**TECNIA INSTITUTE OF ADVANCED STUDIES**
GRADE "A" INSTITUTE
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Ref.No.: TIAS/BCA/2021-22/59

Date: 04/07/2021

# *Department of Information, Communication & Technology*

## Bachelor of Computer Application

Course Outcomes (Cos)

| COURSE OUTCOMES (COs) for BCA | | |
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| Semester | 1st | |
| Course Code | Course | Course Outcomes |
| BCA 101 | Discrete Mathematics | CO1: Understand the basics conceptual math and relations. |
| | | CO2: Understand and apply partial order and recurrence relation and their operations. |
| | | CO3: Compare and design, sorting and hashing techniques. |
| BCA 103 | Programming Using 'C' Language | CO1: Develop programming skills by learning the fundamentals of structured programming using C Language. |
| | | CO2:Design and develop programs using arrays, storage classes, functions and to understand memory management through pointers |
| | | CO3: Critically analyze real world problems using structures, unions and develop applications for handling text and binary files. |
| | | CO4: Explore the use of command line arguments, string manipulation and standard libraries. |
| BCA 105 | Fundamentals of Computers and IT | CO1: Describe computer with its characteristics, its usage, limitations and benefits, Computer Memories and its type, Software and its type |
| | | CO2: Acquire knowledge about Number Systems, various computer languages and operating system DOS |
| | | CO3: Attain skills in Application Software used for word processing, spreadsheet and presentation |
| | | CO4: Understand network fundamentals and various communication network, Advance trends in IT |

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| BCA 107 | Web Technologies | CO1: Develop static web pages through HTML, JavaScript, CSS and Bootstrap. |
| | | CO2: Implement different constructs and programming techniques provided by JavaScript. |
| | | CO3: Adapt HTML, Javascript, CSS and Bootstrap syntax and semantics to build web pages. |
| | | CO4: Develop Client-Side Scripts using JavaScript to display the contents dynamically |
| BCA 109 | Technical Communication | CO1: The student will become familiar with the basics of communication and its importance in the organizational world. |
| | | CO2: To improve the business writing skills also will become well aware how to write effective resume to enter the global world. |
| | | CO3: To improve the listening skills by knowing well how to negotiate and give effective presentations. |
| | | CO4: To make use of effective business language and give a professional look to oneself. |
| BCA 171 | Practical -I 'C' Prog. Lab | CO1: Develop programming skills by learning the fundamentals of structured programming using C Language. |
| | | CO2: Design and develop programs using arrays, storage classes, functions and to understand memo1y management through pointers |
| | | CO3: Critically analyze real world problems using structures, unions and develop applications for handling text and binary files. |
| | | CO4: Explore the use of command line arguments, string manipulation and standard libraries. |
| BCA 173 | Practical - II IT Lab | CO1: Work with basic DOS Commands and Windows Explorer. |
| | | CO2: Create Word Documents using advanced features of MS Word. |
| | | CO3: Create Worksheet using advanced features of MS Excel. |

| COURSE OUTCOMES (COs) for BCA | | |
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| Semester | 2nd | |
| Course Code | Course | Course Outcomes |
| BCA 102 | Applied Mathematics | CO1: Understand the various approaches dealing the data using theory of Probability |
| | | CO2: Understand various numerical techniques and apply , them to solve real life problems |

