

Progressive Education Society's
Modern College of Arts, Science and Commerce, (Autonomous)
Shivajinagar, Pune - 5
First Year of B.B.A. (CA) (AI-DS)

Course Code: 24BaBbcU1101
Course Name: Procedure Oriented Programming Using C Language- (Subject 1 Theory)

Teaching Scheme: TH: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Prerequisite Courses:

- Students should have a basic understanding of Computer Programming terminologies.

Course Objectives:

In this course, student will learn about:

1. To understand programming basics and the fundamentals of C
2. To learn about data types in C
3. To understand conditional statements and loops
4. To know how to arrange data in arrays

Course Outcomes:

1. Students will be able to: understand the concept and basic terminology used in C programming.
2. Writing, compiling and debugging programs in C language and use different data types for writing the programs.
3. Design C programs connecting decision structures, loops.
4. Students will be able to write Programs on arrays.

Course Contents

Unit No 1	Chapter 1 Introduction to C language	No of lectures
	1.1 History 1.2 Basic structure of C Programming 1.3 Language fundamentals 1.3.1 Character set, tokens 1.3.2 Keywords and identifiers 1.3.3 Variables and data types 1.4 Operators 1.4.1 Types of operators 1.4.2 Precedence and associativity 1.4.3 Expression	4
Unit No 2	Chapter 2.Managing I/O operations	No of lectures

	2.1 Console based I/O and related built-in I/O functions 2.1.1 printf(), scanf() 2.1.2 getch(), getchar() 2.2 Formatted input and formatted output	2
Unit No 3	Chapter 3.Decision Making and looping	No of lectures
	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 control structures 3.3.1 while loop 3.3.2 Do-while loop 3.3.3 For loop 3.3.4 Nested for loop 3.4 Jump statements 3.4.1 break 3.4.2 continue 3.4.3 goto 3.4.4 exit	8
Unit No 4	Chapter 4.Arrays and Strings	No of lectures
	4.1 Introduction to one-dimensional Array 4.1.1 Definition 4.1.2 Declaration 4.1.3 Initialization 4.2 Accessing and displaying array elements 4.3 Introduction to two-dimensional Array 4.3.1 Definition 4.3.2 Declaration 4.3.3 Initialization 4.3.4 Accessing and displaying array elements 4.4 Introductions to Strings 4.4.1 Definition 4.4.2 Declaration 4.4.3 Initialization	12
Unit 5	Introduction to functions	No of lectures
	5.Introduction 5.1 Purpose of function 5.2 Function definition 5.3 Function declaration 5.4 Function call	4

Reference Books :-

- 1) Let us C –Yashwant Kanetkar, BPB publication.
- 2) Ansi C- Balagurusamy
- 3) The complete Reference- Herbelt Schildt

Reference Links:

1. <https://www.w3schools.com/html/>
2. <https://www.geeksforgeeks.org/html-tutorial/>
3. <https://www.programiz.com/c-programming>

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F.Y.B.B.A. (C.A.) (AI-DS) Semester – I
Subject: Lab Course on 24BaBbcU1101
Subject Code: 24BaBbcU1102

Credits:02

Total No. of Hours: 60

Teaching Scheme: PR: 4 Hours/Week

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Prerequisite Courses:

Students should have a basic understanding of Computer Programming terminologies.

Course Objectives:

In this course, student will learn about:

1. To understand programming basics and the fundamentals of C
2. To learn about data types in C
3. To understand conditional statements and loops
4. To know how to arrange data in arrays

Course Outcomes:

1. Students will be able to: understand the concept and basic terminology used in C programming.
2. Writing, compiling and debugging programs in C language and use different data types for writing the programs.
3. Design C programs connecting decision structures, loops.
4. Students will be able to write Programs on arrays.

Sr. No.	Assignment Name	No. of hours
1	To demonstrate decision making statements (if, if-else, else if ladder, Nested control statements)	5
2	switch case	2
3	Jump statements	4
4	To demonstrate use of loops – while loop	8
5	To demonstrate use of loops – do while loop	5
6	To demonstrate use of loops – for loop	8
7	Nested loops	4
8	To demonstrate use of Arrays - 1-D array	6
9	To demonstrate use of Arrays - 2-D array	8
10	To demonstrate use of String using standard library function	3
11	To demonstrate use of String without using standard library	4

	function	
12	To demonstrate menu driven programs and use of standard library functions - use of math.h, ctype.h	3
	Total	60

Reference Books :-

- 1) Let us C –YashwantKanetkar, BPB publication.
- 2) Ansi C- Balagurusamy
- 3) The complete Reference- Herbert Schildt

Web Links:

1. <https://www.w3schools.com/html/>
2. <https://www.geeksforgeeks.org/html-tutorial/>
3. <https://www.programiz.com/c-programming>

Progressive Education Society's
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First Year of B.B.A. (CA) (AI-DS)
Course Code: 24BaBbcU1203

Course Name: Database Management System

Theory (Subject- 2)

Teaching Scheme: Theory : 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Course Objectives:

1. Understand the basic concepts and the applications of database systems.
2. Master the basics of SQL and construct queries using SQL.
3. Understand the relational database design principles.
4. Familiar with database storage structures and access techniques.

