PROGRAMME OUTCOME, PROGRAMME SPECIFIC OUTCOME AND OF BCA PROGRAMME UNDER CBCS SCHEME

BCA.

PROGRAMME OUTCOME

Programme's Mission & Vision

- To provide skilled manpower to the professional, industrial and service sectors to meet global demands and also to provide intellectual leadership to the community.
- To help and promote the cultural heritage of the nation and preserve the environmental sustainability and quality of life.

Objectives

- a) To attract young minds in order to bring out the already in computer hardware, software and networks.
- b) To inculcate logical thinking amongst the young minds.
- c) To be a foundation graduate Programme which will act as a feeder course for higher studies in the area of Computer Science/Applications. c) To develop skills in software development so as to enable the BCA graduates to take up self employment in Indian & Global software market.
- d) Become a responsible citizen with leadership qualities to strengthen India's economy in the IT sector.
- e) Analytical and computational approaches on and face the challenges boldly.
- f) The student should drive scientific and societal advancement through technological innovation and become a successful entrepreneur.

Programme outcome:

The students will be able to

- Acquire skills and information not only about Computer and Information Technology but also in communication, organization and management.
- They are well equipped with the skills of Engineering approach in software development.
- Get to learn programming languages such as C, C++, HTML, SQL, DBMS, Networking etc.
- Information about various computer applications and latest developments in IT and communication systems is also provided. They develop an ability to acquire and apply new knowledge as

	needed, using appropriate learning strategies.
	□ apply knowledge of computing and mathematics appropriate to
	the discipline.
	☐ identify, formulate, and develop solutions to computational
	challenges.
	design, implement, and evaluate a computational system to meet
	desired needs within realistic constraints.
	☐ function effectively on teams to accomplish shared computing
	design, evaluation, or implementation goals.
	☐ Ability to work in team and build leadership qualities.
	☐ Importance of time in completing the projects on time.
	☐ Will be well equipped with thorough knowledge of various
	softwares.
	☐ Will be familiar with working with various operating system
	platforms.
	☐ Understand the professional, ethical, legal, security, and social
	issues and responsibilities in computing profession.
	☐ Analyse impacts of computing on individuals, organizations, and
	society.
	☐ Recognition of the need for and ability to engage in continuing
	professional development.
	☐ Will be able to choose appropriate techniques, skills, and tools
	necessary for
	☐ Designing of correct models in the construction of software
	systems of varying complexity.
PROGRAMME	The students acquire a depth and rigorous knowledge on software
SPECIFIC	development process and the milestones to be met
OUTCOME	Can be immediately recruited in both (within) the country and in
	the global software market.
	Will also be eligible to persue MCA, DAAD, GRE-TOFEL for MS
	degree
COURSE OUTCO	ME AND COURSE SPECIFIC OUTCOMES OF FIRST
SEMESTER	
SEMESTER 1	
COURSE	- Illustrate the flowchart and designing an algorithm for a
OUTCOME	given problem to develop c programs using operators.
Problem Solving	
Techniques using C	programs.
	- Exercise user defined functions to solve real time problems.
	- c programs that use pointers to access arrays ,strings and functions.
	- Exercise user defined data types including structures and

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	Objectives
	a) To make the students realize the importance of hardware,
COURSE SPECIFIC	Students develop the skills of Office Automation process.
OUTCOME	
Discrete	Students will be able to:
Mathematics	1. Write an argument using logical notation and determine if the argument is or is not valid.
	2. Demonstrate the ability to write and evaluate a proof or outline
	the basic structure, give
	examples of each proof technique described.
	3. Understand the basic principles of sets and operations in sets. 4.Prove basic set equalities.
	5. Apply counting principles to determine probabilities.
	6. Demonstrate an understanding of relations and functions and be
	able to determine their properties.
	7. Demonstrate different traversal methods for trees and graphs.
	8. Model problems in Computer Science using graphs and trees.
	Objectives
	a) To inculcate logical thinking amongst the young minds.
	b) To make the students realize the importance of applied
	mathematics like graph theory, set theory.etc.
COLIDGE OPECIFIC	
COURSE SPECIFIC OUTCOME	In this course the student learns several important topics of Discrete Mathematics. This includes Set theory and logic, relations,
	partially ordered sets, Boolean algebra
	and Boolean functions, analysis of algorithms, recurrence relations,
	finite state machines, discrete probability and graph theory.
	machines, discrete probability and graph theory.
SEMESTER 2	
Data structures	Describe how arrays, records, linked structures, stacks, queues,
	trees, and graphs are represented in memory and used by algorithms •Demonstrate different methods for traversing trees
	•Compare alternative implementations of data structures with
	respect to performance
	•Compare and contrast the benefits of dynamic and static data structures implementations
	•Discuss the computational efficiency of the principal algorithms
	for sorting, searching.
	Objectives

