges in building networks.

Sub.Code: 21UCA409

Programme code : 10	**Bachelor of Computer Applications**		
Title of the paper	**Core Paper 9 – Advanced Java Programming**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**5**

Course Objectives

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

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluating applications using Swing Concepts.

Sub.Code: 21UCA4CO

Programme Code : 10	**Bachelor of computer applications**		
Title of the paper	**Core Practical 4 – Advanced Java Programming Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**5**	**75**	**2**

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 advancedprogramming concepts.

Course Outcomes (CO)

K3 to K5	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.
	CO5	Evaluating software functionality to decide whether the Java programming can meet user requirements

Sub.Code: 21UCA4A4

Programme Code : 10	**Bachelor of Computer Applications**		
Title of the paper	**Allied Paper 4 – Organizational Behavior and Communicative Skills**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**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 corporateworld.
3. To be aimed at preparing young graduates to take up challenging careers in business and industryand enables them to pursue higher studies thereafter.

Course Outcomes (CO)

K1 to K5	CO1	Comprehend the requirement of communication in a company.
	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.
	CO5	Analyze the nature of organizational effectiveness.

Sub.Code:21UCA510

Programme code : 10	**Bachelor of Computer Applications**		
Title of the paper	**Core Paper 10 - Visual Programming**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**5**

Course Objectives

1. To gain the practical aspects for developing Graphical User Interface.
2. To provide a consistent object-oriented programming environment.
3. To provide application development using .Net framework.

Course Outcomes (CO)

K1 to K5	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.
	CO5	Enable students to develop projects using Visual Programming

Sub.Code: 21UCA511

Programme code : 10	Bachelor of computer applications		
Title of the paper	Core Paper 11-Artificial Intelligence And Expert Systems		
Batch	Hours / Week	Total Hours	Credits
2021-2022	6	90	5

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 uncertaintymanagement.

Course Outcomes (CO)

K1 to K5	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
	CO5	Explore how AI is already being used and evaluate problem areas of AI

Programme Code:10	Bachelor of Computer Applications		
Title of the paper	Core Paper 12- Data Mining And Warehousing		
Batch	Hours / Week	Total Hours	Credits
2021-2022	5	75	5

Sub.Code:21UCA512

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 theaccuracy of the algorithms.

Course Outcomes (CO)

K1 to K5	CO1	Identifying the key processes of data mining, data warehousing and knowledge discovery process.
	CO2	Understanding the concept of raw data processing using data mining algorithms.
	CO3	Analyze the various data mining techniques to solve problems in other disciplines.
	CO4	Develop practical work of techniques and design hypotheses based on the analysis.
	CO5	Evaluate and implement emerging methodologies to facilitate the knowledge discovery.

Sub.Code: 21UCA5CP

Programme code : 10	Bachelor of Computer Applications		
Title of the paper	Core Practical 5-Visual Programming Lab		
Batch	Hours / Week	Total Hours	Credits
2021-2022	5	75	2

Course Objectives

1. To gain the practical aspects of application development using fundamentals of ASP. Net andC#.
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 andADO.net Connectivity.

Course Outcomes (CO)

K3 to K5	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
	CO5	Implementing Visual programming by using visual basic work environment to solve various real time problems.

Sub.Code: 21UCA613

Programme Code:10	**Bachelor of Computer Applications**		
Title Of The Paper:	**Core Paper 13 -Web Designing**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**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 K5	CO1	Understanding the use of HTML tags.
	CO2	Acquiring knowledge of Cascading Style Sheet.
	CO3	Analyzing the concepts of JavaScript.
	CO4	Applying the knowledge to perform calculations using various operatorsand built-in functions.
	CO5	Evaluate the web application using HTML,CSS,JavaScript andBootStrap

Sub.Code:21UCA614

Programme Code:10	**Bachelor of Computer Applications**		
Title of the paper	**Core Paper 14 - Information Security**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**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 basicapproaches in information security.
3. To understand the concepts of security policies such as authentication, integrity andconfidentiality.

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: 21UCA6CQ

Programme Code:10	**Bachelor of Computer Applications**		
Title of the paper	**Core Practical 6- Web Designing Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**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)

K3 to K5	CO1	Applying the HTML tags to design Web Pages.
	CO2	Designing attractive web sites using Cascading Style Sheet.
	CO3	Developing user friendly interactive web application using JavaScript.
	CO4	Implementing different operations on JavaScript Functions and Events.
	CO5	Evaluating the functionality of web pages using HTML, CSS, JavaScript and BootStrap.

Sub.Code: 21UCA6Z1

Programme Code:10	**Bachelor of Computer Applications**		
Core Project – Project Work & Viva – Voce ***#			
Batch	**Hours/Week**	**Total Hours**	**Credits**
2021-2022	**4**	**60**	**4**

Course Objectives

1. To acquire the knowledge about selecting the task based on their course skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confidence by implementing the task in a real time projects.

Course Outcomes (CO)

K3 to K5	CO1	Apply the programming skills for solving the project.
	CO2	Analyze the task and to collect the necessary information about the software.
	CO3	Evaluate the task based on the software.
	CO4	Test the project for its successful implementation
	CO5	Implement and Maintain the developed system.