Course Outcomes:

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

1. Apply concept and application of database system.
2. Acquaint the practical knowledge about creating and manipulating data in SQL.
3. Familiar with the basic issues of transaction processing and concurrency control.
4. Students will be able to use storage structures and access techniques.

Course Contents

Unit 1	File Structure and Organization	No.of Lectures
	1 Introduction 1.1 Logical and Physical Files File 1.2 File Structure Definitions 2 Basic File Operations 2.1 Opening Files 2.2 Closing Files 2.3 Reading 2.4 Writing Seeking 3 File Organization 3.1 Field and Record structure in	6

	file 3.2 Record Types 4 Types of file Organization 4.1 Sequential 4.2 Indexed 4.3 Hashed 5. Indexing 5.1 What is an Index? 5.2 Types of Index 5.3 Dense Index 5.4 Sparse Index.	
Unit 2	Database Models	No.of Lectures
	2.1 Relational Model 2.2 Network Model 2.3 Hierarchical Model 2.4 Entity Relationship Diagram (ERD) Extended features of ERD 2.5 Overall System structure.	4
Unit 3	Relational Model	No.of Lectures
	3.1 Introduction 3.2 Terms Relation Tuple Attribute 3.3 Cardinality 3.4 Degree of Relationship Set 3.5 Domain 3.6 Keys 3.6.1. Primary Key 3.6.2 Foreign Key 3.6.3 Super Key 3.6.4 Candidate Key 3.7 Relational Algebra operations Select Project Union Difference Intersection Cartesian Product Natural Join	6
Unit 4	SQL (Structured Query Language)	No.of Lectures
	4.1 Introduction 4.2 History of SQL 4.3 Basic Structure 4.4 DDL Commands (CREATE, DROP ALTER)	10

	4.5 DML Command (SELECT, INSERT, UPDATE, DELETE) 4.6 Simple Queries 4.7 Nested Queries 4.8 aggregate Function	
Unit 5	Relational Database Design	No.of Lectures
	5.1 Introduction 5.2 Anomalies of unnormalized database Normalization 5.3 Normal Forms 1 NF 2 NF BCNF 3NF	4
	Total:	30

Recommended Books:

1. Database System Concepts by Henry korth and A. Silberschatz
2. SQL, PL/SQL: The Programming Language Oracle: - Ivan Bayross, BPB Publication.
3. Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson
4. Introduction to SQL by Reck F. vander Lans by Pearson
5. Modern Database Management by Jeffery A Hoffer, V. Ramesh, Heikki Topi, Pearson
6. Database Management Systems by Debabrata Sahoo, Tata Macgraw Hill

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Course Name: B.B.A (CA) (AI-DS)

Semester: II

Course Code: 24BaBbcU1204

Credit: 2

Subject Name: Lab Course on 24BaBbcU1203

Prerequisites:

1. Basic knowledge of computers and operating systems.
2. Understanding of fundamental programming concepts (any language).
3. Basic idea of data organization (files, records, fields).
4. Familiarity with simple commands and logical thinking.

Course Objective:

1. To understand and implement database models and ER diagrams.
2. To develop skills in designing relational databases using keys and constraints.
3. To learn and apply SQL commands for data definition and manipulation.
4. Understand the basic concepts and the applications of database systems.
5. Master the basics of SQL and construct queries using SQL
6. To understand normalization techniques for efficient database design.

Course Outcome:

1. On completion of the course students will be able to understand fundamentals concepts of database management system
2. Apply keys and constraints to maintain data integrity.
3. Write SQL queries using DDL and DML commands effectively.
4. Use aggregate functions and nested queries for data analysis.
5. Normalize databases to reduce redundancy and improve efficiency.

Sr. No.	Practical Work / Experiments	Total Practicals
1	Field, record ,structure and record types with examples	2
2	Draw ER diagrams with entities, attributes, relationships	3
3	Create tables showing relation, tuple, attribute, domain, cardinality	2
4	Keys in DBMS(primary key, foreign key, candidate key, super key)	2
6	SQL Structure and DDL Commands	3
7	DML Operations (INSERT, UPDATE, DELETE)	3
8	SQL Queries	4
9	Aggregate Functions(COUNT, SUM, AVG, MAX, MIN functions with GROUP BY)	3
10	Convert unnormalized data into 1NF, 2NF, 3NF and BCNF with examples	4
11	Types of relationship with examples	4
	Total	30

Reference Books:

1. Database System Concepts – Abraham Silberschatz, Henry F. Korth, S. Sudarshan
2. Fundamentals of Database Systems – Ramez Elmasri, Shamkant Navathe
3. PL/SQL –Ivan Bayross

Web links:

1. <https://www.w3schools.com/SQL>
2. <https://www.geeksforgeeks.org/SQL>

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First Year of B.B.A. (CA) (AI-DS)

Course code: 24BaBbcU1301

Course Name: Computer Technology-I (Web Design – I)

(Subject 3 -Theory)

Teaching Scheme: Theory: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem:30 Marks

Course Objective:

1. To learn the basic and advanced knowledge of web designing
2. Creation of static web pages with clarity using HTML and CSS web technologies.

