Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati

(Autonomous)

Course Structure for F.Y.BBA (Computer Application) (2023 Pattern)

Sem	Course Type	Course Code	Course Name	Theory / Practical	Credits
I	Major Mandatory	BCA-101-MJM	Programing in C	Theory	02
	Major Mandatory	BCA-102-MJM	Database Management System	Theory	02
	Major Mandatory	BCA-103-MJM	Practical I	Practical	02
	Open Elective (OE)	BCA-116-OE	E-Commerce	Theory	02
	Open Elective (OE)	BCA-117-OE	Office Automation using MS-Office	Practical	02
	Vocational Skill Course (VSC)	BCA-121-VSC	Networking	Theory	02
	Skill Enhancement Course (SEC)	BCA-126-SEC	MS-Excel Skills for Business	Practical	02
	Ability Enhancement Course (AEC)	ENG-131-AEC	Functional English-I	Theory	02
	Value Education Course (VEC)	BCA-135-VEC	Environmental Science	Theory	02
	Indian Knowledge System (IKS)	BCA-137-IKS	Indian Innovations in Computer and Technology	Theory	02
	Co-curricular Course (CC)	--	To be selected from the Basket	Theory	02
				Total Credits Semester-I	**22**
II	Major Mandatory	BCA-151-MJM	Data Structure using C	Theory	02
	Major Mandatory	BCA-152-MJM	Relational Database Management System	Theory	02
	Major Mandatory	BCA-153-MJM	Practical II	Practical	02
	Minor	BCA-161-MN	Principles and Practices of Management &Organizational Behavior	Theory	02
	Open Elective (OE)	BCA-166-OE	Python for Everyone	Theory	02
	Open Elective (OE)	BCA-167-OE	Introduction to Business Analytics	Practical	02
	Vocational Skill Course (VSC)	BCA-171-VSC	Networking Laboratory	Practical	02
	Skill Enhancement Course (SEC)	BCA-176-SEC	Advance Excel	Practical	02
	Ability Enhancement Course (AEC)	ENG-181-AEC	Functional English-II	Theory	02
	Value Education Course (VEC)	COS-185-VEC	Digital and Technological Solutions	Theory	02
	Co-curricular Course (CC)	--	To be selected from the Basket	Theory	02
				Total Credits Semester-II	**22**
				Cumulative Credits Semester I + Semester II	**44**

Course Structure for F.Y.BBA (Computer Application) Sem-II
(2023 Pattern)

Sem	Course Type	Course Code	Course Name	Theory / Practical	Credits
II	Major Mandatory	BCA-151-MJM	Data Structure using C	Theory	02
	Major Mandatory	BCA-152-MJM	Relational Database Management System	Theory	02
	Major Mandatory	BCA-153-MJM	Practical II	Practical	02
	Minor	BCA-161-MN	Principles and Practices of Management &Organizational Behavior	Theory	02
	Open Elective (OE)	BCA-166-OE	Python for Everyone	Theory	02
	Open Elective (OE)	BCA-167-OE	Introduction to Business Analytics	Practical	02
	Vocational Skill Course (VSC)	BCA-171-VSC	Networking Laboratory	Practical	02
	Skill Enhancement Course (SEC)	BCA-176-SEC	Advance Excel	Practical	02
	Ability Enhancement Course (AEC)	ENG-181-AEC	Functional English-II	Theory	02
	Value Education Course (VEC)	COS-185-VEC	Digital and Technological Solutions	Theory	02
	Co-curricular Course (CC)	--	To be selected from the Basket	Theory	02
				Total Credits Semester-II	**22**

Name of the Programme : BBA (Computer Application)

Programme Code   : UBCA

Class   : F.Y. BBA (C.A)

Semester   : II

Course Type   : Major Mandatory (Theory)

Course Code   : BCA-151-MJM

Course Title   : Data Structure using C

No. of Credits   : 02

No. of Teaching Hours   : 30

Course Objectives:

1. To provide the knowledge of basic data structures and their implementations.
2. To understand importance of data structures in context of writing efficient programs.
3. To develop skills to apply appropriate data structures in problem solving.
4. To make students to learn basic principles of Problem solving, implementing through C programming language
5. To design & develop programming skills.
6. To gain knowledge of data structures and their applications.
7. To solve problems using data structures such as linear lists, stacks, queues, binary trees, binary search trees, and graphs and writing programs for these solutions.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Understand the concept of Dynamic Memory Management, algorithms, Big O notation.

CO2. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data

CO3. Understand linear data structures arrays, linked lists, stacks and queues, and their differences.

CO4. Evaluate algorithms and data structures in terms of time and space complexity of basic operations

CO5. Implement linear data structure such as stacks, queues, linked lists and their applications.

CO6. Study tree, and graph data structure and their basic operations.

Topics and Learning Points	Teaching Hours

Unit 1 Basic Concepts and Introduction to Data Structure   **5**

    1.1 Pointers and Dynamic memory allocation

    1.2 Algorithm and algorithm analysis-space and time Complexity-

        Asymptotic notation

    1.3 Types of Data Structure

    1.4 Abstract Data Type (ADT)

    1.5 Polynomial

    1.6 Structure and Self-referential structure

Unit 2 Array as A Data Structure   **5**

    2.1 Array Representation

    2.2 Sorting Techniques with Time Complexity:

        2.2.1   Bubble Sort

        2.2.2   Insertion Sort

        2.2.3   Merge Sort

        2.2.4   Quick Sort

     2.3   Searching Techniques with Time Complexity:

        2.3.1   Linear Search

        2.3.2   Binary Search

Unit 3 Linked List   **6**

    3.1 Introduction

    3.2 Representation -Static & Dynamic

    3.3 Types of Linked Lists-

        3.3.1   Singly Linked Lists

        3.3.2   Doubly Linked Lists

        3.3.3   Circular Linked Lists

    3.4. Operations on Linked List

        3.4.1. Singly Linked Lists (Create, insert delete, display, reverse, search,

           sort)

        3.4.2.   Doubly Linked Lists (Create, display)

        3.4.3.   Circular Linked Lists(create ,display)

Unit 4 Stack   **6**

    4.1 Introduction

4.2 Representation -Static &Dynamic

4.3 Operations– Push, Pop

4.4 Applications of Stacks

4.5 Evaluation of Postfix and Prefix expression

4.6 Expression Conversion

  4.6.1 Infix to Postfix

  4.6.2 Infix to Prefix

Unit 5 Queue   **4**

5.1 Introduction

5.2 Representation -Static & Dynamic

5.3 Primitive Operations– insert, delete

5.4 Types of Queue

  5.4.1   Circular queue

  5.4.2   Priority queue

Unit 6 Tree and Graph   **4**

6.1 Introduction

6.2 Tree Terminologies- Definitions

6.3 Representation – Static & Dynamic

6.4 Binary Tree

6.5 Tree Traversal– Preorder, Inorder, Postorder

6.6 Binary Search Tree (BST)

6.7 Introduction to Graph

    6.5.1.   Concepts and Terminologies

    6.5.2.   Graph Representation

    6.5.3.   Degree of Graph

    6.5.4.   Graph Traversal –BFS & DFS

References:

1. Fundamentals of Data Structures-Horowitz Sahani (Galgotia)

2. Introduction to Data Structures using C-Ashok Kamthane

3. Data Structures using C-Bandopadhyay & Dey(Pearson)

4. Data Structures using C-By Srivastava BPB Publication.

Website Reference Link:

1. https://www.tutorialspoint.com/data_structures_algorithms/index.htm
2. https://www.geeksforgeeks.org/data-structures/
3. https://www.javatpoint.com/data-structure-tutorial

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)   **Subject**: BBA (C.A)
Course: Data Structure Using C   **Course Code**: BCA-151-MJM

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11
CO 1	3			2				2			
CO 2				3							
CO 3	3										
CO 4		2		2							2
CO 5			3					2			
CO 6	3			2							

PO1. **Knowledge:**

CO1 CO3 and CO6 contribute to the development of students' disciplinary knowledge in Computer Application.

