COURSE OUTCOME

DEPARTRMENT : **Computer Science**
COURSE : **BCA I**
SUBJECT Name & Code **: MATHS17BCA1711**

Students are able to learn and understand the following concepts:

CO1: Complex Numbers; Conjugate of a complex number; modulus of a complex Number.

CO2: Geometrical representation of complex number; De Moivere's theorem; nth roots of a complex number.

CO3: Sequence and Series: Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P).

CO4: sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, geometric mean (G.M.). Relation between A.M. and G.M.

CO5: Binomial Theorem: Statement of the binomial theorem for positive integral indices.

CO6: Quadratic Equations: Solution of Quadratic Equations by factor method, complete square method.

CO8: Introduction to Trigonometry: Trigonometry, The theorem of Pythagoras, Trigonometric ratios of acuteangles, Evaluating trigonometric ratios, Solution of right-angled triangles.

COURSE: **BCA I**
SUBJECT Name & Code :**COMPUTER FUNDAMENTALS**
(17BCACOFT13)

Students are able to learn and understand following concepts:

CO1. Characteristic, evolution, generation of computer, Basic computer organization.

CO2. Number systems, Computer Codes, Computer arithmetic.

CO3. Processor and memory, Secondary storage, IO devices.

CO4. Application Software, software development, firmware, middleware.

CO5. Application software case study, MS-Word.

CO6. Overview of operating system, functions of operating system, concept of multiprogramming.

CO7. Windows OS, Linux OS.

COURSE: **BCA I**
SUBJECT Name & Code :**C PROGRAMMING (17BCAPRCT14)**

Students are able to learn and understand the following concepts:
CO1. Basic concept of Computer, software and hardware devised, History
CO2. Algorithm, Flowchart, Coding, Running the program
CO3. Variables, Keywords, Identifiers, Data types, Constants

CO4. Operators, Type conversion, Mathematical functions
CO5. Decision Making and Branching, Looping Controls
CO6. Arrays, Functions and String handling functions
CO7. Structures and Unions

COURSE   **:BCA II**
SUBJECTName & Code**:DATA STRUCTURES(17BCADSCT23)**

Students are able to learn and understand the following concept

CO1. Pointers, Memory Management, Files, File access modes
CO2. Introduction to data structures, Primitive and Non-primitive data structure
CO3. Importance, Advantages and Disadvantages, Types of data Structure
CO4. Stack, Uses of stack, Infix, Prefix and Postfix conversions
CO5. Queue, Double ended queue, Circular queue and Priority queue
CO6. Linked List, Double ended Linked List, Circular Linked List,
CO7. Linear and Binary Searching, Bubble sort, Insertion sort, Selection sort,
    Quick sort, Merge Sort

COURSE   :**BCA II SEM**
SUBJECT Name & Code:**DIGITAL LOGIC&COMPUTER DESIGN**
                              (17BCADLCT24)

Students are able to learn and understand following concepts:
   CO1. Conversion of number systems.

   CO2. Laws of Boolean algebra & axioms along with canonical & standard forms.

   CO3. Concepts of map method- two variable, three variables & four variable k-map

   CO4. Designing of NAND & NOR exclusive OR GATE with the help of basic Gates

   CO5. Binary adder, subtractor, binary multiplier & Decoder functions

   CO6. Identify the difference of various Flip-flop understand the registers & counters.

   CO7. Identify the difference between RAM & ROM

   CO8. Error detection code

COURSE   : **BCA III**
SUBJECT Name &Code: **Discrete Mathematical Structures**
(17BCADMST31)
Students are able to learn and understand following concepts:
   CO1. Statements and notations of Mathematical Logic

   CO2. Set Theory

   CO3. Pigeonhole principle

   CO4. Definition, properties of binary relations in a set

   CO5. Algebraic Systems

CO6. Combinations and permutations

CO7. Graph Theory

CO8. Trees and their properties

COURSE   : **BCA III**
SUBJECT Name & Code: **OBJECT ORIENTEDPROGRAMMING USING JAVA(17BCAOOPT32)**

Students are able to learn and understand following concepts:

CO1. Constants and variables, typecasting and type conversion, Final variables.

CO2. Java Program structure, C, C++ and Java, java standalone applications.

CO3. Syntax and semantics of arrays, Strings and Vectors.

CO4. Concept of OOPs, inheritance and method overloading.

CO5. Interfaces, Packages and Threads, Multithread programming

CO6. Types of exception, Applets, HTML Tags.

CO7. Applet Programs to draw different geometric figures.

