BCA - COURSE OUTCOME (CO)

Core - I – C++ Programming	CO1	To understand Object Oriented Programming concepts.
	CO2	An ability to create an simple C++ Programming.
	CO3	Implement the concept of classes and objects.
	CO4	An ability to develop a program using any type of Inheritance.
	CO5	To understand and develop a program using file operations.
Core - Practical - I – C++ Programming Lab	CO1	Understand basic Structure of the C ++ PROGRAMMING, declaration and usage of variables
	CO2	Understand C++ programs using Class and operators
	CO3	Exercise conditional and iterative statements to Write C++ programs
	CO4	Understand for C++ programs using Pointers to access arrays, strings and functions
	CO5	Understand C++ programs using pointers and allocate memory using dynamic memory management functions.
Value Added Course - I : C programming	CO1	Understand the basics of programming concept
	CO2	Demonstrate the flowchart and design an algorithm for a given problem and to develop C programs using operators
	CO3	Develop conditional and iterative statements to write C programs
	CO4	Exercise user defined functions to solve real time problems
	CO5	Exercise user defined data types including structures and unions to solve problem Inscribe C programs that use Pointers to access arrays, strings and functions.
Data Structures	CO1	Students develop knowledge of basic data structures for storage and retrieval of ordered or unordered data.
	CO2	Students develop knowledge of linked lists.
	CO3	Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
	CO4	Student develop Knowledge of Tree
	CO5	Student develop Knowledge of Graph

Data Structure Lab	CO1	Understand basic Concept of the data structure using C program
	CO2	Implementing STACK Operations using C Program
	CO3	Exercise linked List using C programs
	CO4	Understand nodes concepts in Linked List using C programs
	CO5	Implementing QUEUE Operations using C Program
Big data Analytics	CO1	To understand the meaning of big data, need of big data and how worth to study by understands their characteristics of big data.
	CO2	To gain knowledge in evolution of Hadoop, understanding the components of Hadoop. To analyze how to develop an application through Hadoop. To getting knowledge of data into Hadoop.
	CO3	To understand the value of data analyst and how to implementing a big data in organization.
	CO4	To analysis the big data in context, getting the knowledge of predictive analytics and big data.
	CO5	To understanding the concepts of humanizing and consumerization of big data analytics.
Android Application Development	CO1	To understand about the need for android and the basics in it. To know about the installation of Java JDK and Android SDK.
	CO2	To understand about the creation of android projects and user interfaces.
	CO3	To code the android applications and to work with android framework classes.
	CO4	To work with home screen widgets and app widgets in android.
	CO5	To create a distributable file and outsourcing it in the market for the developed application.
Java Programming	CO1	Define the concept of OOP as well as the purpose and usage principles of inheritance, polymorphism, encapsulation and method overloading. K1
	CO2	Identify the situations of Program Control Statements, Introducing Classes, Objects and Methods of their usages. K2
	CO3	Identify String Handling , Arrays, classes, objects, members of a class and the relationships among them needed for a specific problem.K2
	CO4	OOP concepts like inheritance, Interface & package in real time situations.K3
	CO5	Develop Java application programs using sound OOP practices (e.g., interfaces and APIs) and proper program structuring (e.g., by

		using access applet, multithreading)K3
Java Programming lab	CO1	Execute JAVA programs based on simple constructs like arrays, loops , decision statements, functions etc
	CO2	Incorporate object oriented concepts like classes, objects, inheritance, polymorphism resembling real time situation.
	CO3	Demonstrate the use of packages and interfaces
	CO4	Develop OOP programs containing User created Exception handling & Threading.
	CO5	Familiarize with Java development Environment such as Eclipse, NetBeans etc. Suggestive list of programs.
Web Technology	CO1	Understand the basics of Internet and Its Protocol.
	CO2	To Learn about HTML Language and its features.
	CO3	To learn about basic knowledge about CSS.
	CO4	Understand basic in Servlete and HTTP
	CO5	Understand basic of JSP and Cookies
PHP & MySQL	CO1	To provide an insight of PHP basics
	CO2	Understand and practice the function and array handling in PHP
	CO3	Understand and practice the the file handling and date functions
	CO4	To provide an insight of MYSQL basics
	CO5	Strategies of file handling and Cookies in MYSQL
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DSC – RDBMS	CO1	Demonstrate an understanding of the elementary & advanced features of DBMS & RDBMS
	CO2	Attain a good practical understanding of the SQL. Develop clear concepts about Relational Model.
	CO3	Prepare various database tables and joins them using SQL commands
	CO4	Able to design and documents data structures incorporating integrity constraints to satisfy business rules by applying the relational model

