



**Deccan Education Society's
Brihan Maharashtra College of Commerce (AUTONOMOUS)
845, Shivajinagar, Pune-411004**

Programme- F.Y.BBA(CA)

Subject code- 4101

Semester - I

Credit – 3

Subject title - **Business Communication and Soft Skills** (2022 Pattern)

Course Objectives-

1. To understand the importance of and develop Effective Communication
2. To consciously work towards changing one's personality towards a positive goal oriented person
3. To understand the Corporate Culture and mold accordingly to be a successful performer.

Course Outcomes-

On completion of this course, students will be able to -

- CO1 Understand interpersonal skills.
- CO2 Enhance oral communication skills confidence.
- CO3 Write effectively for business (E-mails, Resumes, Letters).
- CO4 Cope with stressful situations.
- CO5 Use soft skills in business.
- CO6 Evaluate self-worth and remove self-doubt.

Syllabus:

Unit No.	Topics	No. of lectures
1	Basics of communication	7
	a- Importance of effective communication b- Interpersonal communication c- Verbal and Non-verbal communication d- Listening Skills	
2	Business communication	8
	a- Letter Writing b- Telephonic communication, Videoconferencing, Skype c- Written communication (email and resume building)	
3	Public speaking skills	8
	a- Preparing a good speech b- Commandments of good speaking c- Effective use of audio-visual aids d- Presentation skills	
4	Personality Development	8
	a- Self-awareness and personality development b- Positive attitude and confidence building c- Time and stress management d- Goal setting and Motivation	
5	Soft Skills in Business	7
	a- Range of Soft Skills b- Soft skills in service sector c- Soft skills in Management d- Team building and leadership skills e- Dressing and grooming f- Social networking skills	
6	Corporate Communication	7
	a- Interview skills (Types) b- Group Discussion c- Corporate Grapevine d- Communication in Crisis	



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Teaching Methodology/Pedagogy-

Lectures, Guest Lecture, Demonstration and Role play

Case study for Non-Verbal Communication. Assignment for letter writing

Demonstration of Skype, Guest Lecture for Resume writing, Presentations in Class, Workshop by a professional on Good Presentation Skills, Audio visual clips, SWOT Analysis via games and activities, Role Plays, Case Studies.

Suggested Reference Material- (in APA format only)

1. Mamta Puri- Effective Communication Skills,
2. Herta Murphy- Effective Business Communication,
3. Sanjay Kumar & Pushpa Lata- Communication Skills , P.D. Chaturvedi- Business Communication Cases and Applications, R.C. Sharma Business Correspondence & Report Writing, Barun Mitra- Personality Development
4. Elizabeth Hurlock- Personality Development, George Mutuale- Personality Development, Dipali Biswas- Enhancing Soft Skills, R K Madhukar- Business Communication. Business Communication for Managers-Payal Mehra,
5. IUP Journal of Soft Skills.



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Programme- F.Y.BBA(CA)

Subject code- 4102 **Semester - I** **Credit – 3**

Subject title - Business Accounting (2022 Pattern)

Course Objectives-

1. To enable students to understand various basic concepts and accounting environment
2. To enable students to understand accounting cycle, recording of business transaction and understand how to calculate profit or loss of the enterprise
3. To understand how to depreciate the fixed asset.
4. To acquaint students about the computerised accounting environment.

Course Outcomes-

- CO1. Understand the basics of book keeping, accountancy.
- CO2. Comprehend in depth understanding of rules in accounting.
- CO3. Prepare financial statements of a sole proprietor.
- CO4. Acquaint students about computerised accounting.
- CO5. Examine methods of depreciation in financial statements.
- CO6. Explain accounting environment with accounting standards.

Syllabus:

UNIT NO.	TOPICS	NO. OF LECTURES
1	Overview Of Business Accounting: Introduction, Book-keeping and Accountancy, Development of Accounting Methods, system, concepts and conventions, principles of Accounting and Indian GAAP	4
2	Recording of business Transactions in primary and secondary book Accounting Documents, Accounting process, Classification of Accounts, Golden Rules of Accounting, Application of Rules in Deciding Debit and Credit, Examples Journal: Meaning, features, Advantages and limitations, casting, steps, Illustrations Subsidiary books (including cash book): meaning, need, types of subsidiary book, illustration Ledger: Meaning, format, posting, Balancing of Accounts	10
3	Preparing of accounting statements Trial Balance: Introduction, meaning, purpose, preparation of Trial balance, Illustration Final Account of Sole proprietor: Introduction, Trading A/C, Profit & Loss A/C, Balance sheet, Accounting Treatment of Adjustments in Final Account	10
4	Computerized Accounting Environment Accounting Software, importance of accounting software, Tally, Features of Tally	2
5	Bills of exchange Introduction, Meaning of bills of exchange, Features, Advantages, Parties, Acceptance, Types of Bills of exchange, Bills receivable, Bills payable, honour and dishonour of bill, endorsement, discounting, collection, retirement, renewal, format of bill, cases	5
6	Depreciation Methods of charging depreciation - Written Down Value, Straight line method, production method, Block method, Illustrations	10
7	Accounting environment Indian Accounting Standard AS-1, AS-2, AS 6, International Accounting Standard (meaning, objective) IFRS (meaning, objective)	4

Teaching Methodology/Pedagogy-

Lecture method, Problem solving, Case study method

Suggested Reference Material- (in APA format only)



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1. Accountingcoach.com
2. Maharashtra state board XI std book
3. Romancing with balance sheet by Dr. Anil Lamba

Programme- F.Y. BBA CA

Subject code- 4103

Semester- I

Credits- 3

Subject title- Business Mathematics (2022 Pattern)

Course Objectives-

1. To understand the concept and application of Elementary Financial Mathematics
2. To understand the concept and application of Elementary Discrete mathematics.
3. To understand the concept and application of Permutation and Combination and application of Probability.

Course Outcomes

On completion of the course, students would be able to

- CO1. Recognize the mathematical tools used in business and computing
CO2. Understand the use of tools in financial and discrete mathematics, counting and probability.
CO3. Demonstrate an ability to compute values using financial mathematics.
CO4. Solve problems using various discrete mathematical concepts.
CO5. Count using permutation and combination.
CO6. Estimate the probability of events in given situations.

Syllabus-

UNIT NO.	TOPIC	NO. OF LECTURES
1	Elementary Financial Mathematics 1.1 Ratio, Proportion and Percentage 1.2 Profit and loss, Commission and Brokerage 1.3 Interest and annuity	10
2	Basic Discrete Mathematics 2.1 Logic – truth tables and Boolean Algebra 2.2 Ordered sets , Algebra of vectors 2D 2.3 Algorithms – largest, shortest and bubblesort	10
3	Basics of Permutation and Combination 3.1 Concept of factorial, principles of counting, definition of permutation and combination 3.2 Permutation of dissimilar objects taken few at a time with or without repetition, circular permutations. 3.3 Combination problems 3.4 Relation between Permutation and Combination and their applications	12
4	Probability 4.1 Random experiments, All possible outcomes (Sample Space), Events, Algebra of events. 4.2 Classical definition of probability, Addition theorem of probability (without proof), Independence of events. 4.3 Conditional Probability and Bayes' Theorem, Pigeonhole Principle Problems.	13

Teaching Methodology-

Lecture & Problem Solving, Presentation, Assignments and Test, Worksheets.



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Suggested Reference Material-

1. Business Mathematics by Bari - New Literature Publishing Company, Mumbai
2. Business Mathematics by Padmalochan Hazarika – Sutanchand & Sons- Delhi
3. Business Mathematics theory and applications - J. K. Sharma - Dreamtech Books India
4. Business Mathematics by Qazi Zameeruddin, V K Khanna, S K Bhambri - Vikas Publishing House
5. Business Mathematics by D C Sancheti and V K Kapoor – Sutanchand & Sons- Delhi
6. A textbook on discrete mathematics by Swapan Kumar Sarkar - Sutanchand & Sons- Delhi
7. A textbook on discrete mathematics by C.V Shastri, Rakesh Nayak - Dreamtech Books India
8. Business Mathematics by Dr. Amarnath Dikshit and Dr. Jinendra Jain
9. Business Mathematics by Kashyap and Chirag Trivedi



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Programme- F.Y.BBA(CA)

Subject code- 4104

Semester - I

Credit - 3

Subject title - Data Base Management System (2022 Pattern) Objectives:

1. To understand utility of Database Management System
2. Normalization of Table
3. Creation of Table, Insertion of records, Formulate the query
4. Aggregate functions

Course Outcome

CO 1: Know the basics of Database

CO 2: Understand the functions of database

CO3: Apply database concepts in context of computerized system

CO 4: Deduce the various database components and SQL queries to extract data

CO 5: Test various DBMS queries

CO 6: Solve DBMS example using sample data

Syllabus-

Unit No.	Topics	No. of lectures
1	1.1 Basics of DBMS- Applications, Advantage, Disadvantages, Architecture	4
2	2.1 Entity-Relationship model : Basic concepts, Design process, 2.2 Design issues, E-R diagrams, weak entity sets 2.3 extended E-R features – generalization, specialization 2.4 aggregation, reduction to E-R database schema	6
3	3.1 Relational Database design : Functional Dependency – definition, trivial and non-trivial FD, closure of FD set, closure of attributes, irreducible set of FD, 3.2 Normalization – 1NF, 2NF, 3NF, Decomposition using FD- dependency preservation, BCNF, Multivalued dependency, 4NF, Join dependency and 5NF	6
4	4.1 SQL Concepts : Basics of SQL, DDL,DML,DCL 4.2 commands in detail	14

	structure - creation, alteration, defining constraints – Primary key, foreign key, unique, not null, check, IN operator	
5	5.1 Functions - aggregate functions, Built-in functions – numeric, date, string functions 5.2 set operations, sub-queries, correlated sub-queries 5.3 Use of group by, having, order by, join and its types, Exist, Any, All , view and its types 5.4 transaction control commands – Commit, Rollback, Savepoint	15

Teaching Methodology –

1. Classroom Teaching
2. Lab Sessions
3. Online Material
4. Online Assignment



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5. Online Submission

Suggested Reference Material – 1. DBMS – Mr. Atul Kahate

2. DBMS – Mr. Korth

3. Structured query language - Ivan Bayross

Programme: F.Y.BBA(CA)

Subject code – 4105

Semester – I

Credit – 3

Subject Title – **Introduction to Python Programming (2022 Pattern) Course Objectives:**

- To introduce various concepts of programming to the students learning Python.
- Students should be able to use Python programming language to solve simple problems.