CO1 CO3 and CO6 Strongly mapped as the student will develop the deep understanding of basic concept in data Structure, Dynamic Memory Management and of linear data structures arrays, linked lists, stacks and queues as well as tree, graph and their operations.

PSO2. **Problem Analysis:**

CO4 Contribute to the development of students' problem analysis, thinking skills and problem-solving skills. it is Moderately mapped as the Students will apply their knowledge to evaluate algorithms and data structures.

PSO3. **Design and Development:**

CO5 Strongly mapped as the students will be able to develop and implement of linear data structure such as stacks, queues, linked lists and their applications.

PSO4. **Conduct investigations of complex problems:**

CO1 CO2 CO4 CO6 Strongly mapped as the students will be able to understand and apply the concept of algorithm for solving problems like sorting, searching, insertion and deletion of data and Evaluate algorithms and data structures in terms of time and space complexity and perform basic operations on data structure

PSO8. **Life-Long Learning:**

CO1 and CO5 moderately contribute to the development of students' ability to engage in life-long learning as all concepts in Data Structure helps to understand real life data management and manipulation and their implementation

PSO11. **Innovation, employability, and Entrepreneurial skills:**

CO4 partially relate to employability skills as students are able to analyse and evaluate algorithms and data structures in professional development

Name of the Programme : BBA (Computer Application)

Programme Code   **:** UBCA

Class   **:** F.Y. BBA (C.A)

Semester   II

Course Type   **:** Major Mandatory (Theory)

Course Code   **:** BCA-152-MJM

Course Title   **:** Relational Database Management System

No. of Credits   **:**02

No. of Teaching Hours   **:**30

Course Objectives:

1. To understand fundamental concepts of RDBMS (PL/PgSQL)
2. To study Database Management operations
3. Be familiar with the basic issues of Transaction Processing, Transaction Concurrency Control
4. To learn Data Security and its importance
5. To understand Relational Database Concepts
6. To understand Transaction Management Concepts in Database System.
7. To write PL/SQL programs that use: procedure, function, package, cursor and trigger.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Describe the fundamental elements of Database Management System.

CO2. Formulate Queries using SQL and Relational Formal Query Languages.

CO3. Apply different normal forms to design the Database.

CO4. Improve the Database Design by Normalization.

CO5. Analyze and design a real Database Application and develop and evaluate a real Database Application using a Database Management System.

CO6. Use database techniques such as SQL & PL/SQL.

CO7. Explain Transaction Management in Relational Database System.

Topics and Learning Points	Teaching Hours

Unit 1:   Introduction to RDBMS   02

     1.1 Introduction to popular RDBMS product and their features

     1.2 Difference Between DBMS and RDBMS

     1.3 Relationship among application programs and RDBMS

Unit 2:   PL-SQL   10

     2.1 Overview of PLSQL

     2.2 Data Types

     2.3 PLSQL Block

     2.4 % Type, % rowtype

     2.5 Operators, Functions, Comparison, Numeric, Character,

        Date

     2.6 Control Statement

     2.7 Exception Handling

        2.7.1.   Predefined

        2.7.2.   User defined exception

     2.8 Functions, Procedures

     2.9 Cursor

        2.9.1. Definition

        2.9.2. Types of Cursor implicit, Explicit (Attributes),

        2.9.3. Parameterized Cursor.

     2.10 Trigger Package

Unit 3:   Transaction Management   08

     3.1   Transaction Concept

     3.2   Transaction Properties

     3.3   Transaction States

     3.4   Concurrent Execution

     3.5   Serializability

        3.5.1 Conflict Serializability

        3.5.2 View Serializability

     3.6   Recoverability

        3.6.1 Recoverable Schedule

References:

1. Database System Concepts By Henry korth and A. Silberschatz S. Sudarshan, Tata McGraw- Hill Education
2. Fundamentals of Database Systems, By: Elmasri and Navathe, 4th Edition Practical PostgreSQL O'REILLY
3. SQL/PLSQL the programming language of oracle Ivan Bayross BPB Publications New Delhi.
4. Database Management Systems, Raghu Ramakrishnan and Johannes Gehrke, McGraw- Hill Science/Engineering/Math; 3 Edition
5. PostgreSQL Query Optimization: The Ultimate Guide to Building Efficient Queries 1st ed. Edition by Henrietta Dombrovskaya (Author), Boris Novikov (Contributor), Anna Bailliekova (Contributor)

Website Reference Link:

1. https://www.tutorialspoint.com/sql/sql-rdbms-concepts.html
2. https://www.javatpoint.com/what-is-rdbms
3. https://intellipaat.com/blog/tutorial/sql-tutorial/rdbms/
4. https://www.w3schools.com/mysql/mysql_rdbms.asp

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)   **Subject**: BBA (C.A)
Course: Relational Database Management System   **Course Code**: BCA-152-MJM

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11
CO1		2									
CO2		3									
CO3	3										
CO4				3							
CO5		3	3								
CO6					3						
CO7	3							2			2

PSO1. **Knowledge:**

CO1 CO7 Strongly mapped as the students will be able to understand and apply fundamental elements of Database Management System and Transaction Management in Relational Database System.

PSO2. **Problem Analysis:**

Using CO1 CO2 CO5 Students will able to describe fundamental elements of RDBMS, Analysis and formulate Queries using SQL Also design, develop and evaluate a real Database Application

PSO3. **Design and Development:**

 CO5 Strongly mapped as the students will be analyse and design a real Database Application and develop and evaluate a real Database Application using a RDBMS.

*PSO4.***Conduct investigations of complex problems:**

 CO4 Strongly mapped as it will help to construct a Database Schema, manipulate data using a SQL in Project Management System and improve the Database Design by Normalization.

PSO5. **Modern Tool Usage:**

CO6 Strongly mapped as the students will be use database techniques such as SQL & PL/SQL.

PSO8. **Life-Long Learning:**

CO7 Strongly mapped as students will analyse and design a real Database Application in future for employability.

PSO11. **Innovation, employability, and Entrepreneurial skills:**

CO7 has moderate relation as student will be able to apply project development skills in their professional career.

Name of the Programme	**:** BBA (Computer Application)
Programme Code	**:** UBCA
Class	**:** F.Y. BBA (C.A)
Semester	II
Course Type	**:** Major Mandatory (Practical)
Course Code	**:** BCA-153-MJM
Course Title	**:** Practical II
No. of Credits	**:**02
No. of Teaching Hours	**:**60

Course Objectives:

1. To make the student learn a programming language.
2. To learn problem solving techniques.
3. To teach the student to write programs in data structure using c and to solve the problems.
4. To learn static and dynamic data structures.
5. To understand the relational database design principles.
6. To Familiar with database storage structures and access techniques.
7. To perform operations on relational database management systems.
8. Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Apply appropriate data structures for the given problem.

CO2. Design an efficient algorithm for the given problem and implement it using C Programming.

CO3. Determine the time and space complexity of a given algorithm.

CO4. Implement and analyze various sorting methods like Modified Bubble Sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and Counting Sort.

CO5. Demonstrate the basic elements of a relational database management system

CO6. Identify the data models for relevant problems.

CO7. Design entity relationship and formulate SQL queries on the respect data.

