Course Outcomes (COs)

and Mapping with

Program Outcomes (POs)

("2", "1" and "blank" indicate strong (above40%) moderate (below 40%) and no correlation respectively.)

Program Outcomes (POs):BCA-Computer Application: I, II, & III years												
BCA I Semester I												
Subject Name:- Mathematics -I; Subject Code:- BCA 101												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Reason mathematically about basic discrete structures such as numbers, sets, used in computer science.	2	1	1	2		2	1			1	2	1
CO2. Evaluate Group, Ring and Fields and 2D Geometry.	2	1	1	2		2	1			1		1
CO3. Familiarity with Determinant and Matrices.	1	2	1	2		1	1	2		1		2
CO4. Formulate Limit, Continuity and Differentiability.	2	1		2		2	1				2	1
CO5. Demonstrate a working knowledge Definite and Indefinite Integrals.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Programming Principal & Algorithm; Subject Code:- BCA 102												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Appreciate and understand the working of a digital computer.	2	1	1	2		2	1			1		1
CO2. Analyze a given problem and develop an algorithm to solve the problem.	1	2	1	2		1	1	2		1		2
CO3.Improve upon a solution to a problem.	2	1		2		2	1				2	1
CO4. Use the 'C' language constructs in the right way.	2	2	1	2		2	2		1	1	2	2
CO5. Design, develop and test programs written in 'C'.	2	1	1		2	2		1		1	2	1

Subject Name:- Computer Fundamental &Office Automation; Subject Code:- BCA 103												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. To analyzes and learns the application of computers.	2	1	1		2	2		1		1	2	1
CO2. To analyzes and learns the application of input and output devices.	2	1	1	2		2	1			1		1
CO3. To analyzes and learns applications of storage devices.	1	2	1	2		1	1	2		1		2

CO4. To analyzes and learns the application of computer software.	2	1		2		2	1				2	1
CO5. To analyzes and learns application of operating system.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Principle Of Management; Subject Code:- BCA 104												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Understand the complexity of real life organization and management.	2	1	1	2		2	1			1	2	1
CO2. Develop and refine students 'capacities for integrating multiple points of view.	2	1	1	2		2	1			1		1
CO3. Become independent and critical thinkers.	1	2	1	2		1	1	2		1		2
CO4. Achieve new insights and refine skills of interpretation.	2	1		2		2	1				2	1
CO5. Understand organization and management so that students can use this understanding as individuals in everyday organizational life.	2	2	1	2		2	2		1	1	2	2
CO6. Be able to apply theories to improve the practice of management.	1	2	1	2		1	1	2		1		2

Subject Name:- Business Communication; Subject Code:- BCA 106												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Apply business communication strategies and principles to prepare effective communication for domestic and international business situations	2	1	1		2	2		1		1	2	1
CO2. Identify ethical, legal, cultural, and global issues affecting business communication.	2	1	1	2		2	1			1		1
CO3. Utilize analytical and problem solving skills appropriate to business communication.	1	2	1	2		1	1	2		1		2
CO4. Achieve new insights and refine skills of interpretation.	2	1		2		2	1				2	1
CO5. Select appropriate organizational formats and channels used in developing and presenting business messages.	2	2	1	2		2	2		1	1	2	2
CO6. Deliver an effective oral business presentation.	2	1	1		2	2		1		1	2	1

Subject Name:- Computer Laboratory and Practical Work of Office Automation Lab; Subject Code:- BCA 105P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Design the document and create charts and diagrams for data	2	1	1	2		2	1			1		1
CO2.to perform documentation	1	2	1	2		1	1	2		1		2
CO3.to perform accounting operations	2	1		2		2	1				2	1
CO4.to perform presentation skills	2	2	1	2		2	2		1	1	2	2

Subject Name:- Computer Laboratory & Practical Work of C Programming Lab; Subject Code:- BCA 107P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Ability to understand the principles of programming and problem solving techniques	2	1	1		2	2		1		1	2	1
CO2. Develop algorithms to solve scientific and mathematical problems	2	1		2		2	1				2	1
CO3. Design and develop modular programs using procedural and structural concepts	2	1		2		2	1				2	1