Course Outcome:

1. On completion of the course students will be able to understand fundamentals and advanced concepts of HTML and CSS like static web technologies.
2. With a foolproof process for creating the best web pages and website design.
3. Students will able to enhance the look and feel of web pages Using CSS

Chapter 1	Internet and Web Designing Concept	Lectures
	1.1 Internet: Introduction to Internet 1.2 Internet Services 1.3 WWW, Hypertext Transfer Protocol (HTTP) 1.4 URL, Web server, 1.5 Proxy servers 1.6 Website Concepts: Web page, Static and Dynamic web page, 1.7 Web site Development Phases.	05
Chapter 2	HTML Fundamentals & Formatting Text	
	2.1 Hypertext Basics, Basic Components of HTML, 2.2 HTML Tags: 2.2.1 Head, and Title Tags, Body Tags, 2.3 Creating HTML Code using different editors (notepad, Edit Plus, 2.4 Text Pad etc.), Viewing in a Browser. 2.5 Formatting Text 2.6 Importance of Formatting, Paragraphs and Alignment, 2.7 Bold Text, Italic Text, Underline, HTML Headings, 2.8 Ordered List Tags and Attributes, 2.9 Unordered List Tags and Attributes. 2.10 Nested Lists, Font Tags, Font Attributes, Marquee Tag and Attributes. Heading Tags.	06
Chapter 3	Links, Images & Tables	
	3.1 How Hyperlinks Work, Anchor Tag and HREF. Attributes,	

	3.2 Absolute vs. Relative Links, Border 3.3 E-Mail Links, and Table Tags & Table Attributes, 3.4 Row Attributes, Cell Attributes, Merging Rows & Columns. 3.5 Different Image Formats, Image Tags and Attributes, 3.6 Background Images and Color 3.7 Inserting Audio and Video Files, images Link 3.8 Links & Tables	06
Chapter 4	Forms and Frames	
	4.1 Anatomy of A Form, Form Tag And Attributes, 4.2 Text Boxes, Check Boxes, Radio Buttons, Text Areas, 4.3 ListBox Submit and Reset Buttons. 4.4 Frames, Pros and Cons of Using Frames, 4.5 Creating Framesets, Frameset Attributes & Frameset Examples, 4.6 Frame Tag and Attributes, No frames Tag,	07
Chapter 5	Enhancing HTML with CSS	
	5.1 Introduction 5.2 Concepts of Stylesheets. 5.3 Types of CSS, 5.4 Inserting CSS in an HTML page, 5.5 CSS selectors, 5.6 CSS Properties.	05
	Guidance / Discussions on specific experiential learning through field work	01
	Total:	30

Recommended Books:

1. HTML & CSS: The Complete Reference, Fifth Edition: by Thomas Powell
2. Web designing in NutShell (Desktop Quick Reference) by Jennifer Niederst Publication: O'Reilly publication
3. Head First HTML and CSS Book by Elisabeth Robson and Eric Freeman

Reference Links:

1. <https://www.w3schools.com/html/>
2. <https://www.geeksforgeeks.org/html-tutorial/>
3. <https://www.javatpoint.com/css-tutorial>

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Course Name: F.Y.B.B.A (CA) (AI-DS)

Course Code: 24BaBbcU1302

Subject Name: Lab Course on 24BaBbcU1301

**Semester: I
Credit: 2**

Prerequisites:

1. Basic knowledge of computers and operating systems
2. Familiarity with using web browsers (Chrome, Edge, etc.)
3. Understanding of basic internet concepts (websites, URLs, hyperlinks)
4. Basic typing and file handling skills (create, save, open files)
5. Fundamental knowledge of any text editor (Notepad / VS Code recommended)
6. Logical thinking and creativity for designing web pages.

Course Objective:

1. To learn the basic and advanced knowledge of web designing
2. Creation of static web pages with clarity using HTML and CSS web technologies.

Course Outcome:

1. On completion of the course students will be able to understand fundamentals and advanced concepts of HTML and CSS like static web technologies.
2. With a fool proof process for creating the best web pages and website design.
3. Students will able to enhance the look and feel of web pages Using CSS

Sr. No.	Practical Work / Experiments	Total Practicals
1	HTML Basics & Structure	3
2	Text Formatting in HTML	3
3	Lists in HTML	2
4	Fonts & Marquee Effects	2
5	Hyperlinks & Navigation	3
6	Images & Multimedia	3
7	Tables in HTML	3
8	Forms in HTML	4
9	Frames & Framesets	2
10	Introduction to CSS	2
11	Applying CSS to Web Pages	3
	Total Hours	30

Reference Books:

1. HTML and CSS: The Modern Web Development – by RJ Raawat
2. Internet and Web Designing – by Raj Kamal Publications

Web links:

1. <https://www.w3schools.com/html>
2. <https://www.geeksforgeeks.org/html>

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First Year of B.B.A. (CA) (AI-DS)
Course Code: 24BaBbcU1401
Course Name: Office Administration I (Microsoft word)

Teaching Scheme: Theory: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Objectives of the Course:

1. To give basic information about the basic editing functions, formatting text.
2. To give knowledge about paragraphs, tables, lists, and pages
3. To familiarize students with the use of navigating the Word Ribbon Interface.
4. To familiarize students with the use of inserting graphics, pictures, and table of contents, Drop Cap.

Course Outcome

CO1. Performing basic editing functions, formatting text, copy and moving objects and text.

CO2. Learning the formatting skills on paragraphs, tables, lists, and pages.

