MANNAR THIRUMALAI NAICKER COLLEGE

A Co-educational, Autonomous and Linguistic Minority Institution
Affiliated to Madurai Kamaraj University
Re-accredited with "A" Grade by NAAC

Pasumalai, Madurai – 625 004 Tamil Nadu.

CURRICULUM RELEVANCE TO THE LOCAL, REGIONAL, NATIONAL AND GLOBAL NEEDS

NAME OF THE PROGRAMME: BCA   PROGRAMME CODE: UCA

PROGRAMME OUTCOMES

PO1: Demonstrate the knowledge and understanding of Science concepts and its relevant fields.

PO2: Identify, formulate, analyse complex problems and reach valid conclusions using the methodologies of Science.

PO3: Employ critical and analytical thinking in understanding the concepts and apply them in various problems appearing in different branches of Science.

PO4: Communicate the known concepts effectively within the profession and with any forum.

PO5: Function successfully as a member/leader in any team and to apply ethics, accountability and equity in their life.

PO6: Use ICT tools in various learning situations, related information sources, suitable software to analyze data and furthermore participating in learning activities throughout life to meet the demands of work place through knowledge /up-skilling / re-skilling.

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PROGRAMME SPECIFIC OUTCOMES

PSO1: Provide the students about computing principles and business practices in software solutions, outsourcing services, public and private sectors.

PSO2: Analyze and synthesis computing systems through quantitative and qualitative techniques.

PSO3: Envisage and work on laboratory and multi- disciplinary tasks in computer applications.

PSO4: Combination of computer application and allied subjects make them competent and face industrial challenges.

PSO5: Expertise to communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare.

PSO6: Acquiring In-depth knowledge & sustained learning leading to innovation, permutation, modernization and enrichment to fulfill global interest.

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Sl. No	Course Code	Course Name	Course Outcomes
1.	21UCAC11	**Programming in C**	**CO1:** To learn computer programming using the C programming language. **CO2:** To learn the basic programming constructs, so that they can easily switch over to any other language in future. **CO3:** To describe and employ strategies that are useful in debugging. **CO4:** To develop logics which will help them to create programs and applications in C. **CO5:** To analyze programming problems to choose when regular loops should be used and when recursion will produce a better program.
2.	21UCACP1	**Programming in C Lab**	**CO1:** To learn computer programming using the C programming language. **CO2:** To learn the basic programming constructs, so that they can easily switch over to any other language in future. **CO3:** To describe and employ strategies that are useful in debugging. **CO4:** To develop logics this will help them to create programs, applications in C. **CO5:** To analyze programming problems to choose when regular loops should be used and when recursion will produce a better program.

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3.	21UMCA11	**Mathematical Foundations**	**CO1:** To understand the rank of a matrix and apply it to solving system of linear equations. **CO2:** To analyze Eigen values and associated Eigen vectors of a matrix. **CO3:** To study the methods of reasoning, which includes algebra of propositions, such as compound propositions, truth tables, and tautologies. **CO4:** To write and interpret mathematical notation and mathematical definitions. **CO5:** To acquire a basic idea of graph, various terms associated and matrix representations of graphs, Trees and their properties.
4.	21UCASP1	**Multimedia Lab**	**CO1:** To learn and understand technical aspect of Multimedia Systems. **CO2:** To understand the standards available for different audio, video and text applications. **CO3:** To learn various multimedia authoring systems. **CO4:** To understand various networking aspects used for multimedia applications. To develop multimedia application and analyze the performance of the same **CO5:** To create e-page, power point presentations and desktop publishing, and the techniques for multimedia so that the students will come across to produce an appropriate design.

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5.	21UCAC21	**Data Structures using C++**	**CO1:** To learn data structure using the C++ programming language. **CO2:** To learn the basic programming constructs, so that they can easily switch over to any other language in future. **CO3:** To describe basic data structures for storage and retrieval of ordered or unordered data. **CO4:** To develop logics which will help them to create programs, applications in C++. **CO5:** To develop the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
6.	21UCACP2	**Data Structures using C++ Lab**	**CO1:** To learn data structure using the C++ programming language. **CO2:** To learn the basic programming constructs. **CO3:** To describe basic data structures for storage and retrieval of ordered or unordered data. **CO4:** To develop logics which will help them to create programs, applications in C++. **CO5:** To develop the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting
7.	21UMCA21	**Probability and Statistics**	**CO1:** To provide students with the foundations of probabilistic and statistical analysis mostly used in varied applications in engineering and science like