BCA I Semester II												
Subject Name:- Mathematics II; Subject Code:- BCA 201												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Explain the difference between limit of a function at a point and the value of the function at that point. Relate the limit of a function at a point to the limit of a sequence at that point and tell when a function will fail to have a limit at a point.	2	1	1	2		2	1			1	2	1
CO2. Evaluate Group, Ring and Fields and 2D Geometry.	2	1	1	2		2	1			1		1
CO3. Familiarity with Determinant and Matrices.	1	2	1	2		1	1	2		1		2
CO4. Formulate Limit, Continuity and Differentiability.	2	1		2		2	1				2	1
CO5. Demonstrate a working knowledge	2	2	1	2		2	2		1	1	2	2

Definite and Indefinite Integrals.												
Subject Name:- C Programming; Subject Code:- BCA 202												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Describe the concepts of computer basics and programming.	2	1	1		2	2		1		1	2	1
CO2. Explain the organization and operations of a computer system.	2	1	1	2		2	1			1		1
CO3. Design the combinational and sequential circuits.	1	2	1	2		1	1	2		1		2
CO4. Employ the logical thinking for Analyzing problems, designing and implementing algorithmic solutions.	2	1		2		2	1				2	1
CO5. Employ the skills for the use of the C programming language to implement the real world applications.	2	2	1	2		2	2		1	1	2	2

Subject Name:- Organization Behavior; Subject Code:- BCA 203												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Demonstrate the classification of the business organization and its characteristics.	2	1	1	2		2	1			1		1
CO2. Have adequate knowledge of business promotion and plant layout.	1	2	1	2		1	1	2		1		2
CO3. Have adequate knowledge of different forms of business promotion.	2	1		2		2	1				2	1
CO4. Understand the basics of business ethics and judgment based on ethical business criteria.	2	2	1	2		2	2		1	1	2	2
CO5. Understand change in business society & Gandhi an Society.	2	1	1		2	2		1		1	2	1
Subject Name:- Digital Electronics & Computer Organization; Subject Code:- BCA 204												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**

CO1. Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.	2	1	1	2		2	1			1		1
CO2. To understand, analyze and design various combinational and sequential circuits, Counters and registers	1	2	1	2		1	1	2		1		2
CO3. To design state machine diagrams and applications of Logic families.	2	1		2		2	1				2	1
CO4. Utilize the knowledge of memory devices and ADC/DAC in digital design applications.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Financial Accounting & Management; Subject Code:- BCA 205												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Define fundamental accounting concepts, Conventions & terminologies.	2	1	1	2		2	1			1		1
CO2. Describe the importance, functions & objectives of books of entry, subsidiary books, bank reconciliation statement and Final accounts.	1	2	1	2		1	1	2		1		2
CO3. Prepare books of entry, subsidiary books, bank reconciliation statement and Final accounts using double entry book keeping.	2	1		2		2	1				2	1
CO4. To rectify the errors located in books of entry & subsidiary books.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Computer Laboratory and Practical Work of C Programming Lab ; Subject Code:- BCA 206P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Recollect various programming constructs and to develop C programs.	2	1	1		2	2		1		1	2	1
CO2. Choose the right data representation formats based on the requirements of the problem	2	1		2		2	1				2	1
CO3. Implement different Operations on arrays, functions, pointers, structures, unions and files.	2	1	1		2	2		1		1	2	1

BCA II Semester III												
Subject Name:- Object Oriented Programming Using C++ ; Subject Code:- BCA-301												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Gain the basic knowledge on Object Oriented concepts.	2	1	1	2		2	1			1	2	1
CO2. Ability to develop applications using Object Oriented Programming Concepts.	2	1	1	2		2	1			1		1
CO3. To demonstrate the differences between traditional imperative design and object-oriented Design.	1	2	1	2		1	1	2		1		2
CO4. To explain class structures as fundamental, modular building blocks	2	1		2		2	1				2	1
CO5: To understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code.	2	2	1	2		2	2		1	1	2	2
CO6:To write small/medium scale C++ programs with simple graphical user interface Understand the file handling and error handling machanisms in C++.	2	1	1		2	2		1		1	2	1
Subject Name:- Data Structure Using C & C++; Subject Code:- BCA-302												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Demonstrate familiarity with major algorithms and data structures.	2	1	1	2		2	1			1		1
CO2:Analyze performance of algorithms and choose the appropriate data structure and algorithm design method for a specified application.	1	2	1	2		1	1	2		1		2
CO3:Determine which algorithm or data structure to use in different scenarios and be familiar with writing recursive methods.	2	1		2		2	1				2	1
CO4:Demonstrate understanding of the abstract properties of various data structures such as stacks, queues, lists, trees and graphs and Use various data structures	2	2	1	2		2	2		1	1	2	2

effectively in application programs												
CO5:Demonstrate understanding of various sorting algorithms, including bubble sort, insertion sort, selection sort, heap sort and quick sort.	2	1	1		2	2		1		1	2	1