CO3. Knowledge on navigating the Word Ribbon Interface.

CO4. Understanding the process of inserting graphics, pictures, and table of contents, Drop Cap.

Exercise 1: Understanding and learning MS Word Menus and Sub menus.

Exercise2: Understanding and using formatting techniques like font, font size, style, font effect.

Exercise 3: Understanding and using standard tool bar to apply Page Layout alignments, indentation, line spacing.

Exercise 4: Understanding and using border, watermark, header, footer etc.

Exercise 5: Understanding and using Insert menu inserting Equation, Symbols.

Exercise 6: Understanding and using Insert menu create mark sheet, data in tabular format.

Exercise 7: Understanding and using formatting techniques for table using built in table formats for formatting.

Exercise 8: Understanding and Applying different types of Bullets.

Exercise 9: Understanding and Applying picture and Clip Art, Smart Art, Charts

Exercise 10: Understanding and executing Creating a Professional Visiting Card.

Exercise 11: Understanding and executing mail merge prepare different invitation letters like birthday party, wedding invitation.

Progressive Education Society's
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First Year of B.B.A. (CA) (AI-DS)

Course Code: 24BaCopU1601

Course Name: Business Mathematics

Teaching Scheme: TH: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem:30 Marks

Prerequisites:

Solid foundation in basic arithmetic (fractions, decimals, percentages, ratios) and foundational algebra, including linear equations and inequalities

Course Objectives:

1. Apply the most widely used mathematical techniques in decision making.
2. Apply mathematics to technical problems in business management.
3. Appreciate the value of mathematical reasoning and analysis in daily life situation.
4. Realize the Importance of certain mathematical techniques in getting the best possible solution to a problem involving limited resources.

Course Outcomes:

1. Distinguish between different mathematical techniques and applications.
2. Translate a problem into a simple mathematical model to allow easier understanding and to aid problem solving.
3. Employ appropriate mathematical tools to solve problems.

Sr. No.	Chapter	Lectures
Chapter 1	Ratio, Proportion and Percentage	6
	1.1 Ratio- Definition, Continued Ratio, Inverse Ratio 1.2 Proportion, Continued Proportion, Direct Proportion, Inverse Proportion 1.3 Percentage- Meaning and Computations of Percentages	
Chapter 2	Matrices And Determinants (up to order 3 only)	8
	2.1 Multivariable data, Definition of a Matrix, Types of Matrices, Algebra of Matrices 2.2 Determinants 2.3 Adjoint of a Matrix, Inverse of a Matrix via adjoint Matrix 2.4 Homogeneous System of Linear equations, Condition for Uniqueness for the homogeneous System	

Chapter 3	Profit and Loss	6
	3.1 Terms and Formulae, Trade discount, Cash discount, Problems involving cost price, selling price, Trade discount and cash discount. 3.2 Introduction to Commission and brokerage, Problems on commission and brokerage	
Chapter 4	Interest and Annuity	10
	4.1 Simple interest, Compound interest, Equated monthly Installments (EMI) by interest of reducing balance and flat interest methods and problems. 4.2 Ordinary annuity, sinker fund, annuity due, present value and future value of annuity. 4.3 Shares and Mutual Funds:- Concepts of Shares, face value, market value, dividend, brokerage, equity shares, preferential shares, bonus shares, examples and problems, Concept of Mutual Funds, Change in Net Asset Value (NAV), Systematic Investment Plan (SIP), Examples and Problems.	
	Total Lectures	30

Reference Books:

1. Practical Business Mathematics by S. A. Bari, New Literature Publishing Company, New Delhi, India.
2. Mathematics for Commerce by K. Selvakumar, Notion Press, Chennai, India.
3. Business Mathematics with Applications by Dinesh Khattar and S. R. Arora, S. Chand Publishing, New Delhi, India.
4. Fundamentals of Business Mathematics by M. K. Bhowal, Asian Books Pvt. Ltd, New Delhi.
5. Business Mathematics by D.C. Sancheti and V. K. Kapoor, Sultan Chand and Sons.
6. Business Mathematics by J. K. Singh, Himalaya Publishing House.

Progressive Education Society's
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First Year of B.B.A. (CA) (AI-DS)
Course Code: 24BaBbcU2101
Course Name: Advanced C programming Theory (Subject- 1)

Teaching Scheme: TH: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem:30 Marks

Prerequisite Courses:

- Basic knowledge of C language.

Course Objectives:

1. To learn about concepts of functions, pointers.
2. To understand structures, unions.
3. To acquire knowledge about string, use of strings.
4. To know about preprocessors and the basic concepts of file handling.

Course Outcomes:

On completion of the course, student will be able to–

1. Apply code reusability with functions and pointers.
2. Understand the basics of structures and unions.
3. Understand and apply concepts of file handling mechanisms
4. Understand the uses of pre-processors .

