CURRICULUM STRUCTURE-BCA

SEMESTER I

Code	Subject Name	Credits
BP1-LT001/ BP1-LFRE1	Tamil/ Other languages – I	3
BP2-ENG01	Communicative English I	3
BCE-CSC01	Core I : Problem Solving using Python	4
BCE-CSC02	Practical I: Problem Solving using Python Lab	2
BMA-CSA01	Allied I: Mathematics I	5
	Basic Tamil/Advanced Tamil/Non Major Elective I	2
BP4-EPSC 01	Soft Skill I- English for Physical Sciences I	3
	Total Credits	**22**

SEMESTER II

Code	Subject Name	Credits
BP1-LT002/ BFC-LF22	Tamil/ Other languages – II	3
BP2-ENG02	Communicative English II	3
BSA-CSC03	Core II :Object Oriented Programming Concepts using C ++	4
BSA-CSC04	Practical II : C++ programming Lab	3
BMA-CSA02	Allied II: Mathematics II	5
	Basic Tamil/Advanced Tamil/Non Major Elective II	2
BP4-EPSC0	Soft Skill II- English for Physical Sciences II	3
	Total Credits	**23**

SEMESTER III

Code	Subject Name	Credits
BCA-DSC05	Core III: Data Structures	4
BCA-DSC06	Core IV: Java programming	4
BCE-CSC03	Core V: Computer Organization	4
BCA-DSC08	Practical III : Data Structures using Java Lab	3
BCA-DSA03	Allied III: Financial Accounting	5
BP4-SS003	Soft Skill III	3
	Environmental Studies	Examination will be held in Semester IV
	Total Credits	**23**

SEMESTER IV

Code	Subject Name	Credits
BSA-CSC09	Core VI: Computer Network	4
BCE-CSC15	Core VII: Open Source Technologies	4
BCA-DSC11	Core VIII : E-Commerce technologies	4
BSA-CSC16	Practical IV : Open Source Technologies Lab	3
BCA-DSA04	Allied IV: Cost and Management Accounting	5
BP4-SS014	Soft Skill IV	3
	Environmental Studies	2
	Total Credits	**25**

SEMESTER V

Code	Subject Name	Credits
BCE-CSC14	Core IX: Software Engineering	4
BCE-CSC10	Core X : Operating System	4
BCE-CSC11	Core XI: Relational Database Management System	4
BCE-CSC12	Practical V: Operating System Lab	3
BCE-CSC13	Practical VI : PL/SQL Lab	2
	Elective I	5
	Value Education	2
	Total Credits	**24**

SEMESTER VI

Code	Subject Name	Credits
BCA-DSC18	Core XII: Web Design and Development	4
BCA-DSC19	Core XIII: Data Mining	4
BCA-DSC20	Core XIV: Mobile Application Development	4
BCA-DSC21	Practical VII: Mobile Application Development Lab	3
	Elective II	5
BCE-CSC18	Mini Project	5
	Extension Activities	1
	Total Credits	**26**

SPECIFIC ELECTIVES (Semester - V & VI)

Code	Subject Name	Credits
Elective I		
BCA-DSE1A	Principles of Information Security	**5**
BSA-CSE1B	Resource Management Techniques Multimedia and its Applications	**5**
BCA-DSE1C	Principles of Information Security	**5**
Elective II		
BSA-CSE2A	Software Project Management	**5**
BCE-CSE2B	IOT and its Applications Data Analytics using R	**5**
BCA-DSE2C	Software Project Management	**5**

NON MAJOR ELECTIVES (Semester - I & II)

Code	Subject Name	Credits
Semester I		
BCE-NME1A	Web Application Office Automation	**2**
BCE-NME1B	HTML	**2**
BCE-NME1C	Web Application Office Automation	**2**
Semester II		
BCE-NME2A	Web Application Lab	**2**
BCE-NME2B	Office Automation Lab HTML Lab	**2**
BCE-NME2C	Web Application Lab	**2**

I Year I Semester
Problem Solving using Python
C.O. To Enable the students to know about the concepts and principles of python and acquire skills in programming in python
COI: Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements
COII: Express proficiency in the handling of strings and functions
COIII: Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
COIV: Identify the commonly used operations involving file systems and regular expressions.
COV: Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python.
Problem Solving using Python Lab
C.O. TO facilitate the students to attain the python programming features in practical applications.
COI: Understand the numeric or real life application problems and solve them.
COII: Apply a solution clearly and accurately in a program using Python.
COIII: Apply the best features available in Python to solve the situational problems.
COIV: Use functions for structuring Python programs
COV: Read and write data from & to files in Python and develop Application
I Year II Semester
Object Oriented Programming Concepts using C ++
C.O. It provides the skills to develop programming skills using the fundamentals and basics of C Language. It enables the effective usage of arrays, structures, functions, pointers and to implement the memory management concepts. It teaches the issues in file organization and the usage of file systems.
COI: Able to Understand OOPs Concept ,C++ language features. Able to Understanding and Applying various Datatypes, control structures, Operators,Conversions in program design.
COII: Able to Understand and Apply the concepts of Classes &Objects,friend function , constructors &destructors in program design.
COIII: Able to Design & implement various forms of inheritance, Able to Apply & Analyze operator overloading, Virtual base classes and Abstract classes.
COIV: Able to Apply &Analyze the pointers, Memory Models, array of classes, Polymorphism
COV: Able to Analyze and explore various Stream classes, I/O operations and exception handling, String classes..