CO8. Extend normalization for the development of application software

Topics and Learning Points

Data Structure using C Assignments

1. Write a C program to copy one array to another using pointers.
2. Write a C program to swap two arrays using pointers.
3. Write a C program to search an element in array using pointers.
4. Write a C program to add two matrix using pointers.
5. Write a C program to multiply two matrix using pointers.
6. Write a C program to find maximum and minimum number using DMA
7. Write a 'C' program that create a 2-D table of integers whose size will be specified at run time. (Dynamic Memory Allocation)
8. Write a 'C' program to accept the details of employees from user and display it on the screen using Dynamic Memory Allocation.
9. Write a 'C' program for addition of two polynomials using array.
10. Write a 'C' program to sort array elements using Bubble sort method.
11. Write a 'C' program to sort array elements using Insertion sort method
12. Write a 'C' program to sort array elements in ascending order using Selection sort method.
13. Write a 'C' program to sort the element using Quick sort (recursive) method.
14. Write a 'C' program to sort the array elements in ascending order using Merge sort method.
15. Write a 'C' program for implementing Linear Search method using function.
16. Write a 'C' program to search given elements into the list using Non-Recursive Binary Search Method.
17. Write a 'C' program to search given element into the list using Recursive Binary search method.
18. Write a program in C to create and display a Singly Linked List.
19. Write a program in C to create a singly linked list of n nodes and display it in reverse order.
20. Write a 'C' program to create two singly linked lists and perform the union of two lists and display it..

21. Write a 'C' program to create two singly linked lists and perform the intersection operations on two lists and display the resultant list
22. Write a program in C to insert a new node at the end of a Singly Linked List.
23. Write a 'C' program to swap mth and nth element of singly linked list
24. Write a menu driven program using 'C' for singly linked list-
    a. To create linked list.
    b. To display linked list
    c. To insert node at last position of linked list.
    d. To delete node from specific position of linked list.
25. Write a program in C to insert a node at the beginning of a doubly linked list.
26. Write a program in C to insert a new node at any position in a doubly linked list.
27. Write a 'C' program to create Circular Singly Link list and display it.
28. Write a 'C' program to accept an infix expression, convert it into its equivalent postfix expression and display the result.
29. Write a 'C' program to accept an infix expression, convert it into its equivalent prefix expression and display the result.
30. Write menu driven program using 'C' for Dynamic implementation of Stack. The menu includes following operations:
    a. push
    b. pop
    c. display
    d. exit
31. Write menu driven program using 'C' for Circular doubly linked list. The menu includes
    a. Create
    b. Display
    c. Exit
32. Write a menu driven program using 'C' for Dynamic implementation of Queue for integers. The menu includes
    a. Insert
    b. Delete
    c. Display
    d. Exit
33. Write menu driven program using 'C' for Binary Search Tree. The menu includes
    a. Create a BST

b. Insert element in a BST

c. Delete a given element from BST

d. Display

Relational Database Management System Assignment

1. **Consider the following entities and their relationship.**
   Customer (c_no, c_name, c_city, c_ph_no)

   Ticket (t_no, booking_date, fare, traveling_date)

   Relationship between Customer and Ticket is one-to-many.

   Constraints: primary key, foreign key

          c_name should not be null,

          fare should be greater than zero.

   Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

   1) Write a procedure to display names of customer who have booked bus on given date.
   2) Write a trigger that restricts insertion of ticket having traveling date smaller than booking date.(Raise user defined exception and give appropriate message)

2. **Consider the following entities and their relationship.**
   Student (s_reg_no, s_name, s_class)

   Competition (comp_no, comp_name, comp_type)

   Relationship between Student and Competition is many-to-many with descriptive attribute rank and year.

   Constraints: primary key, foreign key,

          primary key for third table(s_reg_no, comp_no, year),

          s_name and comp_name should not be null,

          comp_type can be sports or academic.

   Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

   1) Write a function which will accept s_reg_no of student and returns total number of competition in which student has participated in a given year.
   2) Write a cursor which will display year wise details of competitions held. (Use parameterized cursor)

3. **Consider the following entities and their relationship.**
   Owner (o_no, o_name, o_city, o_ph_no)
   Estate (e_no, e_type, e_city, e_price)

   Relationship between Owner and Estate is one-to-many.

Constraints : primary key, foreign key,

o_name should not be null,

e_type can be flat, bungalow or land.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will accept owner number and display details of all estates of given owner which belongs to pune city.
2) Write a cursor which will display type wise estate details. (Use parameterized cursor)

4. **Consider the following entities and their relationship.**
Bus(bus_no, capacity, source, destination)
Driver(driver_no, driver_name, license_no, addr, age, salary)

Relationship between Bus and Driver is many-to-many with descriptive attribute date_of_duty_allotted and shift.

Constraints: primary key, foreign key,

primary key for third table (bus_no, driver_no,date_of_duty_allotted),

driver_name should not be null,

shift can be morning or evening.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will return name of driver having maximum salary.
2) Write a cursor which will display date wise bus and their driver details.

5. **Consider the following entities and their relationship.**
Drug(d_no, d_name, company, price)
Medical _store(m_no, m_name, m_city, ph_no)

Relationship between Drug and Medical_Store is many-to-many with descriptive attribute quantity.

Constraints: primary key, foreign key,

m_name and d_name should not be null,
m_city can be pune or pimpri.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a package, which consists of one procedure and one function. Pass drug number as a parameter to procedure and display details of that drug. Pass city as a parameter to a function and return total number of medical_store in given city.

2) Write a trigger that restricts insertion and updation of drug having price less than zero. (Raise user defined exception and give appropriate message)

6. **Consider the following entities and their relationship.**

Train(t_no, t_name)
Passenger (p_no, p_name, addr, age)

Relationship between Train and Passenger is many-to-many with descriptive attribute date, seat_no and amt.

Constraints : primary key, foreign key,

primary key for third table (t_no, p_no, date),

t_name and p_name should not be null,

amt should be greater than zero.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will display train details having maximum passenger for a given date.
2) Write a cursor which will display date wise train and their passenger details.

7. **Consider the following entities and their relationship.**
   Route(route_no, source, destination, no_of_station)
Bus (bus_no, capacity, depot_name)

Relationship between Route and Bus is one-to-many

Constraints: primary key, foreign key,

depot_name should not be null,

bus capacity should be greater than 40.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display all bus details for a given route.
2) Write a trigger that restricts insertion of route having number of station less than zero. (Raise user defined exception and give appropriate message)

8. **Consider the following entities and their relationship.**
   University (u_no, u_name, u_city)
   College (c_no, c_name, c_city, year_of_establishment)

Relationship between University and College is one-to-many

Constraints: primary key, foreign key,

u_name and c_name should not be null.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a package, which consists of one procedure and one function. Pass university number as a parameter to procedure and display details of that university. Pass city as a parameter to a function and return total number of colleges in given city.
2) Write a cursor which will display university wise their college details. (Use parameterized cursor)

9. **Consider the following entities and their relationship.**
   Patient (p_no, p_name, p_addr)

Doctor (d_no, d_name, d_addr, city)

Relationship between Patient and Doctor is many-to-many with descriptive attribute disease and no_of_visits.

Constraints: primary key, foreign key,
primary key for third table(p_no, d_no, disease),
p_name and d_name should not be null.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display patient detail who has visited more than 3 times to the given doctor for 'Diabetes'.
2) Write a trigger which will restrict insertion or updation of doctor_patient details having no_of_visits less than zero. (Raise user defined exception and give appropriate message)

10. **Consider the following entities and their relationship.**
Crop (c_no, c_name, c_season, pesticides)
Farmer (f_no, f_name, f_location)

Relationship between Crop and Farmer is many-to-many with descriptive attribute year.

Constraints: primary key, foreign key,

primary key for third table(c_no, f_no, year),

c_name and f_name should not be null,

c_season can be rabi or kharif.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will return total number of farmers harvesting given crop in a given year.
2) Write a cursor which will display season wise information of crops harvested by the farmers. (Use parameterized cursor)

11. **Consider the following entities and their relationship.**
Researcher (r_no, r_name, r_city)
Research_Paper (rp_no, rp_title, rp_subject, rp_level)

Relationship between Researcher and Research_Paper is many-to-many with descriptive attribute year.

