B.C.A. PROGRAMME

COURSE OUTCOMES

Semester I Problem Solving and Programming Concepts Course Code: CAC -101

After completing the course students will be able to

CO 1: Illustrate the flowchart and design an algorithm for a given problem.

CO 2: Develop conditional and interactive statements for writing programs in C

CO 3: Exercise functions, pointers, arrays, string and structures to solve a problem

CO 4: Exercise file concept to show input and output of files in C.

CO 5: To enable student to develop small application using c programming

Semester I Computer Organisation and Architectures Course Code: CAC-102

After completing the course, the student will be able to:

CO 1: Understand the Generation of Computers.

CO 2: Understand the concepts of Computer Architecture and its various Organizations.

CO 3: Understand the Processor Structure and its Functioning in detail.

CO4: Understand the Memory Hierarchy, interconnection and working of Cache, Internal and External memory system.

CO 5: Understand the concepts and working of I/O module, Bus technology and handling interrupts.

Semester I Basic Mathematics Course Code: CAC -103

After completing the course, the student will be able to:

CO 1: Use Logarithm and Antilogarithm and perform operations on logarithm.

CO 2: Understand the concept of mensuration with respect to 2D and 3D figures

CO 3: Implement progression in day-to-day life.

CO 4: To solve problems on ratios and proportions in day-to-day life.

CO 5: Understand the properties of numbers with focus on operation to be performed.

CO 6: Understand fundamental concepts of matrices and determinants and its applications.

Semester I Problem Solving and Programming Laboratory Course Code: CAC-104

After completing the course, the student will be able to:

CO 1: Analyse the problem, design a flowchart and use logic to solve the problem.

CO 2: Understand the concepts of loops and conditions for avoiding repetition of the same code.

CO 3: Understand the concept of function to write an efficient code.

CO 4: Implementation of programs using Arrays, Pointers and Strings for better memory management.

CO 5: Develop a small application using C-Programming Language.

Semester I IT Tools Laboratory Skill Enhancement Course (SEC)

Course Code: CAS -101

After completing the course students will be able to:

CO 1: Describe the basic concepts of computer system

CO 2: Apply basic office tools such as Word Processors, PowerPoint and Spreadsheet.

CO 3: Enable students to use internet, cloud technology and search engines

CO 4: Enable students to install various hardwares, softwares and servers.

CO 5: Apply different tools in information technology in business processes.

Semester I Environmental Studies Course Code: ESA 101

SECTION – A Natural Endowments: Status, Issues, concerns and responses

After completing the course, the student will be able to

CO 1: Understand the definition, scope and importance of environmental studies

CO 2: Understand the various natural resources available to mankind and the problems associated with these resources.

CO 3: Analyse the role of an individual in conservation of natural resources as well as understand the eequitable use of resources for sustainable lifestyles.

CO 4: Understand the concept of an ecosystem, its structure and functions as well as food chains, food webs and ecological pyramids seen in the environment. Identify the various ecosystem seen around.

CO 5: Understand the importance of biodiversity and the various threats faced and differentiate between the different conservation methods implemented towards conservation of biodiversity

Semester I Business Accounting Generic Elective Course Code: CAG-101

After completing the course, the student will be able to:

CO 1: Have knowledge of various accounting concepts.

CO 2: Maintain the financial statements of a business entity and study final accounts.

CO 3: Record the basic journal entries and how to calculate depreciation by applying various methods.

CO 4: Develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records and financial statements.

Semester II - Programming with Python Course Code: CAS-106

On completion of the course student will be able to

CO 1. Understand elements in python –identifiers, literals and strings.

CO 2. Identify the use of various operators like arithmetic, logical, Boolean, ternary and bitwise operator.

CO 3. Understand the working of control and condition constructs along with the use of break and continue statements.

CO 4. Understand working of functions.

CO 5. Understand sorting techniques such as Bubble, Selection and Insertion sort

Semester II - Operating Systems Concepts Course Code: CAC-106

On completion of the course student will be able to

CO 1. Understand role and working of operating system.

CO 2. Apply and analyze concepts like thread, mutual exclusion, deadlock threads, process.

CO 3. Evaluate performance of process and scheduling algorithms.