C++ programming Lab

C.O. This course is designed to help in formulating and implementing problems using C language. It enables to effectively choose programming concepts that efficiently solves computing problems in real-world.

COI: Develop solutions for a range of problems using objects and classes

COII: Apply programming knowledge to demonstrate the function overloading, Default Arguments and Inline Function.

COIII: Programs to demonstrate the implementation of constructors, destructors and operator overloading, friend functions.

COIV: Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism

COV: Understand generic programming, templates, file handling.

II Year III Semester

Data Structures

C.O. This paper teaches the OOPs concepts used to develop various application program and data structure programs which meets the system implementation.

COI: : Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.

COII: Understand basic data structures such as arrays, linked lists, stacks and queues.

COIII: Describe the hash function and concepts of collision and its resolution methods

COIV: Solve problem involving graphs, trees and heaps

COV: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

Java programming

C.O. This course is designed to create Java programs that leverage the object-oriented features of the Java language, such as encapsulation, inheritance and polymorphism; use data types, arrays and other data collections.

COI: Understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements;

COII: Ability to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.

COIII: Demonstrate the principles of object oriented programming.

COIV: Demonstrate the ability to use simple data structures like arrays in a Java program.

COV: Understand the concept of package, interface, multithreading and File handling in java.Ability to make use of members of classes found in the Java API (such as the Math class).

Computer Organization
C.O Understand the basic concept of the major components of a computer system and state their function and purpose and describe the microstructure of a processor and the ability to program a microprocessor in assembly language
COI: To understand the design of the functional units of a digital computer system and their function and purpose
COII: To Understand the fundamentals of the computer organizations and Articulate the Design data paths for a given instruction formats..
COIII: To Gain the basic knowledge microprocessors architecture and Instruction sets.
COIV: Ability to develop applications 8085 Assembly language programming techniques.
COV: To understand the operation DMA , peripheral Interfaces and to know the features of latest microprocessor.

Data Structures Using Java LAB
C.O Enable the students to develop the programming skill using Java and Data Structures.
COI: Identify the appropriate data structures and algorithms for solving real world problems.
COII:. Suggest appropriate linear and non-linear data structure operations for solving a given problem
COIII: Implement data structures such as stacks, queues, Search trees to solve various computing problems.
COIV: To implement graph traversal algorithms.
COV: Implement various kinds of searching and sorting techniques.

Financial Accounting
C.O. To teach the fundamentals of accounting. To make the students to prepare journal, ledger and trial balance. To understand the types of subsidiary books. Acquire knowledge on types of errors. To have a clear idea of preparing final accounts of individuals.
COI: Understand the role of accounting and its limitations.
COII: Prepare financial statements in accordance with Generally Accepted Accounting Principles
COIII: Demonstrate knowledge of each step in the accounting cycle
COIV:Support at a basic level the recording and reporting of financial information for business
COV:Demonstrate an understanding the tally in accounts.

II Year IV Semester

Open Source Technologies

CO. To recognize the benefits and features of Open Source Technology and to interpret, contrast and compare open source products among themselves.

COI: To recognize the benefits and features of Open Source Technology and to interpret, contrast and compare open source products among themselves.

COII: Understand the features of OSS over Commercial S/Wand the basic principles of OOS .

COIII: Understand the basic concepts of various software tools and browsers

COIV: Gain the knowledge about open source hardware design and teaching media.

COV: Understand the open source Ethics and Impact of open source Technology..

Computer Network

C.O. To provide an introduction to the fundamental concepts on data communication and the design of computer networks. To get familiarized with the basic protocols of computer network and exposed to the TCP/IP protocol suite.

COI: To understand the basic use of computer networks,Internet and understand the layers of OSI and TCP.

COII: To understand the concept of   wireless computer networks and switching components in telecommunication systems.

COIII: To Analyze the services and features of various protocol layers in data networks. Define the concept of local area networks, their topologies, protocols and applications and

 COIV: To get Knowledge about different types of routing algoriothms.