• Course Outcome:

On completion of this course, students will be able to -

CO1 Understand the concept of coding

CO2 Develop logical skills

CO3 Comprehend the datatypes used in Python programming

CO4 Analyse the problems to develop program using different data types

CO5 Evaluate applicability of different types of data structures

CO6 Create programs using various data types

Syllabus:

Unit No.	Contents	No. of Lectures
1	Introduction to Python Programming <ul style="list-style-type: none">• Algorithms for basic problems• Features of Python• Applications of Python• Writing and executing Python program □	05
2	Basic Python	12

	<ul style="list-style-type: none">• Python identifiers and reserved words• Lines and indentation, multi-line statements• Comments• Input / Output with print and input functions• Standard data types – basic, none, Boolean (true and false), number• Python strings• Python basic operators (arithmetic, comparison, assignment, logical)• Python membership operators (in and not in)• Operator precedence• Control statements, Python loops, loop control statements (break, continue, pass)	
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3	<p>Python Strings</p> <ul style="list-style-type: none"> • Concept • String special operations • Single quotes, Double quotes, Triple quotes • Built-in string methods • Python Lists – concept, creating and accessing elements, updating and deleting lists, basic list operations, reverse • Indexing, Slicing • Built-in list functions • Functional Programming tools – filter(), map() and reduce() • List comprehensions <p>Python tuples and sets</p> <ul style="list-style-type: none"> • Creating and deleting tuples • Accessing values in a tuple • Updating tuples, delete tuple elements • Basic tuple operations • Indexing, Slicing, built-in tuple functions • Sets – concept and operations <p>Python Dictionary</p> <ul style="list-style-type: none"> • Concept (mutable) • Creating and accessing values in a dictionary • Updating dictionary, delete dictionary elements • Properties of dictionary keys • Built-in dictionary functions and methods 	16
4	<p>Functions</p> <ul style="list-style-type: none"> • Defining a function (def) • Calling a function • Function arguments – Pass by value, Keyword arguments, Default arguments 	12
	<ul style="list-style-type: none"> <input type="checkbox"/> Scope of variable – basic rules <input type="checkbox"/> Variable number of Arguments <input type="checkbox"/> Anonymous functions <input type="checkbox"/> Recursion 	
Total		45

Teaching Methodology – Lecture, Presentation, Lab activity **Recommended Books:**

1. Core Python Programming by DR. R. Nageswara Rao
2. The Complete Reference by Martin.C. Brown
3. Python Programming by Reema Thareja



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Programme – F.Y.BBA(CA)

Subject code-4106

Semester – I

Credit – 4

Subject title - **Lab course on 4104(DBMS) and 4105(Introduction to Python)**
(2022 Pattern)

Objectives:

1. To study DBMS and Python Syntaxes & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember **DBMS** and **Python syntax**

CO2 Understand the given problem on DBMS and Python

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement CO6 Create programs.

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of DBMS and Python	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code.	5



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Programme – F.Y.BBA(CA)

Subject code – 4107

Semester – I

Credit – 1

Subject Title – Add on C programming Objectives:

- Students should be able to develop logical thinking for solving various problems.
- Students should be able to use this knowledge in developing programs. □ To learn basic programming elements using C language.

Course Outcome:

On completion of this course, students will be able to –

- CO 1 Understand Evolution, features and applications of C language
- CO 2 Comprehend basic programming elements- data types, keywords, operators, built-in functions
- CO 3 Implement arrays, functions through code
- CO 4 Analyze the given problem statements to develop program
- CO 5 Compare - loop control structures ,array and structure
- CO 6 Write programs to solve problems

Syllabus-

Unit No.	Topic	No. of Lectures.
1	Introduction to C language	4
	1.1.Features of C	
	1.2 Basic structure of C Program	
	1.3 Language fundamentals	
	1.3.1 Character set, tokens	
	1.3.2 Keywords and identifiers	
	Constants Integer, Floating Point, Character, String, Enumeration	
	1.3.3 Backslash characters / Escape sequences	
	1.3.4 Variables and data types	
	1.4 Operators	
	1.4.1 Types of operators - Arithmetic, Relational, Logical, Increment Decrement , Assignment, Conditional	
	1.4.2 Precedence and Associativity of operators	
	1.5 Console based I/O and built-in I/O functions.	
2	Decision Making and looping	4
	2.1 Introduction	
	2.2 Decision making structure	
	2.2.1 If statement	
	2.2.2 If-else statement	
	2.2.3 Nested if – else statement	
	2.2.4 Conditional operator	
	2.2.5 Switch statement	
	2.3 Loop control structures	
	2.3.1 while loop	
	2.3.2 Do-while loop	
	2.3.3 For loop	
3	Functions and pointers	2
	3.1 Introduction	



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	3.1.1 Purpose of function	
	3.1.2 Function definition	
	3.1.3 Function declaration	
	3.1.4 Function call	
	3.2 Types of functions	
4	Arrays	4
	4.1 Introduction to one-dimensional Array	
	4.1.1 Definition , Declaration, Initialization	
	4.1.2 Memory Representation	
	4.2 Processing one-dimensional array	
	4.3 Arrays and functions.	
	4.4 Introduction to two –dimensional Array	
	4.4.1 Definition Declaration, Initialization	
	4.4.2 Memory Representation	
	4.5 Processing two-dimensional array	
5	Structures and union	1
	5.1 Introduction to structure	
	5.1.1 Definition	
	5.1.2 Declaration	
	5.1.3 Accessing members	
	5.2 Operations on structures	

Teaching Methodology:

Explaining the concept using lecture method, presentations and respective programs.

Suggested Reference Material:

- 1) Let us C –Yashwant Kanetkar, BPB publication.
- 2) Programming in C - Balguruswamy, Tata McGraw-Hill publication.
- 3) Programming in C - M.T.Somashekhara, PrenticeHall of India Private Limited.



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Programme – F.Y.BBA(CA)

Subject code- 4201

Semester - 2

Credit -3

Subject title - **Principles of Management** (2022 Pattern)

Objectives:

1. To provide knowledge of management functions to the students.
2. To give the information about contribution of thinkers to the management studies.
3. Help the students to get familiar with trends in Management.

Course Outcomes: On completion of this course, students will be able to-

- CO1. Understand basic management concepts.
- CO2. Appreciate the contribution of Management thinkers.
- CO3. Comprehend different management functions.
- CO4. Understand the concepts of motivation and leadership.
- CO5. Imbibe ethical practices in Management.
- CO6. Explore MIS and AI in Management, Sustainability and other relevant trends.

Unit No.	Topics	No. of lectures
1	Nature of Management	5
	Meaning, Definition, Importance and Functions of Management	
	Management as a Art, Science, Profession Universality of Management Concept of Management, Administration and Organisation	
	Concept of Performance Management	
2	Evolution of Management Thought	12

	Contribution of F.W.Taylor, Henry Fayol, Vijay Govindrajana to the Management Thought Lessons of Management from: Chhatrapati Shivaji Maharaj, Chanakya, Swami Vivekanand, Modern day successful Managers/ CEOs	
3	Functions of Management: part -I	10
	Planning- Concept, Importance, levels, Merits & Demerits	
	Forecasting- Meaning, need	



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	Decision Making -Concept, Importance	
	Organising - meaning, types of organisation, Advantages and Disadvantages of different types of organisations	
	Delegation of authority, Difficulties in delegation	
	Decentralisation and centralisation	
	Staffing - Concept, Importance	
	Direction-Concept, Importance, Principles	
4	Functions of management: part -II	10
	Motivation - meaning, importance	
	Two Theories of Motivation - Maslow's and Herzberg's	
	Leadership- Concept, Importance, Styles	
	Qualities and functions of a leader	
	Controlling- meaning, importance, techniques	
	Co-ordination- Concept, Importance	
5	Trends in Management	8
	Social and Ethical issues in management	
	Stress management	
	Use of Artificial Intelligence in management	
	Importance of MIS in modern day Management	
	Basics of Sustainability	
	International Management	
	Dealing with VUCA (Volatile, Uncertain, Complex and Ambiguous) World	
	Conflict Management	
	Total number of lectures	45

Teaching Methodology – lecture method, presentation, case study, and guest lecture

Suggested Reference Material –

1. Principles and Practice of Management by L.M.Prasad
2. Management Principles and Practices By Parag Dhawan
3. Management and Entrepreneurship By N.V.R.Naidu
4. Managing Organizations By Rachana Chaturvedi



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Programme- F.Y. BBA(CA)

Subject code- 4202

Semester- II

Credits- 3

Subject title- Business Statistics (2022 pattern)

Course Objectives-

1. To understand the concept of sample, population, and frequency distribution.
2. To understand and calculate measures of central tendency.
3. To understand and calculate measures of dispersion.
4. To understand and calculate correlation between two variables and use it for prediction in (linear) regression analysis.
5. To understand the concept of probability distributions.

Course Outcomes-

On completion of the course, students would be able to

- CO 1 Understand concepts of statistics.
- CO 2 Calculate measures of central tendency.
- CO 3 Compute measures of dispersion.
- CO 4 Estimate dependent variable using regression analysis.
- CO 5 Demonstrate descriptive statistics using EXCEL.
- CO 6 Solve problems on discrete probability distributions.

Syllabus-

Unit No.	Topics	No. of Lectures
1.	Population and Sample Concept of population and sample. Methods of sampling – Random and Non-random sampling	4
2.	Frequency distribution 2.1 Raw data , attribute and variable , classification, frequency distribution. 2.2 Methods of classification , concepts of class limits , class boundaries , class mark, class width ,open end classes 2.3 graphs-histogram, frequency polygon, frequency curve, ogives , diagram- piechart , bars on excel	4
3.	Measures of central tendency and dispersion 3.1 objective and requisites of measures of central tendency , arithmetic mean for grouped and ungrouped data ,problems 3.2 median for grouped and ungrouped data ,problems 3.3 mode for grouped and ungrouped data ,problems 3.4 concept of dispersion, absolute and relative measures of dispersion, range and coefficient of range 3.5 quartile deviation , coefficient of quartile deviation 3.6 variance , standard deviation and coefficient of variation Above concepts on excel	10
4.	correlation and regression 4.1 concept of correlation, types of correlation , scatter diagram 4.2 Karl Pearson's coefficient of correlation 4.3 Concept of regression - Regression lines , prediction using these lines. Above concept on Excel	12
5.	Probability distributions 5.1 Probability distributions, Expected value, variance.	



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	5.2 Standard Discrete distributions – discrete uniform , Bernoulli , Binomial – examples and problems, concept of normal distribution.	15
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Teaching Methodology -

1. Unit 1 to unit 5 will be taught via lectures , presentation , discussion , problem solving etc.
2. Units 1 to 4 will also be demonstrated on excel which will be part of internal evaluation.

