SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Semester: I
Course Name: Logic in Computer Science
Course Code: UBCA111
No. of. Lectures: 48

Course Outcome:

1. Student will able to understand fundamental concepts in propositional, predicate, temporal logic and modal logic and resolution techniques.
2. Students should able to apply the concept of program verification in real-world scenarios.
3. An ability to critically analyze a problem and to design, implement, and evaluate a computing solution that meets requirements.

Topics/Contents	**No. of Lectures**
Unit1: Introductory Concepts	**(05L)**
1.1 Introduction: What is Logic?	
1.2 History of logic – Overview of logic in computer science	
1.3 Definition Propositional Logic, Predicate Logic, Modal and Temporal logic	
1.4 Program Verification	
Unit2: Propositional Logic	**(10L)**
2.1 Declarative Sentence	
2.2 Natural Deduction	
2.3 Syntax -Well-formed formulas	
2.4 Semantic-Interpretation	
2.5 Meaning of logical connectives, Truth Tables	
2.6 Soundness and Completeness	
2.7 Normal form- Semantic Equivalence, Satisfy ability & Validity	
2.8 Conjunctive Normal form &Validity	
Unit 3: Binary Decision Diagrams	**(06L)**
3.1 Definition	
3.2 Reduced and ordered Binary Decision Diagrams, Operators.	
Unit 4: Predicate Logic	**(14L)**
4.1 Terms and formulas	
4.2 Logic programming	
4.3 Free and bound variables	
4.4 Substitution	
4.5 Proof theory of predicate logic	
4.6 Natural deduction	
4.7 Quantifier equivalence	

4.8 Syntax and semantic

Unit 5: Temporal logic **(08L)**

5.1 Syntax and Semantics
5.2 Models of Time
5.3 Linear time Temporal Logic
5.4 Deduction System of Temporal Logic

Unit 6: Modal Logic **(05L)**

6.1 Need for Modal Logic
6.2 Syntax and Semantics

Reference Books:

1. Arindhama Singh, Logics for Computer Science, Prentice Hall India, 2004

2. Modechai Ben-Ari, Mathematical Logic for Computer Science, Springer, 3/e, 2012.

3. Michael Huth, Mark Ryan, Logic in Computer Science: Modeling and Reasoning about Systems, Cambridge University Press, 2005

Website Reference Link:

1) Logic for Computer Science -https://nptel.ac.in/courses/106102013

2) Logic for Computer Science - https://www.iitgoa.ac.in/~sreejithav/18July/logic/cs228.html

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Data Structure using C
Course Code: UBCA112
No. of Lectures:48

Course Outcomes:

1. Understand and apply c programming concepts.
2. Students will be able to develop logics which will help them to create programs, applications in C.
3. Analyze algorithms and algorithm correctness, searching and sorting techniques.
4. Understand basic data structures such as arrays, linked lists, stacks and queues.
5. Have knowledge of tree and graphs concepts.
6. Be capable to identity the appropriate data structure for given problem.

Topics/Contents		**No. of Lectures**
Unit 1	**Introduction to C Language**	**(03L)**
	1.1 History	
	1.2 Basic Structure of C Programming	
	1.3 Language Fundamentals	
	1.3.1 Character Set, Tokens	
	1.3.2 Keyword & Identifiers	
	1.3.3 Variables & Data Types	
	1.4 Operators	
	1.4.1 Types of Operators	
	1.4.2 Precedence & Associativity	
Unit 2	**Managing I/O Operations**	**(02L)**
	2.1 Console based I/O & related Built-in I/O Functions	
	2.1.1 printf(), scanf()	
	2.1.2 getch(), getchar()	
	2.2 Formatted Input & Formatted Output	
Unit 3	**Decision Making and Looping**	**(05L)**
	3.1 Introduction	
	3.2 Decision making Structure	
	3.2.1 If Statement	
	3.2.2 If-else Statement	
	3.2.3 Nested if-else Statement	
	3.2.4 Conditional Operator	
	3.2.5 Switch Statement	
	3.3 Loop Structure	
	3.3.1 While Loop	
	3.3.2 Do-while Loop	
	3.3.3 For Loop	
	3.3.4 Nested For Loop	
	3.4 Loop Control Statements	

3.4.1 break
3.4.2 continue
3.4.3 go to
3.4.4 exit

Unit 4 **Functions** **(04L)**

4.1 Introduction
4.1.1 Purpose of Functions
4.1.2 Function Definition
4.1.3 Function Declaration
4.1.4 Function Call
4.2 Types of Functions
4.3 Call by value & Call by reference

Unit5: **Introduction to Data Structure** **(08L)**

5.1 **Pointers & Dynamic Memory Allocation**
5.2 Fundamentals of Data Structure
5.1.1 Algorithm Analysis (Space Complexity, Time Complexity,
Asymptotic Notation)
5.3 Types of data structure
5.4 Abstract Data Types (ADT)
5.5 Introduction to Array & Structure
5.6 Types of Array & Representation of Array
5.7 Polynomial Representation of Arrays
5.7.1 Addition of Two Polynomial
5.7.2 Evaluation of Polynomial
5.8 Operations of Data Structure
5.8.1 Traversing
5.8.2 Searching(Linear and Binary Search)
5.8.3 Sorting(Bubble, Insertion, Selection, Heap, Quick and Merge sort)
5.9 Analysis of All Sorting techniques
5.10 Self-Referential Structure