Subject Name:- Computer Arcitecture & Assembly Language; Subject Code:- BCA-303

Course Outcomes	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO1:Evaluate and analyze the SDLC and basic architecture SRS documents.	2	1	1	2		2	1			1	2	1
CO2:Help to understand the software design and coding techniques.	2	1	1	2		2	1			1		1
CO3:Understand the software testing principles.	1	2	1	2		1	1	2		1		2
CO4:Understand the concept project management.	2	1		2		2	1				2	1
CO5:Identify various concepts of Advanced UML techniques.	2	2	1	2		2	2		1	1	2	2

Subject Name:- Business Economics; Subject Code:- BCA-304

Course Outcomes	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO1.To understand the concepts of cost, nature of production and its relationship to Business operations.	2	2			2	1	2		1	2	1	
CO2.To apply marginal analysis to the "firm " under different market conditions.	2	2	2	2	2	2	1					1
CO3.To analyze the causes and consequences of different market conditions.	2	1	1		2	2		1		1	2	1
CO4.To integrate the concept of price and output decisions of firms under various market structure.	2	1	1		2	2		1		1	2	1

Subject Name:- Elements of Statistics; Subject Code:- BCA-305												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Evaluate the probabilities and conditional probabilities.	2	1	1		2	2		1		1	2	1
CO2:Evaluate expectations and conditional expectations of random variables.	2	1	1	2		2	1			1	2	1
CO3:Approximate the distribution of sum of random variables using CLT.	2	1	1	2		2	1			1		1
CO4:Construct point estimators using the method of maximum likelihood.	1	2	1	2		1	1	2		1		2
CO5:Calculate the number of samples needed to construct confidence levels on the mean and variance of a normal distribution.	2	1		2		2	1				2	1
CO6:Use linear regression analysis to develop an empirical model of experimental data.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Computer Laboratory and Practical Work of OOPS; Subject Code:- BCA-306												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1: Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.	2	1	1	2		2	1			1		1
CO2:Understand dynamic memory management techniques using pointers, constructors, destructors, etc	1	2	1	2		1	1	2		1		2
CO3:Describe the concept of function overloading, operator overloading, virtual functions and	2	1		2		2	1				2	1

polymorphism												
CO4:Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.	2	2	1	2		2	2		1	1	2	2
CO5:Demonstrate the use of various OOPs concepts with the help of programs.	2	1	1		2	2		1		1	2	1
Subject Name:- Computer Laboratory and Practical Work of DS ; Subject Code:- BCA-307												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1.Understand the concept of Dynamic memory management, data types, algorithms, Big O notation	2	1	1	2		2	1			1	2	1
CO2.Understand basic data structures such as arrays, linked lists, stacks and queues.	2	1	1	2		2	1			1		1
CO3.Describe the hash function and concepts of collision and its resolution methods	1	2	1	2		1	1	2		1		2
CO4.Solve problem involving graphs, trees and heaps	2	1		2		2	1				2	1
CO5.Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	2	2	1	2		2	2		1	1	2	2
BCA II SEMESTER IV												
Subject Name:- ComputerGraphics & Multimedia Application; Subject Code:- BCA-401												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Demonstrate an understanding of contemporary graphics hardware.	2	1	1	2		2	1			1	2	1
CO2:Create interactive graphics applications in C++ using one or more graphics application	2	1	1	2		2	1			1		1

programming interfaces.												
CO3:Write program functions to implement graphics primitives.	1	2	1	2		1	1	2		1		2
CO4:Write programs that demonstrate geometrical transformations.	2	1		2		2	1				2	1
CO5:Demonstrate an understanding of the use of object hierarchy in graphics applications.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Operating System; Subject Code:- BCA-402												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Analyse the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.	2	1	1	2		2	1			1		1
CO2: Understand the evolution of operating system.	1	2	1	2		1	1	2		1		2
CO3:Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.	2	1		2		2	1				2	1
CO4:Analyze memory management techniques, concepts of virtual memory and disk scheduling.	2	2	1	2		2	2		1	1	2	2
CO5:Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.	2	1	1		2	2		1		1	2	1
Subject Name:- Software Engineering; Subject Code:- BCA-403												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Evaluate and analyze the SDLC and basic architecture SRS documents.	2	1	1	2		2	1			1	2	1
CO2.Help to understand the software design and coding techniques.	2	1	1	2		2	1			1		1
CO3.Understand the software testing principles.	1	2	1	2		1	1	2		1		2