	CO5	Able to develop structured query language (SQL) queries to create, read, update, and delete relational database data
DSC - Computer Graphics	CO1	To gain knowledge about the computer graphics and their hardware and software systems used to make these images.
	CO2	To Recognize and evaluate critical and aesthetic issues within computer graphics and the mixed media.
	CO3	To be able to describe the general software architecture of programs that use 3D computer graphics.
	CO4	The task of producing photo-realistic images is an extremely complex one, but this is a field that is in great demand because of the nearly limitless variety of applications.
	CO5	To Apply aesthetic judgments and critical thinking skills to art and graphics related issues.
DSC - Linux and Shell Programming	CO1	Understanding the basic set of commands and utilities in Linux/UNIX systems.
	CO2	To learn to develop software for Linux/UNIX systems.
	CO3	To learn the important Linux/UNIX library functions and system calls.
	CO4	To obtain a foundation for an advanced file system manipulation.
	CO5	To understand the Pattern, URL and E-mail for web content.
DSC - Linux and Shell Programming Lab	CO1	Comfortably use basic UNIX/Linux commands from the command line
	CO2	Organize and manage their files within the UNIX/Linux file system. And organize and manage their processes within UNIX/Linux
	CO3	Usefully combine UNIX/Linux tools using features such as filters, pipes, redirection, and regular expressions.
	CO4	Customize their UNIX/Linux working environment
	CO5	Know how to use UNIX/Linux resources to find additional information about UNIX/Linux commands
Principles of Multimedia	CO1	To develop an understanding and awareness how issues such as content, information architecture, motion, sound, design, and technology merge to form effective and compelling interactive experiences for a wide range of audiences and end users.
	CO2	To become familiar with various tools used in the creation and implementation of multi- media
	CO3	To understand about the color and 3D Cloud

	CO4	To become familiar with Blender with images
	CO5	To create an animation and An introduction to the development of Graphics.
Multimedia Lab	CO1	To give an overall view of multimedia tools.
	CO2	To understand and differentiate text, image, video & audio
	CO3	Design and implement an animation for various themes.
	CO4	To understand about data compression techniques, image compression techniques like JPEG, video compression techniques like MPEG, and the basic concepts about animation.
	CO5	To develop an interactive multimedia presentation by using multimedia devices and identify theoretical and practical aspects in designing multimedia applications surrounding the emergence of multimedia technology
Software Engineering	CO1	This gives the Knowledge about various models in software engineering.
	CO2	It gives the brief description about requirements.
	CO3	To understand knowledge about Planning.
	CO4	To analyze various testing in software testing
	CO5	It deals the concept of Maintenance.
Software Engineering Lab	CO1	To Understanding the Requirement tasks.
	CO2	To Understanding the Requirement analysis and SRS.
	CO3	To Implement a DFD and Structured chart.
	CO4	To Understand and Implement the concept of Use case Diagram.
	CO5	To Understand and Implement the concept of Class Diagram & Object Diagram.
Computer Networks	CO1	To understand the basics of computer networks , models and services.
	CO2	To explain the transmission media and to apply the error detection and correction of data transmission.
	CO3	To analyze the importance and design issues of layers.
	CO4	To differentiate the services and protocols of various layers.
	CO5	To illustrate the types of security and digital signature.
Skill -	CO1	The objective of this course is to provide students with a basic

Information and Cyber Security		understanding of Information and Cyber Security issues and make them aware of the Challenges.
	CO2	To provide components of the Information and Cyber Security Organization.
	CO3	To achieve a basic understanding of information and Cyber Security.
	CO4	To master information security governance, and related legal and regulatory Issues
	CO5	To be familiarity with information security awareness and a clear understanding of its importance
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Internet of Things	CO1	Students can understand and develop their knowledge of Internet of Things
	CO2	Analyze basic protocols in wireless sensor network
	CO3	Students can develop their knowledge of applications related with IOT.
	CO4	Design IoT applications in different domain and be able to analyze their performance
	CO5	Implement basic IoT applications on embedded platform.
Enterprise Resource Planning	CO1	To understand about ERP systems
	CO2	To expose the students to ERP software and modules, Implementation of ERP
	CO3	To familiarize Emerging trends on ERP
	CO4	Enhanced Evaluation of ERP systems, Business Analytics, Future trends in ERP Systems.
	CO5	To familiarize ERP SOLUTIONS AND FUNCTIONAL MODULES.
Distributed Programming	CO1	To understand the foundations of distributed systems.
	CO2	To learn process and naming concepts in distributed systems.
	CO3	To learn issues related to clock Synchronization and the need for global state in distributed systems.
	CO4	To understand the fault tolerance and recovery protocols in Distributed Systems.
	CO5	To learn the characteristics of distributed object based System and file systems.
DHTML and XML	CO1	To understand the concept and importance of Dynamic web page designing
	CO2	To recognize the types and attributes of different concepts
	CO3	To identify the key relationship between different concepts
	CO4	To be aware of the real functions of website development
	CO5	To compare static concept with dynamic and to deal with every