Unit 6 **Linked List** (05L)

6.1 Definition of Linked List
6.2 Dynamic Memory Management
6.3 Representation of Linked List
6.4 Types of Linked List
6.5 Operations on Linked List

Unit 7 **Stack** (05L)

7.1 Introduction and Definition
7.2 Representation of Stacks
7.3 Primitive Operations on Stacks
7.4 Applications of Stacks
7.5 Representation of Arithmetic Expressions
7.5.1 Infix
7.5.2 Postfix
7.5.3 Prefix
7.6 Conversion of Expressions
7.6.1 Infix to Prefix
7.6.2 Infix to Postfix

Unit 8 **Queue** **(05L)**

8.1 Introduction and Definition

8.2 Representation of Queues
8.3 Primitive Operation on Queues
8.4 Applications of Queues
8.5 Types of Queue
- 8.5.1 Dequeue
- 8.5.2 Circular Queue
- 8.5.3 Priority Queue

Unit 9 **Trees** **(06L)**

9.1 Introduction and Definition
9.2 Terminology
9.3 Static and Dynamic Representation
9.4 Types of Trees
9.5 Binary Search Tree (BST)
9.6 Tree Traversal
- 9.6.1 In Order
- 9.6.2 Pre Order
- 9.6.3 Post Order

Unit 10 **Graphs** **(05L)**

10.1Definition of Graph
10.2Basic Concepts of Graph
10.3Representation of Graph
- 10.3.1 Adjacency Matrix
- 10.3.2 Adjacency List

10.4 In Degree Out Degree of Graph
10.5 Graph Traversal
- 10.5.1 DFS
- 10.5.2 BFS

10.6 Spanning Tree

Reference Books:

1. C Programming Absolute Beginner's Guide by *Greg Perry and Dean Miller*
2. Let Us C by Yashavant -P-Kanetkar
3. Data Structure Using C - Radhakrishanan and Shrivastav
4. Practical Approach to Data Structures by Hanumanthappa

Website Reference Link:

1. Data Structures By D Samantha.pdf : https://docs.google.com/file/d/0B-RaWa38E8KsdHd6QV8zRmw1NlE/view
2. Download Data Structure eBooks for Free : https://www.pdfdrive.com/data-structure-books.html
3. Data Structure and Algorithms : https://www.tutorialspoint.com/data_structures
4. Learn Data Structures and Algorithms : https://www.programiz.com/dsa

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Relational Database Management System
Course Code: UBCA113
No.of.Lectures:48

Course Outcomes:

1. Create conceptual and logical database designs for a business information problem.
2. Identify the basic concepts and various data model used in database design.
3. Analyze the core terms, concepts, and tools of relational database management system.
4. Learn and apply structured query language (SQL) for database definition and database manipulation.
5. Identify and recognize the use of normalization technique used in database design.
6. Apply and relate the concept of transaction, concurrency control and recovery in database.

Topics/Contents	No. of Lectures
Unit1: Database Management System	**(05L)**
1.1 Introduction	
1.2 Need of DBMS, Applications of DBMS, Advantages and Disadvantages of DBMS	
1.3 Users, Views, Schema,	
1.4 Structure of DBMS	
1.5 Data Models	
1.5.1 Object Based Logical Model-Object Oriented Data Model, Entity Relationship Data Model	
1.5.2 Relational Model	
1.6 ER diagrams, extended features of ERD.	
Unit 2: Relational Database Model and Design	**(07L)**
2.1 Terms-Relation, Tuple, Attribute, Cardinality, Degree of Relationship set, Domain	
2.2 Keys-Super Key, Candidate Key, Primary Key, Foreign Key, Constraints	
2.3 Anomalies of un-normalized database	
2.4 Normalization	
2.5 NormalForm-1NF,2NF,3NF,BCNF)	

Unit 3: SQL(Structured Query Language) **(12L)**

3.1 Introduction

3.2 Basic Structure

3.3 DDL Commands

3.4 DML Commands

3.5 Simple Queries

3.6 Nested Queries

3.7 Aggregate Functions

Unit 4:TransactionprocessingandConcurrency **(12L)**

4.1 Concept of transaction processing, ACID properties, States of Transaction

4.2 Concurrency Execution

4.3 Serializability and Recoverability

4.4 Locking Based Protocol-Locks, Granting of Locks and 2PL

4.5 Time stamp based protocols-Time stamp, time stamp ordering Protocol, Thomas's Write Rule.

4.6 Deadlocks handling –Detection, Prevention and Recovery.

Unit 5: Recovery System **(12L)**

5.1Failure Classification

- 5.1.1 Transaction Failure
- 5.1.2 System Crash
- 5.1.3 Disk Failure

5.2 Storage Structures

- 5.2.1 Storage Types
- 5.2.2 Data Access

5.3 Recovery & Atomicity

- 5.3.1 Log based Recovery
- 5.3.2 Deferred Database Modification
- 5.3.3 Immediate Database Modification
- 5.3.4 Check points