CO4.Understand the concept project management.	2	1		2		2	1				2	1
CO5.Identify various concepts of Advanced UML techniques.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Optimization Techniques; Subject Code:- BCA-404												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Learn Programming problems.	2	1	1	2		2	1			1		1
CO2. Learn classical optimization techniques and numerical methods of optimization.	1	2	1	2		1	1	2		1		2
CO3. Know the basics of different evolutionary algorithms.	2	1		2		2	1				2	1
CO4. Explain Integer programming techniques and apply different optimization techniques to solve various models arising from engineering areas	2	2	1	2		2	2		1	1	2	2
Subject Name:- Practical Based on Computer Graphics Lab ; Subject Code:- BCA-405												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Understand the basic concepts of computer graphics	2	1	1	2		2	1			1		1
CO2. Apply clipping and filling techniques for modifying an object.	1	2	1	2		1	1	2		1		2
CO3. Understand the concepts of different type of geometric transformation of objects in 2D and 3D.	2	1		2		2	1				2	1
CO4. Understand the practical implementation of modeling, rendering, viewing of objects in 2D.	2	2	1	2		2	2		1	1	2	2
Subject Name:- Mathematics III; Subject Code:- BCA-406												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1:Explain the difference between limit of a function at a point and the value of the function at that point. Relate the limitof a function at a point to the limit of a sequence at that	2	2	2	2		2				2		2

point and tell when a function will fail to have a limit at a point.												
CO2:Evaluate Group, Ring and Fields and 2D Geometry.	2	1	1	2		2	1			1		1
CO3:Familiarity with Determinant and Matrices.	1	2	1	2		1	1	2		1		2
CO4:Formulate Limit, Continuity and Differentiability.	2	1		2		2	1				2	1
CO5:Demonstrate a working knowledge Definite and Indefinite Integrals.	2	2	1	2		2	2		1	1	2	2

BCA III Semester V

Subject Name:-Introduction to DBMS; Subject Code:- BCA 501

Course Outcomes	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO1. Able to master the basic concepts and understand the applications of database systems	2	1	1		2	2		1		1	2	1
CO2. Able to construct an Entity-Relationship (E-R) model from specifications and to transform to relational model.	2	1	1	2		2	1			1	2	1
CO3. Able to constructs unary/binary/set aggregate queries in Relational Algebra.	2	1	1	2		2	1			1		1
CO4. Understand and apply database normalization principles.	1	2	1	2		1	1	2		1		2
CO5. Able to construct SQL queries to perform CRUD operations on database. (Create, Retrieve, Update, and Delete).	2	1		2		2	1				2	1
CO6. Understand principles of database transaction management, database recovery, security.	2	2	1	2		2	2		1	1	2	2

Subject Name:- Java Programming & Dynamic Web Pages; Subject Code:- BCA 502

Course Outcomes	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO1. 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.	2	1	1		2	2		1		1	2	1

CO2. Analyze a web page and identify its elements and attributes.	2	1	1	2		2	1			1		1
CO3. Create web pages using HTML, DHTML and Cascading Styles sheets**.**	1	2	1	2		1	1	2		1		2
CO4. Create dynamic web pages using JavaScript and VBScript (client side programming).	2	1		2		2	1				2	1
CO5. Create XML documents and XML Schema & CO 8: Build and consume web services.	2	2	1	2		2	2		1	1	2	2

Subject Name:- Computer Networks; Subject Code:- BCA 503

Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Identify the different components in a Communication System and their respective roles.	2	1	1		2	2		1		1	2	1
CO2. Describe the technical issues related to the local Area Networks.	2	1		2		2	1				2	1
CO3. Identify the common technologies available in establishing LAN infrastructure.	2	1		2		2	1				2	1
CO4. To get familiarized with the basic protocols of computer networks and Networks Standards like LAN, MAC etc.	2	1	1		2	2		1		1	2	1

Subject Name:- Numerical Methods; Subject Code:- BCA 504

Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. An ability to apply knowledge of mathematics, science, and engineering.	2	1	1	2		2	1			1		1
CO2. An ability to design and conduct experiments, as well as to analyze and interpret data.	1	2	1	2		1	1	2		1		2
CO3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	2	1		2		2	1				2	1
CO4. An ability to function on multidisciplinary teams.	2	2	1	2		2	2		1	1	2	2