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			disease modeling, climate prediction and computer networks etc. **CO2:** To Apply laws of probability to concrete problems.
8.	21UCASP2	**PHP Lab**	**CO1:** Understand the principles of creating an effective dynamic web page, including the consideration of information architecture. **CO2:** Understanding of server-side scripting with PHP language. **CO3:** To develop an ability to design and implement static and dynamic website. **CO4:** Learn database driven web applications and practice to configure the Apache webserver.
9.	21UCAC31	**Java Programming**	**CO1**: Examine classes, Objects, Members of a class and relationships among them needed for a specific problem. **CO2:** Integrate Java programs using OOP principles and proper program structure. **CO3:** Determine the concepts of Polymorphism, inheritance, Packages and Interface in java. **CO4**: Associate exception handling, multithreaded applications with synchronization **CO5:** Validate Java programs to implement AWT controls and applets for web applications.
10.	21UCACP3	**JAVA Programming Lab**	**CO1:** Identify the basic data types and control flow constructs. **CO2:** Summarize object-oriented class structures with parameters, constructors, and

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			utility and calculations methods, including inheritance, test classes and exception handling. **CO3:** Gather Java programs using arrays, functions, manipulating strings and recursion. **CO4:** Examine threads, exception handling and polymorphism. **CO5:** Validate Java programs to implement AWT controls and applets for web applications.
11.	21UCOA31	**Fundamentals of Accounting**	**CO1:** To enable the students to gain working knowledge of basic Accounting principles and procedures. **CO2:** To enable the students to learn the preparation of Trial Balance. **CO3:** To provide knowledge in preparation of financial accounts of Sole trading concern with simple adjustments. **CO4:** To prepare the journal, Ledger and Trial Balance using Tally ERP 9.0. **CO5:** To prepare the GST Tax & Invoicing using Tally ERP 9.0.
12.	21UCASP3	**Python Lab**	**CO1:** Define and demonstrate the use of built-in data structures and functions. **CO2:** Interpret the logic into code using functions and modules. **CO3:** Execute the programs using branching, looping and control statements. **CO4:** Implement static and dynamic web pages using Python tool.

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			CO5: Experiment a Python program to solve specific or real-world problems.
13.	21UCAN31	HTML Programming	**CO1:** Identifying the important HTML tags for designing static pages and separate design from content using Cascading Style sheet. **CO2:** Experimenting screen-based user interfaces, with graphics, textual components, and navigation systems to achieve a unified, functional environment that results in static web pages. **CO3:** Finding the difference between linked, embedded and inline style specifications. **CO4:** Linking a web page and identify its elements and attributes. **CO5:** Testing the rules and techniques to create and design the web pages.
14.	21UCAC41	Database Management System	**CO1:** Enumerate the underlying concepts of the management of database systems. **CO2:** Describe the structure and model of the relational database System. **CO3:** Analyse a database based on a data model considering the normalization to a specified level. **CO4:** Construct simple and moderately advanced database queries using Structured Query Language (SQL) **CO5:** Design multiple tables using group functions, sub queries and Implement cursor and trigger concept for a given scenario.

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15.	21UCACP4	**Database Management System – Lab**	**CO1:** Use data manipulation language to query, update and manage a database. **CO2:** Describe the fundamental elements of relational database management systems. **CO3:** Analyze the database using queries to retrieve records. **CO4:** Create views to satisfy the user's changing. **CO5:** Apply PL/SQL for processing data base.
16.	21UCOA41	**Basics of Cost Accounting**	**CO1:** Through knowledge about meaning, methods, types and elements of cost. **CO2:** Analysis the various techniques of Material control. **CO3:** Attain knowledge on the accounting Methods of Wage payments, Labour Turnover and Causes and Remedies. **CO4:** Through knowledge of Primary and Secondary Distribution of Overhead, and Machine hour Rate. **CO5:** To gain the knowledge on budget and budgetary control and prepare various types of budgeting.
17.	21UCASP4	**R Programming Lab**	**CO1:** Understand basic concepts such as data type and index and use them in their work. **CO2:** Demonstrate use of basic functions. **CO3:** Understand, Analyze, Interpret Correlation and Regression to analyze the underlying relationships between different variables **CO4:** Conceptualize and create loops to solve different types of problems.