Suggested Reference Material-

1. Fundamentals of statistics by S C Gupta - Sultanchand and sons
2. Business Statistics by N D Vohra-Tata Mcgraw Hill
3. Fundamentals of Mathematical Statistics by V K Kapoor – Sultan Chand and Sons
4. Fundamentals of statistics by D N Elhance-kitab mahal
5. Fundamental of statistics by Levin and Rubin



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Programme – F.Y.BBA(CA)

Subject code- 4203

Semester - II

Credit – 2

Subject title - **Web Technology-1** (2022 Pattern)

Objectives -:

1. To learn & understand concepts internet
To develop basic programming skills using HTML , CSS, Java script and PHP
- of To understand the principles of creating an effective web page programming.
- 2.
- 3.
4. To create web elements like buttons, Bars and including complete UI designs.
5. To create Forms and validations for the website.
6. To learn valid and concise code for webpages.

Course Outcome:

On completion of this course, students will be able to - CO1 Understand basics of Internet programming

CO2 Comprehend html tags for internet programming

CO3 Explore features of scripting languages

CO4 Identify programming languages for Website development

CO5 Design web pages

CO6 Prepare programs in HTML, CSS, Java script, PHP

Syllabus-

Unit No.	Topics	No. of lectures
1	Web Essentials 1.1 Clients- Servers and Communication 1.2 Internet-Basic ,Internet Protocols(HTTP,FTP,IP) 1.3 World Wide Web(WWW) 1.4 HTTP request message, HTTP response message	4

2	Markup Languages 2.1 Introduction to HTML 2.2 Basic HTML Structure 2.3 Common HTML Tags 2.4 Physical and Logical HTML 2.5 Types of Images, client side and server-side Image mapping 2.6 List, Table, Frames 2.7 Embedding Audio, Video 2.8 HTML form and form elements	7
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	2.9 Introduction to HTML Front Page 2.10 CSS with HTML	
3	JAVA Script 3.1 Introduction to Java Script 3.2 Identifier & operator, control structure, functions 3.3 Document object model(DOM), 3.4 DOM Objects(window, navigator, history, location) 3.5 Predefined functions, math & string functions 3.6 Array in Java scripts 3.7 Event handling in Java script	7
4	Introduction to PHP 1.1 Introduction to PHP 1.2 What does PHP do? 1.3 Lexical structure	7
	1.4 Language basics 1.4.1 Variable, constant, keywords, Data Types 1.4.2 Control Structures 1.4.3 Variables variable 1.4.4 Type casting, Type Juggling 1.4.5 \$_GET, \$_POST, \$_REQUEST Variables Definition	
5	Function and String in PHP 2.1 Defining and calling a function 2.2 Default parameters 2.3 Variable parameters, Missing parameters 2.4 Variable function, Anonymous function 2.5 Types of strings in PHP 2.6 Printing functions 2.7 Encoding and escaping 2.8 Comparing strings 2.9 Manipulating and searching strings	5

Teaching Methodology –

1. Class room
2. Laboratory Work
7. Videos
8. Online material

Suggested Reference Material –

1. HTML CSS complete reference Thomas A Powell Mc Graw Hill
2. Mastering Java script by Ved antani
3. PHP : Complete reference by Steven Holzner Mc Graw
4. www.W3school.com
5. www.Tutorialpoint.com

E-book –

1. JavaScript Pocket Guide by Burdette
2. Handcrafted CSS: More Bulletproof Web Design by Cederholm;Marcotte
3. HTML Pocket Guide by Hyslop



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Programme – F.Y.BBA(CA)

Subject code-4204

Semester - II

Credit - 4

Subject title - Relational Data Base Management System (2022 pattern)

Objectives:

5. To study Database Management System
6. To study PL SQL exception, trigger, function, procedure, cursor, package
7. To study Transaction schedule Locks Recovery of Data

Course Outcome-

CO 1: Know the basics of Database

CO 2: Understand the features of RDBMS

CO3: Understand PL SQL blocks

CO 4: Analyze the given problem and develop program using PL SQL

CO 5: Understand phases of transaction, locking protocols

CO 6: Apply database recovery methods

Unit No.	Topics	No. of lectures
1	PL SQL - 1.1 Exception Handling 1.2 Trigger 1.3 Functions 1.4 Procedure 1.5 Cursor 1.6 Package	15
2	Transaction:1.1 ACID Properties 2.2 Phases of Transaction 2.3 scheduling 2.4 serializable schedule	15
3	3.1 Locks Two-Phase Locking 2PL 3.2 Strict Two-Phase Locking 3.3 Timestamp-based Protocols, Timestamp Ordering Protocol 3.4 Deadlock Prevention 3.5.1 Wait-Die Scheme 3.5.2 Wound-Wait Scheme 3.6 Deadlock Avoidance, Wait-for Graph	15
4	4.1 Database Recovery: Database Backup & Recovery from Catastrophic Failure, Remote Backup, Transaction failure, Log-based Recovery, Recovery with Concurrent Transactions	15

Teaching Methodology –



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6. Classroom Teaching
7. Lab Sessions
8. Online Material
9. Online Assignment
10. Online Submission

Suggested Reference Material – 1. Mr. Ivan Bayross – PL
SQL

2. Mr. Korth – DBMS
3. Mr. Atul Kahate - DBMS

Programme – F.Y.BBA(CA)

Subject code – 4205

Semester – II

Credit – 4

Subject Title – **Data Structures Using C (2022 Pattern)**

Objectives

1. To understand different methods of organising data.
2. To understand linear and non linear data structures and their implementation.

Course Outcomes:

On completion of this course, students will be able to -

CO1 Identify - data object, ADT, data structure

CO2 Understand different types and operations of data structures

CO3

Implement operations like searching, insertion, deletion, traversing mechanism etc. on various data structures

CO4 Analyse the given problem statements to develop program

CO5 Assess applicability of different types of data structures

CO6 Write programs using various data structures

Syllabus -

Unit No.	Topic	No. of Lectures.
1	Introduction to Data structure	6
	1.1 Types of Data structure	
	1.2 Abstract Data Types (ADT)	
	1.3 Polynomial representation Using array	
	- Evaluation of Polynomial	
	- Addition of two polynomials	

2	Searching and Sorting Techniques	10
	2.1 Linear Search	
	2.2 Binary Search (Recursive, Non-Recursive)	
	2.3 Bubble Sort	



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	2.4 Insertion Sort	
	2.5 Selection Sort	
	2.6 Quick Sort	
	2.7 Merge Sort	
3	Linked List	15
	3.1 Introduction	
	Concept of Linked List, Difference between an array and Linked list	
	3.2 Static & Dynamic Representation	
	3.3 Types of linked List	
	- Singly Linked list with all type of operations	
	- Doubly Linked list (Create, Display)	
	- Circularly Singly Linked list (Create, Display)	
	3.5 Generalized Linked List	
4	Stack and Queue	12
	4.1 Introduction stack	
	4.2 Static and Dynamic Representation	
	4.3 Primitive Operations on stack	
	4.4 Application of Stack	
	4.5 Evaluation of postfix and prefix expression	
	4.6 Conversion of expressions- Infix to prefix & Infix to postfix	
	postfix to infix, postfix to prefix, prefix to infix, prefix to postfix	

	Queue	
	4.7 Introduction queue	
	4.8 Static and Dynamic Representation	
	4.9 Primitive Operations on Queue	
	4.10 Application of Queue	
	4.11 Types of Queue	
	Circular Queue	
	Deque	
	Priority Queue	
5	Trees	9
	5.1 Introduction	
	5.2 Definition and Basic Terminologies	
	5.3 Static and Dynamic Representation	
	5.4 Types of tree	
	5.5 Operations on Binary Tree & Binary Search Tree	
	5.6 Tree Traversal	
	Inorder, Preorder, Postorder (Recursive)	
	5.7 AVL Tree	
	Definition	
	Insertion into an AVL tree	
6	Graphs	8
	6.1 Terminology associated with graphs.	
	6.2 Representation of graphs	
	-Adjacency Matrix	
	- Adjacency List	
	6.3 In degree, out degree of graph	
	6.4 Traversal of Graphs	
	DFS, BFS	
	6.5 Spanning Tree	
	-Definition	
	-Cost of spanning tree	



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	-Kruskal's algorithm to determine minimum cost spanning tree	
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Teaching Methodology:

1. Explaining the concept using presentation, real-life examples and programs .
2. Explaining the concepts using lecture method.

Recommended books:

1. Fundamentals of Data Structures by Ellis Horowitz and Sartaj Sahni
2. Data Structures through C in Depth by S.K. Shrivastava and Deepali Shrivasta , BPB Publications

Programme – F.Y.BBA(CA)

Subject code-4206

Semester - II

Credit – 4

Subject title - **Lab course on 4204(RDBMS) and 4205(Data Structures using C) (2022 Pattern) Objectives:**

1. To study RDBMS and DS Syntax & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember **RDBMS** and **Data structure syntax**

CO2 Understand the given problem on RDBMS and Data Structure

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement CO6 Create programs.

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of RDBMS and DS	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code.	5



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Programme – F.Y.BBA(CA)

Subject code- 4207 Semester - II Credit - 1

Subject title – Add on **MS-Office** (2022 Pattern)

Objectives:

- 1) To know the basics of Computer
- 2) To understand Operating System
- 3) To learn to use the applications of MS-Office Course Outcome:
On completion of this course, students will be able to

CO1 Understand the basic terminology in IT.
CO2 Comprehend computer memory
CO3 Solve problems on number systems. CO4 Classify the types of Software.
CO5 Understand Application Software
CO6 Explore the usage of Word, Excel, PowerPoint

Unit No.	Topic	No. of lectures
1	Introduction to Computer	3
1.1	Definition	
1.2	Characteristics of Computer	
1.3	Block Diagram of Computer	
1.4	Types of Computer	
1.6	Memory	
1.6.1	Primary Memory	
1.6.1.1	RAM, DRAM, SRAM, DDRAM	
1.6.1.2	ROM, PROM, EPROM, EEPROM	
1.6.2	Secondary Memory	
1.6.2.1	Magnetic Tape, Magnetic Disc, Compact Disc(CD- ROM, CDRW), DVD, Blu-Ray Disc	
1.7	Input Output Devices	
1.7.1	Types of Input devices - Keyboard, Scanner- Types, Joystick, Touch Screen, Digitizer	
1.7.2	Types of Output Devices - Printer-types, Plotter, Monitor- Types(LCD, LED, Plasma display)	



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1.8	Types of Programming Language	
1.8.1	Machine Language	
1.8.2	Assembly Language	
1.8.3	High Level Language	
1.8.4	Compiler and Interpreter	
2	Number System	3
2.1	Introduction to Binary, Octal, Hexadecimal System	
2.2	Conversion to different systems	
2.3	Simple Addition, Subtraction, Multiplication, Division	
3	Software	1
3.1	Types of software -System software, Application Software	
3.2	Definition and functions of Operating System	
3.3	Types of Operating System- Batch Operating System, Multiprogramming Operating System, Time Sharing Operating System, RealTime Operating System	
3.4	Introduction to Android	
3.5	MS-Word, Ms-Excel, Ms-PowerPoint	8

Teaching Methodology – Lecture, Presentation, Lab activity

Suggested Reference Material –

- 1) Fundamental of Computers - V.Rajaraman
- 2) Introduction to Computers - Peter Norton (The McGraw Hill Companies)
- 3) Operating System Principles - Silberschatz, Galvin, Gagne (Willey & Sons)
- 4) Complete Guide to Networking - Peter Norton (Techmedia Publication)
- 5) Programming Android - Mednieks, Dornin, Meike, Masumi Nakamura (O'Reilly Publication)
- 6) Computer Fundamentals - P.K. Sinha



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Programme- S.Y.BBA(CA)

Subject code- 4301

Semester - III

Credit - 3

Subject title-**PRINCIPLES OF MANAGEMENT AND HUMAN RESOURCE MANAGEMENT** (Revised 2017 Pattern)

Objectives-

1. To provide detail knowledge of management to the student.
2. To make students aware of fundamentals of human resource management
3. Help the students to get familiar with recent trends.