	a) To inculcate logical thinking amongst the young minds.b) To make the students realize the importance of advance features of data structures.
COURSE SPECIFIC OUTCOME	Better understanding of data structures
Data Structures Lab	a) To inculcate logical thinking amongst the young minds.
COURSE SPECIFIC OUTCOME	Better understanding of data structures
Database Management System	 Familiarization with Database Management System. Comprehensive knowledge of database models. Ability to code database transactions using SQL. Skill to write PL/SQL programs Be familiar with a commercial relational database system (Oracle) by writing SQL using the system. Be familiar with the relational database theory, and be able to write relational algebra expressions for queries. sound design principles for logical design of databases, including the E-R method and Normalization approach. Usage of DML and TCL statements. Master the basics of PL/SQL Composite Data types like Procedures, Functions, Packages and Triggers. Objectives To attract young minds in order to bring out the already manifesting skills in DBMS software and networks. To inculcate logical thinking amongst the young minds. To make the students realize the importance of Relational Database management systems. Master the basic concepts and appreciate the applications of database
DBMS Lab	Master the basics of SQL and construct queries using SQL.
COURSE SPECIFIC OUTCOME	 Master the basic concepts and appreciate the applications of database
Numerical and Statistical Methods	1 Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems. 2 Apply numerical methods to obtain approximate solutions to

COURSE SPECIFIC OUTCOME SEMESTER 3	mathematical problems. 3 Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations. 4 Analyse and evaluate the accuracy of common numerical methods. Objectives a) To understand the importance of Numerical and statistical methods problems. Implement numerical methods in Matlab.
Object Oriented	Describe the procedural and object oriented paradiam with
Programming using C++	 Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects Implement dynamic memory allocation techniques & different types of functions. Apply and implement major object oriented concepts like message passing, function overloading, operator overloading and inheritance to solve real-world problems. Learn Objects, Classes, Methods, Constructors and Destructors. Describe & implement the concept of constructor, destructor & operator overloading Learn about Inheritance: Single Inheritance, Multiple Inheritance, Multi-level Inheritance, Hierarchical Inheritance and Hybrid Inheritance Classify & implement inheritance with the concept of virtual functions and polymorphism. Implement the console I/O operations & templates 6 Apply advanced techniques such as exception handling and file handling. To study the designing of complex classes: Friend Functions and Static member functions, Inline functions. For resolving run-time errors implementation of Try - Catch and finally block using Exception Handling mechanism. Develop applications using Console I/O and File I/O to deal with large data set. Objectives a) To attract young minds in order to bring out the already manifesting skills in C++software. b) To inculcate logical thinking amongst the young minds. c) To make the students realize the importance of C++.