5.4 Recovery with Concurrent Transaction

- 5.4.1 Transaction Rollback
- 5.4.2 Restart Recovery

5.5 Remote Backup System

Reference Books:

1. Database System Concepts by Henry Korthand A. Silberschatz

2. Database Management Systems, McGraw – Hill. G. K. Gupta
3. Introduction to Database Management, Wiley, by Mark L. Gillenson, Paulraj Ponniah
4. SQL,PL/SQL the Programming Language Oracle:-Ivan Bayross, BPBPublication.
5. SQL & Pl SQL for Oracle 11g Black Book 2011 Edition by P. S. Deshpande , Dreamtech

Website Reference Link:

1. Learn DBMS - Database Management System Tutorial : https://www.tutorialspoint.com/dbms/index.htm
2. DBMS Tutorial | Database Management System - javatpoint https://www.javatpoint.com/dbms-tutorial
3. PostgreSQL: The world's most advanced open source database : https://www.postgresql.org/
4. PostgreSQL Tutorial - Learn PostgreSQL frwebom Scratch : https://www.postgresqltutorial.com/

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Business Communication
Course Code: UBCA114
No.of.Lectures:48

Course Outcomes:

1. Student should be able to communicate effectively in real life situation.
2. To distinguish among various levels of organizational communication and communication barriers while developing and understanding of Communication as a process in an organization.
3. Demonstrate the use of basic and advanced business writing skills.
4. Students get familiar with information technology and improve job-seeking skills.
5. Develop interpersonal communications skills that are required for social and business interaction.
6. Employ proper public speaking techniques.
7. To demonstrate his verbal and non-verbal communication ability through presentations.

Topics/Contents	No. of Lectures
Unit 1 :Introduction to Communication	**(06L)**
1.1 Role of Communication in Business	
1.2 Objectives of Communication	
1.3 Process of Communication	
1.4 Principles of Communication	
1.5 Barriers to Communication	
1.6 Overcoming Barriers	
Unit 2 : Media of Communication	**(08L)**
2.1 Written Communication- Advantages & Limitations	
2.2 Oral Communication- Principles of effective oral communication - Techniques of effective speech	
2.3 Face to Face Communication	
2.4 Non-Verbal Communication - Body Language (Positive & Negative Gestures)handshakes, gazes, smiles, hand movements	
2.5 Visual Communication	
2.6 Audio Visual Communication Skills	
Unit 3: Oral Communication	**(12L)**
3.1 Listening, Importance of listening, Guidelines of Effective Listening.	
3.2 Group Communication/Discussion-Activity.	
3.3 Speeches-Characteristics of Good Speech, Model Speech	
3.4 Presentation- Elements of Presentation, Designing a Presentation, Practicing Delivery of Presentation, Media Management,	
3.5 Press Conference, Seminars, Workshop, Conferences, Business	

Etiquettes.

3.6 Dialogue Skills-Need for Dialogue and Conversation Skill, Good Manners and Etiquettes

3.7 Interview-Mock Interview

Unit 4: Written Communication **(12L)**

4.1 Layout of Business Letter, Enquiry letter, Order Letter, Complaint letter, Sales Letter, Office Memo

4.2 Job Application Letter- Appointment, Promotion, Resignation letter

4.3 Report Writing-Introduction, Reports by Individuals, Reports by Committees.

4.4 Agenda and Minutes of Meeting

4.5 Notices-Public Notices, Tender Notices

4.6 Copy Writing for Advertisement – Introduction, Structure of an Advertisement Email Etiquette

Unit 5: Information Technology for Communication **(10L)**

5.1 Introduction

5.2 Telex, Telegram, Fax, Voice Mail, Teleconferencing, Video Conferencing, Internet and Social Media Sites, E- communication at workplace.

5.3 Telephone Skills, Basics of Telephone Communication, Handle calls-telephone manners, Tele conference handling, Handling Tele interviews for Call Centre's.

Reference Books:

1. Business Communication (Principles, Methods and Techniques) Nirmal Singh Deep & Deep Publications Pvt. Ltd, New Delhi.
2. Essentials of Business Communication Rajendra Pal& J.S.Korlhalli Sultan Chand & Sons, New Delhi.
3. MediaandCommunicationManagement– C.S.RayduHimalayaPublishingHouse,Mumbai.
4. ProfessionalCommunication-ArunaKoneru-TataMcGraw-HillPublishingCo.Ltd,NewDelhi.
5. Creating a Successful CV–Siman Howard–Dorling Kindersley.
6. Business Communication–Dr.Anjali Kalkar, Ashapak G. Nadaf, Tech-Max Publication, Pune
7. Effective Documentation and Presentation-Urmila Rai & S.M.Rai–Himalaya Publishing House, Mumbai.
8. Principles Practices of Business Communication– Aspi Doctor & Rhoda Doctor– Sheth Publishers Pvt. Ltd

Website Reference Link:

1) Business Communication Tutorial: https://www.tutorialspoint.com/business_communication_strategies/index.htm
2) Communication Basics:https://edu.gcfglobal.org/en/business-communication/

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Principles and Practices of Management and Organizational Behavior.
Course Code: UBCA115
No. of Lectures:48

Course Outcomes:

1. Describe various aspects of management.
2. Justify the role of leadership qualities.
3. Analyze the role of planning and decision making.
4. Understand the nature of time management and time management strategies.
5. Identify and apply new ideas, methods and ways of thinking.
6. Evaluate and examine their own behavior and that of others in an organizational setting.
7. Understand and analyze the impact of conflict and stress on the work place.