CO8. Programs that use console I/O

COURSE **:   BCAIII**
SUBJECT Name & Code:**Operating System Principles(17BCARDBT34)**

Students are able to learn and understand following concepts:

CO1. Introduction and types of Operating System, Process Scheduling, CPU Scheduling

CO2. Process Synchronization techniques

CO3. Deadlocks: Detection, Avoidance, Recovery, Methods of Handling Deadlocks

CO4. Memory Management: Logical and Physical address space, Swapping Contiguous

allocation, Paging, Segmentation

CO5. Virtual memory – Demand paging, Page Replacement algorithms, Allocation of

frames, Thrashing

CO6. File concepts, Access methods, Directory structure, Protection

CO7.FCFS, SSTF, SCAN, C-SCAN, LOOK Disk Scheduling Methods

CO8. Goals of protection, Domain protection, Access matrix security, Authentication,

One time password

SEMESTER : **BCA III**
SUBJECT Name & Code :**DC & CN (17BCARDCM35)**

Students are able to learn and understand following concepts:

CO1. Communication Networks and Services, Network Functions
andTopology,Layered Architecture and Applications.

CO2. Digital representation of information, Nyquist signaling rate and Shannon
Channel capacity, Line Coding, Modems and digital modulation.

CO3. Properties of Media and Digital transmission systems, Error Detection and
Correction, Multiplexing techniques.

CO4. Peer-to-Peer protocols and Service Models, Sliding Window Flow Control,
Data link Controls – HDLC, PPP.

CO5.Multiple Access Communications, Random Access Protocols- ALOHA,
Slotted ALOHA, CSMA, CSMA/CD.

CO6.Scheduling Approaches to Medium access control – Reservation Systems,
Polling, Token Passing Rings; Channelization – FDMA, TDMA,CDMA

CO7. LAN Standards- IEEE 802.3 (Ethernet), IEEE 802.11(Wireless LAN), LAN
Bridges.

COURSE:**BCA IV**
SUBJECT Name & Code:**DESIGN AND ANALYSIS OF ALGORITHM
(17BCADAAT42)**

Students are able to learn and understand the following concept:
CO1. Algorithm, Algorithm design, Algorithm specification, Pseudo code
CO2. Time and Space complexity, Divide and Conquer method
CO3. Knapsack problem, Job Sequencing with Deadline, Minimum Cost Spanning Tree

CO4. Prim's Algorithm, Kruskal's Algorithm, Optimal Storage on Tapes, Optimal Merge
Pattern, Single Source Shortest Path - (Dijkstra's Algorithm)
CO5. Dynamic Programming, Multistage Graph, All Pair Shortest Paths
Optimal Binary Search Tree
CO6. Travelling Salesperson Problem, Flow Shop Scheduling, Binary Tree and its
Traversal, Graph Traversal, Depth First Search and Breadth First Search, **AND/OR
Graphs**
CO7. 4 - Queen Problem, 8 - Queen ProblemN - Queen Problem, Graph Colouring,
Hamiltonian Cycles

COURSE :**BCA IV**
SUBJECT Name &Code :**ADVANCED COMPUTER NETWORKS AND
SECURITY(17BCACNST43)**

Students are able to learn and understand following concepts:

CO1. OSI reference Model and TCP/IP reference model

 CO2. Basic structure of networks and physical topologies

CO3. Algorithms are used to specify the information

CO4. Routers are specified to transfer of data form source to destination

CO5. Protocols TCP, SMTP and UDP

CO6. Realization of network through different networks

CO7. Security of network through encryption and decryption and some algorithms.

COURSE: **BCAIV**
SUBJECT Name & Code : **ADVANCED JAVA (17BCAAJAT44)**

Students are able to learn and understand following concepts:

CO1. Applet Lifecycle, Advantages, types

CO2.GUI Components and Interfaces

CO3. Event Source, Classes, Listener, Swing key features, Swing Buttons

CO4.Overview of JDBC. Driver types and Database, Transaction Processing; Metadata

CO5. The Life Cycle of a Servlet, Packages, Reading Servlet Parameters

CO6. Handling HTTP

CO7. Java Networking classes, FTP, JavaBeans Introduction

COURSE **: BCAV**
SUBJECT Name & Code:**OPERATING SYSTEM (14BCAOPST51)**

Students are able to learn and understand following concepts:

    CO1. Introduction and types of Operating System, Process Scheduling, CPU Scheduling

    CO2. Process Synchronization techniques

    CO3. Deadlocks: Detection, Avoidance, Recovery, Methods of Handling Deadlocks

    CO4. Memory Management: Logical and Physical address space, Swapping Contiguous
       allocation, Paging, Segmentation

    CO5. Virtual memory – Demand paging, Page Replacement algorithms, Allocation of
       frames, Thrashing

    CO6. File concepts, Access methods, Directory structure, Protection

    CO7.FCFS, SSTF, SCAN, C-SCAN, LOOK Disk Scheduling Methods

    CO8. Goals of protection, Domain protection, Access matrix security, Authentication,
    One time password

COURSE   : **BCA V Sem**
SUBJECT Name & Code:**WEB TECHNOLOGY (14BCAWEBT52)**

Students are able to learn and understand concepts:

CO 1: Basic text markup, Images, Hypertext: Programming techniques.