CO 4. Apply memory management techniques, memory allocation replacement techniques.

CO 5. Analyze different file and I/O management.

Semester II Data Structures Course Code: CAC -105

After completing the course students will be able to

CO 1: Understand the concept of Pointers, Dynamic Memory Allocation, Algorithm and Big Notation.

CO 2: Understand Basic data structures such as arrays, linked list, stack & queries.

CO 3: Apply sorting techniques for solving problems

CO 4: Apply searching techniques for solving problems

CO 5: To solve problem involving graphs, trees and heaps.

Semester II Applied Mathematics Course Code: CAC -107

After completing the course, the student will be able to:

CO 1: Understand the basic fundamental of digital electronics.

CO 2: Represent real world concepts using the basic concept of sets.

CO 3: Understand the various laws associated to the Boolean operation.

CO 4: Implement Cartesian product in real life.

CO 5: Analyse problem and implement the concept of permutation and combination.

Semester II Data Structures Laboratory Course Code: CAC -108

After completing the course, the student will be able to:

CO 1: Understand and implement the concept of Dynamic memory allocation using Pointers.

CO 2: Implement data structures such as Stack, Queues, Link list, Trees and Graphs.

CO 3: Learn and Apply Searching and Sorting Techniques to solve problems.

CO4: Learn to organize contents properly on interface.

CO 5: Analyse and integrate Data structure techniques to develop a small application, using C-Programming Language.

Semester II Environmental Studies Course Code: ESA 102

SECTION – B Socio-economic dimensions of Environment

After completing the course, the student will be able to

CO 1: Analyse the various types of pollution in the environment, the causative factors and the measures that could be taken, to curb pollution.

CO 2: Assess the types of wastes, their causes and effects as well as articulate the role of an individual in prevention of pollution

CO 3: Understand the various social issues and their effect on Environment as well as the various preventive acts implemented by the government.

CO 4: Analyse the role of population and tourism and its impact on the environment.

Semester II Cost Accounting Generic Elective Course Code: CAG -102

After completing the course, the students will be able to:

CO 1: Identify cost-volume-profit relationships and solve CVP functions.

CO 2: Define and apply management/cost accounting concepts.

CO 3: Identify and analyze variances, flexible budgets and management control system.

CO 4: Identify inventory costing and capacity, determine cost behavior and analyze decision making.

Semester III - Object Oriented Concepts Course Code: CAC109

On completion of the course student will be able to

CO 1. Describe the meaning of OO paradigms

CO 2. Use concepts of OO programming for problem solving.

CO 3. Code basic programs

CO 4**.** Demonstrate the conceptual models of UML.

Semester III - Database Managements Systems Course Code: CAC110

On completion of the course student will be able to

CO 1. Describe the fundamental elements of relational database management systems

CO 2. Describe the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

CO 3. Design ER-models to represent simple database application scenarios

CO 4. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.

CO 5. Improve the database design by normalization.

CO 6. Describe basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

CO 7. To learn and understand the future trends in Database Technology

Semester III - Object Oriented Programming Laboratory

Course Code: CAC111

On completion of the course student will be able to

CO 1. Implement object-oriented designs with java.

CO 2. Design and program stand-alone java applications

Semester III - Database Management Systems Laboratory

Course Code: CAC112

On completion of the course student will be able to:

CO 1. Install, configure, and interact with a relational database management system;

CO 2. Design and implement a database schema for a given problem-domain.

CO 3. Normalize a database.

CO 4. Populate and query a database using SQL DML/DDL commands.

CO 5. Declare and enforce integrity constraints on a database using a state-ofthe-art RDBMS.

CO 6. Learn and implement the principles and concepts of information integrity, security and confidentiality.

Semester III - GENERIC ELECTIVE(GE) Data **Analyses & Statistical Techniques**

Course Code: CAG-108

On completion of the course the student will be able to:

CO 1. Perform probability and probability distributions on data.

CO 2. Perform testing of hypothesis on a population based on statistical measures of samples.

CO 3. Perform simple linear regression analysis.

CO 4. Compute descriptive statistics including diagrammatic representation and interpretation.