Sub.Code:21UCA3S1

Programme Code:10	**Bachelor of Computer Applications**		
Title of the Paper	**Skill Based Subject 1 – Python Programming**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**2**	**30**	**3**

Course Objectives

1. To introduce the fundamentals of Python Programming.
2. To teach about the concept of Functions in Python.
3. To impart the knowledge of formatting and escape sequencing characters

Course Outcomes (CO)

K1 to K5	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.
	CO5	Evaluate the concepts of exception handling and files.

Sub.Code: 21UCA4S2

Programme Code:10	**Bachelor of Computer Applications**		
Title of the Paper	**Skill Based Subject 2 – Python Programming Lab**		
Batch **2021-2022**	**Hours / Week** **2**	**Total Hours** **30**	**Credits** **3**

Course Objectives

1. To gain knowledge about the concepts of python programming.
2. To understand the concepts of Built-in functions and User-defined functions.
3. To develop programs using String functions.

Course Outcomes (CO)

K3 to K5	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.
	CO4	Appling the searching algorithm in programming.
	CO5	Evaluate the functionality of an exception handling mechanism.

Sub.Code:21UCA6S3

Programme code : 10	**Bachelor of Computer Applications**		
Title of the paper	**Skill Based Subject 3- Linux Programming Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**2**	**30**	**3**

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.
	CO4	Develop solutions for mathematical concept and propose appropriate result.
	CO5	Evaluate the programming techniques and tools to design computer programs.

Sub.Code: 21UCA5X1

Programme Code:10	**Bachelor of Computer Applications**		
Title of the Paper	**Extra Departmental Course – Internet and Office Automation Lab**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**2**	**30**	**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)

K3 to K5	CO1	Understanding and remember various menus in office automation
	CO2	Implementing the concepts of Internet techniques
	CO3	Executing various calculations of MS-Excel
	CO4	Analyzing the applications using MS-Power Point
	CO5	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	**Hours/Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**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 K5	CO1	Analyzing and evaluate the data received through sensors in IOT.
	CO2	Design and develop smart city in IoT
	CO3	Analyze various communication protocols for IoT.
	CO4	Analyze applications of IoT in real time scenario
	CO5	Evaluate appropriate protocol for communication between IoT.

Programme Code:10	Bachelor of Computer Applications		
Title of the paper	**Elective paper - Open Source Systems**		
Batch	**Hours/Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**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, particularlyWeb applications.
3. To understand concepts, strategies, and methodologies related to open source software development.

Course Outcomes (CO)

K1 to K5	CO1	Understand the use of various open source software available in the industry.
	CO2	Summarize the basic concepts of how a database stores information via tables.
	CO3	Learn how to use lists, tuples, and dictionaries in Python programs.
	CO4	Applying exception handling methods in Python programs.
	CO5	Evaluate applications by applying programming concepts to solve real time problems.

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper	Elective Paper-Android Applications and Development		
Batch 2021-2022	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 K5	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
	CO5	Evaluate the tools by applying fundamental concepts to Android application development.

Programme code:10	Bachelor of Computer Applications		
Title of the Paper	Elective Paper – Big Data and Analytics		
Batch 2021-2022	Hours / Week 6	Total Hours 90	Credits 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 theintegration of large amounts of data.

Course Outcomes (CO)

K1 to K5	CO1	Identify the need for Big Data analysis
	CO2	Develop ability to analyze and process Big Data
	CO3	Build necessary skills to process Big Data by identifying the use case.
	CO4	Acquire knowledge about Hadoop Ecosystem.
	CO5	Disseminate the new knowledge and implement into the organization

Programme Code:10	Bachelor of Computer Applications		
Title of the Paper	**Elective Paper - Virtual Reality**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**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 K5	CO1	Understand the features of Virtual environment
	CO2	Understand the Virtual Hardware and software's
	CO3	Identify Virtual Reality toolkits
	CO4	Explore the basic awareness of theoretical contexts relevant to virtual reality
	CO5	Demonstrate an understanding of techniques, processes, technologies and equipment used in immersive virtual reality

Programme Code : 10	Bachelor of Computer Applications		
Title of the Paper	**Elective Paper - Cloud Computing and Azure**		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**6**	**90**	**5**

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 K5	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
	CO5	Evaluate the fundamental concepts of cloud storage and demonstrate their use in storage systems

Sub.Code: 21UHR3N1

Programme Code : 10	Bachelor of Computer Applications		
Title of the Paper	Part IV - Non-major Elective I- Human Rights		
Batch	**Hours / Week**	**Total Hours**	**Credits**
2021-2022	**2**	**30**	**2**

Objectives

1. To prepare for responsible citizenship with awareness of the relationship betweenHuman Rights, democracy and development.
2. To impart education on national and international regime on Human Rights.
3. To sensitive students to human suffering and promotion of human life with dignity.
4. To develop skills on human rights advocacy
5. To appreciate the relationship between rights and duties
6. To foster respect for tolerance and compassion for all living creature.

Course Outcomes (CO)

K1 to K5	CO1	To understand the hidden truth of Human Rights by studying various theories.
	CO2	To acquire overall knowledge regarding Human Rights given by United Nation Commission. (UNO)
	CO3	To gain knowledge about various organs responsible for Human Rights such as National Human Rights Commission and state Human Right commission (UNHCR)
	CO4	To get habits of how to treat aged person, others and positive social responsibilities
	CO5	To treat and confirm, child, refugees and minorities with positive social justice.