Course Contents

Unit 1	Chapter 1.Functions	No.of Lectures
	1.1 Functions 1.2 Types of functions 1.3 Call by value and call by reference 1.4 Recursion 1.5 Standard library functions 1.6 Implementations without standard library functions. 1.7 Arrays and functions	8
Unit 2	Chapter 2.Pointers	No.of Lectures
	2.1 Definition	

	2.2 Declaration 2.3 Initialization 2.4 Indirection operator and address of operator 2.5 Pointer arithmetic 2.6 Dynamic memory allocation 2.7 Functions and pointers	6
Unit 3	Chapter 3.Structures	No.of Lectures
	3.1. Concept of structure, definition and initialization, use of typedef. 3.2. Accessing structure members. 3.3. Nested Structures 3.4. Arrays of Structures 3.5. Structures and functions- Passing each member of structure as a separate argument, Passing structure by value / address. 3.6. Pointers and structures. 3.7. Concept of Union, declaration, definition ,accessing union members. 3.8. Difference between structures and union	9
Unit 4	Chapter 4 File Handling	No.of Lectures
	4.1. Introduction to streams. 4.2. Types of files. 4.3. Operations on text files. 4.4. Standard library input/output functions. 4.5. Random access to files. 4.6. Command line argument	5
Unit 5	Chapter 5.Preprocessors	No.of Lectures
	5.1. Role of Preprocessor 5.2. Format of preprocessor directive 5.3. File inclusion directives (#include) 5.4. Macro substitution directive 5.5. Macros versus functions	2

Recommended Books:

C Language:

1. Let us C -Yashwant Kanetkar, BPB publication.
2. Programming in C - Balaguruswamy, Tata McGraw-Hill publication.
3. Pointers in C - Yashwant Kanetkar, BPB publication.

Recommended Online Websites:

1. **<https://www.javatpoint.com/c-programming-language-tutorial>**
2. **<https://www.geeksforgeeks.org/c-programming-language>**

Progressive Education Society's
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Course Contents

Course Name: F. Y. B.B.A. (CA) (AI-DS)
Subject Code: 24BaBbcU2102
Subject Name: Lab Course on 24BaBbcU2101

Semester: II
credits: 2

Prerequisites:

1. This course is technical in nature and would require the student to be comfortable with coding. To prepare for the class all students MUST HAVE:
 - Understanding of basic programming language like HTML, CSS, JavaScript.
 - Basic knowledge of database languages, web server knowledge.

Course Objectives :-

1. To learn about concepts of functions, pointers.
2. To understand structures, file handling concepts.
3. To know about pre-processors.

Course Outcomes:

On completion of the course, student will be able to–

1. Apply code reusability with functions and pointers
2. Understand the basics of file handling mechanisms
3. Understand the uses of pre-processors

SR NO	Exercise	Total
1.	FUNCTIONS	10
2.	POINTERS	10
3.	STRINGS	11
4.	STRUCTURES	9
5.	FILE HANDLING	9
6.	COMMAND LINE ARGUMENTS AND PREPROCESSORS	11
	Total:	60 Hours

Recommended Books:

1. Let us C -Yashwant Kanetkar, BPB publication.
2. Programming in C - Balguruswamy, Tata McGraw-Hill publication.
3. Pointers in C - Yashwant Kanetkar, BPB publication.

Web Links:

1. <https://www.w3schools.com>
2. www.wrox.com
3. <https://www.geeksforgeeks.org>
4. <https://www.tutorialspoint.com/>

Progressive Education Society's
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First Year of B.B.A. (CA) (AI-DS)
Course Code: 24BaBbcU2203 Course Name: Python Programming (Subject- 2)

Teaching Scheme: TH: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem:30 Marks

Prerequisites:

1. Basic knowledge of computers, operating systems, and fundamental programming concepts is desirable. Logical thinking and problem-solving skills will be helpful.
2. Experience with a high level language C/C++ is suggested.
3. Prior knowledge of a scripting language Perl, UNIX/Linux shells and Object-Oriented concepts is helpful but not mandatory

Course Objectives

After completing this course, students will be able :

1. To introduce the fundamentals of Python programming including syntax, data types, operators, and control structures.
2. To develop problem-solving skills using conditional statements, loops, and functions.
3. To understand Python data structures such as strings, lists, tuples, and dictionaries.
4. To learn modular programming using built-in modules, user-defined modules, and packages.
5. To understand Object Oriented Programming concepts such as classes, objects, inheritance, and relationships.
6. To develop skills in handling runtime errors using Python exception handling mechanisms.
7. To introduce GUI programming concepts using Tkinter and create simple graphical applications.
8. To enable students to write structured, modular, and reusable Python programs.

Course Outcomes

After successful completion of this course, students will be able to:

- CO1: Understand basic Python programming concepts including variables, operators, control statements, and syntax.
- CO2: Apply decision making, looping, and functions to solve computational problems.
- CO3: Use Python data structures (list, tuple, dictionary, and string) effectively in programs.
- CO4: Develop modular programs using modules and packages.
- CO5: Apply Object Oriented Programming concepts such as classes, objects, and inheritance in Python applications.
- CO6: Implement exception handling techniques to develop robust programs.
- CO7: Design simple GUI applications using Tkinter widgets.
- CO8: Develop complete Python applications integrating programming concepts learned in the course.