COURSE SPECIFIC OUTCOME	Familiarization with a widely used programming concept – Object Oriented Programming AND Develop logical thinking.
C++ Lab	 Familiarization with a widely used programming concept – Object Oriented Programming AND Develop logical thinking. Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects Implement dynamic memory allocation techniques & different types of functions. Apply and implement major object oriented concepts like message passing, function overloading, operator overloading and inheritance to solve real-world problems. Learn Objects, Classes, Methods, Constructors and Destructors. implement the concept of constructor, destructor & operator overloading Learn about Inheritance: Single Inheritance, Multiple Inheritance, Multi-level Inheritance, Hierarchical Inheritance and Hybrid Inheritance implement inheritance with the concept of virtual functions and polymorphism. Implement the console I/O operations & templates 6 Apply advanced techniques such as exception handling and file handling. designing of complex classes: Friend Functions and Static member functions, Inline functions. For resolving run-time errors implementation of Try - Catch and finally block using Exception Handling mechanism. Develop applications using Console I/O and File I/O to deal with large data set. Objectives a) To attract young minds in order to bring out the already manifesting skills in C++software. b) To inculcate logical thinking amongst the young minds.
	c) To make the students realize the importance of C++.
COURSE SPECIFIC OUTCOME	Familiarization with a widely used programming concept – Object Oriented Programming AND Develop logical thinking.
Financial Accounting and Management	 Identify events that need to be recorded in the accounting records Develop the skill of recording financial transactions and preparation of reports Describe the role of accounting information and its limitations

	• Equip with the knowledge of accounting process and preparation
	of final accounts of
	sole trader
	• Identify and analyze the reasons for the difference between cash
	book and pass book
	balances
	Recognize circumstances providing for increased exposure to
	errors and frauds
	Determine the useful life and value of the depreciable asset
	Determine the disertal fire and value of the depreciable asset
	Objectives
	a) the role of accounting information and its limitations.
	b) Equip with the knowledge of accounting process and
	preparation of final accounts of
	trader.
	trader.
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COURSE SPECIFIC	Acquire conceptual knowledge of basics of accounting
OUTCOME	
Accounting Package	Practical knowledge using TALLY package
Lab	• Identify events that need to be recorded in the accounting records
	Develop the skill of recording financial transactions and
	preparation of reports
	Objectives
	a) the role of accounting information and its limitations.
	b) Equip with the knowledge of accounting process and
	preparation of final accounts of
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	preparation of final accounts of sole trader.
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COURSE SPECIFIC	1 1
COURSE SPECIFIC OUTCOME	sole trader.
	sole trader.
OUTCOME	Sole trader. Acquire conceptual knowledge of basics of accounting
	Sole trader. Acquire conceptual knowledge of basics of accounting 1: Analyze the structure of OS and basic architectural components
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	Objectives:
	a) Learn to analyze and design the applications to run in parallel either using process or thread models of different OS.3: Analyze the various device and resource management techniques for timesharing and distributed systems.
COURSE SPECIFIC OUTCOME	Conceptualize the components involved in designing a contemporary OS.
SEMESTER 4	
Visual Programing	The student will use VB to build Windows applications using structured and object-based programming techniques. Students are exposed to the following concepts and skills at an Introductory conceptual level: • Design, formulate, and construct applications with VB • Integrate variables and constants into calculations applying VB. • Determine logical alternatives with VB decision structures • Implement lists and loops with VB controls and iteration • Separate operations into appropriate VB procedures and functions • Assemble multiple forms, modules, and menus into working VB solutions • Create VB programs using multiple array techniques • Build integrated VB solutions using files and structures with printing capabilities • Translate general requirements into data-related solutions using database concepts • Learn and Design applications using VC++ concepts like dialog boxes, menus etc Objectives:
	a) Learn to develop front end application programs.
COURSE SPECIFIC OUTCOME	Build integrated VB solutions
Visual Programing Lab	The student will use VB to build Windows applications using structured and object-based programming techniques. Students are exposed to the following concepts and skills at an Introductory conceptual level: Objectives: a) Learn to develop front end application programs.
COURSE SPECIFIC OUTCOME	Build integrated VB solutions
Unix Shell	1) Able to understand the use of OOPs concepts. 2) Able to solve real world problems using OOP techniques.