Course Outcomes-

On completion of this course, students will be able to-

- CO1 Understand the functions of Management
- CO2 Comprehend the concepts of leadership and motivation
- CO3 Understand the role of HR Manager
- CO4 Appreciate the importance of Manpower planning
- CO5 Examine the need of Training and Development
- CO6 Explore trends in Management and HRM

Syllabus:

Unit No.	Topics	No. of lectures
1	Nature of Management Meaning, Definition, Concept, purpose, importance & Functions Management as a Social System, Universality of Management Concept of management, Administration and Organization	6
2	Functions of Management: part -I Planning- Concept, Importance Forecasting -Concept, Techniques Decision Making Concept, importance & Techniques Organising- Concept,Types, Importance Delegation of authority, difficulties in delegation Decentralisation and centralisation Staffing, Concept, Importance meaning, importance Direction, Concept, Principles Motivation- Concept, Importance Leadership meaning, styles &functions of leader Controlling meaning, importance, nature, techniques	21



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	Co-ordination Concept	
3	Human Resource Management: Introduction, development of HRM concept, HRD & HRM, Role of HR Manager, Structure of HRM dept. Duties & Responsibilities of Manager	3
4	Manpower Planning: Concept, Importance, Short- & Long-term Manpower Planning Concept of Succession Planning. Recruitment & Selection: Importance, Sources of recruitment, procedure Training & Development: Training Need, Types of Training	7
5	Recent Trends: Quality Circle, Time Management, TQM, SWOT Analysis Attrition, Re-engineering, Contingent work force, Work force diversity, Downsizing, Employee involvement, Outsourcing Changes in technology, Health, family and work life balance, Cross cultural Training	8
	Total no. Of Lectures	45

Teaching Methodology/Pedagogy-

Guest lecture, lecture method, videos, PPT& case study Suggested Reference Material- (in APA format only)

1. Principles and practices of Management By L.M. Prasad
2. Principles of management and Administration By D.Chandra Boss
3. Human Resource Management C.B.Mamoria & S.V.Gankar
4. Human Resource Management by K. Ashwathappa
5. Human Resouce Management by L.M. Prasad
6. Human Resource Management, Text and Cases by V.S.P. Rao



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Programme – S.Y.BBA(CA)

Subject code – 4302

Semester – III

Credit – 4

Subject Title – Operating System (Revised 2017 Pattern)

Course Objectives-

1. To understand services provided by operating system.
2. To understand scheduling concepts.
3. To understand process management, memory management, file management.

Course Outcomes-

On completion of this course, students will be able to –

CO1 Understand Operating System Structure.

CO2 Comprehend process management, memory management, deadlock

CO3 Understand concept of system call

CO4 Solve numericals on process scheduling, page replacement ,disk scheduling algorithms and deadlock

CO5 Analyse a system model for deadlock prevention and recovery

CO6 Evaluate conditions for process synchronization and coordination

Syllabus



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Unit No.	Topic	No. of Lectures.
1	Introduction to Operating System	5
	1.1 What is operating system	
	1.2 Computer system architecture	
	1.3 Services provided by OS	
	1.4 Types of OS	
2	System Structure	5
	2.1 User operating system Interface	
	2.2 System Calls	
	2.3 Process or job control	
	2.4 Device Management	
	2.5 File Management	
	2.6 System Program	
	2.7 Operating System Structure	
3	Process Management	12
	3.1 What is Process	
	3.2 Process State	
	3.3 Process Control Block	
	3.4 Context Switch	
	3.5 Operation on Process	
	Process Creation	
	Process Termination	
	3.6 What is scheduling	
	3.7 Scheduling Concepts	
	CPU- I/O Burst Cycle	
	CPU Scheduler	
	Preemptive and Non-preemptive scheduling	
	Dispatcher	
	3.8 Scheduling criteria (Terminologies used in scheduling)	



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	6.1 Introduction	
	6.2 Address Binding	
	6.3 Dynamic Loading	
	6.4 Dynamic Linking	
	6.5 Overlays	
	6.6 Logical vs. physical addresses	
	6.7 Swapping	
	6.8 Contiguous memory allocation	
	Single Partition Allocation	
	Multiple Partition Allocation	
	External and Internal Fragmentation	
	6.9 Paging	
	6.10 Segmentation	
	segmentation with paging	
	6.11 Virtual memory	
	Demand paging	
	6.12 Page replacement algorithms	
	FIFO	
	LRU	
	Optimal replacement	
	MRU	
7	File System and Disk Scheduling	10
	7.1 Introduction & File concepts (file attributes, Operations on files)	
	7.2 File structure	
	7.3 Allocation methods	
	Contiguous allocation	
	Linked Allocation	
	Indexed Allocation	
	7.4 Free Space Management	
	Bit Vector	
	Linked List	
	Grouping	
	Counting	
	7.5 Introduction to I/O System -I/O Hardware, Kernel I/O subsystem	
	7.6 Disk Scheduling Algorithms	
	FCFS	
	Shortest Seek time first	
	SCAN	
	C- SCAN	
	Look	
	Total	60

	3.9 Scheduling Algorithms	
	FCFS	
	SJF (Preemptive & non-preemptive)	
	Priority Scheduling (Preemptive & Non- preemptive)	
	Round Robin Scheduling	
4	Process Synchronization	8
	4.1 Introduction	
	4.2 Critical section problem	



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	4.3 Semaphores	
	Concept	
	Implementation	
	Deadlock & Starvation	
	Binary Semaphores	
	4.4 Critical Sections	
	4.5 Classical Problems of synchronization	
	Bounded buffer problem	
	Readers & writers problem	
	Dining Philosophers problem	
5	Deadlock	8
	5.1 Introduction	
	5.2 Deadlock Characterization	
	5.3 Necessary Condition	
	5.4 Resource allocation graph	
	5.5 Deadlock Prevention	
	5.6 Deadlock Avoidance	
	Safe State	
	Resource allocation graph algorithm	
	Bankers algorithm	
	5.7 Deadlock Detection	
	5.8 Recovery from deadlock	
	Process Termination	
	Resource Preemption	
6	Memory Management	12

Teaching Methodology- 1. Lecture method.

2. PowerPoint Presentation.
3. Explanation with discussion and examples.
4. Solving Numericals.

Suggested Reference Material-

1. System Programming and Operating System – D. M. Dhamdhare
2. Operating System Concepts – Silberschatz, Galvin , Gagne
3. Operating Systems- Achyut Godbole

Programme – **S.Y.BBA(CA)**

Subject code – 4303

Semester – III

Credit – 4

Subject Title – Object Oriented Programming Using C++ (Revised 2017 Pattern)

Course Objectives-



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1. Understanding of basic object-oriented concepts.
2. Enables student to write C++ programs using object-oriented concepts such as polymorphism, inheritance etc.

Course Outcomes-

On completion of this course, students will be able to - CO1 Understand different programming paradigms

CO2 Compare between OOP approach and POP approach

CO3 Comprehend features of object-oriented programming in C++

CO4 Analyse the given problem statements in C++

CO5 Write programs on C++ concepts

CO6 Prepare programs using OOP

Syllabus:

Unit No.	Topic	No. of Lectures.
1	Introduction to C++	7
	1.1 Basic concepts of OOP, benefits, applications of OOP	
	1.2 A simple C++ program	
	1.3 Structure of C++ program	
	Creating a source file, compiling and Linking	
	1.4 Data types - Basic, User defined and Derived	
	1.5 Symbolic constant	
	1.6 Type Compatibility	
	1.7 Variables - Declaration and Dynamic initialization	
	1.8 Reference variable	
	1.9 Operators in C++	
	Scope resolution operator	
	Member Referencing operators	
	Memory management operators	
	Manipulators	
	Type cast operators	
2	Functions in C++	8
	2.1 Introduction	
	2.2 The main function	
	2.3 Function prototyping	
	2.4 Call by reference	
	2.5 Return by reference	
	2.6 Inline function – Making an outside function In line	
	2.7 Arguments - default, constant	
3	Classes and Objects	10
	3.1 Introduction	
	3.2 Creating a class and objects	
	3.3 Defining member functions inside and outside class definition	
	3.4 Nesting of member functions	
	3.5 Private member functions	
	3.6 Arrays within a class	
	3.7 Memory allocation of objects	
	3.8 Static data members and static member functions	
	3.9 Array of objects	
	3.10 Objects as function arguments	
	3.11 Friend functions	
	3.12 Returning objects	
4	Constructor & Destructor	5
	4.1 Constructors	
	4.2 Types of constructor	
	4.3 Destructors	
5	Polymorphism	10
	5.1 Compile Time Polymorphism	
	5.1.1 Function overloading	



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	5.1.2 Operator Overloading Introduction	
	5.1.3 Overloading unary and binary operator	
	5.1.4 Overloading using friend function	
	5.1.5 Overloading insertion and extraction operators	
	5.1.6 String manipulation using operator overloading	
	5.2 Runtime Polymorphism	
	5.2.1 this Pointer, pointers to objects, pointer to derived classes	
	5.2.2 Virtual functions and pure virtual functions	
6	Inheritance	5
	6.1 Introduction	
	6.2 Base class and derived class examples	
	6.3 Types of Inheritance	
	6.4 Virtual base class	
	6.5 Abstract class	
	6.6 Constructors in derived class	
7	The C++ I/O System Basics and Working with Files	10
	8.1 C++ streams and C++ stream classes	
	8.2 Unformatted I/O operations	
	8.3 Formatted console I/O operations	
	8.4 Managing output with manipulators	
	8.5 Working with Files	
	8.5.1 Classes for File Stream operations	
	8.5.2 File operations - Opening, Closing and updating	
	8.5.3 Error handling during File operations	
	8.6 Command Line arguments	
8	Templates and Exception Handling	5
	9.1 Introduction	
	9.2 Class Templates	
	9.3 Function Templates	
	9.4 Exception Handling(Introduction)	
	Total	60

Teaching Methodology-

5. Lecture method.
6. PowerPoint Presentation.
7. Explanation with discussion and examples.
8. Developing programs based on concepts.

