

**PO's, PSO's & CO's**  
**2023-24**

**Department of BCA**

**2023-24**

**Learning Outcomes, Program Outcome, Program Specific Outcome and Course Outcome**

**Learning Outcomes**

**After successfully completing this course, the students will be able to:**

- Acquired knowledge for understanding data and select suitable methods for data analysis.
- Explain the basic concepts and principles of strategic management analyze the internal and external environment of business.
- Outline a defensive programming concept. Ability to handle possible errors during program execution.
- Improve the ability to use standard input/output and file input/output operations.
- State the importance of Human Resource function in planning and staffing organizational manpower requirements.
- Specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances.
- Use accounting and business terminology, explain the objective of financial reporting and related key accounting assumptions and principles.
- Explain the basic principles of creating Java applications with graphical user interface (GUI).
- Describe the options for employee separation/termination.

**Programme Outcomes**

**PO1:** Students will able to understand problem solving competence while using C language.

**PO2:** Students will gain the knowledge of awareness about automation.

**PO3:** Students will have an exposure towards complex accounting problems and their solution.



**PO4:** Students will apply appropriate techniques, resources, modern IT tools in understanding, analyzing, developing computer programs in the areas related to algorithm, web design and networking for efficient design of computer based system.

**PO5:** Enhance communication skills so that they can effectively present technical information in oral and written reports.

**PO6:** Converse in basic computer terminology and possess the knowledge of basic hardware peripherals.

**PO7:** Demonstrate knowledge and understanding of the computer 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.

**PO8:** Capable to become an entrepreneur who can provide solution and develop software products for enterprise needs.

**PO9:** Write complex SQL queries to retrieve information for business decision making from databases with many tables.

**PO10:** Evaluate the performance of memory allocation and replacement techniques.

**PO11:** Design data warehouse with dimensional modelling and apply OLAP operations.

**PO12:** Students will integrate and synthesize the various approaches to organizational and HR problems.

**PO13:** Provides students with knowledge, general competence and analytical skills in computer programming on an advanced level.

**PO14:** Gain ability to apply knowledge of computer science to the real world issues.

**PO15:** an ability to apply software engineering perspective through software design and construction, requirements analysis, verification, and validation, to develop solutions to modern problems such as security, data science, and systems engineering.

**PO16:** translate some of the key marketing and business models that will help to shape your digital marketing strategies.

**PO17:** to train the students to develop the basic understanding of how ERP enriches the business organisation in achieving a multidimensional growth.

**PO18:** Analyze various cloud programming models and apply them to solve problems on the cloud.





**PO19:** Apply the appropriate system development life cycle and methodology to new software development and IT administration projects as well as integrating legacy systems in to current environments.

**PO20:** Have a facility with abstract reasoning including the ability to abstract from concrete situation and make ideas precise by formulating them mathematically or statistically.

**PO21:**Get to learn programming languages such as C, C++, HTML, SQL, DBMS, Networking etc.

**PO22:**Will be well equipped with thorough knowledge of various softwares.

**PO23:**Will be familiar with working with various operating system platforms.

### **Programme Specific Outcome**

**PSO1-** Explain the basic concepts of Human resources management and its applications in the individual, team and organizational levels.

**PSO2-** Imparted knowledge required for planning, designing and building Complex Application Software Systems.

**PSO3-** Deliver professional service with updated technologies in computer application based career.

**PSO4-** Produced entrepreneurs who developed customized solutions for small and medium enterprises.

**PSO5-** Our graduates will apply basic principles and practices of computing, grounded in mathematics and science to successfully complete hardware, software related engineering projects to meet customer business objectives, productively engage in research.

**PSO6-** Solve problems in areas like Software Design and Development, Computer Architectures and Operating System, web systems, Computer Networks and Database Management Systems to address critical challenges in the field of IT.

**PSO7-** Write SQL DDL, DML commands to create, modify and drop objects within a relational database. Retrieve and store information in a relational database using SQL in a multi-user, web based environment.

**PSO8-** The ability to understanding, analyzing and applying management concepts in the areas related to strategy, human resources and finance for efficient running of the business organization of varying complexity in competitive era.