COV: To learn about the security issues related to data networks. Analyse why networks need security and control, what errors might occur, and how to control network errors

E-Commerce technologies

C.O. To explore the major issues associated with e-commerce-security, privacy, intellectual property rights, authentication, encryption, acceptable use policies, and legal liabilities.

COI: Analyze the impact of E-commerce on business models and strategy.

COII: Obtain a general understanding of basic business management concepts.

COIII: Have complete knowledge about basic technical concepts relating to E-Commerce and process that should be followed in building an E-commerce presence.

COIV: Identify the key security threats in the E-commerce environment.

COV: Attain through understanding, how procurement and supply chains relate to B2B E-commerce

Open Source Technologies Lab
CO I. To be aware of the various open source software available for different problem needs.
COII: To be familiar with the usage of the software like installation and configuration.
COII: Students must be able to use appropriate open source tools based on the nature of the problem
COIII: Students should be able to code and compile different open source software.
COIV: Apply the DDL and DML commands for their simple Applications with MySQL as backend.
COV: Familiar with different operators and functions in PHP,perl.python.

Cost and Management Accounting
C.O. To study the cost accounting technique applied in MaterialCost. To enable the students to develop the skill relating to varioustechniquesincomputingLabour cost. To provide knowledge about the allocation and absorptionofoverhead.
COI: Aimed to familiarize the concept of cost accounting.
COII: Helps to gather knowledge on preparation of cost sheets in its practical point of view.
COIII: To facilitate the idea and meaning of material control with pricing methods.
COIV:Develop the knowledge about renumeration and incentives to introduce the concept of overhead cost.Gaininformation about function of finance and cost of capital and WACC.
COV: Knowledge on various tools and techniques of management.Analysis and interpretation of financial statements to provide information to management

III Year V Semester
Software Engineering
C.O. The objective of the course is to enable students to understand and use a relational database system. Students learn how to design and create a good database and use various SQL operations. The course concludes with an overview of transaction management and introduction to advanced and non-relational databases.
COI: To analyze Data Base design methodology
COII: Acquire knowledge in fundamentals of Data Base Management System. Introduction to Databases, Conceptual design using ERD, Functional dependencies and Normalization, Relational Algebra is covered in detail.
COIII: Be able to analyze the difference between traditional file system and DBMS.
COIV: Able to handle with different Data Base languages.
COV:**:**Draw various data models for Data Base and Write queries mathematically.

Operating System
C.O. This course is designed to provide a comprehensive understanding of principles and technical approaches in operating systems. The emphasis of the course will be placed on understanding how the various elements of operating system interact and provides services for execution of application software.
COI: Know the fundamentals of Operating Systems.
COII: Understanding of design issues associated with operating systems and various process management concepts including scheduling, synchronization, and deadlocks
COIII: : Familiar with multithreading and concepts of memory management including virtual Memory.
COIV: Know Issues related to file system interface and implementation, disk management.
COV: Familiar with protection and security mechanisms
Relational Database Management System
C.O. To enable the students to acquire the basic knowledge in DBMs,RDBMS and Analyze functional dependencies for designing robust Database.
COI: Describe DBMS architecture, ER Model,Design and implement ER diagram to tables,ISA relationship..
COII: To facilitate the idea of Relational Model,Operations,RelationalCalculus,QBE.
COIII: Helps to gather knowledge on Relational Database, Normalization, Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.
COIV: Learn and apply Structured query language (SQL) commands database definition and database manipulation.
COV:Understand the PL/SQL Structure,ProcedureFunction,Exception Handling and Triggers.
Operating System Lab
C.O. Develop the Understand fundamental operating system abstractions such as processes, threads, files, semaphores and Analyze important algorithms eg. Process scheduling and memory management algorithm.
COI: Understand the process management policies and scheduling process by CPU.
COII: Analyze the memory management and its allocation policies.
COIII: To evaluate the requirement for process synchronization.
COIV: Able to handle read/write problems using semaphores.
COV: Able to execute the program for page replacement.

PL/SQL Lab

CO. This course is designed to include Graphical User Interface Concepts in Windows Environment.

COI: Implement Basic DDL commands with constraints

COII: Implement Basic DML commands with constraints

COIII: Understand Data selection and operators used in queries.Write sub queries and understand their purpose

COIV: Understand the PL/SQL architecture and write PL/SQL code for procedures, triggers, cursors, exception handling ,packages.

COV: Design and Develop Application for LibaryManagement, StudentMarksheet, Pay Roll Processing.

Elective – I Principles of Information Security

CO. Students should be able to understand the concepts of Information security, Laws, Control of Physical security, Authentication and Cryptography.