Suggested Reference Material-

- 1) Object oriented programming with C++ - by E Balagurusamy
- 2) Object Oriented Programming with C++ by Robert Lafore

Programme- S.YBBA -CA

Subject code-4304

Semester- 3

Credits- 3

Subject title- Object Oriented Software Engineering (Revised 2017 pattern)



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Course Objectives-

1. Understanding Object oriented analysis and design
2. Comprehend SDLC using object orientation
3. Understand and draw various UML diagrams
4. To be able to convert systems from conceptual to design phase

Course Outcomes-

CO1. Understand concepts of Object Oriented Software Engineering

CO2. Comprehend software development life cycle using Object Orientation

CO3. Identify various Unified Modelling Language diagrams CO4. Analyze system using object orientation.

CO5. Prepare Unified Modelling Language diagrams

CO6. Interpret cases using OOSE

Syllabus-

Unit No.	Topics	No. of lectures
1	Object Oriented Concepts, Modeling and UML	8
	1.1 What is Object Orientation? (Introduction to class, object, inheritance, polymorphism)	
	1.2 Introduction of Modeling	
	1.3 Object Oriented Modeling	
	1.3 Object oriented system development	
	1.3.1 Function/data methods	
	1.3.2 Object oriented analysis	
	1.3.3 Object oriented construction	
	1.3.4 Object oriented testing	
	1.4 Identifying the elements of an object model	
	1.4.1 Identifying classes and objects	
	1.4.2 Specifying the attributes	
	1.4.3 Defining operations	
	1.4.4 Finalizing the object definition	
2	Introduction to UML	8
	2.1 Overview of UML	
	2.2 Introduction to UML Diagrams	
	2.3 Relationships in UML	
	2.4 Things in UML	
	2.5 Architecture	
	2.6 Advantages of UML	
	2.7 Limitations of UML	
3	Working with UML Diagrams	16



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	3.1 Use Case Diagrams	
	3.2 Class Diagrams	
	3.3 Sequence Diagrams	
	3.4 Activity Diagram	
	3.5 State Chart Diagram	
	3.6 Collaboration, Components, Deployment Diagrams	
4	Object Oriented Analysis	6
	4.1 Iterative Development	
	4.2 Understanding requirements	
	4.3 Unified process & UP Phases	
	4.3.1 Inception	
	4.3.2 Elaboration	
	4.3.3 Construction	
	4.3.4 Transition	
5	Object Oriented Design	7
	5.1 Introduction to various methods	
	5.2 Generic components of OO Design model	
	5.3 System Design process	
	5.3.1 Partitioning the analysis model	
	5.3.2 Concurrency and subsystem allocation	
	5.3.3 Task Management component	
	5.3.4 Data Management component	
	5.3.5 Resource Management component	
	5.3.6 Inter sub-system communication	
	5.4 Object Design process	

Teaching Methodology –

1. Power point presentations for all units with diagrams and charts
2. Explanations along with discussions and examples
3. Case Studies on each diagram

Suggested Reference Material –

- 1 The Unified Modeling Language User Guide by Grady Booch, James Raumbaugh, Ivar Jacobson.
- 2 Software Engineering by Pressman
- 3 Software Engineering by Waman S Jawdekar
- 4 Teach yourself UML in 24 hours by Joseph Schmuller

Programme – S.Y.BBA(CA)

Subject code- 4305

Semester - III

Credit – 2



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Subject title - **Web Technology-1** (Revised 2017 Pattern)

Objectives -:

9. To learn To develop basic programming skills using HTML , CSS, Java script and PHP & To understand the principles of creating an effective web page understand concepts of internet programming.
- 10.
- 11.
12. To create web elements like buttons, Bars and including complete UI designs.
13. To create Forms and validations for the website.
14. To learn valid and concise code for webpages.

Course Outcome:

On completion of this course, students will be able to -

CO1 Understand basics of Internet programming

CO2 Comprehend html tags for internet programming

CO3 Explore features of scripting languages

CO4 Identify programming languages for Website development

CO5 Design web pages

CO6 Prepare programs in HTML, CSS, Java script, PHP

Syllabus-

Unit No.	Topics	No. of lectures
1	Web Essentials 1.1 Clients- Servers and Communication 1.2 Internet-Basic ,Internet Protocols(HTTP,FTP,IP) 1.3 World Wide Web(WWW) 1.4 HTTP request message, HTTP response message	4

2	Markup Languages 2.1 Introduction to HTML 2.2 Basic HTML Structure 2.3 Common HTML Tags	7
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	2.4 Physical and Logical HTML 2.5 Types of Images, client side and server-side Image mapping 2.6 List, Table, Frames 2.7 Embedding Audio, Video 2.8 HTML form and form elements 2.9 Introduction to HTML Front Page 2.10 CSS with HTML	
3	JAVA Script 3.1 Introduction to Java Script 3.2 Identifier & operator, control structure, functions 3.3 Document object model(DOM), 3.4 DOM Objects(window, navigator, history, location) 3.5 Predefined functions, math & string functions 3.6 Array in Java scripts 3.7 Event handling in Java script	7
4	Introduction to PHP 1.1 Introduction to PHP 1.2 What does PHP do? 1.3 Lexical structure	7
	1.4 Language basics 1.4.1 Variable, constant, keywords, Data Types 1.4.2 Control Structures 1.4.3 Variables variable 1.4.4 Type casting, Type Juggling 1.4.5 \$ _GET, \$ _POST,\$ _REQUEST Variables Definition	
5	Function and String in PHP 2.1 Defining and calling a function 2.2 Default parameters 2.3 Variable parameters, Missing parameters 2.4 Variable function, Anonymous function 2.5 Types of strings in PHP 2.6 Printing functions 2.7 Encoding and escaping 2.8 Comparing strings 2.9 Manipulating and searching strings	5

Teaching Methodology –

3. Class room
4. Laboratory Work
15. Videos
16. Online material

Suggested Reference Material –

6. HTML CSS complete reference Thomas A Powell Mc Graw Hill
7. Mastering Java script by Ved antani
8. PHP : Complete reference by Steven Holzner Mc Graw
9. www.W3school.com
10. www.Tutorialpoint.com

E-book –

1. JavaScript Pocket Guide by Burdette
2. Handcrafted CSS: More Bulletproof Web Design by Cederholm;Marcotte
3. HTML Pocket Guide by Hyslop



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Programme – S.Y.BBA(CA)

Subject code-4306

Semester - III

Credit – 4

Subject title - **Lab course on 4303(C++) and 4305(Web Technology1)** (Revised
2017 Pattern) **Objectives:**

1. To study C++ and WT1 Syntaxes & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember C++ and Web Technology1 syntax

CO2 Understand the given problem on C++ and Web Technology1

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement CO6 Create programs.

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of C++ and WT1	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code and simple webpages	5



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Programme – S.Y.BBA(CA)

Subject code-4401

Semester - IV

Credit - 2

Subject title – **WebPage Designing** (Revised 2017 Pattern) Objectives:

Course Outcomes -

On completion of this course, students will be able to –

- CO1 Understand concepts of WordPress
- CO2 Understand components of Bootstrap
- CO3 Identify a theme to design a webpage
- CO4 Structure web pages
- CO5 Link webpages to the website
- CO6 Test the website

WORDPRESS

Sr.No.	• Topics	No. of Lectures
1	<ul style="list-style-type: none">• WordPress – An overview• What is WordPress?• How to install it?	3
2	<ul style="list-style-type: none">• Basics of WordPress• Pages• Theme – Free and Paid• Customizing Theme• Parent Theme• Child Theme	4
3	<ul style="list-style-type: none">• Home Page• Buttons• Plugins	3
4	Technical Support	1
5	Making a sample website using free theme	4
6	Deploying WordPress Website	1

BOOTSTRAP

Sr.No.	Topics	No. of Lectures
1	Bootstrap – An Overview □ Installation	2
2	Components of Bootstrap	2
3	CSS	2
4	Getting started	2
5	<ul style="list-style-type: none">• Typography• Tables• Images• Grid Basic etc.	3
6	Templates	1
7	Implementing Bootstrap - Demo	2

8. To Design Website using WordPress, Bootstrap

9. To use accessibility software in website

Teaching Methodology –

11. Classroom Teaching

12. Lab Sessions

13. Online Material

14. Online Assignment 15. Online Submission

Suggested Reference Material – E-References

W3school.com, wordpress.org, wordpress.net,
Getbootstrap.com



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Programme – S.Y.BBA(CA)

Subject code – 4402

Semester – IV

Credit – 3

Subject Title – Software Testing (Revised 2017 Pattern)

Course Objectives-

1. To know the concept of software testing.
2. To know the software testing strategies.
3. To understand how to test bugs in software.

Course Outcomes -

On completion of this course, students will be able to -

CO1 Understand concepts of software testing and debugging

CO2 Comprehend principles of testing

CO3 Analyse different types of testing

CO4 Test projects using black box, white box, and grey box testing.

CO5 Explore strategies of software testing

CO6 Design test cases

Syllabus

Unit No.	Topic	No. of Lectures
1	Software Testing Introduction, Nature of errors, Testing principles & Testing fundamentals, Debugging	6
2	Approaches to Testing White Box Testing, Black Box Testing, Gray Box Testing,	10
	Unit Testing Integration- Top-down ,Bottom up Big Bang Sandwich	
3	Testing for Specialized Environments Testing GUI's, Testing of Client/Server Architectures, Testing Documentation and Help Facilities, Testing for Real-Time Systems	10
4	Software Testing Strategies & Software metrics verification Validation Testing, System Testing, , Performance Testing, Regression Testing, Agile testing, Acceptance testing ,Smoke Testing ,Load Testing, Introduction, Basic Metrics, Complexity Metrics	12
5	Specialized Testing & Testing Tools (Introduction) Test Case Design, Junit, Apache Jmeter, Winrunner Loadrunner, Rational Robot	7

Teaching Methodology -

9. Lecture method.
10. PowerPoint Presentation.
11. Explanation with discussion and examples.

Suggested Reference Material - Software Engineering by Roger Pressman



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Programme – S.Y.BBA(CA)

Subject code- 4403

Semester - IV

Credit - 4

Subject title – **Core Java** (Revised 2017 Pattern)

OBJECTIVES:

1. To learn the basic concept of Java Programming
2. To handle Exceptions
3. To develop GUI based on Applet, Swing

Course Outcome -

On completion of this course, students will be able to -

CO1. Understand Object Oriented Programming concepts in Java.

CO2. Comprehend methods and packages

CO3. Explore Exception handling and File handling

CO4. Understand interfaces and classes in Collection Framework.

CO5. Comprehend graphics to create user interfaces.