**PSO9:-** Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.



**PSO10-**Use the underlying unifying structures of mathematics. (i.e. sets, relations and functions, logical structure) the relationship among them.

**PSO11-** Demonstrate practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications.

**PSO12-** Ability to understand and write effective project reports in multidisciplinary environment in the context of changing technologies.

**PSO13:** Build Up programming, analytical and logical thinking abilities

**PSO-14:** Know the recent developments in IT, features possibilities and limitations and understand the value of life long learning.

**PSO15:** Exhibit knowledge to secure corrupted system, protect personal data and secure computer networks in organisations

### **Course Outcome of BCA-I (Sem-I)**

#### **Fundamentals of Computer (CC-101)**

**CO1:** Converse in basic computer terminology

**CO2:** Distinguish computer types and basic concepts.

**CO3:** Possess the knowledge of basic hardware peripherals

**CO4:** Explain the concept of input and output devices of computers

**CO5:** Know and use different number systems and its. conversion

**CO6:** Discuss the concept of operating system its working and solve common problems related to operating system.

**CO7:** Describe how an operating system interacts with hardware and software and principal differences in various operating systems.

**CO8:** Explain the basic commands of Linux operating system and can write shell scripts.

**CO9:** Use Linux commands to manage files and file systems

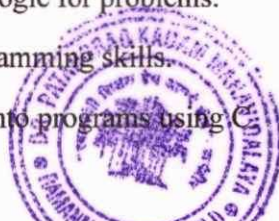
#### **Introduction to Programming Using C (CC-102)**

**CO10:** Implement the algorithms and draw flowcharts for solving Mathematical problem.

**CO11:** Learn how to apply logic for problems.

**CO 12:** Enhance their programming skills.

**CO13:** convert algorithms into programs using C





**CO14:** Describe the reason why different decision making and loop constructs are available for iteration in C

**CO15:** Know the concepts of arrays and string handling functions.

**CO16:** Learn about Loops, Conditional statements, Array, Pointers, File Handling, Structure, Unions etc.

**CO17:** Write small programs using arrays, strings, structures, unions, functions and pointers.

### **Principles of Management (AEC-103)**

**CO18:** Familiarizes the basics and levels of principles of management.

**CO19:** Describe work of major contributors to the field of Management.

**CO20:** Knowledge gain by what a manager does, and how they are integral to planning, organizing, leading, and controlling a modern organization.

**CO21:** Explain leadership styles to anticipate the consequences of each Leadership style

**CO22:** Recognize the importance of employee motivation and how to promote it.

**CO23:** Compare the processes of developing and implementing information systems.

**CO24:** Develop knowledge about dynamics involved in facilitating and managing change.

### **Business Communication (AEC-104)**

**CO25:** communicate in English language.

**CO26:** take clear notes and organize ideas.

**CO27:** write business letter..

**CO28:** give classroom presentations on various syllabus related topics.

### **Office Automation (AEC-105)**

**CO29:** Basic components of office automation.

**CO30:** Perform operations using ms-powerpoint.and MS-word.

**CO31:** Discuss about the use the course of office package and internet in daily life.

**CO32:** To perform documentation, accounting operations & presentation skills.

**CO33:** To make the students use to documents, spread sheets, make small presentations and would be acquainted with internet.



### **Lab Course (CCL 106) –I Based on CC102**

- CO34-** Describe and trace the execution of programs written in C language.
- CO35-** Write the C code for a given algorithm.
- CO36-** Usage of Arithmetic operator, Conditional operator, logical operator and relational operators and other C constructs.
- CO37-** Solve programs using functions.

### **Lab Course) -II Based on AEC 105**

- CO38:** Bridge the fundamental concepts of computers with the present level of knowledge of the students
- CO39:** Familiarize Operating Systems, Programming languages, peripheral devices and internet.
- CO40:** Protect information and computers from basic abuses/attacks
- CO41:** Connect it to external devices, write documents.
- CO42:** Create worksheets, prepare presentations.