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			CO5: Define Calculate, Implement Probability and Probability Distributions to solve awide variety of problems.
18.	21UCAN41	**Multimedia**	**CO1:** Identify the basic tools and components of a real time multimedia applications **CO2:** Preparing basic elements of photo editing software to achieve a great photo effect **CO3:** Experimenting the simple animation by applying shape tweens and motion tweens **CO4:** Built various audio, video and text media formats **CO5:** Composing various text and image effects by applying multimedia tools.
19.	21UCAC51	**Operating system**	**CO1:** Discover the main components of an Operating System and their functions. **CO2:** Analyze the process management and scheduling. **CO3:** Understand the concepts and implementation of Memory management policies and virtual memory. **CO4:** Assess the need for special purpose operating system with the advent of new emerging technologies. **CO5:** Examine various issues in Inter Process Communication (IPC) and the role of OS in IPC.
20.	21UCAC52	**Computer Networks**	**CO1:** To understand the concepts of computer networking basics. **CO2:** To know the various transmission media such as guided and unguided. **CO3:** To develop and understanding of different components, of computer

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			networks, various protocols. **CO4:** To analyze overall networking standards and to implement all the protocols. **CO5:** To able to know the importance of security in data communications and networking.
21.	21UCACP5	**Linux Lab**	**CO1:** Write useful shell scripts which greatly and effectively enhance the usefulness of computers. **CO2:** Understand basics of various OS related concepts, from programmer's point of view. **CO3:** Develop applications where several processes need to communicate with each other to complete a task. **CO4:** Explain some of the different distribution of Linux and the reason for open source. **CO5:** Use Linux commands to manage files and file systems.
22.	21UCAE51	**Data mining and Warehousing**	**CO1:** Understand Data Warehouse fundamentals, Data Mining Principles **CO2:** Design Data warehouse with dimensional modeling and apply OLAP operations. **CO3:** Identify appropriate data mining algorithms to solve real world problems. **CO4:** Compare and evaluate different data mining techniques like classification, prediction Clustering and Association Rule mining **CO5:** Describe complex data types with respect to spatial and web mining
23.	21UCAE52	**Software Project**	**CO1:** Define the scope of software Project Management

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		Management	**CO2:** Understand some problems and concerns of software Project Managers **CO3:** Explain the main elements of the role of Management Appreciate the need for careful planning, monitoring and control **CO4:** Define the success criteria for a Project
24.	21UCAE53	Internet of Things	**CO1:** To describe what IoT is and how it works today **CO2:** To understand the application areas of IOT **CO3:** To understand building blocks of Internet of Things and characteristics **CO4:** To realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks · **CO5:** To design and program IoT device.
25.	21UCAE54	Cloud computing	**CO1:** Identify the technical foundations of cloud systems architectures. **CO2:** Analyze the problems and solutions to cloud application problems. **CO3:** Apply principles of best practice in cloud application design and management. **CO4:** Identify and define technical challenges for cloud applications and assess their importance. **CO5:** To offer skills, knowledge to understand technology for storing, analyzing and handling large amounts of data efficiently.
26.	21UCAE55	Management Information Systems	**CO1:** Describe the role of information technology and decision support systems in business and record the

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			current issues with those of the firm to solve business problems. **CO2:** Introduce the fundamental principles of computer-based information systems analysis and design and develop an understanding of the principles and techniques used. **CO3:** Enable students understand the various knowledge representation methods and different expert system structures as strategic weapons to counter the threats to business and make business more competitive. **CO4:** Enable the students to use information to assess the impact of the Internet and Internet technology on electronic commerce and electronic business and understand the specific threats and vulnerabilities of computer systems. **CO5:** Provide the theoretical models used in database management systems to answer business questions.
27.	21UCAE56	**Artificial Intelligence**	**CO1:** Describe the concept of Artificial Intelligence. **CO2:** Analyze the search techniques and knowledge representation. **CO3:** Demonstrate knowledge of the building models of AI as presented in terms of intelligent agents. **CO4:** Learn the purpose of heuristic search techniques. **CO5:** Examine the issues involved in knowledge bases,