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| | | CO3: Analyse and evaluate the accuracy of common Numerical Methods |
| | | CO4: Develop a mathematical model for real life situation and solving it Using Linear programming technique |
| BCA 104 | Web Based Programming | CO1: Design and develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's. |
| | | CO2: Have a good understanding of Web Application Terminologies |
| | | CO3: Learn how to link and publish web sites |
| BCA 106 | Data Structure and Algorithm Using C | CO1: Familiarize the basics of data structures and algorithms. |
| | | CO2: Understand and apply linear and nonlinear data structures and their operations. |
| | | CO3: Compare and implement searching, sorting and hashing techniques. |
| | | CO4: Appraise and determine the correct data structure for any given real world problem. |
| BCA 108 | Database Management System | CO1: Understand the DBMS concepts with detailed architecture, characteristics. Describe different database languages and environment and learn various data models, along with the related terminologies |
| | | CO2: Explore Structure Query Language, a brief on NOSQL, Query By Example. Also understand the overview of SQL, and try to implement DDL, DML and DCL along with operators, use of joins, nested query, use of views and Indexes Discuss integrity Constraints |
| | | CO3: Describe Relational Data Model, explain Codd's Rules, Relational Algebra, Set theory operations and the concept of functional dependencies and normalization |
| | | CO4: Acquire Knowledge about Transaction Processing, concurrency problems, and its controlling techniques, Database backup and recovery and security. |
| BCA 110 | Environmental Studies | CO1: Gain in-depth knowledge on natural processes and resources that sustain life and govern economy. |
| | | CO2: Understand the consequences of human actions on the web of life, global economy, and quality of human life. |
| | | CO3: Develop critical thinking for shaping strategies (scientific, social, economic, administrative, and legal) for environmental protection, conservation of biodiversity, environmental equity, and sustainable development. |
| | | CO4: Acquire values and attitudes towards understanding complex environmental economic-social challenges, and active participation in solving current environmental problems and preventing the future ones. |

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| | | CO5: Adopt sustainability as a practice in life, society, and industry. |
| BCA 134 | Front End Design Tools VB.NET | CO1: Design Console application using basic programming concepts. |
| | | CO2: Design Windows application using control. |
| | | CO3: Understand and use of different Data Structures, Exception Handling |
| | | CO4: Learn basic concepts of OOPS. Design classes and interfaces. |
| BCA 136 | Statistical Analysis using Excel | CO1: Understand the basic concepts of statistics and its application in the real life scenarios |
| | | CO2: Understand the means and mechanisms for applying the various skills used in the process of generating various statistical concepts by using MS Excel software |
| | | CO3: Developing the skills needed for understand the various features of MS Excel software which assist the user in the process of deriving statistical measures |
| | | CO4: Understand the skill needed to draw various forms of graphical representation based on statistical data |
| | | CO5: Understand the various features of MS Excel involved in the process of compilation and summarizing of Statistical data and the skills needed to interpret the statistical data |
| | | CO6: Understand the skills needed to ensure the process of integrating data from multiple in MS Excel |
| BCA 138 | Designing Lab Photoshop | CO1: Explain the basics of graphics designing & Adobe suite |
| | | CO2: Exploring the Raster designing tools in Adobe Photoshop. |
| | | CO3: Exploring the Vector designing tools in Adobe Photoshop. |
| | | CO4: Exploring the image filters & adjustments in Adobe Photoshop. |
| BCA 172 | Practical-IV WBP Lab | CO1: Design and develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's. |
| | | CO2: Have a good understanding of Web Application Terminologies |
| | | CO3: Learn how to link and publish web sites |
| BCA 174 | Practical-V DS Lab | CO1: Implement basic operations on static linear data structures. |
| | | CO2: Implement various operations on dynamic linear data structures. |
| | | CO3: Implement basic operations on non-linear data structures |
| | | CO4: Implement searching techniques on linear and non-linear data structures. |

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| | | CO5: Implement sorting techniques on one dimensional array. |
| BCA 176 | Practical-VI DBMS Lab | CO1: Understand the structure and design of relational databases. |
| | | CO2: Write DDL statements in SQL to create, Modify and remove database objects |
| | | CO3: Use constraints for the database |
| | | CO4: Write DML statements in SQL to insert, Modify and remove data from database |
| | | CO5: Write SQL statements to retrieve data based on the conditions provided by the user |
| | | CO6: Use index and Views in database |
| | | CO7: Use structured query language (SQL) to an intermediate/advanced level |
| BCA 108 | Database Management System | CO1: Understand the DBMS concepts with detailed architecture, characteristics. Describe different database languages and environment and learn various data models, along with the related terminologies |
| | | CO2: Explore Structure Query Language, a brief on NOSQL, Query By Example. Also understand the overview of SQL, and try to implement DDL, DML and DCL along with operators, use of joins, nested query, use of views and Indexes Discuss integrity Constraints |
| | | CO3: Describe Relational Data Model, explain Codd's Rules, Relational Algebra, Set theory operations and the concept of functional dependencies and normalization |
| | | CO4: Acquire Knowledge about Transaction Processing, concurrency problems, and its controlling techniques, Database backup and recovery and security. |
| BCA 110 | Environmental Studies | CO1: Gain in-depth knowledge on natural processes and resources that sustain life and govern economy. |
| | | CO2: Understand the consequences of human actions on the web of life, global economy, and quality of human life. |
| | | CO3: Develop critical thinking for shaping strategies (scientific, social, economic, administrative, and legal) for environmental protection, conservation of biodiversity, environmental equity, and sustainable development. |
| | | CO4: Acquire values and attitudes towards understanding complex environmental economic-social challenges, and active participation in solving current environmental problems and preventing the future ones. |
| | | CO5: Adopt sustainability as a practice in life, society, and industry. |