### **BCA-I (SEM-II)**

#### **Database Management System (CC-201)**

- CO43:** Demonstrate the basic elements of a relational database management system.
- CO44:** To demonstrate the main DBMS functions. describe the database environment. introduce the student to the basics of different types of database systems.
- CO45:** The objective of this course is to get students familiar with Databases and their use. They can identify different types of available database model, concurrency techniques and new applications of the DBMS
- CO46:** Use of SQL statements to create databases and tables. Various techniques will be covered on how to insert, update, delete and query the data.
- CO47:** Improve the database design by normalization.
- CO48:** Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.





**CO49:** Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

### **Operating System (CC-202)**

**CO50:** Describe the services provided by and the design of an operating system.

**CO51:** List resources involved in process creation and management.

**CO52:** Describe different approaches to memory management.

**CO53:** Describe the role of paging, segmentation and virtual memory in operating systems.

**CO54:** Explain what a process is and how processes are synchronized and scheduled

**CO55:** Define and list the functions of an operating system.

**CO56:** Explain the structure and organization of the file system.

**CO57:** Students should be able to use system calls for managing processes, memory and the file system.

### **Web Technology I (CC-203)**

**CO58:** To distinguish basics of website and web development life cycle.

**CO59:** Develop skills in analysing the usability of a web site.

**CO60:** Define the Internet and describe its associated protocols

**CO61:** CSS provides powerful control over the presentation of an HTML document.

**CO62 :** Create web pages using HTML and CSS and JavaScript.

**CO63:** Evaluate the concepts of web programming and analyse their impact on problem solving and program implementation, demonstrate concepts by building web pages generated by JavaScript programming.

**CO64:** students will be able to structure, organize, and publish a website using HTML5 and CSS including

**CO65:** Identify how to create a simple web page. Identify how to format your text. Identify adding web links and images. Demonstrate creating tables.

**CO66:** Explain the history of the internet and related internet concepts that are vital in understanding web development.

### **Financial Accounting with Tally (AEC-204)**

**CO67:** Use basic accounting terminology, procedures and systems of

**CO68:** Maintaining accounting records.

**CO69:** Determine the basics concepts of financial accounting.





**CO70:** Develop computer skills of recording financial transactions, preparation of annual accounts and reports using Tally.

**CO71:** Gain the Knowledge in the practical applications of accounting, learn principles and concepts of Accountancy.

**CO72:** Explain the basics of tally and computerized accounting.

### **Mathematical Foundations for Computer Applications (AEC-205)**

**CO73:** Define various types of sets and find complement of various sets.

**CO74:** Explain union, intersection and difference of sets.

**CO75:** Define sets, different types of sets and apply De-Morgan's laws for solve examples on sets.

**CO76:** Relate elementary transformations to find inverse of a matrix.

**CO77:** Find degree of vertex, isolated vertex and Pendant vertex.

**CO78:** Write the matrix for given graph or Draw graph for given adjacency matrix and incidence matrix.

### **Lab Course (CCL 206)-III Based on CC201 and AEC 204**

**CO79:** Classify MS-Access DBMS and design database.

**CO80:** Identify the basic concepts and various data model used in database design ER modelling concepts and architecture use and design queries using SQL.

**CO81:** prepare relational database theory and be able to describe relational algebra expression, tuple and domain relation expression from queries.

**CO82:** Recognize and identify the use of normalization and functional dependency, indexing and hashing technique used in database design.

**CO83:** Recognize/ identify the purpose of query processing and optimization and also demonstrate the basic of query evaluation.

**CO84:** apply and relate the concept of transaction, concurrency control and recovery in database.

**CO85:** Creates Company using Tally ERP.



**CO86:** Learn to create company, enter accounting voucher entries and also print

Financial statements, etc. in Tally.