Constraints: primary key, foreign key,

r_name and rp_title should not be null,
rp_subject can be computer, electronics or finance.
rp_level can be state, national or international.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display details of research paper of a given subject for a specified year.
2) Write a trigger before insert or update of each row of research_paper

published after 2010 be entered into table. (Raise user defined exception and give appropriate message)

12. **Consider the following entities and their relationship.**
    Donor (donor_no, donor_name, city)
        Blood_donation_detail (bd_no, blood_group, qty, date_of_collection)

    Relationship between Donor and Blood_donation_detail is one-to-many.

    Constraints: primary key, foreign key,

            donor_name should not be null,

            blood_group can be A+, A-, B+, B-, AB+, AB-, O+, O-

    Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

    1) Write a function which will count total amount of blood collected for a given blood group on given date.
    2) Write a cursor which will display donor wise blood donation details. (Use parameterized cursor)

13. **Consider the following entities and their relationship.**
    Client (c_no, c_name, c_addr, birth_date)
        Policy_info (p_no, p_name, maturity_amt, prem_amt, policy_term)

    Relationship between Client and Policy_info is many-to-many with descriptive attribute date_of_purchase.

    Constraints: primary key, foreign key,

            c_name and p_name should not be null,
              policy_term should be greater than zero.

    Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

    1) Write a procedure which will display all policy details of given client for a given year.
    2) Write a trigger which restricts insertion of policy_info having maturity amount less than premium amount. (Raise user defined exception and give appropriate message)

14. **Consider the following entities and their relationship.**
    Company (c_no, c_name, c_city, c_share_value)
        Person (p_no, p_name, p_city, p_ph_no)

    Relationship between Company and Person is many-to-many with descriptive attribute no_of_shares.

    Constraints: primary key, foreign key,

            c_name and p_name should not be null,
              no_of_shares should be greater than zero.

    Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

    1) Write a function which will return name of person having maximum

number of shares of given company.
2) Write a cursor which will display person wise share details. (Use parameterized cursor)

15. **Consider the following entities and their relationship.**
Person (p_no, p_name, p_addr)
　　　Investment (inv_no, inv_name, inv_date, inv_amt)

Relationship between Person and Investment is one-to-many.

Constraints: primary key, foreign key,

　　　　　p_name and inv_name should not be null,

　　　　　inv_amt should be greater than 10000.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display details of person, made investment on given date.
2) Write a trigger that restricts insertion or updation of investment having inv_date greater than current date. (Raise user defined exception and give appropriate message)

16. **Consider the following entities and their relationship.**
Customer (c_no, c_name, c_city, c_ph_no)

Ticket (t_no, booking_date, fare, traveling_date)

Relationship between Customer and Ticket is one-to-many.

Constraints: primary key, foreign key,

　　　　　c_name should not be null,

　　　　　fare should be greater than zero.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:
1) Write a function which will calculate and return total fare collected from customers on given date.
2) Write a cursor which will display date wise ticket booked by customer. (Use parameterized cursor)

17. **Consider the following entities and their relationship.**
Student (s_reg_no, s_name, s_class)

Competition (comp_no, comp_name, comp_type)

Relationship between Student and Competition is many-to-many with descriptive attribute rank and year.

Constraints: primary key, foreign key,

　　　　　primary key for third table(s_reg_no, comp_no, year)

　　　　　s_name and comp_name should not be null,

　　　　　comp_type can be sports or academic.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will accept year and type of competition as an

input and display details of competition accordingly.
2) Write a trigger that restricts insertion of rank value greater than 3. (Raise user defined exception and give appropriate message)

18. **Consider the following entities and their relationship.**
Owner (o_no, o_name, o_city, o_ph_no)
Estate (e_no, e_type, e_city, e_price)

The Relationship between Owner and Estate is one-to-many.

Constraints: primary key, foreign key,

o_name should not be null,
e_type can be flat, bungalow or land.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will count and returns number of owners who have purchase estate in the same city in which they live.
2) Write a trigger that restricts insertion or updation of estate having price less than 1 lakh. (Raise user defined exception and give appropriate message)

19. **Consider the following entities and their relationship.**
Bus(bus_no, capacity, source, destination)
Driver(driver_no, driver_name, license_no, addr, age, salary)

Relationship between Bus and Driver is many-to-many with descriptive attribute date_of_duty_allotted and shift

Constraints: primary key, foreign key,

primary key for third table (bus_no, driver_no, date_of_duty_allotted),

driver_name should not be null,
shift can be morning or evening.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display bus_no and name of allotted driver on given date and shift.
2) Write a trigger that restricts insertion or updation of driver table if driver age is less than 18 or greater than 50. (Raise user defined exception and give appropriate message).

20. **Consider the following entities and their relationship.**
Drug(d_no, d_name, company, price)
Medical _Store(m_no,m_name,m_city,ph_no)

Relationship between Drug and Medical_Store is many-to-many with descriptive attribute quantity.

Constraints: primary key, foreign key,

m_name and d_name should not be null,
m_city can be pune or pimpri

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will count total number of drugs available in given medical store.
2) Write a cursor which will display medical store wise drug details with available quantity.

21. **Consider the following entities and their relationship.**
Train(t_no, t_name)
Passenger (p_no, p_name, addr, age)

Relationship between Train and Passenger is many-to-many with descriptive attribute date, seat_no and amt.

Constraints : primary key, foreign key,

primary key for third table (t_no, p_no, date),

t_name and p_name should not be null,

amt should be greater than zero.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display passenger details of given train on '1 July 2014'.
2) Write a trigger that restricts insertion of train_passenger detail having date less than current date. (Raise user defined exception and give appropriate message)

22. **Consider the following entities and their relationship.**
Route(route_no, source, destination, no_of_station)
Bus (bus_no, capacity, depot_name)

Relationship between Route and Bus is one-to-many

Constraints: primary key, foreign key,

depot_name should not be null,

bus capacity should be greater than 40.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will return total number of routes having number of stations greater than 10.
2) Write a cursor which will display route wise bus details. (Use parameterized cursor)

23. **Consider the following entities and their relationship.**
University (u_no, u_name, u_city)
College (c_no, c_name, c_city, year_of_establishment)

Relationship between University and College is one-to-many

Constraints: primary key, foreign key,

u_name and c_name should not be null.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display year wise details of colleges belongs to given University.
2) Write a trigger that restricts insertion of college having year of establishment greater than current year. (Raise user defined exception and give appropriate message)

24. **Consider the following entities and their relationship.**
Patient (p_no, p_name, p_addr)
    Doctor (d_no, d_name, d_addr, city)
Relationship between Patient and Doctor is many-to-many with descriptive attribute disease and no_of_visits.

Constraints: primary key, foreign key,
        primary key for third table(p_no, d_no, disease),
        p_name and d_name should not be null.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will count total number of patients visiting to given doctor for 'Asthma'.
2) Write a cursor which will display doctor wise details of patients visited to them. (Use parameterized cursor)

25. **Consider the following entities and their relationship.**
Crop (c_no, c_name, c_season, pesticides)
    Farmer (f_no, f_name, f_location)

Relationship between Crop and Farmer is many-to-many with descriptive attribute year.

Constraints: primary key, foreign key,

        primary key for third table(c_no, f_no, year),

        c_name and f_name should not be null,

c_season can be rabi or kharif.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display crop detail harvested by given farmer in given year.
2) Write a trigger which will restricts insertion or updation of crop_farmer table having year greater than current year. (Raise user defined exception and give appropriate message)

26. **Consider the following entities and their relationship.**
Researcher (r_no, r_name, r_city)
    Research_Paper (rp_no, rp_title, rp_subject, rp_level)

Relationship between Researcher and Research_Paper is many-to-many with

descriptive attribute year.