| COURSE OUTCOMES (COs) for BCA | | |
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| Semester | 3rd | |

| Course Code | Course | Course Outcomes |
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| BCA 201 | Computer Networks | CO1: Utilize the fundamentals of data communication and networking to identify the topologies and connecting devices of networks. |
| | | CO2:Understand and describe the layered protocol model (OSI and TCP/IP model) |
| | | CO3: Analyze the elements and protocols for peer - peer and communication between layers. |
| | | CO4: Evaluate and implement routing algorithms and Router basic configuration. |
| | | CO5: Evaluate the protocols and Principles in computer networking |
| BCA 203 | Computer Organization and Architecture | CO1: Able to understand the fundamentals of digital principles and able to design digital circuits by simplifying the Boolean functions |
| | | CO2: Implement the combinational and sequential circuits for the given specifications |
| | | CO3: Able to trace the execution sequence of an instruction through the processor |
| | | CO4: Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os. |
| | | CO5: Demonstrate the ability to classify the addressing modes, instructions set |
| BCA 205 | Object Oriented Programming with C++ | CO1: Understand the basic principles of Object-Oriented Programming |
| | | CO2: Apply OOPs principles using C++ constructs |
| | | CO3: Develop expertise in classification hierarchies and polymorphism using C++ |
| | | CO4: Comprehend the working of files and generic programming |
| BCA 207 | Human Values and Ethics | CO1: Identify and evaluate personal ethical values and their implications in various social situations |
| | | CO2: Recognize the multiple ethical interests at stake in a real-world situation |
| | | CO3: Demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work integrate, synthesize, and apply knowledge of ethical dilemmas and resolutions in academic settings, including focused and interdisciplinary research |
| | | CO4: Instill Moral and Social Values and Loyalty and appreciate the rights of others |
| | | CO5: Comprehend the concept of harmony at all the levels of society and readiness to contribute towards harmony at all levels. |

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| BCAT 211 | Basics of Python Programming | CO1: Demonstrate knowledge of basic programming constructs in python. |
| | | CO2: Illustrates string handling methods and user-defined functions in python |
| | | CO3: Applying data structures primitives like List, Dictionary and tuples. |
| | | CO4: Identify the commonly used operations involved in file handling |
| | | CO5: To understand how python can be used for application development |
| BCAT 213 | Cyber Security | CO1: Define the basic concept of Cyber Security, Cybercrime and Cybercriminals. Identify and understand about Cyber Threats. |
| | | CO2: Describe briefly types of criminal attack and classification of Cybercrimes. Describe Steganography. |
| | | CO3: Identify and apply the Cybercrime Tools and Methods. Identify and apply the underlying concepts of Symmetric-key and Asymmetric-key Cryptography along with Digital Signature. |
| | | CO4: Implement security for HTTP applications, Emails. Apply Firewall in your system. |
| | | CO5: Implement, evaluate Keyloggers. Implement and evaluate different cyber security algorithms with the help of program. |
| | | CO6: Design and create security mechanisms to protect computer systems. |
| BCA 221 | Principles of Management & Organizational Behaviour | CO1: Develop basic knowledge about management, management process, managerial roles, skills and functions and management theories. |
| | | CO2: To give knowledge about planning and decision making process. To describe about staffing and directing. |
| | | CO3: To learn about the motivation theories and Leadership styles. To discuss about the Organizational behaviour and its application. |
| | | CO4: To give basic knowledge people management, their personality and perception. To describe about the Organisational culture and its effects. |
| BCA 235 | ASP.NET | CO1: Understand the designing and development of Web Application Components |
| | | CO2: Develop dynamic web pages using Web Server controls |
| | | CO3: Design and create web applications with Validation controls |
| | | CO4: Understand and Apply database connectivity to Web Applications |