### **Lab Course (CCL 207)-IV Based on CC 203**

**CO87:** Describe the insights of internet programming and implement complete application over the web.

**CO88:** Develop web pages using HTML,HTML5 and Cascading Styles sheets.

**CO89:** Develop a dynamic web pages using JavaScript (client side programming).

### **BCA-II (SEM-III)**

#### **RDBMS - CC 301**

**CO90:** Identify the basic concepts and various data model used in database design ER modelling concepts and architecture use and design queries using SQL

**CO91:** Apply relational database theory and be able to describe relational algebra expression.

**CO92::** tuple and domain relation expression from queries.

**CO93:** Prepare SQL queries that use multiple tables.

**CO94:** Understand the relational database design principles.

**CO95:** Understand the basic concepts and the applications of RDBMS systems.

**CO96:** Prepare SQL queries that involve correlated and non correlated subqueries, outer joins, inner joins, self joins.

**CO97:** Assess the differences between subqueries and joins.

**CO98:** Use built-in functions successfully.

**CO99:** Produce user friendly output by using formatting features of SQL.

**CO100:** Analyse the effects of various data types and the use of NULLs.

**CO101:** Prepare SQL queries for ordering data and grouping data.

**CO102:** Write SQL queries for data definition/manipulation/alteration.

**CO103:** Identify and describe security concepts including user-ids, levels of privileges, views.

**CO104:** Describe and demonstrate constraints,triggers and cursors.

**CO105:** Produce programs with embedded SQL including processing stored procedures.

**CO106:** Understand the basics of SQL and construct queries using SQL.





## **Computer Networks and Internet CC 302**

**CO107:** Explain computer networking basics.

**CO108:** Describe how signals are used to transfer data between nodes.

**CO109:** Identify the different types of network topologies and protocols

<sup>110</sup>**CO200:** Discuss and Analyze flow control and error control mechanisms and apply them using standard data link layer protocols

<sup>111</sup>**CO201:** Describe the layered protocol model.

<sup>112</sup>**CO202:** Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer

<sup>113</sup>**CO203:** Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure.

<sup>114</sup>**CO204:** Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

## **Data Structure using C- CC 303**

<sup>115</sup>**CO205:** Implement appropriate data structure for the required programs using a programming language such as C.

<sup>116</sup>**CO206:** Demonstrate the linear and non-linear data structures, sorting and searching operations, hashing.

<sup>117</sup>**CO207:** Analyse and implement various searching and sorting techniques.

<sup>118</sup>**CO208:** Implement various types of linked lists and their applications.

<sup>119</sup>**CO209:** Classify different data structures such as stack, queues, linked list, trees and traversal algorithms.

<sup>120</sup>**CO210:** Solve problem involving graphs, trees and heaps and hashing concept

<sup>121</sup>**CO211:** Understand basic data structures such as arrays, linked lists, stacks and queues.

## **Elements of Statistics AEC 304**

<sup>122</sup>**CO212:** Describe the scope and necessity of Statistics.

<sup>123</sup>**CO213:** Explain different types of data. (Qualitative, Quantitative, discrete and continuous)

<sup>124</sup>**CO214:** Construct frequency, distribution, histogram, frequency polygons, frequency Curve, pie charts, ogives.

<sup>125</sup>**CO215:** Calculate measures of Central Tendency i. e Mean, Mode, Median

<sup>126</sup>**CO216:** Read and analyze frequency distribution, histogram, frequency polygons, frequency Curve, pie charts, ogives.

<sup>127</sup>**CO217:** Calculate measures of dispersion (Q.D, S.D, Variance, C. V)

<sup>128</sup>**CO218:** Analyse statistical data using appropriate measures of Dispersion.

<sup>129</sup>**CO219:** calculate & interpret the correlation coefficient between two variables.





<sup>130</sup>  
**CO220:** understanding the basic concepts of probability and to find probability of event. And compute conditional probabilities and Describe and Use Bayes' theorem

<sup>131</sup>  
**CO221:** Use the basic probability rules, including additive and multiplicative laws, using the terms independent mutually exclusive events.

### **Human Resource Management and Materials Management (AEC305)**

<sup>132</sup>  
**CO222:** Recognize the basic concepts of human resource management.

<sup>133</sup>  
**CO223:** Discuss the Applicability of Human Resource Planning Process.

<sup>134</sup>  
**CO224:** Elaborate Performance Appraisal, Training and Development, Wage and salary Administration.

<sup>135</sup>  
**CO225:** Explain functions of material management.

<sup>136</sup>  
**CO226:** Demonstrate 5 R in purchasing and Inventory control techniques.