CO 2: Overview of Javascript, Syntactic characteristics: web services to transfer data

CO 3: ASP.NET File types in ASP.NET 3.5 Exploring to design websites

CO 4: Web Forms ControlsCreate a Web form with server controls

CO 5: Data Access with ADO.NET IntroducingBuilding multi-tier enterprise applications, Introduction to the .NET framework.

CO 6: Data Access with ADO.NET IntroducingASP.NET Web services and web service security.

CO 7: Data Access with ADO.NET IntroducingSoftware as a Service (SaaS).Cross-Platform Mobile Application Development with HTML5 and PhoneGap

COURSE: **BCA V**
SUBJECT Name & Code**: DBMS (14BCADBMT53)**

Students are able to learn and understand following concepts:
CO1. Database Users, Characteristics of the Database Approach, Actors on the scene, Workers
behind the Scene, Advantages of using DBMS

CO2. Classification of Database Management Systems
CO3. Relationship sets, Roles and Structural Constraints, Weak Entity Types, ER Diagrams
CO4. Relation Model, Relational Algebra, Relational Database Design by ER and EER to Relational Mapping

CO5. Informal Design Guidelines for Relational Schemas, Functional Dependencies
CO6. Practical experience with SQL Queries
CO7. Concurrency control techniques (Locking Techniques, time stamp ordering, Optimistic Concurrency etc)

COURSE: **BCA V**
SUBJECT Name & Code**: COMPUTER NETWORKS(14BCACONT54)**

Students are able to learn and understand following concepts:

CO1. Network Architecture, Types of Topologies, Reference model types
CO2. Transmission Media types, Types of Switching
 CO3. Error detection and Error correction design issues in Datalink Layer
CO4. The channel allocation problem, multiple access protocols, Ethernet, Wireless
        LAN, Bluetooth
CO5. Types of Routing algorithms, Quality of Service
CO6. Transport service, Internet transport protocols (TCP & UDP), DNS, Electronic
        Mailing, and World Wide Web.

COURSE   : **BCA V**
SUBJECTName and Code: **.NET FRAMEWORK USING C#**
                                    (14BCANETT55)

Students are able to learn and understand the following concepts
CO1. Building blocks of C#(CLR,CLS,FCL),Method Parameter
 CO2. Data types, Classes, Variables, Egressions
CO3. Working with Loops, Building Functions
CO4. Object oriented Programming, Working with Strings
CO5. Managing resources with the Garbage collector

CO6. Working with Nullable types, Namespaces, Stream I/O
CO7. Catching errors, Handling Errors
CO8. Understanding Arrays, Interfaces, Assemblies, Delegates

COURSE   :   **BCA VI**
SUBJECT Name & Code :   **SOFTWARE TESTING AND PRACTICES (14BCASPTT61**)

Students are able to learn and understand following concepts.

CO1:Principles of Testing, Software Development Life Cycle Models

CO 2: Testing Techniques

CO 3: Performance testing
CO 4: Common People Issues
CO 5: Test Planning, Management toprovide a unique identifier for the document

CO 6: Test Planning, Management to provide an overview of the test plan

SEMESTER   :   **BCA VI**
SUBJECT Name & Code:**BUSINESS INTELLIGENCE(14BCABINT62)**

Students are able to learn and understand following concepts:
CO1.Business Enterprise Organization, Key purpose of using IT in

       business,Types of digital data.

CO2. BI,EIS,MIS,OLAP,OLTP,Compare and contrast OLAP and data mining as

       techniques for extracting knowledge from a data warehouse.

CO3.BI component Framework, BI roles and responsibilities, data

       Warehouse,DataQuality.

CO4. ODS, Data integration, Data integration   technologies.

CO5.Data Modelling techniques, Dimensional Modelling Life cycle,high-

       level understanding of major DBMS components and their function.

CO6.Reporting perspectives common to all levels of Enterprise,Report

       Standardization and Presentation   practices.

CO7.Intercultural dimensions of management,legal and ethical principles in

       business.

COURSE: **BCAVI**
SUBJECT Name & Code :   **J2EE (14BCAJ2ET63)**

Students are able to learn and understand following concepts:
CO1. Swing key features, Swing Buttons
CO2. Overview of JDBC. Driver types and Database
CO3. Transaction Processing; Metadata; Data types; Exceptions
CO4. The Life Cycle of a Servlet using Tomcat Server

CO5. Handling HTTP Requests and Responses using Cookies, Session Tracking

CO6. Lifecycle of JSP, JSP Tags, Tomcat, Request String, User Sessions, Cookies, SessionObjects.

CO7. Networking Basics, Classes and Interfaces, INET Address, TCP/IP Client Sockets, Server Sockets, URL Connection, Java Remote Method Invocation concept, Server side, Client side

CO8. Enterprise Java Beans: Introduction and types, The JAR File