programming	3) Able to understand the use of abstraction. 4) Able to understand the use of Packages and Interface in java. 5) Able to develop and understand exception handling, multithreaded applications with synchronization. 6) Able to design GUI based applications and develop applets for web applications. 7) Able to handle IO streams Use and create package and interfaces in a Java program. Objectives:
	a) Able to run various UNIX commands on a standard UNIX/LINUX Operating system
	b) student will be able to understand the theoritical aspects of shell programming on UNIX OS
COURSE SPECIFIC OUTCOME	Knowledge of UNIX OS.
Unix Lab	a) student will be able to do shell programming on UNIX OS
COURSE SPECIFIC OUTCOME	Practical knowledge of UNIX OS.
Operation Research	Identify and develop operational research models from the verbal description of the real system. Understand the mathematical tools that are needed to solve optimisation problems. Use mathematical software to solve the proposed models.
COURSE SPECIFIC OUTCOME	Develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.
SEMESTER 5	
Data Communication and Networks	 Explain the local, metropolitan and wide area networks using the Standard OSI reference model. Discussion of various networking technologies. Explain the concepts of protocols, network interfaces and design of performance issues in local area networks and wide area networks. Describe about wireless networking concepts, contemporary issues in networking technologies, network tools and network programming.

Explain the analysis of different types of protocol and the comparison of number of data link, network and transport layer protocols. Describe the functions of each layer in OSI and TCP/IP model. Explain the functions of Application layer and Presentation layer paradigms and Protocols. Describe the Session layer design issues and Transport layer services. Classify the routing protocols and analyze how to assign the IP addresses for the given network. Describe the functions of data link layer and explain the protocols. Explain the types of transmission media with real time applications. **Objectives:** To realize the importance of basic networks and hardware. **COURSE SPECIFIC** Can pursue career as Network Admin. OUTCOME Is equipped with required knowledge to take up CISCO certified exams such as CCNA, CCNP,A+ etc. Software of the program are expected to Graduates demonstrate: Engineering 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic 3. an ability to communicate effectively with a range of audiences 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts 5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies 8. The ability to analyze, design, verify, validate, implement, apply, and maintain software systems 9. The ability to appropriately apply discrete mathematics, probability and statistics, and relevant topics in computer science supporting disciplines to complex software 10. The ability to work in one or more significant application

	domain
	Objectives:
	a) Realizes the importance of the various phases in project development.
	b) Develops an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
	c) Learns the ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
COURSE SPECIFIC OUTCOME	The ability to work in one or more significant application domain
Computer Architecture	Understand the theory and architecture of central processing unit. 1. Analyze some of the design issues in terms of speed, technology, cost, performance. 2. Design a simple CPU with applying the theory concepts. 3. Use appropriate tools to design verify and test the CPU architecture. 4. Learn the concepts of parallel processing, pipelining and interprocessor communication. 5. Understand the architecture and functionality of central processing unit. 6. Exemplify in a better way the I/O and memory organization. 7.Define different number systems, binary addition and subtraction, 2'scomplement representation and operations with this representation. Objectives: a) Learns the theory and architecture and functionality of central
COURSE SPECIFIC OUTCOME	Design a simple CPU (by) applying the theory concepts.
Java Programming	1) Able to understand the use of OOPs concepts. 2) Able to solve real (time) problems using OOP techniques. 3) Able to understand the use of abstraction. 4) Able to understand the use of Packages and Interface in java. 5) Able to develop and understand exception handling, multithreaded applications with synchronization. 6) Able to design GUI based applications and develop applets for web applications. 7) Able to handle IOstreams

	Use and create package and interfaces in a Java program.
	Objectives:
	A Understands the theoritical aspects of Java application programs using OOP principles and proper program structuring.
COURSE SPECIFIC OUTCOME	Learns the basic Java which is a stepping stone to learn Advance Java.
Java Programming Lab	1)Write Java application programs using OOP principles and proper program structuring 2)Write programs using Java collection API as well as the java standard class library. 3) write java programs using inheritance, exceptions, threads, graphics and iostreams.
	Objectives:
	a) Learns to develop Java application programs using OOP principles
COURSE SPECIFIC OUTCOME	1)Write Java application programs using OOP principles and proper program structuring 2)Write programs using Java collection API as well as thejava standard class library.
	3) write java programs using inheritance, exceptions, threads, applets, graphics and iostreams.
Microprocessor and Assembly Language	 The student will be able to select an appropriate 'architecture' or program design to apply to a particular situation; e.g. an interrupt-driven I/O handler for a responsive real-time machine. the student will be able to design and build the necessary assembly language programs using various 8085 instructions. The student will be able to characterise and predict the effects of the properties of the bus on the overall performance of a system. Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors. Demonstrate programming using the various addressing modes and instruction set of 8085 microprocessor Understand the concept & Samp; types of interrupts ,counters, timing delays Learn BCD and its operations Demonstrate interfacing of special purpose programmable