CO6. Develop programs

Syllabus-

Unit No	Topic	No. of lectures
1	Introduction to Java 1.1 Features of java 1.2 JDK Environment & tools like (java, javac, appletviewer, javadoc, jdb) OOps Concepts - 1.3 Class, Abstraction, Encapsulation, Inheritance, Polymorphism	10
	1.4 Difference between C++ and Java 1.5 Structure of java program 1.6 Data types , Variables, Operators, Keywords, Naming Convention 1.7 Decision Making (if, switch), Looping (for, while) 1.8 Type Casting 1.9 Array Creating an array Types of Array - One Dimensional arrays - Two Dimensional array 1.10 String - Arrays , Methods. - StringBuffer class	
2	Classes and Objects 2.1 Creating Classes and objects 2.2 Memory allocation for objects 2.3 Constructor 2.4 Implementation of Inheritance Simple, Multilevel 2.5 Interfaces 2.6 Abstract classes and methods	15



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	2.7 Implementation of Polymorphism 2.8 Method Overloading, Method Overriding 2.9 Nested and Inner classes. 2.10 Modifiers and Access Control 2.11 Packages - Creating user defined packages 2.12 Java Built in packages java.lang->math java.util->Random, Date, Hashtable 2.13 Wrapper classes	
3	Collection 3.1 Collection Framework. 3.1.1 Interfaces <ul style="list-style-type: none"> - Collection - List - Set - SortedSet - Enumeration - Iterator - ListIterator 3.1.2. Classes	15
	<ul style="list-style-type: none"> - LinkedList - ArrayList - Vector - HashSet - TreeSet - Hashtable 3.2 Working with maps <p style="margin-left: 40px;">3.2.1 Map interface</p> <p style="margin-left: 40px;">3.2.2 Map classes</p> <ul style="list-style-type: none"> - HashMap - TreeMap 	



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4	<p>File and Exception Handling</p> <p>Exception</p> <p>4.1 Exception types</p> <p>4.2 Using try catch and multiple catch</p> <p>Nested try, throw, throws and finally</p> <p>4.3 Creating user defined Exceptions</p> <p>File Handling</p> <p>4.4 Stream</p> <p>ByteStream Classes</p> <p>CharacterStream Classes</p> <p>4.5 File IO basics</p>	8
	<p>4.6 File operations</p> <p>Creating file</p> <p>Reading file(character, byte)</p> <p>Writing file (character, byte)</p>	



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5	Applet, AWT and Swing Programming Applet 5.1 Introduction 5.2 Types applet 5.3 Applet Life cycle - Creating applet - Applet tag 5.4 Applet Classes - Color - Graphics - Font AWT 5.5 Components and container used in AWT 5.6 Layout managers 5.7 Listeners and Adapter classes 5.8 Event Delegation model Swing 5.9 Introduction to Swing Component and	12
	Container Classes	

Teaching Methodology – Lecture, Presentation, Guest lecture, Lab activity

Suggested Reading Material – 1) The Complete Reference by Herbert Schildt

2) Programming with Java by E. Balaguruswamy

E-book – 1. Java EE 6 Tutorial: Basic Concepts by Jendrock et al.



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Programme – S.Y.BBA(CA)

Subject code- 4404

Semester - IV

Credit – 4

Subject title – **Web Technology - 2 (Revised 2017 Pattern)** Objectives:

1. To understand Web Designing with PHP
2. To design and develop dynamic and database-driven web pages
3. Hands on experience on various techniques of web development
4. To design and develop a complete website.

Course Outcomes –

On completion of this course, students will be able to –

CO1 Explore arrays in PHP

CO2 Understand object oriented programming concepts in PHP CO3 Comprehend techniques of database connectivity.

CO4 Understand Ajax and JQUERY

CO5 Write programs using web techniques.

CO6 Test coding skills in sample programs

Syllabus -

Unit No.	Topics	No. of lectures
1	Arrays in PHP 1.1 Indexed Vs Associative arrays 1.2 Identifying elements of an array 1.3 Storing data in arrays 1.4 Multidimensional arrays 1.5 Extracting multiple values 1.6 Converting between arrays and variables 1.7 Traversing arrays	5

	1.8 Sorting 1.9 Action on entire arrays	
2	Introduction to Object Oriented Programming in PHP 2.1 Classes 2.2 Objects 2.3 Introspection 2.4 Serialization 2.5 Inheritance 2.6 Interfaces 2.7 Encapsulation	5
3	Web Techniques 3.1 Web Variables 3.2 Server information 3.3 Self Processing forms 3.4 Setting response headers 3.5 Maintaining state (Cookies and Sessions)	10



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4	Databases 4.1 Using PHP to access a databases 4.2 Mysql Database functions 4.3 Relational databases and SQL 4.4 PEAR DB basics 4.5 Advanced database techniques 4.6 Sample application	10
6	Ajax 6.1 Understanding Java Script for AJAX 6.2 Ajax Web Application Model 6.3 AJAX-PHP Framework 6.4 Performing AJAX Validation 6.5 Handling XML Data using PHP and AJAX 6.6 Connecting database using PHP and AJAX	15
7	JQUERY 7.1 JQUERY Basics	15
	7.2 Selectors, Attributes 7.3 Traversing, DOM, Events 7.4 Ajax 7.5 Effects	
	Total	60

Teaching Methodology –

5. Classroom
6. Laboratory Work
7. Videos
8. Online material

Suggested Reference Material –

11. HTML CSS complete reference Thomas A Powell Mc Graw Hill
12. Mastering Java script by Ved antani
13. PHP : Complete reference by Steven Holzner Mc Graw
14. www.w3school.com
15. www.Tutorialpoint.com

E-book –

1. PHP and MySQL Web Development by Welling
2. Designing with Web Standards by Zeldman;Marcotte
3. Designing with Progressive Enhancement: Building the Web that Works for Everyone by Parker et al.



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Programme- S.Y.BBA -CA

Subject code- 4405

Semester- IV

Credits- 3

Subject title- Project Using Software Engineering and Object Oriented Software Engineering (Revised 2017 Pattern)
Course Objectives-

1. To understand method of taking specifications
2. To implement SDLC and OOSDLC in mini projects
3. To understand moving from conceptual of physical phase
4. To be able to incorporation SE and UML diagrams in mini project

Course Outcomes-

- CO1. Identify SDLC with reference to SE and OOSE
CO2. Understand user requirement
CO3. Comprehend System requirement specifications
CO4. Design System requirement diagram
CO5. Assess diagrams to user requirements CO6. Prepare mini projects

Syllabus:

Unit No.	Topics	No. of lectures
1	Software Engineering --- System Development Life Cycle System analysis with reference to mini project Problem definition, feasibility study, System requirement specification System Design	10
2	Object oriented software engineering --- System development life cycle with reference to mini project Object Oriented analysis Object Oriented Design	10
3	Mapping SE and UML diagram with system specification	15
4	Working with Diagrams Context level diagrams Use case diagram Class diagram Activity diagram	10

Teaching Methodology –

4. Power point presentations on how to take specifications from user
5. Explanations along with discussions and examples
6. Case Studies on mini project

Suggested Reference Material –

- 1 The Unified Modeling Language User Guide by Grady Booch, James Raumbaugh, Ivar Jacobson.
- 2 Software Engineering by Pressman
- 3 Software Engineering by Waman S Jawdekar
- 4 Teach yourself UML in 24 hours by Joseph Schmuller



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Programme – S.Y.BBA(CA)

Subject code-4406

Semester - IV

Credit – 4

Subject title - **Lab course on 4403(Core. Java) and 4404(Web Technology2)**
(Revised 2017 Pattern)

Objectives:

1. To study Core Java and WT2 Syntax & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember Java and Web Technology2 syntax

CO2 Understand the given problem on Java and Web Technology2

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement CO6 Create programs.

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of Core.Java and WT2	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code and Website	5



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Programme- T.Y.BBA(CA)

Subject code- 4501

Semester - V

Credit - 3

Subject title - **Business Communication and Soft Skills** (Revised 2017 Pattern)

Course Objectives-

4. To understand the importance of and develop Effective Communication
5. To consciously work towards changing one's personality towards a positive goal oriented person
6. To understand the Corporate Culture and mold accordingly to be a successful performer.

Course Outcomes-

On completion of this course, students will be able to -

- CO1 Understand interpersonal skills.
- CO2 Enhance oral communication skills confidence.
- CO3 Write effectively for business (E-mails, Resumes, Letters).
- CO4 Cope with stressful situations.
- CO5 Use soft skills in business.
- CO6 Evaluate self-worth and remove self-doubt.

Syllabus:

Unit No.	Topics	No. of lectures
1	Basics of communication	7
	e- Importance of effective communication f- Interpersonal communication g- Verbal and Non-verbal communication h- Listening Skills	
2	Business communication	8
	d- Letter Writing e- Telephonic communication, Videoconferencing, Skype f- Written communication (email and resume building)	
3	Public speaking skills	8
	e- Preparing a good speech f- Commandments of good speaking g- Effective use of audio-visual aids h- Presentation skills	
4	Personality Development	8
	e- Self-awareness and personality development f- Positive attitude and confidence building g- Time and stress management h- Goal setting and Motivation	
5	Soft Skills in Business	7



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	g- Range of Soft Skills h- Soft skills in service sector i- Soft skills in Management j- Team building and leadership skills k- Dressing and grooming l- Social networking skills	
6	Corporate Communication	7
	e- Interview skills (Types) f- Group Discussion g- Corporate Grapevine h- Communication in Crisis	

Teaching Methodology/Pedagogy-

Lectures, Guest Lecture, Demonstration and Role play

Case study for Non-Verbal Communication. Assignment for letter writing

Demonstration of Skype, Guest Lecture for Resume writing, Presentations in Class, Workshop by a professional on Good Presentation Skills, Audio visual clips, SWOT Analysis via games and activities, Role Plays, Case Studies.

Suggested Reference Material- (in APA format only)

1. Mamta Puri- Effective Communication Skills,
2. Herta Murphy- Effective Business Communication,
3. Sanjay Kumar & Pushpa Lata- Communication Skills , P.D. Chaturvedi- Business Communication Cases and Applications, R.C. Sharma Business Correspondence & Report Writing, Barun Mitra- Personality Development
4. Elizabeth Hurlock- Personality Development, George Mutuale- Personality Development, Dipali Biswas- Enhancing Soft Skills, R K Madhukar- Business Communication. Business Communication for Managers-Payal Mehra,
5. IUP Journal of Soft Skills.