Topics/Contents	**No. of Lecture**
Unit 1: Management	**(08L)**
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 1.6 Leadership – Meaning, Qualities of Effective Leadership and Functions of Leader.	
Unit 2: Decision Making	**(05L)**
2.1 Introduction 2.2 Decision Making Environment – Decision Making under Certainty, under Uncertainty under Risk 2.3 Types of Decision 2.4 Decision making Process and Tools	
Unit 3: Organization and Organizational Behaviour	**(07L)**
3.1 Definition and Need for Organization 3.2 Introduction to Organizational Behaviour 3.3 Goals of Organizational Behaviour 3.4 Fundamental Concepts of Organizational Behaviour	
Unit 4: Motivation	**(07L)**
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 **(07L)**

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

Unit 6: Time Management **(05L)**

6.1 What is Time management
6.2 Time Management Strategies
- Setting Goals, Organize, Plan ahead, Maximize Time, Prioritize, Eliminate Distractions,

Unit 7: Stress Management and Conflict Management **(09L)**

7.1 Work Stress - Meaning of Stress, Stressors
7.2 Sources of Stress- Individual Level, Organizational Level
7.3 Types of Stress
7.4 Type A and Type B Assessment of Personality
7.5 Effect of Stress – Physiological Effect, Psychological Effect, Behavioral Impact
7.6 Stress Management – Individual Strategies, Organizational Strategies
7.7 Concept of Conflict
7.8 Five Stage Process of Conflict
7.9 Types of Conflict- Inter-Personal, Intra-Personal, Inter-Group Organizational, Johari Window
7.10 Effects of Conflict
7.11 Conflict Management Strategies.

Reference Books:

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/organizational_behavior_quick_guide.htm

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Computer Laboratory I
Course Code: UBCA116
No.of.Lectures:48

Course Outcomes:

1. Use of appropriate data types, control statements.
2. Able to write programs using Array, String and function.
3. Apply the Searching and sorting algorithms for problem solving
4. Student will be able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
5. Students will be able to use linear and non-linear data structures like stacks, queues, linked list etc.

Topics/Contents

Programs of C and Data Structure

- Assignments on operators and Evaluation of Expressions
- Assignments on Decision making Statements
- Assignments on Looping Statements
- Assignments on Arrays.
- Assignments on Strings.
- Assignments on Functions
- Assignments on Pointers
- Assignments on Structure and Union
- Assignments on Searching, Sorting
- Assignments on Linked List-
    - Singly Linked List-creation ,insertion, deletion , traversal
    - Doubly Linked List-creation ,insertion, deletion , traversal
- Assignments on Stack-Static implementation, Dynamic implementation,
- Assignments on Queue- Static implementation, Dynamic implementation

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)
Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: I
Course Name: Computer Laboratory II [Based on UBCA113]
Course Code: UBCA117
No.of.Lectures:48

Course Outcomes:

1. Able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.
2. Able to execute simple and nested queries
3. Able to write procedures and functions.
4. Students are able to use trigger and cursor.
5. Understand and able to implement concept of transactions.
6. Use advanced database Programming concepts.
7. Students will able to create report/documentation for real life projects using SQL queries.

Topics/Contents

PLSQL:

Introduction to PLSQL
PL/SQL: Datatypes, Language structure
Controlling the program flow, conditional statements, loops
Stored Procedures
Stored Functions
Handling Errors and Exceptions
Cursors
Triggers

- Assignments on DDL Command
- Assignments on Table creation with constraint
- Assignments on DML command. (Insert ,Update and Delete)
- Assignments on Simple Queries and Nested Queries
- Assignments on Stored Procedures
- Assignments on Stored Functions
- Assignments on Cursors
- Assignments on Triggers

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Object Oriented Programming using C++
Course Code: UBCA121
No.of.Lectures:48

Course Outcome:

1. To understand how C++ improves C with object-oriented features.
2. To learn design C++ classes for code reuse.
3. To understand the concept of data abstraction and encapsulation.
4. To learn design and implement generic classes with C++ templates.
5. To use exception handling in C++ programs.
6. Understand dynamic memory management techniques using pointers, constructors, destructors, etc
7. Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
8. Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
9. Demonstrate the use of various OOPs concepts with the help of programs.