	peripheral devices with microprocessor Understand architecture, memory management of 8079,8051,8055 chips Objectives: a) Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors.
COURSE SPECIFIC OUTCOME	The student will be able to analyse, specify, design, write and test assembly language programs of moderate complexity.
Microprocessor and Assembly Language Lab	· Objectives: a) Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors.
COURSE SPECIFIC OUTCOME	The student will be able to analyse, specify, design, write and test assembly language programs of moderate complexity.
Project	CO1: Allows a student to demonstrate their capabilities while working independently CO2: Ability to apply desired skills for doing research CO3: Ability to work with their peers, building teamwork and group skills Objectives: a) To understand analyse and cater to the current day requirements in the software Industry.
COURSE SPECIFIC OUTCOME	Readiness for the Software Industry
SEMESTER 6	
Theory of Computation	Demonstrate advanced knowledge of formal computation and its relationship to languages Distinguish different computing languages and classify their respective types Recognise and comprehend formal reasoning about languages

	the theory of computation. • Model, compare and analyse different computational models • Apply rigorously formal mathematical methods to prove properties of languages, grammars and automata. • Construct algorithms for different problems and argue formally about correctness on different restricted machine models of computation. • Identify limitations of some computational models and possible methods of proving them. Objectives: a) To gain advanced knowledge of formal computation and
	its relationship to languages
COURSE SPECIFIC OUTCOME	Have an overview of how the theoretical study in this course is applicable to and engineering application like designing the compilers.
System Programming	Identify and develop operational research models from the verbal description of the real system. Understand the mathematical tools that are needed to solve optimisation problems. Use mathematical software to solve the proposed models. Develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.
	Objectives:
	Learns to develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.
COURSE SPECIFIC OUTCOME	
Web Programming	Upon successful completion of the course, the student will demonstrate the ability to: Understand the major areas and challenges of web programming. Distinguish web-related technologies. Use in HTML5, CSS3, JavaScript Use a server-side scripting language, PHP Use a relational DBMS, MySQL Design and implement of typical static web pages and interactive web applications. Design of dynamic web applications.

	Objectives:
	 a) To understand design and implement typical static web pages and interactive web applications. b) Also to design dynamic web applications."
COURSE SPECIFIC OUTCOME	Well equipped with theoretical aspects of Web related Technologies
Web Programming Lab	"Upon successful completion of the course, the student will Objectives:
	a) To understand design and implement typical static web pages and interactive web applications.b) Also to design dynamic web applications."
COURSE SPECIFIC OUTCOME	Well equipped with Web related Technologies
Project Work	CO1: Allows a student to demonstrate their capabilities while working independently CO2: Ability to apply desired skills for doing research CO3: Ability to work with their peers, building teamwork and group skills CO4: Plan for their future technology.
	Objectives:
	a) To understand analyse and cater to the current day requirements in the software Industry.
COURSE SPECIFIC OUTCOME	Preparedness for the Software Industry
GS: COMPUTER APPLICATION AND INFORMATION	CO1 :Apply the knowledge of mathematics, science and computing in the core information technologies. CO2: Identify, design, and analyze complex computer systems and implement and interpret the results from those systems.
Technology	Objectives:
	a) To understand the core information technologies involved in mathematics, science and computing.
	b) To prepare project reports in their respective subjects independently.
	- Helps the students to prepare their project documentation.

 For Non computer science students and are well equipped with applications such as word, excel, power point and usage of the internet independently.
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