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			reasoning systems and planning.
28.	21UCASP5	Data mining Lab	**CO1:** Install data mining tools and get hands on experience in that tool. **CO2:** Apply and analyze Data Mining Algorithms to handle larger set of databases. **CO3:** Examine the use of PHP programming that uses SQL tables. **CO4:** Examine to extract huge sets of data using OLAP operations. **CO5:** Able to analyze and classify web documents using Web mining techniques.
29.	21UCAC61	C# and .Net Programming	**CO1:** To Highlighting Knowledge of Object- oriented paradigm in the C# Program Language and to Gathering knowledge of .NET environments. **CO2:** To design and develop console and window-based .NET Application. **CO3:** Demonstrate the usage of recent platforms like C#, XML, and ASP.Net which is used in the development of web application. **CO4:** Represent the security in the .NET framework. **CO5:** To practice the fundamental programming mythologies in the C# programming via laboratory experiences.
30.	21UCACP6	C# and .Net Programming Lab	**CO1:** Making student understand the concept of framework. **CO2:** To develop logics this will help them to create programs, applications in Net Framework.

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			CO3: To create a simple application through framework and its native Language. **CO4:** To understand the Programming concepts in .Net Framework and create website using .Net Controls. **CO5:** Design and develop dynamic, database using .Net.
31.	21UCAPR1	**Project and viva - voce**	**CO1:** To acquire the knowledge about selecting the task based on their course skills. **CO2:** To get the knowledge about analytical skill for solving the selected task **CO3:** To get confidence by implementing the task in a real time projects. **CO4:** To Facilitate experiential learning. **CO5:** To do Real time projects.
32.	21UCAE61	**Cyber Security**	**CO1:** To understand key terms and concepts in Cryptography, Governance and Compliance **CO2:** To diagnose and investigate cyber security events or crimes related to computer systems and digital evidence. **CO3:** To exhibit knowledge to secure corrupted systems, protect personal data, and secure computer networks in an organization. **CO4:** To implement Cyber security Best Practices and Risk Management **CO5:** To practice with an expertise in academics to design and implement security solutions.
33.	21UCAE62	**Client server Computing**	**CO1:** Promote a simple understanding of how to design a Client Server application.

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			CO2: Afford learners with a summary of the concepts and fundamentals of client/server computing. **CO3:** Identify the various components of client server applications. **CO4:** Recognize the concept of client/server systems development methodology. **CO5:** Gain a better understanding of new computing paradigms.
34.	21UCAE63	**Mobile Computing**	**CO1:** Understand the basic concepts of mobile computing. **CO2:** Learn the basics of mobile telecommunication system **CO3:** To be familiar with the network layer protocols and Ad-Hoc networks **CO4:** Know the basis of transport and application layer protocols **CO5:** Gain knowledge about different mobile platforms and application development.
35.	21UCAE64	**Computer Graphics**	**CO1:** To introduce to the principles of computer graphics. **CO2:** Understand the need of developing graphics application **CO3:** To give idea about basic building blocks of multimedia **CO4:** Learn algorithmic development of graphics primitives like: line, circle, polygon etc. **CO5:** Learn the representation and transformation of graphical images and picture.
36.	21UCAE65	**Software Testing**	**CO1:** Employ correct testing terminology throughout the testing process.

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			CO2: Execute specific software tests with well-defined objectives and targets. **CO3:** Apply various testing techniques, including domain, code, fault, usage and model-based. **CO4:** Execute program and test evaluations. **CO5:** Perform a complete testing process, taking into account practical considerations.
37.	21UCAE66	**Big Data Analytics**	**CO1:** Understand the Big Data Platform and its Use cases **CO2:** Provide an overview of Apache Hadoop **CO3:** Provide HDFS Concepts and Interfacing with HDFS **CO4:** Understand Map Reduce Jobs **CO5:** Provide hands on Hadoop Eco System.
38.	21UCASP6	**Android Development Lab**	**CO1:** To gain knowledge of installing Android Studio and Cross Platform Integrated Development Environment **CO2:** Learn the basics of Android platform and get to understand the application lifecycle **CO3:** Creating robust mobile applications and learn how to integrate them with other services **CO4:** Creating intuitive, reliable mobile apps using the android services and components **CO5:** Designing of User Interface and Layouts for Android App.