Constraints: primary key, foreign key,

> r_name and rp_title should not be null,
> > rp_subject can be computer or electronics or finance.
> > rp_level can be state, national or international.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will return name of subject for which maximum numbers of national level papers were presented by researcher in year 2013.
2) Write a cursor which will display rp_level wise and researcher wise details of research paper presented by them.

27. **Consider the following entities and their relationship.**
Donor (donor_no, donor_name, city)
> **Blood_donation_detail** (bd_no, blood_group, qty, date_of_collection)

Relationship between Donor and Blood_donation_detail is one-to-many.

Constraints: primary key, foreign key,

> donor_name should not be null,

> blood_group can be A+, A-, B+, B-, AB+, AB-, O+, O-

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display blood group wise total amount of quantity of blood available.
2) Write a trigger that restricts insertion of blood_donation_details having quantity greater than 300ml. (Raise user defined exception and give appropriate message)

28. **Consider the following entities and their relationship.**
Client (c_no, c_name, c_addr, birth_date)
> **Policy_info** (p_no, p_name, maturity_amt, prem_amt, policy_term)
Relationship between Client and Policy_info is many-to-many with descriptive attribute date_of_purchase.

Constraints: primary key, foreign key,

> c_name and p_name should not be null,
> policy_term should be greater than zero.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a function which will return name of policy taken by minimum number of clients.
2) Write a cursor which will display client wise policy details. (Use parameterized cursor)

29. **Consider the following entities and their relationship.**
Company (c_no, c_name, c_city, c_share_value)
> **Person** (p_no, p_name, p_city, p_ph_no)
Relationship between Company and Person is many-to-many with descriptive attribute no_of_shares.

Constraints: primary key, foreign key,

> c_name and p_name should not be null,
> no_of_shares should be greater than zero.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

1) Write a procedure which will display names of person who are shareholder of the given company.
2) Write a trigger which get activated when share value of company become less than Rs. 10. (Raise user defined exception and give appropriate message)

30. **Consider the following entities and their relationship.**
Person (p_no, p_name, p_addr)
   Investment (inv_no, inv_name, inv_date, inv_amt)
Relationship between Person and Investment is one-to-many.

Constraints: primary key, foreign key,

p_name and inv_name should not be null,

inv_amt should be greater than 10000.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:
1) Write a function which will return name of person having maximum total amount of investment.
2) Write a cursor which will display person wise details of investment. (Use parameterized cursor)

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)   **Subject**: BBA (C.A)
Course: Practical II   **Course Code**: BCA-153-MJM

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11
CO1	3	3									
CO2			3					3			3
CO3				2							
CO4		2	3								
CO5	3										
CO6		2		2							
CO7			3					3			3
CO8				1							

PSO1. **Knowledge:**

CO1 CO5 Strongly mapped as the students will be able to understand and apply practical implementation to the fundamental concepts for data structure and database management

PSO2. **Problem Analysis:**

CO1 Strongly mapped as students able to explain different data types and CO4 CO6 helps to identify and analyse data models for relevant problem in data structure and database

PSO3. **Design and Development:**

CO2 CO4 CO7 Strongly mapped as student able to Design and develop programs and applications using Array, String and function. Also Design and formulate SQL Queries.

PSO4. **Conduct investigations of complex problems:**

CO3 and CO6 are Moderately related as student will able to read, understand and trace the execution of programs and identify the data models

PSO8. **Life-Long Learning:**

CO2 and CO7 Strongly mapped as the students will be able to apply their knowledge to design and develop solutions to computing problems using the concept of functions and SQL queries

PSO11. **Innovation, employability, and Entrepreneurial skills:**

CO2 and CO7 Strongly mapped as Students will be able to implement different algorithms using various data structures to meet various computational problems

CBCS Syllabus as per NEP 2020 for F.Y. BBA (Computer Application) (2023 Pattern)

Name of the Programme : BBA (Computer Application)

Programme Code : UBCA

Class : F.Y. BBA (C.A)

Semester : II

Course Type : Minor (Theory)

Course Code : BCA-161-MN

Course Title : Principles and Practices of Management and Organizational Behavior.

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

1. To understanding the basic functions of management: planning, organizing, leading, and controlling.
2. To analyze decision-making models and their application in real-world situations.
3. To understand learning and motivation theories as they relate to individual behavior.
4. To explore the concept of corporate social responsibility and its impact on organizational behavior.
5. To learn techniques for managing conflicts within teams and organizations.
6. To analyze the stages of group development and team building strategies.
7. Students should identify the required behavioral model in the Organization.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Explain the fundamental principles and functions of management.

CO2. Apply decision-making models to real-world scenarios and analyze the outcomes.

CO3. Analyze individual behaviors, attitudes, and motivations in organizational settings.

CO4. Apply management principles and organizational behavior theories to analyze case studies and real-world examples.

CO5. Develop skills in conflict resolution and negotiation, both within teams and at the organizational level.

CO6. Demonstrate understanding of group dynamics, team formation, and intergroup relations.

CO7. Evaluate and examine their own behavior and that of others in an organizational setting.

Topics and Learning Points	Teaching Hours
Unit 1 **Management**	03
1.1 Meaning and Definition	
1.2 Need, Scope and Process of Management	
1.3 Managerial Levels/Hierarchy	
1.4 Managerial Functions –Planning, Organizing, Staffing, Directing, Controlling	
1.5 Types of Managers and it's Skill – Functional, Specialize, Generalize	
Unit 2 **Decision Making**	03
2.1 Introduction	
2.2 Components of Decision-making	
2.3 Types of Decision	
2.4 Decision making Process and Tools	
Unit 3 **Organization and Organizational Behavior**	04
3.1 Definition and Need for Organization	
3.2 Introduction to Organizational Behavior	
3.3 Goals of Organizational Behavior	
3.4 Fundamental Concepts of Organizational Behavior	
Unit 4 **Motivation**	06
4.1 Concept of Motivation, Benefits to Organization and Manager	
4.2 Motivation Process	
4.3 Maslow's Need Hierarchy Theory	
4.4 McGregor's Theory 'X' and Theory 'Y'	
4.5 Herzberg's Two Factor Theory of Motivation	
Unit 5 **Group Dynamics and Team Building**	05
5.1 Concept of Group, Effect & Characteristics of Group	
5.2 Types of Groups	
5.3 Five Stage Model of Group Development	
5.4 Concept of Team, Nature and Benefits from Team	
5.5 Creating Effective Teams	
	09

Unit 6   Stress Management and Conflict Management

   6.1 Work Stress - Meaning of Stress, Stressors

   6.2 Sources of Stress- Individual Level, Organizational Level

   6.3 Types of Stress

   6.4 Type A and Type B Assessment of Personality

   6.5 Effect of Stress – Physiological Effect, Psychological Effect,
        Behavioral Impact

   6.6 Stress Management – Individual Strategies, Organizational
        Strategies

   6.7 Concept of Conflict

   6.8 Five Stage Process of Conflict

   6.9 Types of Conflict- Inter-Personal, Intra-Personal, Inter-Group
        Organizational, Johari Window.

   6.10 Effects of Conflict

   6.11 Conflict Management Strategies.

References:

   1. Principles and Practices of Management-Shejwalkar

   2. Essential of management-7theditionKoontzH&WeitrichHTMH

   3. Management Today Principles And Practices-Burton & Thakur

   4. Mgmt. Principles and Functions –Ivancevich & Gibson, Donnelly

   5. Organizational behavior Keith Davis

   6. Organizational behavior Fred Luthans TMH 10th edition

Website Reference Link:

   1. Management Principles Tutorial –
      https://www.tutorialspoint.com/management_principles/index.htm

   2. Organizational Behavior –
      https://www.tutorialspoint.com/organizational_behavior/organ
      izational_behavior_ quick_guide.html

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)   **Subject**: BBA (C.A)
Course: Principles and Practices of Management   **Course Code**: BCA-161-MN
          and Organizational Behavior.