### **CCL 306 Lab Course-V Based on CC301**

**CO137:** Identify the basic concepts and various data model used in database design ER modelling concepts and architecture use and design queries using SQL

**CO138:** Apply relational database theory and be able to describe relational algebra expression.

**CO139:** tuple and domain relation expression from queries.

**CO140:** Prepare SQL queries that use multiple tables.

**CO141:** Prepare SQL queries that involve correlated and non correlated subqueries, outer joins, inner joins, self joins.

**CO142:** Assess the differences between subqueries and joins.

**CO143:** Use built-in functions successfully.

**CO144:** Produce user friendly output by using formatting features of SQL.

**CO145:** Analyse the effects of various data types and the use of NULLs.

**CO146:** Prepare SQL queries for ordering data and grouping data.

**CO147:** Write SQL queries for data definition/manipulation/alteration.

**CO148:** Identify and describe security concepts including user-ids, levels of privileges, views.

**CO149:** Describe and demonstrate constraints, triggers and cursors.

**CO150:** Produce programs with embedded SQL including processing stored procedures.

### **CCL 307 Lab Course VI based on CC303**

**CO151:** Differentiate static and dynamic memory allocation techniques

**CO152:** Implement various operations on linear and non-linear data structures.

**CO153:** Analyze and implement different searching and sorting techniques.



CO.154: Identify the appropriate data structure to solve a given problem.

CO.155: Identify the appropriate data structures and algorithms for solving real world problems.

CO.156: Describe data structures such as stacks, queues, Search trees, and hash tables to solve various computing problems.

### **SEC SB308 Skill Development III**

CO.157: Understand Business etiquette and manners.

CO.158: Identify strengths and weaknesses.

CO.159: Analyse the self and others through various techniques.

CO.160: Build confidence and stage daring. Evaluate short term and long term goals and set goals through SMART technique.

### **BCA-II (SEM-IV)**

#### **Object Oriented Programming Using C++ - CC 401**

CO.161: Analyze, write, debug, and test basic C++ codes using the approaches introduced in the course.

CO.162: Classify inheritance with the understanding of early and late binding, generic programming.

CO.163: Examine object-oriented programming and advanced C++ concept.

CO.164: Use virtual and pure virtual function and complex programming language.

CO.165:- Explain dynamic memory management techniques using pointers, constructors, destructors, etc.

CO.166: Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.

#### **Software Engineering - CC 402**

CO.167: Distinguish life cycle models, requirement elicitation techniques, understand the concept of analysis and design of software.

CO.168: Develop SRS document.

CO.169: Use of analysis and design tools for system development.

CO.170: Prepare software engineering concepts in software development to develop quality software.





CO. 17: Evaluate the various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.

CO. 17: Plan a software engineering process life cycle, including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements

CO. 17: Demonstrate the software project management skills through case studies.

### **PHP- CC 403**

CO. 17: explain the environment of PHP programming Language.

CO. 17: Develop web applications using PHP.

CO. 17: List the major elements of the PHP & MySQL work and explain why PHP is good for web development.

CO. 17: Explain various operators in PHP.

CO. 17: The difference between GET and POST requests.

CO. 17: How to use cookies to store some data in the browser and pass it to the next request.

CO. 17: How to use a session cookie to store data on the server instead of in the browser.

CO. 17: How to upload files to the website.

CO. 17: Develop program using control statements.

CO. 17: Develop program using functions and array.

CO. 17: Perform database operations on PHP.

### **Entrepreneurship Development - AEC 404**

CO. 17: Discuss the concept of entrepreneurship.

CO. 17: Define characteristics, function and types of entrepreneurs and know the role of Entrepreneurship in Economic Development.

CO. 17: Identify Business Opportunities and prepare business plan.

CO. 17: Know project finance agencies.

CO. 17: Identify New Opportunities and Challenges in digital entrepreneurship.





### **Lab Course-VII Based on CC401- CCL 406**

- CO190: Prepare students in programming using object oriented concepts with C++.
- CO191: Solve the concepts of object-oriented programming.
- CO192: Developing applications using Friend functions, Inheritance and polymorphism.
- CO193: Design and implement programs using classes, objects and operator overloading.
- CO194: Relate virtual and pure virtual function & complex programming situations.