		tiny elements of website
Scripting Languages	CO1	Understand the concepts of scripting languages for developing web based projects.
	CO2	Illustrates object oriented concepts like VBscript, JavaScript.
	CO3	Create database connections using PHP and build the website for the world.
	CO4	Demonstrate IP address for connecting the web servers.
	CO5	Analyze the internet ware application, security issues and frame works for application.
PC and Mobile Hardware	CO1	Understand the basics of Computer Maintenance and understands the Mobile servicing.
	CO2	Exercise Mobile Phone Repair and Maintenance , Diagnosing and repairing mobile phone faults
	CO3	To learn about basic knowledge about Laptop device and components.
	CO4	Understand basic troubleshooting in mobile and Ethics and Legal Aspects of Working
	CO5	Understand basic repair and maintenance
Software Project Management	CO1	To understand and explore the basics of Software Projects and Risks.
	CO2	Understand the Methods and techniques of Software Projects.
	CO3	To learn the functions of Classes and Objects.
	CO4	To familiarize the Project schedules and activities
	CO5	Implementing Framework and Management control
R Programming	CO1	To understand and explore the basics of R Programming language.
	CO2	Understand the basics of classes, lists and data frames
	CO3	To learn the integrated collection of tools for data analysis.
	CO4	Understand the working of various applications with functions
	CO5	To familiarize the graphical facilities for data analysis.
Block chain Fundamentals	CO1	understand Blockchain and its Uses
	CO2	Understand the Bitcoin details.
	CO3	students will be familiar with blockchain and cryptography basics.
	CO4	Students will learn how this system works and how can they utilize and what application can be build.

	CO5	build their own application using the learned concepts.
Software Quality Assurance	CO1	Understand the basic concepts of software quality Assurance. The ability to understand the software requirements.
	CO2	Know the theoretical concept of software quality factors. The ability to know the software life cycle
	CO3	Understand the planning stages of software quality assurance. To know about the reviews of software quality assurance.
	CO4	Know the software development methodologies. The ability to know the verification and validation process.
	CO5	The ability to understand the testing concepts. To understand the quality and cost of the projects
Information Storage Management	CO1	Select Various Technology for Information Storage Management
	CO2	Illustrate the various Storage System Architecture.
	CO3	Apply Networked Storage Levels.
	CO4	Apply security measures to safeguard storage & farm
	CO5	Analyze Quos on Storage
Cloud Infrastructure and Service	CO1	To explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing
	CO2	To discuss system virtualization and outline its role in enabling the cloud computing system model.
	CO3	To analyze various cloud programming models and apply them to solve problems on the cloud.
	CO4	To understand various management and other distinguish services of AWS**.**
	CO5	To deploy applications over commercial cloud computing infrastructures such as Amazon
Software Testing	CO1	To explain the core concepts of the software testing Basics. How and why this testing shift came about, the characteristics, advantages and challenges brought about by the various Testing and services in Software Testing.
	CO2	To discuss various types of Testing and its features.
	CO3	To analyze various Testing Technique which is directly implemented into real time application software

	CO4	To Analyze Performance and Functional of Real time Application Software.
	CO5	To Plan Overall Software Development Process.
Wireless Sensor Network	CO1	To understand about Sensor networks overview and Basic Wireless Sensor Technology
	CO2	To expose Wireless Transmission Technology and Systems
	CO3	To familiarize Fundamentals of MAC Protocols and Routing Protocols for Wireless Sensor Networks
	CO4	To understand Transport Control Protocols for Wireless Sensor Networks , Middleware for Wireless Sensor Networks
	CO5	To familiarize Performance and Traffic Management and Operating Systems for Wireless Sensor Networks
Digital Image Processing	CO1	Understand the fundamentals of digital image processing and sampling and quantization concepts.
	CO2	Apply image processing techniques in both the spatial and frequency domains using various transform techniques.
	CO3	Understanding the filtering techniques for Image restoration and reconstruction.
	CO4	Understanding fundamentals and some basic models of Image Compression
	CO5	Applying the image segmentation process.
Cryptography and Network Security	CO1	Explain the concepts of Cyber security
	CO2	Illustrate key management issues and solutions
	CO3	Familiarize with Cryptography and very essential algorithms & Design and develop simple cryptography algorithms
	CO4	Understand about IEE security related applications in networking.
	CO5	Introduce cyber Law and ethics to be followed. Understand cyber security and need cyber Law
Web Mining	CO1	To Understand the fundamentals of web data mining.
	CO2	To analyze the social networks and web crawling algorithms.
	CO3	To Understand the concept of web mining and information retrieval and web search
	CO4	To Apply the data extraction and information integration
	CO5	To design the data modeling and understand the web usage mining areas.
Digital	CO1	To Create a structured digital marketing plan and budget

Marketing	CO2	To Identify the correct measures to set objectives and evaluate digital marketing
	CO3	To Review and prioritize the strategic options for boosting customer acquisition, conversion, and retention using digital marketing
	CO4	To Understand and follow the practical success factors to improve results from digital marketing
	CO5	To Understand the basic concept of search engines, social media platforms, content creation & advertising in order to educate, engage & market your product or service to potential buyers
Social Networks	CO1	Understanding the basic Network and its Analyzing.
	CO2	To learn knowledge representation using ontology.
	CO3	To learn the important Graph techniques Networks.
	CO4	To obtain a foundation for an Anatomy and Python.
	CO5	To understand the file representaion, Bigdata work.