CO I: To facilitate the idea of Protection ,Security,and user authentication

CO II: Develop the knowledge about Program Threats,System Threats and communication Threats.

CO III: Understand the security mechanisms using rigorous approaches by key ciphers and Hash functions

CO IV: Helps to gather knowledge on signatures,messagedigests,Public key infrastructures

CO V: Able to Understand Intrusion detection,auditing and logging,tripwire,system-call monitoring.

Elective – I Resource Management Techniques

C.O. To enable the students to acquire the basic knowledge in Operations Research.

COI: Implement different Linear Programming and Algebraic Solution.

COII: Understand the method of penalties and simplex methods.

COIII: Learningvarious Models(Assignment and Transportation Problems).

COIV: Understanding Sequencing problem and Game Theory.

COV: Revamping Knowledge about PERT and CPM Computation.

Elective – I Multimedia and its Applications
C.O. This course is designed to understand the concept to create, build, and debug attractive multimedia applications.
COI:Define the concepts and definition of the multimedia systems.
COII: Differentiate between basic tools of multimedia.
COIII: understanding the various audio, video, animation concepts.
COIV::how to create multimedia projects.
COV: Understand the project planning and estimation Techniques.

III Year   VI Semester
Web Design and Development
CO. Building dynamic web pages using JavaScript, build interactive web applications using JDBC and JSP.
COI:Understand, analyze and apply the role of languages like HTML, DHTML, CSS, XML,JavaScript, VBScript, ASP, PHP and protocols in the workings of the web and web applications.
COII: Analyze a web project and identify its elements and attributes in comparison to traditional projects.
COIII: Understand, analyze and create web pages using HTML, DHTML and Cascading Stylessheets, dynamic web pages using JavaScript and VBScript (client-side programming).
COIV: Understand, analyze and build interactive web applications using PHP and create XML documents and XML Schema.
COV: Understand, analyze and build interactive web applications using PHP and create XML documents and XML Schema.

Data Mining
C.O.This Course To learn about data mining Concepts.To study the different data mining techniques knowledge in Data mining concepts.To apply Data mining concepts in different fields.
COI: To understand about the basic concepts about data mining .
COII: To learn how to use data Data Mining Techniques.
COIII: To learn the concepts of classifications of data mining..
COIV: To study the Clustering Tree with algorithms
COV: To understand the Association rules and techniques of data mining.

Mobile Application Development

C.O. To make the student understand the basic concepts of mobile application development, be aware of Characteristics of mobile applications, User-interface design, basics of graphics and multimedia.

COI: To explain the basics of mobile application development

COII: Develop Android application with User interface, networking and animation.

COIII To gain knowledge about testing and publishing of Android application. student will be able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more.

COIV: Use simulator tools to test and publish the application.

COV: Deploy applications to the Android marketplace for distribution which can use Location and network services

Mobile Application Development Lab

C.O.To enable students to gain a basic understanding of Android application development.To inculcate working knowledge of Android Studio development tool

COI: To give overall view of Mobile application development

COII: Develop and Publish Android application

COIII: Create dynamic web pages to send messages from one mobile to another mobile.

COIV: Develop and Publish Android application which can use Location and network services.

COV: Build and consume web services.

Elective – II Software Project Management

CO. To develop understanding about Basic Object oriented Design using UML and Get the knowledge of UML with skills to draw UML diagrams. Gets the knowledge of different forms of OO Implementation.

CO I:To understand the Software Product and development Life Cycle

COII:To know how to plan and manage projects at each stage of the software development

COIII:To understand the Tasks and Activities of software project.

CO IV:To learn about the Project Management Resource Activities

CO V:To understand the software quality and management of software product

Elective- II   IOT and its Applications
C.O. This course is designed to understand the concept to create, build, and debug attractive multimedia applications.
COI:To understand the concepts of Internet of Things and and Data Management.
CO II:To learn the concepts of M2M   to IoT Architectural and principles
CO III:To understand the knowledge about IoT Architecture andrefernce model
CO IV:To understand the Design IoT applications in different domain .
CO V:To know the concepts of Various security issues and need.

Elective- II   Data Analytics using R
CO. To make the student understand the basic concepts of data analytics, be familiar with the data analytics life cycle, learn the basics of R Language, be exposed to data pre-processing, model creations and visualizing the results using R
CO I: Write R program to pre-process the data for analytics .
CO II: Understand the various methods to analyze the data and create models
CO III: Present the analytics results to using visualization techniques
CO IV: Understand the Decision tree
CO V: To study the Clustering Tree with algorithms

Mini Project
The student has to understand the real time software development environment. The student should gain a thorough knowledge in the problem, Encouragement of higher order thinking and problem-solving skills. This helps students develop teamwork and problem-solving skills, along with the ability to communicate effectively with others