### **Lab Course-VIII Based on CC403 CCL 407**

- CO195: Install & configure MySQL server.
- CO196: Write a simple PHP program using expressions and operators.
- CO197: Develop simple applications to update, delete table from database.
- CO198: Write a simple program to demonstrate various built in string functions.
- CO199: Write a simple PHP program to set cookies and write it.
- CO200: Write a PHP program to create and manipulate array.

### **CCL 408 Mini Project**

- CO201: Design and develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's.
- CO202: Have a good understanding of Web Application Terminologies, Internet Tools other web services.
- CO203: Learn how to link and publish websites

### **SECSB409 Environmental Studies**

ERP

- CO204: Gain knowledge about environment and develop public Awareness.
- CO205: Gain knowledge about ecosystem and conservation. and Students will learn about increase in population growth and its impact on environment.
- CO206: Students will learn about natural resource, its importance and environmental impacts of human activities on natural resource.
- CO207: Gain knowledge about the conservation of biodiversity and its importance.
- CO208: Aware students about problems of environmental pollution, its impact on human and ecosystem and control measures.



## BCA-III (SEM-V)

### Java Programming- CC 501

**CO203** Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.

**CO240**: Demonstrate the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.

**CO241** Understand the principles of inheritance, packages and interfaces.

**CO312** Use the Java SDK environment to create, debug and run simple Java programs.

**CO343**: Demonstrate object oriented concept like inheritance, polymorphism, encapsulation and data abstraction practically.

**CO244**: Demonstrate concurrent applications using threads; describe problems related to concurrent programming and how to solve these problems.

**CO245** Implement applications with simple graphical user interfaces.

### Data Warehousing and Data Mining - CC 502

**CO346** Describe different methodologies used in data mining and data ware housing.

**CO347** Explain the analysing techniques of various data

**CO348**: Develop a data mining application for data analysis using various tools

**CO249**: Characterize the kinds of patterns that can be discovered by association rule mining.

**CO250**: Discover interesting patterns from large amounts of data to analyze for predictions and classification

**CO251** Characterize the kinds of patterns that can be discovered by association rule mining.

**CO252**: Study the dimensional modelling technique for designing a data warehouse

**CO253**: Study data warehouse architectures, OLAP and the project planning aspects

**CO254**: Evaluating Clustering Algorithms, Partitioning, K-Means Algorithm

**CO255**: Describe the Architecture of a Data Mining system.

**CO256**: distinguish the various Data pre-processing Methods.

**CO357**: Perform classification and prediction of data



## **IT Security-CC 503**

CO 228: Understand the concept and need of IT security,

CO 229: Identify different security threats to information systems.

CO 230: Describe security controls used for IS security.

CO 231: Understand provisions in IT Act 2000 and Design Security policy for IT Enabled Organization.

## **Elective-I . Python Programming- DSE 504**

CO 232: Develop algorithmic solutions to simple computational problems.

CO 233: Express proficiency in the handling of strings and functions.

CO 234: Explain programs using simple Python statements and expressions.

CO 235: Explain control flow and functions concept in Python for solving problems.

CO 236: Define and demonstrate the use of built-in data structures “lists” and “dictionary”

CO 237: Use Python data structures –lists, tuples & dictionaries for representing compound data.

CO 238: Explain files, modules and GUI in Python for solving problems

## **Elective-II Digital Marketing(GE 505)**

CO 239: Recognize the stages pertaining to human behaviour while identifying factors influencing

CO 240: Learn the applications of Digital Marketing.

CO 241: Analyse the different digital marketing avenues.

CO 242: Examine digital marketing tools.

CO 243: Build strategies for growth marketing.





### **CCL 506 Lab Course-IX Based on CC501**

**CO 244:** Student should know the model of object oriented programming and fundamental features of an object oriented language.

**CO 245:** Student should know how to test, document and prepare a professional looking package for each business project.