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11
CO1	3										
CO2	3	3									
CO3		3		2							
CO4	3	3									
CO5			2								
CO6							3	2			
CO7				2		1				3	

PSO1. **Knowledge:**

CO1 CO2 CO4 are Strongly mapped as students will be able to explain fundamental principles of management and also apply functions of management, principles and organizational behavior ,decision-making models to real-world scenarios

PSO2. **Problem Analysis:**

CO2 CO3 CO4 are Strongly mapped students will able to analyse, describe fundamental principles of individual behaviors, attitudes, and motivations in organizational behaviors.

PSO3. **Design and Development:**

CO5 Partially related as students will able to acquire and develop the skills to work within an organization or at team level

*PSO4.***Conduct investigations of complex problems:**

CO3 and CO7 has Moderate relation with PO4 as student will analyse evaluate and examine their own behavior while working in an organization.

PSO6. **Ethics and Social Responsibility**

CO7 Moderately mapped Student will be able to make them responsible for working in the organization and organizational behavior describes how people interact with one another inside a company or organization. These interactions then have an impact on how the organization behaves and operates.

PSO7. **Individual and Team Work:**

CO6 has a Strong relationship since students can make them work with an organization and conduct teamwork.

PSO8. **Life-Long Learning:**

CO6 has a moderate relationship as students can demonstrate an awareness of group dynamics, team formation, and intergroup relations. Because adherence to organizational behavior and management principles generates a culture of continual improvement.

PSO10. **Communication:**

CO7 strongly mapped as students able to learn the management in organization and behavior within organization and organization behavior enhances communication skills at all levels. Communication is essential for successful management and team collaboration

CBCS Syllabus as per NEP 2020 for F.Y. BBA (Computer Application) (2023 Pattern)

Name of the Programme : BBA (Computer Application)

Programme Code : UBCA

Class : F.Y. BBA (C.A)

Semester : II

Course Type : Open Elective(Theory)

Course Code : BCA-166-OE

Course Title : Python for Everyone

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

1. To understand why Python is a useful Programming Language
2. To learn how to design and program Python Applications.
3. To understand the programming basics (operations, data types, etc.)
4. To learn how to write loops and decision statements in Python.
5. To learn how to write functions and pass arguments in Python.
6. To use string, lists, tuples, and dictionaries in Python Programs.
7. To use indexing and slicing to access data in Python Programs.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Learn Syntax and Semantics and program constructs.

CO2. Read, understand and trace the execution of programs written in Python language.

CO3. Write, debug and execute simple programs in Python.

CO4. Apply the concepts of looping, branching, and decision-making statements for a given Problem

CO5. Express proficiency in handling of Strings and Functions

CO6. Develop modular applications using Python Programming Function.

CO7. Develop Python programs to demonstrate the applications of data structure such as List, Tuple, Set, and Dictionary

Topics and Learning Points	Teaching Hours

Unit 1: An Introduction to Python   **02**

  1.1 Introduction to Python programming language
  1.2 Features of Python
  1.3 Installation of Python
  1.4 Your First Python Program
  1.5 How Python program runs?

Unit 2: Beginning with Python Basics   **05**

  2.1 Print Statement, Input Statement
  2.2 Comments
  2.3 What is variable?
  2.4 Rules of declaring variable names
  2.5 Python Data Types
  2.6 Type Conversion
  2.7 Operators and Expression
  2.8 Strings, Basic Operations, Slicing & Functions and Methods

Unit 3: Decision Making and Looping   **08**

  3.1 Introduction
  3.2 Indentation
  3.3 Decision making structure
    3.3.1 if Statement
    3.3.2 if --- else Statement
    3.3.3 if--- elif --- else Statement
    3.3.4 Examples on decision making structure
  3.4 Loop Structure
    3.4.1 While Loop
    3.4.2 For Loop
    3.4.4 The range Statement
    3.4.5 Examples on Loop Structures
  3.5 Loop Control Statements
    3.5.1 break
    3.5.2 continue
    3.5.3 pass
    3.5.4 Examples

Unit 4: Functions   **06**

  4.1 Purpose of Functions
  4.2 Function Definition
  4.3 Function Call
  4.4 Lambda Function
  4.5 Examples on Function

Unit 5: Python Data Structures   **09**

  5.1 List
    5.1.1 Concept of Mutable Lists,
    5.1.2 Creating, Initializing and Accessing the Elements of List
    5.1.3 List operations (Concatenation, Repetition, Membership, List
       Slices

5.1.4 List functions & Methods: len, insert, append, extend, sort, remove, reverse, pop

5.2 Tuple,

5.2.1 Immutable Concept

5.2.2 Creating, Initializing and Accessing the Elements in a Tuple

5.2.3 Tuple Functions: cmp(), len(), max(), min(), tuple()

5.3 Set

5.3.1 Creating, Initializing and Accessing the Elements of Set

5.3.2 Sets Operation: Membership, Union, Intersection, Difference, and Symmetric Difference

5.4 Dictionary

5.4.1 Concept of Key- Value Pair, Creating, Initializing and Accessing the Elements in a Dictionary,

5.4.2 Traversing, Appending, Updating and Deleting Elements

5.4.3 Dictionary Functions & Methods: cmp, len, clear(), get(), h haskey(), items(), keys(), update(), values

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1. Learning Python By Mark Lutz, O'Reilly Publication
2. Programming with python, A users Book, Michael Dawson, Cengage Learning
3. Python Essential Reference, David Beazley, Third Edition 5. Python Bible
4. Python for Everybody, Exploring Data Using Python 3, Dr. Charles R. Severance

Website Reference Link:

1. https://docs.python.org

2. https://www.tutorialspoint.com/python

3. https://www.w3schools.com/python

4. https://www.geeksforgeeks.org

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)　　　　　　　　**Subject**: BBA (C.A)
Course: Python for Everyone　　　　　　　　**Course Code**: BCA-166-OE

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3										
CO2	2	2									
CO3	2										
CO4	3		2		3						
CO5	3	2	2		3						2
CO6	3	2	2	2	3						2
CO7	3	2	2		3			2			2

PSO1. Knowledge:

CO1 Strongly mapped as the student will develop deep understanding in Python syntax and semantics.

CO4 Strongly mapped as the students need to understand and be fluent in the use of Python flow control in writing the programs

CO5 Strongly mapped as student need to develop deep knowledge in handling Strings and Functions

CO7 Strongly mapped as the students require the knowledge of python syntax and semantics related to List, Dictionaries, Strings to apply them in building applications which needs python programming constructs.

CO2 and CO3 are Moderately mapped as the student will able to learn the programming execution and debugging skills.

PSO2. Problem Analysis:

CO2 Moderately mapped as the Students will apply their knowledge to evaluate problem using Python.

CO5, CO6, CO7 Strongly mapped as problem analysis is necessary for developing any application using appropriate python programming construct such as List, Dictionaries, Strings, Functions.

PSO3. Design and Development:

CO4, CO5, CO6 and CO7 Moderately mapped to design and development as the moderate number of students use python in building the applications

PSO4.Conduct investigations of complex problems:

CO6 Moderately mapped as the students will be able to understand and apply the concept of modular programming for solving complex problems with the help of functions.

PSO5 Modern Tool Usage:

CO4, CO5, CO6, and CO7 Strongly mapped as students learn modern IDE tools to build and execute python applications

PSO11. Innovation, employability, and Entrepreneurial skills:

CO5,CO6,CO7 Strongly mapped as students apply their learnings in continuing professional development and new product developments.

CBCS Syllabus as per NEP 2020 for F.Y.BBA (Computer Application) (2023 Pattern)

Name of the Programme: BBA (Computer Application)

Programme Code : UBCA

Class : F.Y. BBA (C.A)

Semester : II

Course Type : Open Elective (Practical)

Course Code : BCA-167-OE

Course Title : Introduction to Business Analytics

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

1. To make students understand about commonly used terms and techniques related to business analytics that are in use today.