CO 5. Perform basic tasks in data mining

Semester III - GENERIC ELECTIVE(GE) Digital Marketing Course Code: CAG-121

On completion of the course student will be able to:

CO 1. Apply the understanding of digital landscape and building a case to leverage online channels

CO 2. Strategize, implement and optimize online campaigns successfully

CO 3. Develop and design Online Advertising campaigns, AdWords Campaign management and Campaign Basics across search.

CO 4. Drive organic traffic through Search Engine Optimization

CO 5. Apply advance concept of Search Engine Optimization to capture the right intent

Semester III - Communication & Presentation Skills Course Code: CAA101

On completion of the course student will be able to:

CO 1. Know the basic concept of communication and complete communication process

CO 2. Understand the aspects of effective, formal and informal communications

CO 3. Understand the different methods of communication

CO 4. Know the different forms of oral communication

CO 5. Know to prepare for an interview

CO 6. Know the process of conducting a job interview

CO 7. Know the aspects of presentation preparation

CO 8. Know the different forms of matter researching

CO 9. Study audience's frame of mind and manipulation techniques

CO 10. Know to use modern aids and software of presentation

CO 11. Know to use body language to assist better expression of thought

CO 12**.** Use real-time feedback for instant reaction

Semester IV - Software Engineering Course Code: CAC113

On completion of the course student will be able to:

CO 1. Apply the software life cycle models & appreciate the development process
CO 2. Apply the concept of version control & release management
CO 3. Articulate the agile principles and practices.
CO 4. Perform scrum Release Planning, and Scrum Sprint Planning.
CO 5. Comfortably use XP framework for design and development of software.
CO 6. Comfortably apply the strategies and methods of software quality assurance
CO 7**.** Have a basic understanding of modern software development methodologies.

Semester IV - Data Communications Course Code: CAC114

On completion of the course student will be able to:

CO 1. Understand the basic concepts of data communication components used at various transmission speeds
CO 2. Explain the different network topologies and their advantages and disadvantages
CO 3. Explain how to build a network model and why
CO 4. Understand how data could be encoded to digital bits.
CO 5. Identify different types of Transmission Mediums.

CO 6. Recognize the different internetworking devices and their functions.

CO 7. Explain Networking essentials and protocols governing the web

Semester IV - CASE Tools Laboratory Course Code: CAC115

On completion of the course student will be able to:

CO 1. Proficiently use the centralized repositories and versioning tool

CO 2. Comfortably design and execute test cases using testing tool.

CO 3. Create effective code documentation using tools

CO 4. Demonstrate proficiency in using debugging and defect tracking tool.

CO 5. Perform refactoring of the code using tools efficiently

CO 6. Demonstrate the understanding of entry level scrum agile methodology of Software Development

CO 7. Efficiently use tool/s to test web application.

CO 8. Comfortably use tool/s to build application

Semester IV - User Interface Design Lab Course Code: CAC116

On completion of the course student will be able to

CO 1. Apply design principles, guidelines, and heuristics to create a user interaction strategy that solves a real-world problem.

CO 2. Design a usable and compelling user-interface given a set of requirements and available technologies.

CO 3. Design a user interface from inception through the beginning development stage of Stand-alone app/Web app/mobile device app

Semester IV - Social Engineering Course Code: CAG111

On completion of the course student will be able to:

CO 1. Explain the term Social Engineering.

CO 2. Identify the types of a Social Engineering attack.

CO 3. Choose tools for Social Engineering.

CO 4. Compare social engineering techniques on effectiveness.

CO 5. Explain techniques to prevent and mitigate Social Engineering attacks.

CO 6. Identify the possibility of downloading malicious software on unsuspecting user systems.

Semester IV - Data Mining and Business Intelligence Course Code: CAG118

On completion of the course the student will be able to:

CO 1 Use conceptualization of BI techniques

CO 2 Apply data warehouse concepts for data analysis and report generation

CO 3 Develop industry level data mining skills using software tools

CO 4 Make use of relevant theories, concepts and techniques to solve real world BI problems