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Programme – T.Y.BBA(CA)

Subject code- 4503

Semester - V

Credit - 4

Subject - **Advance Java** (Revised 2017 Pattern)

OBJECTIVES:

- 1.** To understand the connection of Java and Database
- 2.** To create Web pages using Servlet and JSP
- 3.** To understand client server architecture

Course Outcomes –

On completion of this course, students will be able to -

- CO1. Understand concept of Advance Java
- CO2. Comprehend Multithreading
- CO3. Explore Java Database Connectivity and Networking
- CO4. Deduce Servlet application
- CO5. Explore Remote Method Invocation and Beans
- CO6. Write and Review Java programs

Syllabus-

Unit No	Topics	No. of lectures
1	Multithreading 1.1 Introduction to Thread 1.2 Life cycle of thread 1.3 Thread Creation - By using Thread Class - By Using Runnable interface 1.4 Priorities and Synchronization 1.5 Inter thread communication 1.6 Implementation of Thread with Applet	12
2	JDBC 2.1 The design of JDBC 2.2 Basic JDBC program Concept 2.3 Drivers 2.4 Architecture of JDBC 2.5 Making the Connection, Statement, ResultSet, PreparedStatement, CallableStatement 2.6 Executing SQL commands 2.7 Executing queries	12



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3	<p>Servlet</p> <p>3.1 Introduction</p> <p>3.2 How It differ from CGI</p> <p>3.3 Types of servlet</p> <p>3.4 Life cycle of servlet</p> <p>3.5 Execution process of Servlet Application</p> <p>3.6 Session Tracking</p> <p>3.7 Cookie class</p> <p>3.8 Servlet- Jdbc</p>	10
4	<p>JSP</p> <p>4.1 Introduction to JSP</p> <p>4.2 Components of JSP</p> <p>Directives, Tags, Scripting Elements</p> <p>4.3 Execution process of JSP Application</p> <p>4.4 Building a simple application using JSP</p> <p>4.5 JSP with Database</p>	10
5	<p>Networking and RMI</p> <p>5.1 The java.net package</p> <p>5.2 Connection oriented transmission – Stream Socket Class</p> <p>5.3 Creating a Socket to a remote host on a port (creating TCP client and server)</p> <p>5.4 Simple Socket Program Example.</p> <p>RMI</p> <p>Remote Method Invocation</p> <p>5.5 Introduction to remote object RMI architecture</p> <p>5.6 Stubs and skeleton</p> <p>5.7 Registry</p> <p>5.8 Setting up RMI</p> <p>5.9 Using RMI with applet</p>	10



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6	Java Beans 6.1 What is bean 6.2 Advantages 6.3 Using Bean Development kit(BDK) 6.4 Introduction to jar and manifest files 6.5 The java beans API	6
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Teaching Methodology – Lecture, Presentation, Lab activity

Suggested Reference Material :

1. The Complete Reference – JAVA Herbert Schildt
2. Complete Reference J2EE – Jim Keogh

Further Reading - 1. Java Black Book – Kogent Learning Solution Inc

Programme – T.Y.BBA(CA)

Subject code - 4504

Semester - V

Credit – 4

Subject title – **ASP.NET** (Revised 2017 Pattern) Objectives:

1. To get familiarize with Microsoft.Net, C#, and ASP.NET technologies
2. The course is designed to understand the different concepts and features of .NET coding, debugging and developing of Windows and web applications.

Course Outcome –

On completion of this course, students will be able to –

- CO1. Understand concepts of ASP.NET
- CO2. Explore Web Controls of ASP.NET
- CO3. Comprehend Web Services



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CO4. Deduce Ajax application
CO5. Explore Data Source and Crystal Report
CO6. Write and Review ASP.NET programs Syllabus -

Unit No.	Topic	No of Lectures
1	INTRODUCTION TO C#	
	1.1 Language Features	10
	1.1.1 Data Types, Literals and Variables	
	1.1.2 Operators	
	1.1.3 Program Control Statements	
	1.2 Object Oriented Concepts	
	1.2.1 Introducing Classes & Objects	
	1.2.2 Methods & Classes	

	1.2.3 Operator Overloading	
	1.2.4 Inheritance / Overriding	
	1.2.5 Interfaces, Properties, Access Modifiers	
	1.3 Events & Delegates	
2.	Developing ASP.NET Applications	
	2.1 Creating Web Forms Application	6
	2.2 Code Behind	
	2.3 Global.Asax Application File	
	2.4 Understanding Namespaces	
	2.5 Web Form Fundamentals	
3.	Web Controls	10
	3.1 Using Controls	
	3.2 Validation & Rich Controls	
	3.3 State Management	
	3.4 Navigating between Forms and Pages	



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	3.5 Using Master Pages for Sitewide Page Templates	
4.	Working with Data	10
	4.1 Accessing Data with the Data Source Web Controls	
	4.2 Displaying Data with the Data Web Controls	
	4.3 DataList and DataGrid Controls	
	4.3.1 Selection & Editing with these Controls	
	4.4 Crystal Reports with and without wizard	
5.	Web Services	5
	5.1 Overview of Web Services	
	5.2 Creating Web Services	
	5.3 Using Web Services	
6.	Use of Ajax on Web Forms	4
	6.1 Introduction to Ajax Controls	
	6.2 Using Ajax Controls on Web Forms	
		45

Teaching Methodology – Lecture, PPT

Suggested Reference Material –

1. Complete Reference to ASP.NET - Mathew MacDonald TATA MC GRAW HILL
2. Inside C# by Tom Archer Microsoft Press
3. Microsoft ASP.NET 4.0 Step by Step
4. ASP.NET Programming - Murach

E-book –

1. Understanding .NET by Chappell

Programme- T.Y.BBA -CA

Subject code- 4505

Semester- V

Credits- 4

Subject title- Project Course Objectives:

- 1) To acquaint the students with the issues in existing system.
- 2) To understand the technique of data collection and data analysis
- 3) To encourage the students in generating new system using the technologies learnt

Course Outcome –

On completion of this course, students will be able to -

CO1 Explore project idea in groups

CO2 Understand user requirement

CO3 Comprehend System requirement specifications

CO4 Design System requirement diagram

CO5 Assess diagrams to user requirements.

CO6 Develop and Test project

The projects are done in groups where group size is less than 10. There is a scrum master for every group. The product owner is the project teacher / mentor. Agile methodology is implemented by these groups. Two of the Agile exhibits are given to the scrum masters to maintain. One is user story and other is minutes of meetings template. Scrum masters are expected to report to the product owner project proposal, the minutes of the meetings, and user story. The project building starts from project idea approval, creation of ER diagrams, DFD, flows charts, use cases, coding, testing, and final documentation. Projects this semester are expected to be based on web technologies that they have learnt earlier. While doing the project learning and implementing any new supported technology is encouraged.

Idea behind the group projects is to give real world glimpse. Students are expected to work in a group and groom themselves as team members and develop leadership qualities. Student groups are purposely created in such a manner that not all team members are friends. This teaches them to make new friends and improve their interpersonal communication skills.

Exam is conducted in two phases. 40 marks internal exam where at least 80% of the project is expected to be completed. With comments, suggestions invited from the other groups and project teachers the groups get a chance to enhance their project before the final exam of 60 marks where external examiner evaluates them.

Programme – T.Y.BBA(CA)

Subject code-4506

Semester - V

Credit – 4

Subject title - **Lab course on 4503(Advance. Java) and 4504(ASP.Net)** (Revised 2017 Pattern)

Objectives:

1. To study Advance Java and ASP.Net Syntaxes & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember **Advance Java** and **ASP.Net syntax**

CO2 Understand the given problem on **Advance Java** and **ASP.Net**

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement

Create programs.

CO6

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of Adv.Java and ASP.Net	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code and website	5

Programme – **T.Y.BBA(CA)**

Subject code - 4601

Semester - VI

Credit – 2

Subject title – **Cyber Security (Revised 2017 pattern) Course Objectives-**

1. To understand various types of Cybercrime.
2. To understand fundamentals of Cyber security.

Course Outcomes –

On completion of this course, students will be able to - CO1 Understand information and network security

CO2 Comprehend information technology act

CO3 Understand different types of cyber crimes

CO4 Explore Intellectual property rights

CO5 Comprehend Cyber law with international perspective

CO6 Analyse cases related to cyber crime

Syllabus

Unit No.	Topics	No. of lectures
1	Introduction to Cyber Crime and Cyber Security <ul style="list-style-type: none">• Introduction• Cybercrime and Information Security• Data Privacy and Data Protection<ul style="list-style-type: none">Difference between Data privacy and Data protection <p>Governing laws of Data privacy and Data protection in India and their model laws</p>	5



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	☐ Challenges posed by Cyber Crime.	
2	<p>Cyber Law and Information Technology Act, 2000</p> <ul style="list-style-type: none"> • Introduction • Cybercrime and the Legal Landscape around the World • Why Do We Need Cyberlaws: The Indian Context • Information Technology Act, 2000 • Amendments and important definitions (Information Technology Act, 2000) • Indian Scheme of offences & punishment ☐ Types of Cybercrimes and contraventions: E-mail Spoofing, Spamming, Salami attack, Internet Time Theft, Web Jacking, Identity theft, Cyberstalking, Hacking, Software Piracy, Computer Network Intrusions, Usenet Newsgroup as the Source of Cybercrimes, Password Sniffing, Credit Card Frauds, Email bombing <p>Contraventions: Sections 43 to 45</p> <ul style="list-style-type: none"> • Tools and Methods Used in Cybercrime Phishing Password Cracking Keyloggers and Spywares Virus and Worms Trojan Horses and Backdoors DoS and DDoS Attacks SQL Injection • CIA triad • Digital Signature and Electronic Signature • E- commerce under Information Technology Act, 2000 and other important laws 	15
3	<p>Cyber Law: International Perspective</p> <ul style="list-style-type: none"> • EDI: Concept and legal Issues. • UNCITRAL Model Law. ☐ Cryptography 	7
	<ul style="list-style-type: none"> • Cryptocurrency and security issues • Metaverse, Internet of Things and other recent developments in cyberspace and cybersecurity • EU Convention on Cyber Crime 	
4	<p>Intellectual Property in Cyberspace</p> <ul style="list-style-type: none"> • Meaning and types of IPRs • Copyright issues in cyberspace • Trademark issues in cyberspace • Other IPR related issues in cyberspace • Protection of IPR • International Law governing IPR 	3

Teaching Methodology –

1. Power point presentations for all units.
2. Explanations along with discussions and examples.
3. Real life examples and Case Studies.