2. To discuss and train students on how data and data analytics can be used by managers to make better decisions.

3. To gain perspective and practice by applying data analysis techniques.

4. To use analytics to solve business problems.

5. To use tools such as Tableau to interpret data.

6. To build a range of essential chart types for analysis.

7. To use the Tableau workspace to create visualizations.

Course Outcomes:

By the end of the course, students will be able to:

CO1 Understand the need of decision making in business and data analytics techniques.

CO2. Identify the value and structure of Tableau Software as it applies to data visualization in the industry of business and data analytics.

CO3. Understand the fundamentals of data visualization.

CO4. Learn how to manipulate data and apply different Filters to get the desired output.

CO5. Build interactive dashboards and stories to reveal data insights.

CO6. Exploring data through visual story telling to communicate analytic insights to the business stake holders.

CO7. Demonstrate employability skills.

Topics & Learning Points	Teaching Hours

Unit 1   Introduction to Business Analytics & Scope   **12**

1.1 Business Analytics Definition

1.2 Business Analytics Examples

1.3 Types of Business Analytics

   1.3.1 Descriptive,

   1.3.2 Diagnostic,

   1.3.3 Predictive,

   1.3.4 Prescriptive

   1.3.5 Cognitive

1.4 Components of Business Analytics

1.5 Key Steps in Business Analytics Process

1.6 Applications of Business Analytics

1.7 Tools used for Business Analytics

Unit 2   Introduction to Tableau   **12**

2.1 Start Page

2.2 Show Me

   2.2.1 Connecting to Excel Files

   2.2.2 Connecting to Text Files

   2.2.3 Connect to Microsoft SQL Server

   2.2.4 Connecting to Microsoft Analysis Services

2.3 Creating and Removing Hierarchies

2.4 Bins

2.5 Joining Tables

2.6 Data Blending

Unit 3   Learn Tableau Calculations & Filters   **15**

3.1 Calculated Fields

3.2 Basic Approach to Calculate Rank

   3.2.1 Advanced Approach to Calculate Rank

3.3 Calculating Running Total

3.4 Filters Introduction

      3.4.1 Quick Filters

      3.4.2 Filters on Dimensions

      3.4.3 Conditional Filters

      3.4.4 Top and Bottom Filters

References:

1. Fundamental of Business Analytics R. N. Prasad, Seema Acharya, Wiley Publication

2. All of statistics: a concise course in statistical inference. Larry Wasserman. Springer, 2004.

3. C. Bishop, Pattern Recognition and Machine Learning, Springer 2007

4. Hastie, Trevor, et al. The elements of statistical learning. Vol. 2. No. 1. New York: springer, 2009.

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(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II)   **Subject**: BBA (C.A)
Course Introduction to Business Analytics   **Course Code**: BCA-167-OE

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1										
CO2					2						
CO3	3	3									
CO4	3										
CO5	3	3	2								
CO6	3		2	2							
CO7											2

PSO1. **Knowledge:**

CO1 is Slightly mapped as student will have theoretical foundation of decision making and data analytics techniques.

CO3, CO4, CO5 and CO6 are Strongly contribute as student will able to understand and use of data visualization, creating interactive dash board and stories.

PSO2. Problem Analysis:

CO3 and CO5 are Strongly contribute as student will able to think critically about visualization design and creation dash boards to study insights of data.

PSO3. Design and Development:

CO5 and CO6 are moderately contribute as student will design data visualizations, dashboards, and Tableau Stories, to communicate analytic insights to the audience.

PSO5. Modern Tool Usage:

CO2 is Moderately contribute as student will use modern analytics tool Tableau.

PSO11. Innovation, employability, and Entrepreneurial skills:

CO7 is Moderately contribute to the development of employability skills in students as industry needs skilled manpower in business analytics.

Name of the Programme : BBA (Computer Application)

Programme Code : UBCA

Class : F.Y. BBA (C.A)

Semester : II

Course Type : VSC (Practical)

Course Code : BCA-171-VSC

Course Title : Networking Laboratory

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

1. To provides hands on training and knowledge about the analysis, design, troubleshooting, modelling, testing and evaluation of computer networks.
2. To understand the working principle of various networking communication protocols.
3. To study routing concept along with Routing protocols
4. To understand data transmission across the network through protocols.
5. To Implement client server applications.
6. To know the concept of data transfer between nodes.
7. To become familiar with layered communication architectures (OSI and TCP/IP).

Course Outcomes:

By the end of the course, students will be able to:

CO1. Able to analysis, design, troubleshooting, modelling, testing and evaluation of computer networks.

CO2. Proficiency in understanding and implementing common networking protocols

CO3. Learn routing concept along with Routing protocols.

CO4. Develop skills to use Simulation tools.

CO5. Develop knowledge to implement client server applications.

CO6. Understand data transfer between nodes.

CO7. Understand the concepts of reliable data transfer and working of TCP

Topics and Learning Points

1. To study of different type of LAN and equipment devices

2. To study about the components and specifications of Computer and Laptop.

3. Familiarization with networking components and devices LAN adapters, hubs, switches, routers etc.

4. Familiarization with Transmission media and Tools Coaxial cable, UTP Cable, Crimping Tools, Connectors etc.

5. Study and verification of standard Network topologies i.e. Star, Bus, Ring etc.

6. Introduction to various Interior and Exterior routing Protocols

7. To study the basic networking commands.

8. Study of network IP

9. Connect the computers in Local Area Network.

10. To monitor network traffic using Wire Shark

11. LAN installations and their Configurations.

12. Installation and Introduction of simulation tools packet tracer

13. To construct a simple network topology on Packet Tracer.

14. To Configure network using Routing Information Protocol (RIP)

15. To configure Application Layer protocols: DHCP and DNS.

16. To get the MAC or Physical Address of the system Using Address Resolution Protocol.

17. To configure network state routing protocol (OSPF)

18. To configure Border Gateway Protocol.

19. To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)

20. To analyse the performance of various configurations and protocols in LAN

21. To construct a VLAN and make the PC's communicate among a VLAN

22. To construct a Inter - VLAN and make the PC's communicate among a VLAN

23. To construct a Wireless LAN and make the PC's communicate wirelessly

24. To construct multiple router networks and understand the operation of EIGRP Protocol

25. Configuration Telnet

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II) **Subject**: BBA (C.A)
Course: Networking Laboratory **Course Code**: BCA-171-VSC

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	2	3						
CO2	3				3						
CO3											
CO4			3		3			2			3
CO5	3			2							
CO6	3										
CO7	3	2									

PSO1. Knowledge:

CO1, CO2, CO5, CO6 and CO7 are Strongly mapped as students will able to gain the knowledge computer network also gain the Proficiency in understanding and implementing common networking protocols. Using CO5 and CO6 acquire the knowledge to Develop and implement client-server applications and data transfer through network.

PSO2. Problem Analysis:

CO1 and CO7 are Moderately mapped as Students will able to analyse, formulate complex problems while working with Computer Network and protocol.

PSO3. Design and Development:

CO1, CO4 are Strongly mapped as student will able to design, model and evaluate different networks also acquire the development skill to use different simulation tools.

PSO4.Conduct investigations of complex problems:

CO1, CO5 are Strongly mapped as student will able to design, model and evaluate different networks also implement client server applications using different protocols.

PSO5. Modern Tool Usage:

CO1 CO2 CO3 are Strongly mapped as student will able to design and implement different computer networks using simulation tools.

PSO8. Life-Long Learning:

CO4 has a Moderate relationship because students can understand and implement different networking concepts practically using different simulation tools and have career opportunities in networking field.