Semester IV - Technical Writing Skills Course Code: CAA102

On completion of the course student will be able to

CO 1. Learn the principles of correspondence and jargon for business letters

CO 2. Learn the conventions, formats of business letter writing

CO 3. Learn to write formal letters

CO 4. Learning the format and requirements of drafting an RTI letter

CO 5. Write different types of documents

CO 6. Understand the differences between types of letters

CO 7. Learn to draft media articles depending on their types

CO 8. Learn to draft an effective advertisement & concise classified ads

CO 9. Understand the rules and conventions of online correspondence

CO 10. Draft tender notices for formal intimations

CO 11. Learn to collect data from meetings, briefings and prepare a report

CO 12. Develop effective report writing skills

Semester V Software Testing Course Code: BCA501

After completing the course, the student will be able to:

CO 1: Apply different testing approaches to all stages of software development

CO 2: Prepare test plans, strategy, specifications, procedures and controls to provide a structured approach to testing.

CO 3: Apply the techniques and methods covered to testing packages.

CO 4: Manage, plan and prepare rigorous, formal, visible and repeatable tests that will fully exercise software, in the development of quality systems.

CO 5: Describe the different types of testing tools available and identify the appropriate types of tools for their needs

Semester V Web Technology Course Code: BCA502

After completing the course student will be able to

CO1: Understand, analyze and build dynamic and interactive web sites

CO2: Install and manage server software and server-side tools.

CO3: Understand current and evolving Web languages for integrating media and user interaction in both front end and backend elements of a Web site.

CO4: Analysis and reporting of web data using web analytics

CO5: Applying different testing and debugging techniques and analyzing the web site Effectiveness.

Semester V Android Programming Course Code: BCA_CS_E01

After completing the course, the student will be able to:

CO 1: Have knowledge about Android as an OS, its history, latest version and android os stack

CO2: Efficiently use the Software tools required to design and program an android app.

CO 3: Design efficient user interface, compatible with all screen sizes for the android app.

CO 4: Write functional code using all the UI elements, perform network requests, use GPS, Bluetooth and other sensors in the app.

CO 5: Use inbuilt features of Android to make apps more user friendly and feature rich, like Internal Database, Background services etc.

CO 6: Generate an android app ready to be published on the android play store.

Semester V Advertising Course Code: BCA_NCS_E01

After completing the course, the students will be able to:

CO 1: Understand how Advertising has evolved over the time.

CO 2: Get aware of various types of advertising used currently.

CO 3: Analyze and modify the techniques used in advertising from product launch onwards.

CO 4: Understand the various market research methods.

CO 5: How advertising firms do media planning and distribution.

CO 6: Get aware of legal aspects used in Advertising and laws affecting Advertising.

Semester V Human Computer Interaction Course Code: BCA_CS_E06

After completing the course, the student will be able to:

CO 1: Understand the difference between GUI Interfaces and Web Interfaces.

CO 2: Analyse User Screen Menus and Icons.

CO 3: Design better user interface without cluttering of user's graphical items.

CO4: Learn to organize contents properly on interface.

CO 5: Understand the purpose and usage of various Input and Output devices.

Semester V Non-Computer Science Elective – Business Ethics

Course Code: BCA_NCS_E02

After completing the course, the students will be able to:

CO1: Understand the ethical theories & its value

CO2: Analyze how business ethics works in work environment

CO3: Awareness of Organizational ethics & challenges faced

CO4: Understand what corporate social responsibility is.

CO5: Analyze the relation between ethics and technology

CO6: Understand how global business manage ethical issues

Semester V - Web Technology Laboratory Course Code: BCA-505

On completion of the course student will be able to:

CO 1. To set up and use a web server for testing and deploying web applications.

CO 2. To learn to create simple static web pages using HTML tags.

CO 3. To learn styling using standardized pure CSS

CO 4. To learn client-side scripting using a scripting language.

CO 5. To use DOM concepts using a scripting language.

CO 6. To learn server-side scripting using database connectivity and report generation.

CO 7. To create fully functional websites/ web applications.

Semester V IT Project Management Course Code: BCA_CS_E08

After completing the course, the student will be able to:

CO 1: Appreciate various concepts of a project and issues in managing a project.

CO 2: Appreciate the importance of various stages involved in starting of a project.

CO 3: Understand various tasks involved in project planning.

CO 4: Understand the various aspects of executing information technology project.

CO 5: Appreciate the various aspects of project controlling and monitoring.

CO 6: Appreciate the tasks involved in final stages of project management.