Unit	Details	Lectures
I	Unit 1: Introduction to Python 1.1 History, feature of Python, setting up path, working with python Interpreter, basic syntax, variable and data types, operators 1.2 Conditional statements-If, If-Else, nested if-else, Examples. 1.3 Looping-For,While,Nested loops, Examples 1.4 Control Statements-Break, Continue, Pass. 1.5 String Manipulation-Accessing String, Basic Operations, String Slices,Function and Methods, Examples. 1.6 Lists-Introduction, accessing list, operations, working with lists, function & methods. 1.7 Tuple-Introduction, Accessing tuples, operations working, function & methods,Examples. 1.8 Dictionaries-Introduction, Accessing values in dictionaries, working withdictionaries, properties, function, Examples. 1.9 Functions-Defining a function, calling a function, types of function – Simple function , recursive function, Anonymus function, generator function function arguments, global & local variable, Examples.	6
II	Unit 2: Modules and Packages 2.1 Built in Modules 2.1.1 Importing modules in python program 2.1.2 Working with Random Modules. E.g. - built-ins, time, date time, calendar, sys, etc 2.2 User Defined functions 2.2.1 Structure of Python Modules 2.3 Packages 2.3.1 Predefined packages 2.3.2 User defined Packages	6
III	Unit 3: Classes ,Objects and Inheritance 3.1 Classes and Objects 3.1.1 Classes as User Defined Data Type 3.1.2 Objects as Instances of Classes 3.1.3 Creating Class and Objects 3.1.4 Creating Objects By Passing Values 3.1.5 Variables & Methods in a Class 3.2 Inheritance 3.2.1 Single Inheritance 3.2.2 Multilevel Inheritance 3.2.3 Multiple Inheritance 3.2.4 Hierarchical Inheritance 3.2.6 IS-A Relationship and HAS-A Relationship	6
IV	Unit 4: Exception Handling 4.1 Python Exception 4.2 Common Exception 4.3 Exception handling in Python (try-except-else) 4.4 The except statement with no exception 4.5 Multiple Exception 4.6 The try-finally clause 4.7 Custom Exception and assert statement	6
V	Unit 5: GUI Programming 5.1 Introduction 5.2 Tkinter widgets - Label ,Button, Entry, Text, Frame	6

Reference Books:

1. Mark Lutz, **Learning Python**, 4th Edition, O'Reilly Media.
2. John M. Zelle, **Python Programming: An Introduction to Computer Science**, 3rd Edition.
3. Mark Lutz, **Programming Python**, 4th Edition, O'Reilly Media.
4. Mark Pilgrim, **Dive Into Python**.

Web References:

1. <https://docs.python.org/3/tutorial/index.html>
2. <https://www.w3schools.com/python/>
3. <https://www.geeksforgeeks.org/python/python-programming-language-tutorial/>
4. <https://www.tutorialspoint.com/python/index.htm>

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F.Y.B.B.A.(C.A.) (AI-DS)

Semester – II

Subject: Lab Course on 24BaBbcU2203

Subject Code: 24BaBbcU2204

Credits:02

Total No. of Lectures: 60

Prerequisite:

Students should have basic knowledge of:

1. Basic knowledge of fundamentals of computers.
2. Basic programming concepts such as algorithms and flowcharts.
3. Basic logical thinking and problem-solving skills.
4. Basic knowledge of any programming language (optional but helpful).

Course Objectives:

The main objectives of this course are,

1. To introduce students to basic Python programming concepts.
2. To develop problem-solving skills using Python programming.
3. To understand Python data structures such as strings, lists, tuples, sets, and dictionaries.
4. To learn modular programming using functions, modules, and packages.
5. To understand object-oriented programming concepts like classes, objects, and inheritance.
6. To implement exception handling techniques for error management.
7. To develop GUI-based applications using Tkinter.
8. To enable students to develop small real-world Python applications.

Course Outcomes:

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

- CO1: Understand basic Python syntax, variables, operators and control structures.
- CO2: Apply Python data structures such as strings, lists, tuples, sets and dictionaries in problem solving.
- CO3: Develop modular programs using functions, modules and packages.
- CO4: Implement object-oriented programming concepts such as classes, objects and inheritance.
- CO5: Demonstrate exception handling techniques for handling runtime errors.
- CO6: Design GUI applications using Tkinter widgets like Label, Button, Entry, Frame and Menu.
- CO7: Analyze program execution and debug errors effectively.
- CO8: Develop Python applications by integrating data structures, OOP concepts and GUI programming.

Sr. No.	Assignment Name	No. of hours
1.	Introduction to Basic Python	2
2.	Working with string and list	10
3.	Working with Tuples , Sets and Dictionaries	10
4.	Working with Functions, Modules and Packages	8
5.	Python Classes and Objects	8
6.	Inheritance	10
8.	Python GUI Programming using Tkinter	12
	Total	60

Reference Books:

1. Mark Lutz, **Learning Python**, 4th Edition, O'Reilly Media.
2. John M. Zelle, **Python Programming: An Introduction to Computer Science**, 3rd Edition.
3. Mark Lutz, **Programming Python**, 4th Edition, O'Reilly Media.
4. Mark Pilgrim, **Dive Into Python**.