Topics/Contents	No. of Lecture
Unit 1: Introduction to C++	(02L)
1.1 Basic Concepts of OOP , Benefits, Applications of OOP 1.2 A Simple C++ Program 1.3 Structure of C++ Program 1.4 Creating a Source File, Compiling and Linking	
Unit 2: Tokens, Expressions and Control structures 2.1 Introduction 2.2 Tokens, Keywords, Identifiers and Constants 2.3 Data types- Basic, User Defined and Derived 2.4 Symbolic Constant 2.5 Type Compatibility 2.6 Variables-Declaration and Dynamic Initialization 2.7 Reference Variable 2.8 Operators in C++ 2.8.1 Scope Resolution Operator 2.8.2 Member Referencing Operators 2.8.3 Memory Management Operators 2.8.4 Manipulators 2.8.5 Type Cast Operators 2.9 Expression and their Types 2.10 Special Assignment Expressions 2.11 Implicit Conversions	(03L)

2.12 Operator Overloading Introduction
2.13 Operator Precedence

Unit 3: Functions in C++ **(05L)**

3.1 Introduction
3.2 The main Function
3.3 Function Prototyping
3.4 Call by Reference
3.5 Return by Reference
3.6 Inline Function–Making an outside function Inline
3.7 Arguments-Default, Constant
3.8 Math Library Functions

Unit 4: Classes and Objects **(10L)**

4.1 Introduction
4.2 Creating a Class and Objects
4.3 Defining Member Functions Inside and Outside Class Definition
4.4 Nesting of Member Functions
4.5 Private Member Functions
4.6 Arrays Within a Class
4.7 Memory Allocation of Objects
4.8 Static Data Members and Static Member Functions
4.9 Array of Objects
4.10 Objects as Function Arguments
4.11 Friend Functions
4.12 Returning Objects
4.13 Constructors
4.14 Types of Constructor
4.15 Destructors

Unit 5: Inheritance **(09L)**

5.1 Introduction
5.2 Base Class and Derived Class Examples
5.3 Types of Inheritance
5.4 Virtual Base Class
5.5 Abstract Class
5.6 Constructor in Derived Class

Unit 6: Polymorphism **(08L)**

6.1 Compile Time Polymorphism
6.1.1 Function Overloading
6.1.2 Operator Overloading Introduction
6.1.3 Overloading Unary and Binary Operator
6.1.4 Overloading using Friend Function
6.1.5 Overloading Insertion and Extraction Operators
6.1.6 String Manipulation using Operator Overloading
6.2 Runtime Polymorphism
6.2.1 This Pointer, Pointers to Objects, Pointer to Derived Classes
6.2.2 Virtual Functions and Pure Virtual Functions

Unit 7: Managing console I/O operations **(03L)**

7.1 Introduction
7.2 C++ streams and C++ stream classes
7.3 Unformatted I/O operations
7.4 Formatted console I/O operations
7.5 Managing output with manipulators

Unit 8: Working with Files **(05L)**

8.1 Classes for File Stream operations
8.2 File operations-Opening, Closing and updating
8.3 Error handling during File operations
8.4 Command Line arguments

Unit 9: Templates **(03L)**

9.1 Introduction
9.2 Class Templates
9.3 Function Templates
9.4 Exception Handling (Introduction)

Reference Books:

1. Object oriented programming with C++ -by E Balagurusamy
2. Object Oriented Programming in C++ by Dr. G. T. Thampi, Dr. S. S. Mantha, Dream Tech.
3. Object Oriented Programming with C++ by Robert Lafore

Website Reference Link:

1. W3Schools CPP Tutorial :https://www.w3schools.com/cpp/cpp_oop.asp
2. CPP Tutorials Point: https://www.tutorialspoint.com/cplusplus/cpp_object_oriented.htm
3. CPP geeks for geeks : https://www.geeksforgeeks.org/object-oriented-programming-in-cpp/
4. CPP Tutorials Point : https://www.javatpoint.com/cpp-oops-concepts

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Web Technology (HTML5, CSS3, JavaScript, jQuery)
Course Code: UBCA122
No.of.Lectures:48

Course Outcome:

1. Analyze the web page and identify its elements and attributes.
2. Create web pages using HTML5 and CSS3.
3. Build dynamic webpage by the use of JavaScript and jQuery.
4. Perform validation using JavaScript.
5. Understand internet basics, internet protocols and concepts of effective web design.

Topics/Contents	No. of Lectures
Unit1:Introduction to Web Development	**(04L)**
1.1. What is web app	
1.2. Client server Vs Web Server	
1.3. Front End & Back end.	
1.4. Internet-Basic, Internet Protocols(HTTP,FTP,IP)	
1.5. World Wide Web(WWW)	
1.6. HTTP Request Message, HTTP Response Message	
Unit 2: Introduction to HTML5	**(12L)**
2.1 Introduction to HTML5, Features of HTML5, Introduction to Web 2.0 and Web3.0	
2.2 History And Major Actors	
2.2.1 A Little Retrospective	
2.2.2 What Is TheW3C?	
2.2.3 What Is The WHATWG?	
2.3 Getting Started With HTML5	
2.3.1 Feature Detection	
2.3.2 Support For Legacy Browsers	
2.4 Structure of a Web Page	
2.4.1 HTML5 DOCTYPE	
2.4.2 Page Encoding	
2.4.3 New And Updated Elements	
2.4.4 New Attributes	
2.4.5 Deprecated Elements And Attributes	
2.5 Audio and Video	
2.5.1 The State of Web Audio And Video Based On Plug-in	
2.5.2 Attributes And Methods	
2.5.3 Understanding Audio/Video Events	
2.6 HTML5 Canvas	
2.6.1 Overview of Graphics In The Browser	
2.6.2 Canvas Vs. SVG	
2.6.3 Using A Canvas	
2.7 Forms	

2.8 Working With Paths
  2.8.1 Drawing Straight Lines
  2.8.2 Drawing Circles Or Arcs
  2.8.3 Drawing Text
  2.8.4 Drawing Images
2.9 Understanding Transforms
  2.9.1 Translation
  2.9.2 Rotation
  2.9.3 Scaling2.