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| BCA 237 | AR VR Development with Unity | CO1: Familiarize the basics of augmented, virtual and mixed reality. |
| | | CO2: Understand and apply the game development basics. |
| | | CO3: Compare and implement the various XR development techniques. |
| | | CO4: Appraise the XR development using Unity Engine. |
| BCA-239 | Cyber Ethics | CO1: Define cyber ethics and recognize cyber ethic issues |
| | | CO2: Identify how security issues in cyberspace raise ethical concerns. |
| | | CO3: Recognize various types of cybercrime and its impact |
| | | CO4: Discuss ethical issues associated with the use of social networks and social media |
| | | CO5: Survey recent whistle-blowing cases focusing on associated ethical issues |
| BCA 271 | Practical - VII C++ Lab | CO1: Implement basic concepts of Object Oriented Programming |
| | | CO2: Implement the concept of Classes and Objects |
| | | CO3: Analyse and apply various polymorphism techniques to solve real life problems |
| | | CO4: Implement Generic Classes, Exception Handling and various file operations |

| COURSE OUTCOMES (COs) for BCA | | |
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| Semester | 4th | |
| Course Code | Course | Course Outcomes |
| BCA 202 | Java Programming | CO1: Illustrate the Object-Oriented paradigm and Java language constructs |
| | | CO2: To inculcate concepts of inheritance to create new classes from existing ones and design the Classes needed given a problem specification. |
| | | CO3: To familiarize the concepts of packages and interfaces. |
| | | CO4: To facilitate students in handling exceptions and defining their own exceptions. |
| | | CO5: To manage input output using console and files |
| | | CO6: To apply the Java Thread model to develop multithreading applications. |
| | | CO7: To understand and apply the concepts of GUI programming using swings. |
| BCA 204 | Software Engineering | CO1: To evaluate languages to code front end and back end of a software |
| | | CO2: Instantiating into the process of designing, coding and testing a software module. |

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| | | CO3: Organizing a software product along with its complete documentation. |
| | | CO4: Implementing Software Development Cycle to develop a software module. |
| | | CO5: To analyze the use of techniques, skills and modern engineering tools necessary for software development. |
| | | CO6: Organizing a complete software module |
| BCA 206 | Introduction to Management and Entrepreneurship | CO1: Gain in-depth knowledge on Entrepreneurial development in today's global scenario |
| | | CO2: Understand the concept of entrepreneurs and to help the students to develop an entrepreneurial mind-set |
| | | CO3: Develop critical thinking for shaping strategies and help them to become an successful entrepreneur |
| | | CO4: Acquire values and attitudes towards understanding complex business problems, and active participation in solving current business problems. |
| | | CO5: Understand the concept of the fundamentals of management |
| BCAT 212 | Introduction to Data Science | CO1: Basics of Data Science and Data Collection strategies |
| | | CO2: Illustrating statistical analysis of data. |
| | | CO3: Working with the data structures of python like series and Data Frames |
| | | CO4: Statistical analysis of data with the help of python |
| BCAT 214 | Introduction to Artificial Intelligence | CO1: To understand elements constituting problems and learn to solve it by various uninformed and informed (heuristics based) |
| | | CO2: To understand formal methods for representing the knowledge and the process of inference to derive new representations of the knowledge. |
| | | CO3: Analyze and apply the notion of uncertainty and some of probabilistic reasoning methods to deduce inferences under uncertainty |
| | | CO4: Apply some mechanisms to create and improve AI system. |
| BCAT 216 | Network Security | CO1: Define and explain the issues and basic concepts of Network Security. To understand how to draw a network model. |
| | | CO2: To Explain, understand and summarize the concepts, types and features of Firewall. |
| | | CO3: Explain and implement working of authentication, authorization, Packet security, IP Security, Firewall by using some suitable examples. |
| | | CO4: Classify and organize the architecture of network security management. |
| | | CO5: Evaluate different Network Security algorithms with the help of program. |