**CO 246:** Write a computer program to solve specified problems and to use the Java SDK environment to create, debug and run simple Java programs.

**CO 247:** Explain and develop programs for inheritance, multithreading, applets, exception handling and file handling.

### **CCL 507 Lab Course-X Based on DSE504**

**CO 248:** Explain basic principles of Python programming language

**CO 249:** Demonstrate programs using simple Python statements and expressions.

**CO 250:** Demonstrate use of control flow and functions concept in Python for solving problems.

**CO 251:** Implement programs of handling of strings and functions.

**CO 252:** Use functions and represent Compound data using Lists, Tuples and Dictionaries, implement files, modules and GUI applications

### **BCA-III (SEM-VI)**

#### **CC 601 Cloud Computing**

**CO 253:** Explain the fundamental principles of Cloud Computing.

**CO 254:** distinguish the importance of virtualization in distributed computing and how this has enabled the development of Cloud Computing.

**CO 255:** Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing.

**CO 256:** Describe cloud computing application



### **DSE 602 Elective-I Android Programming**

- CO 267: Explain the history of Android development and what is required to build Android apps
- CO 268: Demonstrate their understanding of the fundamentals of Android operating systems
- CO 269: Explain and use key Android programming concepts
- CO 260: Install and configure Android application development tools.
- CO 261: Design and develop user Interfaces for the Android platform.
- CO 262: Develop various Android applications related to layouts & rich uses interactive interfaces
- CO 263: Develop UI based Mobile Application using Android Studio.
- CO 264: Design and develop an application using Database.
- CO 265: Use SQLite to implement data storage.

### **Elective-II. ERP GE 603**

- CO 266: Explain concept, need and significance of ERP.
- CO 267: Demonstrate different ERP models with their subsystem
- CO 268: Evaluate features of ERP products, select ERP application and plan ERP project.
- CO 269: Describe organizational opportunities and challenges in the design system within a Business scenario.

### **AEC 604 Soft Skills & Personality Development**

- CO 270: Maintain positive attitude and use soft skills.
- CO 271: Take initiative in a activity and lead the groups.
- CO 272: Maintain good manner and etiquette
- CO 273: Participate in debate competition, group discussion activities an mock interviews.



## CCL 606 Lab Course XI Based on DSE 602

CO27: Building a sample Android application using Android Studio.

CO25: Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using android studio.

CO26: Implement activities with dialogs, spinner, fragments and navigation drawer by applying themes.

CO27: Write simple programs and develop small applications using the concepts of UI design, layouts and preferences

CO28: Develop mobile applications using SQLite.

## CCL 607 Major Project

CO29: Implement their ideas/real time industrial problem/ current applications from their domain.

CO30: Develop plans with help of team members to achieve the project's goals.

CO31: Estimate and cost the human and physical resources required, and make plans to obtain the necessary resources.

CO32: Allocate roles with clear lines of responsibility and accountability and learn team work ethics.

CO33: Communication skills to effectively promote ideas, goals or products.

CO34: Design the software using concepts of SDLC and SE.

## AEC 605 Industrial Visit

CO35: Students will able to implement knowledge in real applications •

CO36: Develop software to solve problem •

CO37: Students will able to implement all phases of SDLC in practice •

CO38: Students are able to perform the job of Analyst, Programmer and tester. •

CO39: Insight of Software development process





## **ABBREVIATIONS**

**GUI-** graphical user interface.

**SQL-** Structured Query Language.

**OLAP** -Online analytical processing.

**IT.** -Information technology.

**DDL-** Data Defination Language.

**DML-** Data Manipulation Language.

**DBMS-** Database Management System.

**OS-** Operating System.

**Linux** - Lovable Intellect Not Using XP.

**FIFO-** First In, First Out.

**LIFO-**Last In Last Out.

**HRP-** Human Resource Planning.

**B2B-** Business to Business.

**B2C-** Business to Customer.

**C2C** -Customer to Customer.

**C2B** -Customer to Business.

**DCL** - Data Control Language .

**APL-** Above Poverty Line.

**SDLC-** Software Development Life Cycle.

**SE-** Software engineering.

**ADO.Net-**ActiveX Data Object.