Unit 3: CSS 3 **(10L)**

3.1 Introducing CSS3
  3.1.1 What isCSS3?
  3.1.2 The History of CSS
3.2 Selectors and Pseudo Classes
  3.2.1 Attribute Selectors
  3.2.2 The Target Pseudo-Class
  3.2.3 UI Element States Pseudo-Classes
3.3 Fonts and Text Effects
  3.3.1 Fonts on the Web
  3.3.1 Font Services
  3.3.2 The @font-face Rule
3.4 Colours, Gradients, Background Images, and Masks
  3.4.1 Colour
  3.4.2 The Opacity Property
  3.4.3 Backgrounds
3.5 Selectors and Pseudo Classes
  3.5.1 Attribute Selectors
  3.5.2 The Target Pseudo-Class
  3.5.3 UI Element States Pseudo-Classes
3.6 Fonts and Text Effects
  3.6.1 Fonts on the Web
  3.6.2 Font Services
  3.6.3 The @font-face Rule
3.7 Colors, Gradients, Background Images, and Masks
3.7.1 Color
  3.7.2 The Opacity Property
  3.7.3 Backgrounds
3.8 Transitions, Transforms and Animations
  3.8.1 Transitions and Transforms
3.9 Embedding Media
  3.9.1 Video Formats
  3.9.2 Styling Video

Unit 4: JavaScript **(12L)**

4.1Introduction to JavaScript, Types of Scripts
4.2 Control and looping structure
4.3 Various Operators in JavaScript
4.4 Array its Types
4.5 Event Handling
4.6 Math, Date and String objects
4.7 DOM Objects
4.8 Form Validation
4.9 Dynamic effect using JavaScript

Unit 5: JQuery **(10L)**

5.1 Introduction to jQuery
  5.1.1 Need of jQuery

5.1.2 Advantages of jQuery
5.1.3 jQuery versions
5.1.4 Features
5.2 Retrieving Page Content
5.2.1 Using selectors
5.2.2 Using filters
5.2.3 Child, visibility, and content filters in jQuery
5.3 Manipulating Page Content
5.3.1 Creating, getting, and setting content
5.3.2 Manipulating attributes
5.3.3 Inserting content
5.3.4 Wrapping, replacing, and removing content
5.4 Methods in jQuery
5.5 Events in jQuery
5.6 Animation in JQuery
5.7 Plugins in JQuery

Reference Books:

1. JavaScript The Complete Reference 3rd Edition Thomas A. Powell, Fritz Schneider McGraw Hill Professional,
2. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery)2Ed
3. JavaScript The Complete Reference 3rd Edition (Paperback, Powell Thomas)
4. Learning jQuery - Fourth Edition Jonathan Chaffer
5. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery)
6. Learning jQuery - Jonathan Chaffer, Karl Swedberg
7. HTML5 and CSS3 By Elizabeth Castro, Bruce Hyslop

Website Reference Link:

1) W3Schools HTML Tutorial: https://www.w3schools.com/html/
2) CSS Tutorial :https://www.tutorialspoint.com/css/index.htm
3) Learn Bootstrap Tutorial - JavaTpoint : https://www.javatpoint.com/bootstrap-tutorial
4) JavaScript Tutorial :https://www.w3schools.com/js/
5) The Modern JavaScript Tutorial:https://javascript.info/

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Software Engineering
Course Code: UBCA123
No.of.Lectures:48

Course Outcomes:

1. Understand the system concepts.
2. Apply the software engineering lifecycle by demonstrating concept of problem identification, planning, analysis, design and deployment.
3. Learn and differentiate software development methodologies.
4. Identify, analysis and design real life problem.
5. Demonstrate to use the techniques and tools necessary for engineering practice

Topics/Contents	No. of Lectures
Unit 1: Introduction to System Concepts	**(06L)**
1.1 Definition, Elements of System	
1.2 Characteristics of System	
1.3 Types of System	
1.4 System Concepts	
Unit 2: Requirement Analysis	**(08L)**
2.1 Definition of System Analysis	
2.2 Requirement Anticipation	
2.3 Knowledge and Qualities of System Analyst	
2.4 Role of a System Analyst	
2.5 Feasibility Study And It's Types	
2.6 Fact Gathering Techniques	
2.7 SRS(System Requirement Specification)	
Unit 3: Introduction to Software Engineering	**(06L)**
3.1 Definition Need for software Engineering	
3.2 Software Characteristics	
3.3 Software Qualities (Mc Call's Quality Factors	
Unit 4: Software Development Methodologies	**(06L)**
4.1 SDLC(System Development Life Cycle)	
4.2 Waterfall Model	
4.3 Spiral Model	
4.4 Prototyping Model	
4.5 RAD MODEL	
Unit 5: Analysis and Design Tools	**(10L)**
5.1 Entity-Relationship Diagrams	
5.2 Decision Treeand Decision Table	
5.3 Data Flow Diagrams (DFD)	
5.4 Data Dictionary	
5.4.1 Elements of DD	
5.4.2 Advantage of DD	
5.5 Pseudocode	