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| | | CO6: Design and create a network security architecture for an organization. |
| BCAT 218 | Web Development with Python and Django | CO1: Install and Configure Python and Django in a development and production environment |
| | | CO2: Understands the security implications of Django using templates and develop secure websites with Django |
| | | CO3: Utilize Django Models to build an interface with powerful relational databases |
| | | CO4: Design and develop forms (both ad-hoc and from Models and Data Models) and automate the validation and verification of data in those forms |
| BCA 222 | Digital Marketing | CO1: Understanding the digital marketing concepts and its usefulness in business. |
| | | CO2: Planning steps for digital marketing strategy and successfully executing it. |
| | | CO3: Understand the importance of Social Media Platforms and Social Media Marketing for online communication. |
| | | CO4: Applying Search Engine Optimization techniques (SEO) and Search Engine Marketing (SEM) to maximize reach and enhance engagement of users. |
| | | CO5: Analyzing web using analytics tools and gaining insights to various tools for Social Media Marketing. |
| BCA 224 | Principles of Accounting | CO1: Basic accounting knowledge, accounting equations, accounting concepts & convention. |
| | | CO2: Rules of debit & credit, journal, ledger, trial balance. |
| | | CO3: Final A/c's (Trading A/c, Profit & Loss A/c, Balance Sheet) without adjustment & with adjustment. |
| | | CO4: Sub division of Journal: Cash Journal, Petty Cash Book, Purchase Journal, Purchase Return Journal, Sales Journal, Sales Return Journal. |
| | | CO5: Inventory valuation, Inventory System, Methods of valuation of Inventories (FIFO, LIFO & Weighted Average Method). |
| | | CO6: Depreciation concept & causes, Method of recording depreciation & Method of providing depreciation. |
| BCA 232 | Personality Development Skills | CO1: Learn Social Etiquettes and social conversation. |
| | | CO2: Learn Leadership, Decision making and Team-building skills |
| | | CO3: Improve confidence building skills |
| | | CO4: Able to manage Stress and Time Management |
| BCA 272 | Practical - VIII Java Lab | CO1: Illustrate the Object-Oriented paradigm and Java language constructs |

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| | | CO2: To inculcate concepts of inheritance to create new classes from existing ones and design the classes needed given a problem specification. |
| | | CO3: To apply various functions of String class |
| | | CO4: To facilitate students in handling exceptions and defining their own exceptions. |
| | | CO5: To manage input output using console and files |
| | | CO6: To apply the Java Thread model to develop multithreading applications. |
| | | CO7: To understand and apply the concepts of GUI programming using swings. |
| BCA 274 | Practical-IX SE Lab | CO1: To apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design, construction, and deployment. |
| | | CO2: Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle. |
| | | CO3: Analyzing and developing a software product along with its complete documentation. |
| | | CO4: Work as an individual and as part of a multidisciplinary team to develop and deliver quality software in one or more significant application domains. |
| | | CO5: Demonstrate an ability to use the techniques and tools necessary for engineering practice |

| COURSE OUTCOMES (COs) for BCA | | |
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| Semester | 5th | |
| Course Code | Course | Course Outcomes |
| BCA 301 | Operating System & Linux Programming | CO1: Understand the basic concept of Operating System with the help of Unix and Linux Architecture. |
| | | CO2: Understand the concept of Processes, Process Scheduling, Process Synchronization and applying process commands in Linux environment. |
| | | CO3: Understand the concept of memory management and deadlock. |
| | | CO4: Understand the concept of file Systems, Types and Access Methods by using Linux commands |
| BCA 303 | Computer Graphics | CO1: Develop basic knowledge of computer generated graphics, their applications, display devices and drawing of graphic objects on display devices. |
| | | CO2: To develop knowledge of various graphics 2D transformation operation, their mathematical calculations. |