Semester VI - E- Commerce Application - CS ELECTIVE

Course Code: BCA-CS-E04

On completion of the course student will be able to:

CO 1. To understand the basics of E- Commerce and learn the concept of globalization and the role of internet.

CO 2. To learn the design principles of websites from the commerce perspective; mailing lists and use of e mail in e-commerce.

CO 3. To study the different business models of e- commerce and the characteristics and features of each model; understand the different elements of the supply chain; the concept of product and services digitalization; understand the working of the online market and CRM.

CO 4. To study the B2C model of e-commerce.

CO 5. To study the B2B model with emphasis on communication techniques between organizations; study EDI with focus on reducing delays and costs of communication; study the concept of a value-added network.

CO 6. To study the different electronic payment systems; study the risk management system of e-payments and study the Secure Electronic Transaction System.

CO 7**.** To study the security issues; security mechanism and threats to e-commerce.

Semester VI Management Information Systems Course Code: BCA601

After completing the course, the student will be able to:

CO1: Understand the role of information technology and information systems in business.

CO2: Analyze how information technology impact perform.

CO3: Apply various support system that can be used for making business decisions.

CO4: Understand different management functions and construct a solution to business problems.

CO5: To combine analytical thinking, creativity and business problem solving as applied to ongoing MIS Challenges, future trends and relevant case.

Semester VI Multimedia Technology Course Code: BCA602

After completing the course, the student will be able to:

CO 1: To identify a range of concepts, techniques and tools for creating and editing the interactive multimedia applications

CO 2: To understand Basic compression techniques

CO 3: To understand video and audio Data compression techniques

Semester VI Multimedia Laboratory Course Code: BCA605

After completing the course, the student will be able to:

CO 1: Have knowledge about different Multimedia types, components, formats.

CO2: Efficiently use the Graphic editing tool required to edit and perform various operations on graphic resources.

CO 3: Efficiently use the Audio editing tool required to edit and perform various operations on audio resources.

CO 4: Efficiently use the Video editing tool required to edit and perform various operations on video resources.

Semester VI Content Management Systems Course Code: BCA_CS_E02

After completing the course, the student will be able to:

CO 1: Have knowledge about what is a CMS, various CMS platforms available, advantages and disadvantages of using a CMS

CO 2: Setup a CMS on local computer/server/online account, create admin account, create other users, assign roles, work with the database if needed.

CO 3: Use efficiently platforms like WordPress, Wix, Joomla, Moodle,

CO 3: Design websites using the CMS, add own CSS to style the website.

CO 4: Publish the website on live server, maintain and update the website.

Semester VI Non-Computer Science Elective Services Marketing

Course Code: BCA_NCS_E12

After completing the course, the students will be able to:

CO1: Understand the significance of service marketing.

CO2: How to manage service encounters and managing relationship by building customer loyalty.

CO3: Understand to create various service-based strategies for market positioning

CO4: Analyze financial and economic effects of services

CO5: Get aware on how select service-based industries works

Semester VI Human Resource Management Course Code: BCA_NCS_E14

After completing the course, a student will be able to:

CO 1: Have an insight into the contribution of HRM in the organization. The student will be able to plan the human resource requirement of an organization.

CO 2: Understand the recruitment policy

CO 3: Discuss the internal and the external factors influencing the recruitment decisions, importance of each part of the recruitment process and possible danger spots, skills and knowledge required to conduct fair selection of the candidate in an organization.

CO 4: Have a greater understanding on how a good or bad experience interview might impact an applicant.

CO 5: Understand the contribution of job analysis to an organizational effectiveness and complete the job analysis in a given situation, and understand the job enlargement and enrichment in the organizations.

CO 6: Describe the benefits of training the employees and understand the various methods of the training used for workers and managers.

CO 7: Understand why it is important to effectively appraise performance of employees,

CO 8: Describe performance appraisal methods and pros and cons of each

Discuss the major problems inhibiting effective performance appraisals.

CO 9: Recognize the importance of business presentations and interpersonal skills and describe how good communication with others can influence our working relationships, understand the importance of time management for individuals and organization

CO 10: Understand the need of planning a career in today's competitive world and the various opportunities available.

CO 11: Recognize the importance of counselling and various types of counselling.