Suggested Reference Material –

1. Information Systems Security Management by Nina S. Godbole (Wiley India Pvt.Ltd.)
2. Computer Security: Principles and Practice -William Stallings and Lawrie Brown, 3rd edition, Pearson, 2015.
3. Cyber Security Essentials- James Graham Richard Howard Ryan Olson



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Programme – T.Y.BBA(CA)

Subject code- 4602

Semester - VI

Credit – 2

Subject - **E-commerce and M-commerce** (Revised 2017 Pattern)

OBJECTIVES:

- 1.** To know the concept of Ecommerce
- 2.** To understand the various applications of Ecommerce
- 3.** To understand M-commerce and its use

Course Outcomes –

On completion of this course, students will be able to –

- CO1. Understand concept of Ecommerce, M Commerce
- CO2. Comprehend characteristics of Mobile commerce
- CO3. Explore the services of Mobile commerce
- CO4. Understand E-governance and electronic data interchange
- CO5. Differentiate types of electronic payment system
- CO6. Apply security methods to protect Electronic transactions

Syllabus -

Unit No.	Particulars	No. of lectures
1	Introduction to Ecommerce	5
1.1	Definition	
1.2	Main Activities, Goals of Ecommerce	
1.3	Technical Components and Functions of Ecommerce	
1.4	Advantages and Disadvantages of Ecommerce	
1.5	Ecommerce Business Models - B2B, B2C, C2C, C2B, B2G, G2B	
2	Electronic Data Interchange (EDI), E-Governance	5
3.1	Introduction to EDI	
3.2	EDI model	
3.3	Cost of EDI	
3.4	Advantages and Disadvantages of EDI	
3.5	Introduction to E-Governance	
3.6	E-governance in India	
3	Electronic Payment System (EPS)	5
4.1	Introduction to EPS	
4.2	Types of Modern Payment System	
4.3	Credit Card system, Smart Card, Micropayment, GIRO, E-Cash, E-cheque, RTGS, NEFT, Stored Value Card	
4	Mobile Commerce	5
5.1	Introduction to Mobile Commerce	
5.2	Services of M-commerce	
5.3	Difference between M-commerce and PC based E-commerce	
5.4	Advantages and Disadvantages of Mcommerce	
5	Threats to Information and Security	10
6.1	Threats to Information	
6.2	Virus - Types	
6.3	Hacking	



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6.4	Natural Calamity	
6.5	Failure of System	
6.6	Security measures	
6.7	Antivirus	
6.8	Cryptography - Encryption, Decryption	
6.9	Digital Signature	
6.10	Firewall	
6.11	Data Recovery methods	

Teaching Methodology – Presentation, Lecture, Examples **Suggested Reference Material** – 1) E-commerce by C.S.V Murthy

2) Management Information System - W.S.Jawadekar

3) M-commerce by Norman Sadeh - Wiley publication

4) Electronic Commerce From Vision to Fulfillment, 3rd Edition, PHI. ISBN : 81-203- 3027-7; Elias M. Awad



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Programme – T.Y.BBA(CA)

Subject code – 4603

Semester – VI

Credit – 3

Subject Title – **Recent Trends in IT (Python Programming)** (Revised 2017 Pattern) **Course Objectives:**

- To introduce various concepts of programming to the students learning Python.
- Students should be able to use Python programming language to solve simple problems.

Course Outcomes:

On completion of this course, students will be able to –

- CO1. Understand features and applications of Python
- CO2. Explore keywords, operators, built-in functions
- CO3. Comprehend data types through code
- CO4. Explore File handling techniques
- CO5. Understand Object Oriented Programming concepts
- CO6. Write relevant programs

Syllabus -

Unit No.	Contents	No. of Lectures
1	Introduction to Python Programming <ul style="list-style-type: none">• What is Python?• Why Python? Script or Program?• Applications of Python• Types of Python IDE – Python flavors• How to install Python IDE on laptops and PCs?• Getting Started	05
2	Basic Python <ul style="list-style-type: none">• Python identifiers and reserved words• Lines and indentation, multi-line statements• Comments	10
	<ul style="list-style-type: none">• Input / Output with print and input functions• Command line arguments and processing command line arguments• Standard data types – basic, none, Boolean (true and false), number• Python strings• Data type conversion• Python basic operators (arithmetic, comparison, assignment, bitwise logical)• Python membership operators (in and not in)• Operator precedence• Control statements, Python loops, Iterating by subsequence index, loop control statements (break, continue, pass)• Mathematical functions and constants (import math), Random number functions	



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3	<p>Python Strings</p> <ul style="list-style-type: none">• Concept, escape characters• String special operations• String formatting operator• Single quotes, Double quotes, Triple quotes• Raw string, Unicode strings, Built-in string methods• Python Lists – concept, creating and accessing elements, updating and deleting lists, basic list operations, reverse• Indexing, Slicing and Matrices• Built-in list functions• Functional Programming tools – filter(), map() and reduce()• Using lists as stacks and Queues, List comprehensions <p>Python tuples and sets</p> <ul style="list-style-type: none">• Creating and deleting tuples• Accessing values in a tuple• Updating tuples, delete tuple elements• Basic tuple operations• Indexing, Slicing and Matrices, built-in tuple functions• Sets – concept and operations <p>Python Dictionary</p> <ul style="list-style-type: none">• Concept (mutable)• Creating and accessing values in a dictionary• Updating dictionary, delete dictionary elements• Properties of dictionary keys• Built-in dictionary functions and methods	10
4	<p>Functions</p> <p><input type="checkbox"/> Defining a function (def)</p>	10
	<ul style="list-style-type: none">• Calling a function• Function arguments – Pass by value, Keyword arguments, Default arguments• Scope of variable – basic rules• Documentation Strings• Variable number of Arguments• Call by Reference• Order of arguments (positional, extra and keyword)• Anonymous functions• Recursion	
5	<p>File Handling</p> <ul style="list-style-type: none">• Introduction to Files• Types of Files• Opening and Closing a Text File• Writing to a Text File• Reading from a Text File• Setting Offsets in a File• Creating and Traversing a Text File• The Pickle Module	05



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6	Classes and Objects <ul style="list-style-type: none">• Classes as User Defined Data Type• Objects as Instances of Classes• Creating Class and Objects• Creating Objects By Passing Values• Variables & Methods in a Class Inheritance <ul style="list-style-type: none">• Single Inheritance• Multilevel Inheritance• Multiple Inheritance• Hybrid Inheritance• Hierarchical Inheritance• IS-A Relationship and HAS-A Relationship	05
	Total	45

Teaching Methodology – Lecture, Presentation, Guest lecture, Lab activity **Recommended Books:**

1. Learning Python by Mark Lutz

2. The Complete Reference by Martin.C. Brown



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Programme – T.Y.BBA(CA)

Subject code-4604

Semester - VI

Credit – 4

Subject title - **Operating System UNIX & Linux** (Revised 2017 Pattern)

Objectives:

10. To study Linux & Unix Operating System & commands
11. Comfortably use basic UNIX/Linux commands from the command line (from a terminal window)
12. Organize and manage their files within the UNIX/Linux file system;
13. Usefully combine UNIX/Linux tools using features such as filters, pipes, redirection, and regular expressions
14. Know how to use UNIX/Linux resources to find additional information about UNIX/Linux commands

Course Outcome –

- CO1. Understand the concept of Unix and Linux Operating system
- CO2. Comprehend kernel architecture
- CO3. Determine the file handling system
- CO4. Explore various processes and its utility
- CO5. Understand System Administration
- CO6. Write simple shell scripts

Syllabus -

Unit No.	Topics	No. of lectures
1	Introduction to Operating Systems General Overview: History of Unix, System Structure, User perspective, Operating system Services, Assumptions about Hardware	5
2	Introduction to the Kernel Architecture of Unix operating system, Introduction to the system concepts, Kernel data structure, System Administration	15
3	Introduction to the File System Pathnames, File system Mounting and unmounting, The organization of the File Tree, File Types, File Attributes, Access Control lists	5
4.	Bootting in Single and Mutiuser Mode, Rebooting ShutDown process, Shutdown, Reboot, Halt commands Shell basics: Comparision of Shells, Variables, Shell Scripts, Arithmetic in Shell Script, Looping Scripting Best Practices, Introduction to Python, Similarities between Python and Shell scripting,	10
5.	Introduction to processes, Process Status Command(PS), Mecahnism of process creation , nice, kill, renice System Processes, Internal and external commands, Process States and Zombies, Running Jobs in background, Job control, at and batch command, cron: Running jobs periodically, time: Timing processes, Signals AWK- Filter	15
6.	System Administration: Root Login, Administer's Privileges, User Management (useradd, usermod, userdel, groupadd), Managing Disk space, Device files, cpio, tar commands	10
	Advanced Administration: Partition and file system, fdisk, mkfs, fsck, shutdown and sync operation Mounting and Unmounting of File systems	

Teaching Methodology –

16. Classroom Teaching



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17. Lab Sessions
18. Online Material
19. Online Assignment
20. Online Submission

Suggested Reference Material –

1. William Rowley - Linux Kernel Guide Book
2. Ray – Unix & Linux Visual Quick Start Guide
3. Sumitabha Das, “Unix Concepts and Applications”, TMH, 4th Ed., 2009.
4. Yashwant Kanetkar, “Unix Shell Programming”, BPB, 7th Ed., 2007.
5. Ellen Siever, Stephen Figgins, Robert Love, Arnold Robbins, “Linux in a Nutshell”, O'Reilly Media, 6th Ed., 2009.
6. Robert Love, “Linux System Programming”, O'Reilly Media, 2nd Ed., 2007.



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Programme- T.Y.BBA -CA

Subject code- 4605

Semester- VI

Credits- 4

Subject title- Project Course Objectives:

- 1) To acquaint the students with the issues in existing system.
- 2) To understand the technique of data collection and data analysis
- 3) To encourage the students in generating new system using the technologies learnt

Course Outcome –

On completion of this course, students will be able to -

CO1 Explore project idea in groups

CO2 Understand user requirement

CO3 Comprehend System requirement specifications

CO4 Design System requirement diagram

CO5 Assess diagrams to user requirements.

CO6 Develop and Test project

Students in this semester work in pairs and not in large groups. There is no scrum master and no application of Agile. The project building starts from project idea approval, creation of ER diagrams, DFD, flows charts, use cases, coding, testing, and final documentation. This semester the students have the freedom to use any technology of their choice. They are encouraged to learn and implement any new technology which might not have been covered in the syllabus so far.

Idea behind this semester's project is to learn to work independently. This boosts the confidence of the students and often generate self-employing opportunities. This develops their interpersonal skills, ideas for start-ups.

Exam is conducted in two phases. 40 marks internal exam where at least 80% of the project is expected to be completed. With comments, suggestions invited from the other groups and project teachers the groups get a chance to enhance their project before the final exam of 60 marks where external examiner evaluates them.



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Programme – T.Y.BBA(CA)

Subject code-4606

Semester - VI

Credit – 4

Subject title - **Lab course on 4603(Python programming) and 4604(Linux)**
(Revised 2017 Pattern) **Objectives:**

1. To study Python and Linux& Unix Operating System & commands
2. Use the course logic in writing small programs
3. Practice with different ways to write programs **Course Outcome –**

On completion of this course, students will be able to -

CO1 Remember **Python** and **Linux syntax**

CO2 Understand the given problem on **Python and Linux**

CO3 Build logic related to the problem

CO4 Develop the code

CO5 Verify the output with the stated requirement CO6 Create programs.

Syllabus –

Unit No.	Topics	No. of lectures
1	Understanding the functions of Python and Linux	15
2	Solve Programs with the course syntax	40
3	Apply self- logic to develop the code	5