


Dr. B.B. HEGDE FIRST GRADE COLLEGE, KUNDAPURA
DEPARTMENT OF COMPUTER SCIENCE (B.C.A) V SEM

Course outcome as per National Education Policy

Course Code	Course Name: Computer Science	Course Outcome
<u>BCACACN501</u>	Design and Analysis of Algorithms	<ul style="list-style-type: none"> • Understand the fundamental concepts of algorithms and their complexity, including time and space complexity, worst-case and average-case analysis, and Big-O notation. • Design algorithms for solving various types of problems, such as Sorting, Searching, and Graph traversal, Decrease-and-Conquer, Divide-and-Conquer and Greedy Techniques. • Analyze and compare the time and space complexity of algorithms with other algorithmic techniques. • Evaluate the performance of Sorting, Searching, Graph traversal, Decrease-and-Conquer, Divide-and-Conquer and Greedy Techniques using empirical testing and benchmarking, and identify their limitations and potential improvements. • Apply various algorithm designs to real-world problems and evaluate their effectiveness and efficiency in solving them.
<u>BCACACN502</u>	Statistical Computing and R Programming	<ul style="list-style-type: none"> • Understand content development basics • Gain Knowledge of tools for multimedia content development for audio/ video, graphics, animations, presentations, screen casting • Host websites and develop content for social media platforms such as wiki and

		<p>blog, CO4. Understand e-publications and virtual reality</p> <ul style="list-style-type: none"> • Use of e-learning platform Moodle and CMS applications Drupal and Joomla
<u>BCACACN503</u>	Software Engineering	<ul style="list-style-type: none"> • Design dynamic and interactive web pages and websites, • Run PHP scripts on the server and retrieve results. • Handle databases like MySQL using PHP in websites.
<u>BCACAEN501</u>	Cloud Computing	<ul style="list-style-type: none"> • Understand the concepts of data and pre-processing of data. • Know simple pattern recognition methods • Understand the basic concepts of Clustering and Classification • Know the recent trends in Data Science
<u>BCACAVN501</u>	Digital Marketing	<ul style="list-style-type: none"> • Gain a historical perspective of AI and its foundations. • Become familiar with basic principles and strategies of AI towards problem solving • Understand and apply approaches of inference, perception, knowledge representation, and learning. • Understand the various applications of AI


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Course outcome as per National Education Policy

Course Code	Course Name: Computer Science	Course Outcome
<u>BCACACN602</u>	Advanced JAVA and J2EE	<ul style="list-style-type: none"> • Identify the need for advanced Java concepts like Enumerations and Collections • Construct client-server applications using Java socket API • Make use of JDBC to access database through Java Programs • Adapt servlets to build server side programs • Demonstrate the use of JavaBeans to develop component-based Java software
<u>BCACAVN601</u>	Web Content Management System	<ul style="list-style-type: none"> • Understand content development basics • Gain Knowledge of tools for multimedia content development for audio/ video, graphics, animations, presentations, screen casting • Host websites and develop content for social media platforms such as wiki and blog. CO4. Understand e-publications and virtual reality • Use of e-learning platform Moodle and CMS applications Drupal and Joomla
<u>BCACACN601</u>	PHP and MySQL	<ul style="list-style-type: none"> • Design dynamic and interactive web pages and websites. • Run PHP scripts on the server and retrieve results. • Handle databases like MySQL using PHP in websites.
<u>BCACAEN601</u>	Fundamentals of Data Science	<ul style="list-style-type: none"> • Understand the concepts of data and pre-processing of data.

		<ul style="list-style-type: none"> • Know simple pattern recognition methods • Understand the basic concepts of Clustering and Classification • Know the recent trends in Data Science
<u>BCACACN603</u>	Artificial Intelligence and Applications	<ul style="list-style-type: none"> • Gain a historical perspective of AI and its foundations. • Become familiar with basic principles and strategies of AI towards problem solving • Understand and apply approaches of inference, perception, knowledge representation, and learning. • Understand the various applications of AI



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BCA3C7L	Database Management System	<ul style="list-style-type: none"> • Understand the various database concepts and the need for database systems. • Identify and define database objects, enforce integrity constraints on a database using DBMS. • Demonstrate a Data model and Schemas in RDBMS. • Identify entities and relationships and design ER diagrams for given real-world problems. • Represent ER model to relational model and its implementation through SQL. • Formulate queries in Relational Algebra, Structured Query Language (SQL) for database manipulation. • Understand the transaction processing and concurrency control techniques.
BCA3C8L	C# and Dot Net Framework	<ul style="list-style-type: none"> • Understand Object Oriented Programming concepts like Inheritance and Polymorphism in C# programming language. • Interpret and Develop Interfaces for real-time applications. • Build custom collections and generics in C#.
BCA3C9L	Computer Communication and Networks	<ul style="list-style-type: none"> • Explain the transmission technique of digital data between two or more computers and a computer network that allows computers to exchange data. • Apply the basics of data communication and various

		<p>types of computer networks in real world applications.</p> <ul style="list-style-type: none"> • Compare the different layers of protocols. • Compare the key networking protocols and their hierarchical relationship in the conceptual model like TCP/IP and OSI.
<p>BCA3C10L</p>	<p>Python Programming</p>	<ul style="list-style-type: none"> • Explain the basic concepts of Python Programming. • Demonstrate proficiency in the handling of loops and creation of functions. • Identify the methods to create and manipulate lists, tuples and dictionaries. • Discover the commonly used operations involving file handling. • Interpret the concepts of Object-Oriented Programming as used in Python. • Develop the emerging applications of relevant fields using Python.
<p>BCA3C11L</p>	<p>Computer Multimedia & Animation</p>	<ul style="list-style-type: none"> • Write a well-designed, interactive Web site with respect to current standards and practices. • Demonstrate in-depth knowledge of an industry-standard multimedia development tool and its associated scripting language. • Determine the appropriate use of interactive versus standalone Web applications.
<p>BCA3C12L</p>	<p>Operating System Concepts</p>	<ul style="list-style-type: none"> • Understand the fundamentals of the operating system. • Comprehend multithreaded programming, process management, process synchronization, memory management and storage management. • Compare the performance of Scheduling Algorithms Identify the features of I/O and File handling methods.