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| | | CO3: To learn about the surfaces and curves, properties of curves and shading of surfaces |
| | | CO4: To give basic knowledge of 3D projection and identifying hidden surfaces to be removed |
| BCA 305 | Cloud Computing | CO1: Overview of Cloud Computing |
| | | CO2: Understanding Cloud Computing Architecture |
| | | CO3: Working with Parallel and Distributed Computing |
| | | CO4: Understanding the Concept of Virtualization |
| BCAT 311 | Machine Learning with Python | CO1: Explain machine learning concepts on real world applications and problems. |
| | | CO2: Analyze and Implement Regression techniques. |
| | | CO3: Solve and design solution of Classification problem |
| | | CO4: Understand and implement Unsupervised learning algorithms |
| | | CO5: Interpret various machine learning algorithms in a range of real world applications. |
| BCAP 311 | Machine Learning with Python Lab | CO1: Explain machine learning concepts on real world applications and problems. |
| | | CO2: Analyze and Implement Regression techniques. |
| | | CO3: Solve and design solution of Classification problem |
| | | CO4: Understand and implement Unsupervised learning algorithms |
| | | CO5: Interpret various machine learning algorithms in a range of real world applications. |
| BCAT 313 | Web Security | CO1: Define overall web security infrastructure, components, issues and basic concept etc. |
| | | CO2: Describe briefly various types of security like social media security, email security, web application and web services security etc.<br>Explain Web related services. |
| | | CO3: Apply and implementing various vulnerabilities for Ethically hacking a websites / Web Applications. |
| | | CO4: Focusing Penetration Testing, Computer Forensics. |
| | | CO5: Evaluate different web security algorithms with the help of program. |
| | | CO6: Design and implement XSS attacks, SQL Injection attack, password hashing and cracking. |
| BCAP 313 | Web Security Lab | CO1: Define overall web security infrastructure, components, issues and basic concept etc. |
| | | CO2: Describe briefly various types of security like social media security, email security, web application and web services security etc.<br>Explain Web related services. |
| | | CO3: Apply and implementing various vulnerabilities for Ethically hacking a websites / Web Applications. |
| | | CO4: Focusing Penetration Testing, Computer Forensics. |

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| | | CO5: Evaluate different web security algorithms with the help of program. |
| | | CO6: Design and implement XSS attacks, SQL Injection attack, password hashing and cracking. |
| BCAP 315 | Web Development with Java & JSP | CO1: Understand the concept of HTML, CSS and Java Script. |
| | | CO2: Understand J2EE architecture, web application structure and web architecture models |
| | | CO3: Creating and configuring Servlets. |
| | | CO4: Understand JDBC architecture and design database applications using JDBC. |
| | | CO5: Design applications using JSP and JSF. |
| | | CO6: Elaborate the functional programming concepts of Hibernate, Struts and Springs. |
| BCA 371 | Practical-X LINUX - OS LAB | CO1: Understand Linux Environment with the help of its architecture. |
| | | CO2: Understand the Linux environment by using general Linux Commands. |
| | | CO3: Implement Process Related commands. |
| | | CO4: Implement File Permission concept. |
| | | CO5: Understanding the shell script by combining commands. |
| BCA 373 | Practical - XI CG Lab | CO1: Develop basic computer generated graphic and drawing of graphic objects on 2D display devices. |
| | | CO2: To perform various algorithms for generating objects |
| | | CO3: To implement various 2D transformation operations through matrices. |
| | | CO4: Implementation of cohen-sutherland line clipping algorithm. |

| COURSE OUTCOMES (COs) for BCA | | |
|---|---|---|
| Semester | 6th | |
| Course Code | Course | Course Outcomes |
| BCA 302 | Data Ware Housing and Data Mining | CO1: Understand the various component of Datawarehouse |
| | | CO2: Appreciate the strengths and limitations of various data mining and data warehousing models |
| | | CO3: Critically evaluate data quality to advocate application of data preprocessing techniques. |
| | | CO4: Describe different methodologies used in data mining and data ware housing. |
| | | CO5: Design a data mart or data warehouse for any organization |