5.6 Input And Output Design
5.7 Case Studies (Based on Above Topic

Unit 6: Use-Case Driven Object-Oriented Analysis (12L)

6.1. Introduction to oops concepts
- 6.1.1. Class and object
- 6.1.2. Abstraction and encapsulation
- 6.1.3. Method and messages
- 6.1.4. Interface, Inheritance and polymorphism
- 6.1.5. Structural Diagram-Class Diagram and Object diagram
- 6.1.6. Associations and links
- 6.1.7. Aggregation, Composition and Generalization
- 6.1.8. Inheritance, Sub Types and IS-A hierarchy

6.2. Behavioral Diagram
- 6.2.1. Use case Diagram
  - 6.2.1.1 Identify Actors
  - 6.2.1.2 Identify Use cases: describing how the user will use the system
  - 6.2.1.3 Develop Use-Case Model
  - 6.2.1.4 Description of Use case Diagram.
- 6.2.2 Activity Diagram
- 6.2.3 Sequence diagram
- 6.2.4 Collaboration Diagram.
- 6.2.5 Component Diagram
- 6.2.6 Deployment Diagram
- 6.2.7 State Transition Diagram Case studies should be covered on the above topic

Reference Books:

1. Software Engineering-Rogers.Pressman.
2. SADSE (System Analysis Design)-Prof. Khalkarand Prof.Parthasarathy.

Website Reference Link:

1. Software Engineering Tutorial for Beginners: https://www.guru99.com/software-engineering-tutorial.html
2. Software Engineering Tutorial: https://www.javatpoint.com/software-engineering-tutorial
3. Software Engineering Tutorial: https://www.tutorialspoint.com/software_engineering/index.htm

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)

Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Technical Report Writing
Course Code: UBCA124
No.of.Lectures:48

Course Outcomes:

1. Understand the basics of technical communication.
2. Use correct language and grammar.
3. Produce a documentation plan, including estimates and schedules.
4. Design and structure a document by analyzing the readership selecting the right information

Topics/Contents	No. of Lectures
Unit 1:Introduction to Technical Communication	**(03L)**
1.1 Basics of Technical Communication 1.2 Components 1.3 Process	
Unit 2: Elements of Style	**(06L)**
2.1 Definition of Style 2.2 Choice of Words and Phrases 2.3 Sentence and Paragraphs Constructions and Length	
Unit 3: Business and Technical Report	**(10L)**
3.1 Characteristic 3.2 Importance 3.3 Types of Reports 3.3.1 Oral Report 3.3.2 Written Report- 3.3.2.1 Informal Report 3.3.2.2 Formal Report-Informational, Interpretive, Routine Report 3.4 Routine Report 3.4.1 Progress Report 3.4.2 Laboratory Report 3.4.3 Inspection report 3.4.4 Inventory Report 3.4.5 Annual Confidential Report on Employee	
Unit 4: Planning and Preparation	**(10L)**

4.1 Preparatory Steps
3.2 Sources of Data
3.2.1 Internal Records
3.2.2 Library
3.2.3 Internet
3.3 Methods of Data Collection
3.3.1 Personal Observation
3.3.2 Telephone Interview
3.3.3 Personal Interview
3.3.4 Questionnaires
4.4 Mail Questionnaires

Unit 5: Structure and Layout **(08L)**

5.1 Element of Structure
5.1.1 Front Matter
5.1.2 Main Body
5.1.3 Back Matter

Unit 6: Use of Illustrations **(06L)**

6.1 Purpose
6.2 Characteristics of Good Illustrations
6.3 Types
6.3.1 Tables
6.3.2 Graphs
6.3.3 Drawings

Unit 7: Report Writing **(05L)**

7.1 Rough Draft
7.2 Process of Writing
7.3 Order of Writing
7.4 The Final Draft
7.5 Check-List for Reports
7.6 Communication Core

Reference Books:

1. Business Correspondence and ReportWriting,4e-by R C Sharma Krishna Mohan Hand book of Technical)
2. Technical communication principles and practice-by Raman, Meenakshi and Sangeeta Sharma

Website Reference Link:

1. Report Writing -https://www.tutorialspoint.com/business_writing_skills/report_writing.htm
2. Introduction of Technical Report - https://www.geeksforgeeks.org/introduction-of-technical-report/

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)
Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Digital Marketing
Course Code: UBCA125
No.of.Lectures:48

Course Outcome:

1. Understand the basic concepts of Internet Marketing.
2. Differentiate digital marketing and real marketing.
3. Create digital marketing plan and perform SWOT analysis
4. Analyze SEO optimization technics to increase the process of web searching.
5. To learn CRM and CRM Platforms and modules.
6. Understand and apply social media marketing techniques.