Web References:

1. <https://docs.python.org/3/tutorial/index.html>
2. <https://www.w3schools.com/python/>
3. <https://www.geeksforgeeks.org/python/python-programming-language-tutorial/>
4. <https://www.tutorialspoint.com/python/index.htm>

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First Year of B.B.A. (CA) (AI-DS)

Course Code: 24BaBbcU2301

Course Name: Computer Technology- II (Web Design-II) (Subject- 3)

Teaching Scheme: 2 Hours/Week

Credit: 02

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Course Objective:

1. The objective of JavaScript is to enable dynamic and interactive behavior on web pages.
2. Empowering developers to create engaging user experiences and build powerful web applications.
3. Simplify Front-end Development - Bootstrap aims to simplify front-end development by providing a framework with ready-to-use components, grids, and styles, allowing developers to quickly build responsive and visually appealing websites.
4. Promote Consistency and Efficiency - The objective of Bootstrap is to promote consistency and efficiency in web development projects by offering a standardized set of tools and design elements, streamlining the process of creating modern and user-friendly web interfaces.

Course Outcomes: On completion of the course students will be able to

1	Front-end Web Development - JavaScript powers interactive and dynamic user interfaces, enhancing user experience on websites.
2	Server-side Development - JavaScript enables scalable and efficient server-side applications, fostering real-time applications and microservices
3	Responsive Web Design - Bootstrap facilitates the creation of responsive websites that adapt seamlessly to various screen sizes and devices, enhancing user experience across platforms.
4	Rapid Development - With pre-designed CSS and JavaScript components, Bootstrap allows developers to quickly build stylish and functional web interfaces, saving time and effort in the development process.

Chapters	Name of Chapters	lectures
Chapter 1	Fundamentals of JavaScript	6
	1.1 Introduction & Benefits 1.2 variables 1.3 Datatypes, comments, 1.4 Operators, 1.5 Decision Making Statements, 1.6 Loops, 1.7 Functions, 1.8 Events	
Chapter 2	Object-Oriented Programming and DOM	6
	2.1 OOP's Concepts 2.2 Dom 2.3 Validations (Types)	
Chapter 3	Advanced JavaScript Concepts	6
	3.1 Arrays 3.1.1. 1D Array 3.1.2. Different Array Methods. 3.2 Cookies 3.2.1. Set Cookies. 3.2.2. Get Cookies. 3.3 Exception Handling	
Chapter 4	Introduction to Bootstrap	6
	4.1 Introduction 4.2 Grids, Typography 4.3 table, Image, 4.4 Alerts, Wells, Button,	
Chapter 5	Advanced Bootstrap Components	6
	5.1 Progress bar 5.2 Panel, Dropdown 5.3 Collapse, Form	

Reference Books:

1. Web Enabled Commercial Application Development Using – Html, Javascript, Dhtml and php – van Bayross
Related Online Content:

1. <https://www.javatpoint.com/>
2. <https://www.w3schools.com/>
3. <https://www.geeksforgeeks.org/>

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Course Content

F.Y.B.B.A. (C.A.) (AI-DS)

Course Code:24BaBbcU2302

Course Name: Lab Course on 24BaBbcU2301

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Total Hours: 60

Total Credits: 02

Prerequisite: Students should know the fundamental structure and styling of the web, having a solid foundation in HTML and CSS.

Course Objectives:

1. To know about the JavaScript and Bootstrap.
2. To understand how to use Event handling and enhanced UI designing in day to day applications.
3. To develop Dynamic web applications.

Course Outcomes:

1. Students will know the JavaScript Programming & Bootstrap.
2. Students will know the concepts of event handling and data validations.
3. Students will develop the project by using HTML, CSS, JavaScript and Bootstrap.
4. Students will know the JavaScript and Bootstrap.

JavaScript:

Sr. No.	Topics	Number of Hours
1	JavaScript Introduction & Basics. (Variables, Data Types, Operators & Comments)	04
2	Decision Making & Looping Statements	04
3	Arrays & Functions	04
4	Form Validation	04
5	Cookies	04
6	Event Handling.	04
7	Exception Handling in JavaScript.	04
8	OOP's Features.	04
9	DOM (Document Object Model)	04

Bootstrap:

10	Introduction to Bootstrap & Basics.	04
11	Bootstrap Grids & Typography.	04
12	Bootstrap Tables & Images	04
13	Bootstrap Alerts and Buttons	04
14	Bootstrap Glyphicons, Progress Bars.	04
15	Bootstrap Panel, Dropdowns & Collapse.	04
	Total	60

Reference Books:

1. The Definitive Guide (7th Edition), by David Flanagan, ISBN-13: 978-1491952023
2. JavaScript: The Complete Reference (3rd Edition), by Thomas A. Powell and Fritz Schneider, ISBN-13: 978-0071741200 .
3. Head First JavaScript Programming, 2nd Edition, by Eric Freeman, Elisabeth Robson, ISBN-13: 978-1098147945, ISBN-10: 1098147944
4. Ultimate Bootstrap for Responsive Web Design by Amit Diwan (ISBN: 9789348107251) and Bootstrap Essentials by Snig Bhaumik (ISBN: 9781784395179).