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| | | CO6: Test real data sets using popular data mining tools such as WEKA |
| BCA 304 | E-Commerce | CO1: Understand the framework and business models of E-commerce. |
| | | CO2: Explain the concept of network infrastructure and gain knowledge about mobile commerce. |
| | | CO3: Demonstrate the process of secure electronic transactions for E- commerce. |
| | | CO4: Analyze various e-commerce secure payment gateway. |
| | | CO5: Evaluate Internet banking platform to work with E-commerce infrastructure. |
| | | CO6: Implement ecommerce website for online business. |
| BCA 306 | Internet of Things | CO1: Understand the architecture and the functional blocks of Internet of Things. |
| | | CO2: Explain the concepts of Internet of Things and gain knowledge to design IoT applications |
| | | CO3: Demonstrate the process of capturing and analyzing data in Internet of Things. |
| | | CO4: Examine the various components involved in IoT design methodology |
| | | CO5: Evaluate an IoT device to work with a Cloud Computing infrastructure. |
| | | CO6: Implement IoT protocols for communication. |
| BCAT 312 | Data Visualization & Analytics | CO1: Illustrating the features of Multithreading in python. |
| | | CO2: Analyzing data using suitable python library. |
| | | CO3: Visualizing data using Matplotib, Seaborn library. |
| | | CO4: Develop python applications with database connectivity operations. |
| BCAP 312 | Data Visualization & Analytics Lab | CO1: Illustrating the features of Multithreading in python. |
| | | CO2: Analyzing data using suitable python library. |
| | | CO3: Visualizing data using Matplotib, Seaborn library. |
| | | CO4: Develop python applications with database connectivity operations. |
| BCAT 314 | Deep Learning with Python | CO1: Understand the basic concepts of Deep Learning and differentiate between shallow learning and deep learning. |
| | | CO2: Implement various Deep Learning Models. |
| | | CO3: Understand different Deep Learning architectures and training algorithms. |
| | | CO4: Understanding Dimensionality Reduction and optimization in Deep Learning. |
| | | CO5: Understanding and implementing Recurrent Neural Network (RNN). |
| | | CO6: Applying Deep Learning techniques in real life applications such as object detection and analysis. |

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| BCAP 314 | Deep Learning with Python Lab | CO1: Understand the basic concepts of Deep Learning and differentiate between shallow learning and deep learning. |
| | | CO2: Implement various Deep Learning Models. |
| | | CO3: Understand different Deep Learning architectures and training algorithms. |
| | | CO4: Understanding Dimensionality Reduction and optimization in Deep Learning. |
| | | CO5: Understanding and implementing Recurrent Neural Network (RNN). |
| | | CO6: Applying Deep Learning techniques in real life applications such as object detection and analysis. |
| BCA 316 | IT Act and Cyber Laws | CO1: Define various Cyber laws in the world, Classification of Cybercrime |
| | | CO2: Describe and explain the ways in which certain cybercrimes are perpetrated. |
| | | CO3: Explain and use the objectives of national cyber security strategies |
| | | CO4: Discover IPR and E-commerce law. |
| | | CO5: Explain and Evaluate E-Commerce Issues and provisions in Indian Law. |
| | | CO6: Design and create frameworks for international cooperation on cyber security Matters. |
| BCAT-318 | Mobile Application Development | CO1: Recognize the concept of application development for mobile devices. |
| | | CO2: Understand the basic technologies used by the Android platform |
| | | CO3: Recognize and use Android Environment Emulator and Application life cycle |
| | | CO4: Develop mobile applications for the Android operating system that use basic and advanced phone features |
| | | CO5: Deploy applications to the Android marketplace for distribution |
| BCAP 318 | Mobile Application Development Lab | CO1: Recognize the concept of application development for mobile devices. |
| | | CO2: Understand the basic technologies used by the Android platform |
| | | CO3: Recognize and use Android Environment Emulator and Application life cycle |
| | | CO4: Develop mobile applications for the Android operating system that use basic and advanced phone features |
| | | CO5: Deploy applications to the Android marketplace for distribution |

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|---|---|---|
| BCA 372 | Practical-XII IOT Lab | CO1: Understand the architecture and the functional blocks of Internet of Things. |
| | | CO2: Explain the concepts of Internet of Things and gain knowledge to design IoT applications |
| | | CO3: Demonstrate the process of capturing and analyzing data in Internet of Things. |
| | | CO4: Examine the various components involved in IoT design methodology. |
| | | CO5: Evaluate an IoT device to work with a Cloud Computing infrastructure. |
| | | CO6: Implement IoT protocols for communication. |

**Head of the Department**
**Department of Information, Communication & Technology**

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