Topics/Contents	**No. of Lectures**
Unit 1 **: Introduction** 1.1 Understanding Internet Marketing 1.2 Search Engine Optimization 1.3 Search Engine Marketing 1.4 Email Marketing 1.5 Digital Display Marketing	04
Unit 2 : Introduction to New Age Media(Digital)Marketing 2.1 What is Digital Marketing 2.2 Digital vs. Real Marketing 2.3 Digital Marketing Channels 2.4 Types of Digital Marketing(Overview)-Internet Marketing, Social Media Marketing, Mobile Marketing	04
Unit 3 : Creating Initial Digital Marketing Plan 3.1 Content management 3.2 SWO analysis: Strengths, Weaknesses ,Opportunities, and Threats 3.3 Target group analysis EXERCISE: Define a target group	04
Unit 4 **: Marketing using Websites** 4.1 Web design 4.2 Optimization of Websites 4.3 MS Expression Web EXERCISE: Creating web sites, MS Expression	04
Unit 5 : Search Engine Optimization 5.1 SEO Optimization 5.2 Writing the SEO content EXERCISE: Writing the SEO Content	04
Unit 6 : Customer Relationship Management 6.1 Introduction to CRM 6.2 CRM platform 6.3 CRM models EXERCISE: CRM strategy	04

Unit 7 : **Social Media Marketing** 20

7.1 Understanding Social Media Marketing

7.2 Social Networking (Facebook, Linkedin, Twitter, etc.) Social Media (Blogging, Video Sharing - Youtube, Photosharing –Instagram, Podcasts)

7.3 Web analytics -levels

7.4 Modes of Social Media Marketing

7.4.1 Creating a Facebook page Visual identity of a Facebook page , Types of publications, Facebook Ads , Creating Facebook Ads , Ads Visibility

7.4.2 Business opportunities and Instagram options Optimization of Instagram profiles , Integrating Instagram with a Web Site and other social networks, Keeping up with posts

7.4.3 Business tools on Linked In Creating campaigns on LinkedIn, Analyzing visitation on LinkedIn

7.4.4 Creating business accounts on YouTube You Tube, Advertising, YouTube Analytics

7.4.5 E-mail marketing E-mail marketing plan , E-mail marketing campaign analysis , Keeping up with conversions

Digital Marketing tools: Google Ads, Face Book Ads, Google Analytic, Zapier, Google Keyword Planner EXERCISE: Social Media Marketing plan.
EXERCISE: Making a Face book page and Google Ads

Unit 8 : Digital Marketing Budgeting 04

8.1 Resource planning

8.2 Cost estimating

8.3 Cost budgeting

8.4 Cost control

Reference Books:

1) Digital Marketing for Dummies By Ryan Deiss and Russ Hennes berry
2) Advertising and Promotion: An Integrated Marketing Communications Perspective, George Belch, San Diego University Michael Belch, San Diego University
3) Advertising Management :Rajeev Batra, John G. Myers, David A. Aaker
4) Belch: Advertising & Promotions (TMH)
5) The Social Media Bible: Tactics, Tools, &Strategies for Business Success by Lon Safko
6) Web Analytics2.0–Avinash Kaushik

Website Reference Link:

1) Digital Marketing Tutorial - https://www.tutorialspoint.com/digital_marketing/index.htm
2) Digital Marketing Tutorial - https://www.javatpoint.com/digital-marketing
3) Digital Marketing Tutorial for Beginners- https://www.simplilearn.com/tutorials/digital-marketing-tutorial

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)
Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Computer Laboratory I [Based on UBCA121]
Course Code: UBCA126
No.of Lectures:48

Course Outcomes:

1. To develop applications for a range of problems using OOP's techniques.
2. Use incremental program development to create, test, and debug algorithms for solving simple problems.
3. To learn how to implement copy constructors and class member functions.
4. To learn how containment and inheritance promote code reuse in C++.
5. To learn how inheritance and virtual functions implement dynamic binding with polymorphism.
6. To learn how to design and implement generic classes with C++ templates.
7. To learn how to use exception handling in C++ programs.

Topics/Contents

- Assignments on Basics programs of C++ without Class
- Assignments on functions- call by value, call by reference, default argument and constant argument
- Assignments on inline function
- Assignments on basic programs using Class
- Assignments on Array of object, object as a function argument
- Assignments on Friend function
- Assignments on Constructor, destructor
- Assignments on Inheritance
- Assignment on polymorphism- function overloading, operator overloading
- Assignments on File Handling
- Assignments on Template- class template, function template

SYLLABUS (CBCS) FOR F.Y.BBA (C.A.) (w.e. from June, 2022)
Academic Year 2022-2023

Name of the Programme: BBA (Computer Application)
Programme Code: UBCA
Class: F.Y.BBA (C.A.)
Semester: II
Course Name: Computer Laboratory II
Course Code: UBCA127
No.of.Lectures:48

Course Outcomes:

1. Implement the given HTML program.
2. Able to create and apply CSS styling.
3. Use JavaScript concept.
4. Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.
5. Use JavaScript to validate form input entry.
6. Develop web based application using suitable client side and server side web technologies.
7. Analyze given assignment to select sustainable

Topics/Contents

- Assignments on Basic HTML Tags
- Assignments on Creating List, Tables through HTML
- Assignment on Form and form tags
- Assignments on Styling HTML with CSS
- Assignment on designing the webpage having links for
  1. Linking web pages internally
  2. Linking web pages externally
  3. Using image as link.
- Assignments on JavaScript
- Assignments on form Validation
- Assignment using jQuery