Web Links:

1. <https://www.geeksforgeeks.org/javascript/javascript-tutorial/>
2. <https://www.w3schools.com/js/>
3. <https://www.codecademy.com/learn/introduction-to-javascript>
4. <https://www.w3schools.com/bootstrap5/>
5. <https://www.tutorialspoint.com/bootstrap/index.htm>

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First Year of B.B.A. (CA) (AI-DS)
Course Code: 24BaBbcU2401 Course Name: Office Administration II (Microsoft Powerpoint)

Teaching Scheme: TH:2 Hours/Week

Credit :02

Examination Scheme: CIA : 20 Marks

End-Sem:30 Marks

Course Objectives:

1. To Understand how to use powerpoint features to create a better presentation.
2. To Understand appropriate use of transition effects, slide layouts, design in presentation.
3. To Understand use of text ,graphics, pictures ,animation and templates in presentation.
4. To Understand Preparing Slideshow

Course Outcomes:

After completing this course, student will be able to:

- CO1. Learning the utilities of Applying design.
CO2. Demonstrate the mechanics and animation, timing to presentation
CO3. Working knowledge of using templates to create a variety of visual effects.
CO4. Understand the Create an effective presentation.

Assignment No.	Title of Assignment	No of practicals
1	Introduction to powerpoint	2
2	Creating first presentation - Select slides in presentation (new,reuse,remove,duplicate slides) - Apply slide layouts,change layouts,adding sections.	2
3	Editing objects in presentation - Font formatting (size,color,effects) to text - Changing font sizes, Clear formatting, Highlighting text and Changing text color - Bullets numbering, List levels, Line spacing, Alignment and Justify - Add or Remove Columns, Text Direction, Align Text, and Convert to Smart Art - Drawing Shapes - Text, Circles, Squares and Arrows	4
4	Adding objects to slides - Use of Insert menu - Insert table,clip art,images,pictures ,charts - Insert media,link,symbols	4

	• Formating pictures	
5	Designing Slides • Use of design menu • Selecting themes for slide • Format background	4
6	Slides Transitions • Use of transition menu • Transition from one Slide to Another • Transtition effects to content • Timing Slides with Sounds and Duration	4
7	Applying animation • Use of Animation menu • Different Type of Animation • Motion Path Animation for Shapes • Animation of Pictures and Videos	4
8	Preparing Slideshow • Use of Slide Show Menu • Starting the Slide Show • Setting Up Slide Show • Rehearse Timings (Set Up Slide Show) • Play Narrations, Use Timings, Show Media Controls (Slide Show)	2
9	Applying Templates • Apply a template to presentation • Create and save a powerpoint template	4

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First Year of B.B.A. (C A) (AI-DS)
Course Code: 24BaCopU2601 Course Name: Discrete Mathematics and Graph Theory

Teaching Scheme: TH: 2 Hours/Week

Credit :02

Examination Scheme: CIA : 20 Marks

End-Sem:30 Marks

Prerequisites:

High school-level algebra, proficiency in basic sets, and logical reasoning skills

Course Objectives:

1. To introduce the concept of Mathematical Logic
2. To introduce the concept of concepts of sets, relation and functions
3. To use Graph theory for solving problems

Course Outcomes (CO):

CO1: Ability for constructing mathematical logic to solve problems

CO2: Apply principles of sets operations, relations and functions.

CO3: Apply fundamental graph concepts to real-world network problems

CO4: Ability to understand diverse relevant topics in discrete mathematics and computation theory with an emphasis on their applicability as mathematical tools in computer science.

Sr. No.	Topic	Lectures
Chapter 1	Mathematical Logic	9
	1.1 Propositional Calculus: Statements and Notations, Connectives, Well Formed Formulas, Truth Tables, Tautologies, Equivalence of Formulas, Duality Law, Tautological Implications, Normal Forms, Theory of Inference for Statement Calculus 1.2 Predicate Calculus: Predicative Logic, Statement Functions, Variables and Quantifiers, Free and Bound Variables, Inference Theory for Predicate Calculus.	
Chapter 2	Set Theory	7
	2.1 Introduction 2.2 Sets and Their Representation 2.3 The Empty Set, Finite Sets, Equal Sets, Subsets, Super Sets, Proper Subsets, Power Set, Universal Set 2.4 Venn Diagrams 2.5 Set Operations - Union of Sets, Intersection of Sets, Difference of Sets, Complement of a Set, Laws of Algebra	

	of Sets 2.6 Finding Total Number of Elements in a Union of Sets	
Chapter 3	Relations and Functions	8
	3.1 Relations: Properties of Binary Relations, Relation Matrix and Digraph, Operations on Relations, Partition and Covering, Transitive Closure, Equivalence, Compatibility and Partial Ordering Relations, Hasse Diagrams 3.2 Functions: Bijective Functions, Composition of Functions, Inverse Functions, Permutation Functions, Recursive Functions, Lattice and its Properties.	
Chapter 4	Graph Theory	6
	3.1 Basic Concepts of Graphs, Sub graphs, 3.2 Matrix Representation of Graphs: Adjacency Matrices, Incidence Matrices, Isomorphic Graphs, Paths and Circuits, Eulerian and Hamiltonian Graphs, Multigraphs, 3.3 Planar Graphs, Euler's Formula, Graph Colouring and Covering, Chromatic Number, Spanning Trees	
	Total Lectures	30

REFERENCE BOOKS:

1. Discrete Mathematical Structures with Applications to Computer Science, J. P. Tremblay and P. Manohar, Tata McGraw Hill.
2. Elements of Discrete Mathematics-A Computer Oriented Approach, C. L. Liu and D. P. Mohapatra, 3rd Edition, Tata McGraw Hill.
3. Discrete Mathematics and its Applications with Combinatorics and Graph Theory, K. H. Rosen, 7th Edition, Tata McGraw Hill.