COMAISN301	Artificial Intelligence	<ul style="list-style-type: none"> • Appraise the theory of Artificial intelligence and list the significance of AI • Discuss the various components that are involved in solving an AI problem. • Illustrate the working of AI Algorithms in the given context. • Analyze the various knowledge representation schemes, Reasoning and Learning techniques of AI. • Apply the AI concepts to build an expert system to solve the real-world problems.
BCACAEN302	R PROGRAMMING	<ul style="list-style-type: none"> • Understand the basics of Fundamentals of R. • Understands the loading, retrieval techniques of data. • Understand how data is analyzed and visualized using statistic functions.


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Course Code	Course Name: Computer Science	Course Outcome
CAC01	Fundamentals of Computers	<ul style="list-style-type: none">• Understand the fundamentals of computer system• Identify different components within the computer system• Understand different types of input and output devices• Demonstrate the working concepts of different devices connected to computer• Explain different generations of programming languages and their significance• Understand the use of Word processing, Spreadsheet, Presentation and DBMS applications• Understand Digital computer and digital systems functioning
CAC02	Programming in C	<ul style="list-style-type: none">• Confidently operate Desktop Computers to carry out computational tasks• Understand working of Hardware and Software and the importance of operating systems• Understand programming languages, number systems, peripheral devices, networking, multimedia and internet concepts• Read, understand and trace the execution of programs written in C language

		<ul style="list-style-type: none"> • Write the C code for a given problem • Perform input and output operations using programs in C • Write programs that perform operations on arrays
CAC03	Mathematical Foundation	<ul style="list-style-type: none"> • Study and solve problems related to connectives, predicates and quantifiers under different situations. • Develop basic knowledge of matrices and to solve equations using Cramer's rule. • Know the concept of Eigen values. • To develop the knowledge about derivatives and know various applications of differentiation. • Understand the basic concepts of Mathematical reasoning, set and functions
CAC01P	Information Technology Lab	<ul style="list-style-type: none"> • Identification of the peripherals of a computer, components in a CPU and their functions. • Assembling and disassembling the system hardware components of personal computer. • Basic Computer Hardware Trouble shooting. • Operating System Installation – Windows OS, UNIX/LINUX, Dual Booting. • Activities using word processing, presentation and spreadsheet software • Tasks involving Internet Browsing
CAC02P	C Programming Lab	<ul style="list-style-type: none"> • Educate the student about basics of programming • It is the foundation for the procedural programming languages
CACOE1/DSCOE1	Office Automation	<ul style="list-style-type: none"> • Compare and contrast various types of operating systems • Explain the purpose of office automation

		<ul style="list-style-type: none"> • Describe how information is stored and retrieved in/from computer memory • Know about various types of office automation software and their applications • Create document using word processing software • Design presentation using presentation software • Create worksheets using spreadsheet software • Store and retrieve data in/from database management application
CAC04	Data Structures using C	<ul style="list-style-type: none"> • Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms • Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs • Write programs that use arrays, linked structures, stacks, queues, trees, and graphs • Demonstrate different methods for traversing trees • Compare alternative implementations of data structures with respect to performance • Describe the concept of recursion, give examples of its use • Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing
CAC05	Object Oriented Programming with JAVA	<ul style="list-style-type: none"> • Understand the features of Java and the architecture of JVM • Write, compile, and execute Java programs that may include basic data types and control flow constructs and how type casting is done • Identify classes, objects, members

		<p>of a class and relationships among them needed for a specific problem and demonstrate the concepts of polymorphism and inheritance</p> <ul style="list-style-type: none"> • The students will be able to demonstrate programs based on interfaces and threads and explain the benefits of JAVA's Exceptional handling mechanism compared to other Programming Language • Write, compile, execute Java programs that include GUIs and event driven programming and also programs based on files
CAC06	Discrete Mathematical Structures	<ul style="list-style-type: none"> • To understand the basic concepts of Mathematical reasoning, set and functions. • To understand various counting techniques. • Understand the concepts of various types of relations, partial ordering and equivalence relations. • To understand the concept of probability and mathematical induction. • Familiarize the fundamental concepts of graph theory and shortest path algorithm. • To understand the concept of binary tree representation.
CAC04P	Data Structures Lab	<ul style="list-style-type: none"> • To understand the practical knowledge about selection sort technique, insertion sort technique and bubble sort technique • The programs illustrates the operations on primitive and non-primitive data structures • The students will get the better understanding of shell programming through the LINUX command
CAC05P	JAVA Lab	<ul style="list-style-type: none"> • To understand the practical topic using programming samples

		<ul style="list-style-type: none"> • To develop skill in JAVA programming and OOPS concepts
CACOE2/DSCOE2	Web Designing	<ul style="list-style-type: none"> • Understand various Internet related terminologies • Explain features and evolution of Internet • Explain the use of search engines • Know the use of different tags available in HTML • Design web pages using HTML5, CSS3, XML and XHTML • Implement websites using linked web pages.

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