PSO11. Innovation, employability, and Entrepreneurial skills:

CO4 has Strong relation as student will be able to apply network communication skills and different usage of simulation tools in their professional career.

CBCS Syllabus as per NEP 2020 for F.Y. BBA (Computer Application) (2023 Pattern)

Name of the Programme : BBA (Computer Application)

Programme Code : UBCA

Class : F.Y. BBA (C.A)

Semester :II

Course Type : SEC(Practical)

Course Code : BCA-176-SEC

Course Title : Advance Excel

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

1. To Introduce tools like PivotTables, Pivot Charts, and Data Tables for efficient data analysis and visualization.

2. To Introduce the use of Power Query for data importing and transformation, and Power Pivot for data modeling and analysis.

3. To Work with Cells and Worksheets and creating dashboard.

4. To Gain proficiency in excel data manipulation techniques

5. To Enhance spreadsheet accuracy and efficiency.

6. To Add Advance Charts and Graphics functions.

7. To Build a solid understanding on the Advance of Microsoft Excel

Course Outcomes:

By the end of the course, students will be able to:

CO1. Use advanced functions and productivity tools to assist in developing worksheets

CO2. Manipulate data lists using Outline, Auto filter and PivotTables

CO3. Use Consolidation to summarize and report results from multiple worksheets

CO4. Record repetitive tasks by creating Macros

CO5. Calculate statistics, perform repeated and advanced calculations, analyze data and create graphical representations of the data, such as graphs, charts, and PivotTables.

CO6. Use a variety of advanced functions for complex calculations and data manipulation.

CO7. To acquire Data Analysis and Visualization Skills.

Topics and Learning Points	Teaching Hours

Unit 1   **Overview of the Basics of Excel**   (05)

1.1   Customizing common options in Excel

1.2   Absolute and relative cells

1.3   Protecting and un-protecting worksheets and cells

1.4   Basic Formatting:

    1.4.1   Using auto formatting option for worksheets

    1.4.2   Using conditional formatting option for rows, columns and cells

1.5   Sorting and Filtering Data

    1.5.1   Sorting tables

    1.5.2   Using multiple-level sorting

    1.5.3   Using custom sorting

    1.5.4   Filtering data for selected view (AutoFilter)

    1.5.5   Using advanced filter options

Unit 2   **Working with Advance Functions**   (10)

2.1   Writing conditional expressions (using IF)

2.2   Using logical functions (AND, OR, NOT)

2.3   Using lookup and reference functions (VLOOKUP, HLOOKUP, MATCH, INDEX)

2.4   VLOOKUP with Exact Match, Approximate Match

2.5   Nested VLOOKUP with Exact Match

2.6   VLOOKUP with Tables, Dynamic Ranges

2.7   Nested VLOOKUP with Exact Match

2.8   Using VLOOKUP to consolidate Data from Multiple Sheets

2.9   Date and Time functions

2.10   Text Functions

2.11   Database Functions

2.12   Power Function (CountIF, CountIFS,SumIF,SumIFS)

2.13   Array Function

| **Unit 3** | **What If Analysis and Data Validation** | **(09)** |

     3.1 Goal Seek

     3.2 Data Tables

     3.3 Scenario Manager

     3.4 Number, Date & Time Validation

     3.5 Text and List Validation

     3.6 Custom validations based on formula for a cell

     3.7 Data of Grouping, Ungrouping and Subtotal.

     3.8 Dynamic Dropdown List Creation using Data Validation – Dependency List

| **Unit 4** | **Pivot Tables** | **(9)** |

     4.1 Creating Simple Pivot Tables

     4.2 Basic and Advanced Value Field Setting

     4.3 Classic Pivot table

     4.4 Choosing Field

     4.5 Filtering PivotTables

     4.6 Modifying PivotTable Data

     4.7 Grouping based on numbers and Dates

     4.8 Calculated Field & Calculated Items

     4.9 Pivot Charts

     4.10 Pivot Slicer

     4.11 Working with Reports

       4.11.1 Creating subtotals

       4.11.2 Multiple-level subtotal

| **Unit 5** | **Charts and Slicer: -** | **(08)** |

     5.1 Various Charts (i.e Bar Charts/Pie Charts/Line Charts)

     5.2 Gantt Chart, Bubble Chart, Speedo Meter Chart. Pareto Chart

     5.3 Formatting charts and using 3D Graphs

     5.4 Using Slicer and Filter Data with Slicer

     5.5 Manage Primary and Secondary Axis

     5.6 Sharing Charts with PowerPoint / MS Word, Dynamically

     5.7 New Features of Excel

       5.7.1 Sparklines, Inline Charts, data Charts

       5.7.2 Overview of all the new features

Unit 6   **Excel Dashboard**   **(05)**

    6.1 Planning a Dashboard

    6.2 Adding Tables and Charts to Dashboard

    6.3 Adding Dynamic Contents to Dashboard

Unit 7   **VBA and Macros**   **(14)**

    7.1 Introduction to VBA

        7.1.1 What Is VBA?

        7.1.2 What Can You Do with VBA?

        7.1.3 Recording a Macro

        7.1.4 Procedure and functions in VBA

    7.2 Variables in VBA

        7.2.1 What is Variables?

        7.2.2 Using Non-Declared Variables

        7.2.3 Variable Data Types

        7.2.4 Using Const variables

    7.3 Message Box and Input Box Functions

        7.3.1 Customizing Msgboxes and Inputbox

        7.3.2 Reading Cell Values into Messages

        7.3.3 Various Button Groups in VBA

    7.4 If and select statements

        7.4.1 Simple If Statements

        7.4.2 The Elseif Statements

        7.4.3 Defining select case statements

    7.5 Looping in VBA

    7.5.1 Introduction to Loops and its Types

    7.5.2 The Basic Do and For Loop

    7.5.3 Exiting from a Loop

    7.5.4 Advanced Loop Examples

References:

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2. Excel VBA Programming For Dummies Paperback by John Walkenbach 4th

edition

3. Ctrl+Shift+Enter Mastering Excel Array Formulas: Do the Impossible with Excel Formulas Thanks to Array Formula Magic Kindle Edition by Mike Girvin

4. Microsoft Excel Power Pivot & Power Query for Dummies by Michael Alexander (Author)

5. Excel All-in-One For Dummies (For Dummies (Computer/Tech) by McFedriel

6. Excel Macros For Dummies by Michael Alexander (Author)

7. Excel Dashboards and Reports 2nd Edition, Kindle Edition by Mr. Spreadsheet's Bookshelf

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2. https://www.w3schools.com/EXCEL/index.php
3. https://www.edureka.co/blog/advanced-excel-tutorial/

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBBA (C.A) (Sem II) **Subject**: BBA (C.A)
Course Advance Excel **Course Code**: BCA-176-SEC

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Course Outcomes	Programme Outcomes (POs)										
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11
CO1	2										
CO2	2				1						
CO3	3										
CO4	1										
CO5		2			1						
CO6	3										
CO7		2	1								1

PSO1. Knowledge:

CO1 is Moderately mapped as student will Construct formulas use of built-in functions.

CO2 is Moderately contribute as student will manipulate data and apply filters.

CO3 is Strongly contribute as student will understand how to perform complex computations and reporting.

CO4 is Slightly contributes as student will have the knowledge about creation of macros.

CO6 is Strongly mapped as student will be able to use advanced functions for data manipulation.

PSO2. **Problem Analysis:**

CO5 and CO7 are Moderately mapped as student will be able to analyze data and visualize using charts.

PSO3. **Design and Development:**

CO7 is Weakly contribute as student design the graphical representations to find data insights.

PSO5. **Modern Tool Usage:**

CO2 is Moderately contribute as student will use Excel tool.

PSO11. **Innovation, employability, and Entrepreneurial skills:**

CO7 is Weakly contribute to the development of employability skills in student as student is able to analyzing and visually representing data their professional career