Subject Name:- Minor Project; Subject Code:- BCA 505P

Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**

CO1. Ability to use the techniques, skills and modern engineering tools necessary for software development.	2	1	1		2	2		1		1	2	1
CO2. Develop a software product along with its complete documentation.	2	1	1		2	2		1		1	2	1

Subject Name:- Viva-Voice on Summer Training; Subject Code:- BCA 506P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. To summarize to all concept based on summer training after the end of semester.	2	1	1		2	2		1		1	2	1
CO2. Introduction of the new technologies.	2	1	1		2	2		1		1	2	1
Subject Name:- Computer Laboratory & Practical Work on DBMS; Subject Code:- BCA 507P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. To take the knowledge of DBMS theoretical concept into practical form.	2	1	1		2	2		1		1	2	1
CO2. Execution of SQL queries.	2	1	1		2	2		1		1	2	1
CO3. Implementation of Keys concept.	2	1	1		2	2		1		1	2	1
Subject Name:- Computer Laboratory& Practical Work of Java Programming and Dynamic Web Page Design; Subject Code:- BCA 508P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Creation of Web Pages using the concept of DHTML.	2	1	1		2	2		1		1	2	1
CO2. Database connectivity using Java.	2	1	1		2	2		1		1	2	1
CO3. Implementation of concept of AWT.	2	1	1		2	2		1		1	2	1

BCA III Semester VI												
Subject Name:- Computer Network Security; Subject Code:- BCA 601												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Provide security of the data over the network.	2	1	1		2	2		1		1	2	1
CO2. Do research in the emerging areas of cryptography and network security.	2	1	1		2	2		1		1	2	1

CO3. Implement various networking protocols.	2	1	1		2	2		1		1	2	1
CO4. Protect any network from the threats in the world.	2	1	1		2	2		1		1	2	1

Subject Name:- Information System: Analysis Design & Implementation; Subject Code:- BCA 602												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Define the concepts and definition of the information systems.	2	1	1	2		2	1			1	2	1
CO2. Differentiate between several types of information system.	2	1	1	2		2	1			1		1
CO3. Identify the threats to information security.	1	2	1	2		1	1	2		1		2
CO4. Show how to protect information resources.	2	1		2		2	1				2	1
CO5. Understand the difference between database and data warehouse.	2	2	1	2		2	2		1	1	2	2
CO6. Differentiate between transaction processing system and functional area information system.	2	1	1		2	2		1		1	2	1
Subject Name:- E- Commerce; Subject Code:- BCA 603												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Describe basic information systems concepts and terminology.	2	1	1	2		2	1			1		1
CO2. Identify the range and importance of information systems applications in modern organizations.	1	2	1	2		1	1	2		1		2
CO3. Describe the different stages of the System Development Life Cycle (SDLC) and their relevance to the creation of an effective information system.	2	1		2		2	1				2	1
CO4. Describe the alternative methods for systems development and acquisition, and their suitability in particular circumstances.	2	2	1	2		2	2		1	1	2	2
CO5. Identify the social, legal and ethical implications of modern information systems use.	2	1	1		2	2		1		1	2	1

Subject Name:- Knowledge Management; Subject Code:- BCA 604												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. To discuss the key constituents of knowledge management solutions including infrastructure, processes, systems, tools, and technologies explain how knowledge management impacts contemporary organizations	2	1	1	2		2	1			1	2	1
CO2. Provide examples of the ways in which knowledge management impacts contemporary organizations.	2	1	1	2		2	1			1		1
CO3. Discuss the underlying technologies that enable knowledge management solutions.	1	2	1	2		1	1	2		1		2
CO4. Analyse issues related to management practices and the future of knowledge management.	2	1		2		2	1				2	1
Subject Name:- Major Project; Subject Code:- BCA 605P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. Ability to use the techniques, skills and modern engineering tools necessary for software development.	2	1	1		2	2		1		1	2	1
CO2. Develop a software product along with its complete documentation.	2	1	1		2	2		1		1	2	1
Subject Name:- Presentation/Seminar based on Major Project; Subject Code:- BCA606P												
Course Outcomes	**PO_1**	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO1. It will be evaluated by external examiner only.	2	1	1		2	2		1		1	2	1

PROGRAM OUTCOMES (POs)

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.