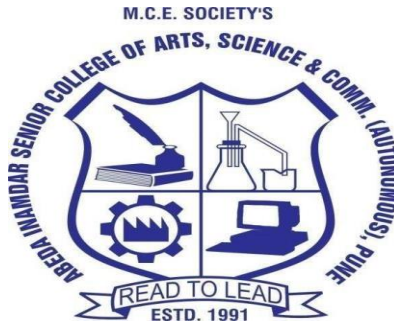


M. C. E. Society's

**Abeda Inamdar Senior College Of Arts, Science
and Commerce (Autonomous), Pune-1**

Affiliated to Savitribai Phule Pune University

NAAC accredited 'A' Grade



Faculty of Commerce & Management

**Bachelor of B.Com(Computer
Application)**

B.Com(C.A)

3 Years U.G. Program

(NEP 2026)

**Applicable for the Autonomous
College Affiliated to**

Savitribai Phule Pune University

With effect from June 2026

Semester I

Semester I					
Course Type	Course Code	Course Name	Credits		Total
			Theory	Practical	
Major/Core Theory	26BCA11MM	Introduction to C Programming	2	-	2
Major/Core Theory	26BCA12MM	Database Management System	2	-	2
Major/Core Practical	26BCA13MM	Lab on Introduction to C Programming	-	2	2
GE/OE	26SBCA12OE	Foundation of Computing	2	-	4
	26SBST11OE	Statistics for Computer Application	2	-	
VSC	26BCA11VS	Lab on Database Management System	-	2	2
SEC	26BCA11SE	Business Professional Skills	2	-	2
AECC	26ABEN11AE	Functional English I	2	-	2
General IKS	26ABHS11IKA	History of Knowledge Production in India (Generic)	2	-	2
Value Education (VEC)	26ABPO11VE	Democracy, Elections and Governance	2	-	2
NSS/NCC/Sports/Physical Education	26CBPE11CC	Physical Education, Sports and Yoga	2	-	2
			18	4	22

Semester II					
Course Type	Course Code	Course Name	Credits		Total
			Theory	Practical	
Major/Core Theory	26CBCA21MM	Advanced C Programming	2	-	2
Major/Core Theory	26CBCA22MM	Relational Database Management System	2	-	2
Major/Core Practical	26CBCA23MM	Lab on Advanced C Programming	-	2	2
Minor Theory	26CBCA21MN	Applied Mathematics	2	-	2
GE/OE	26SBCA21OEA	Web Design	2	-	4
	26SBCA21OEB	Lab on Web Design	2	-	
VSC	26CBCA21VS	Lab on Relational Database Management System	-	2	2
SEC	26SBCA21SE	Principles of Management	-	2	2
AECC	26ABEN21AE	Functional English - II	2	-	2
Value Education(VEC)	26CBCA21VE	Business Etiquettes	2	-	2
NSS/NCC/Sports/Physical Education	26CBCA21CC	Certificate Course in Co-Curricular Activities	2	-	2
			16	6	22



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F.Y.B.COM(C.A)

Semester I (NEP 2026 Pattern)

Course Title : INTRODUCTION TO C PROGRAMMING	Semester : I
Course Code : 26CBCA11MM	No. of Credits : 02
Nature of Course : Major	Total Teaching Hours : 30 Hrs

Course Objectives

1.	The course aims to provide exposure to problem-solving through programming
2.	It aims to train the student to the basic concepts of the C-programming language.
3.	This course involves a lab component which is designed to give the student hands-on experience with the concepts.

Course Outcome

1.	Identify situations where computational methods and computers would be useful.
2.	Given a computational problem, identify and abstract the programming task involved.
3.	Approach the programming tasks using techniques learned and write pseudo-code.
4.	Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.
5.	Write the program on a computer, edit, compile, debug, correct, recompile and run it.

6.	Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task
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Suggested Readings	
1.	Y.S.Kanetkar,“Let Us C”,17th Edition, BPB Publications.
2.	E.Balaguruswamy, “Programming in ANSI C”, 2nd Edition, Tata Mc-Graw Hill Publishing Co Ltd.
3.	K. N. King ,“C Programming: Modern Approach”, 2nd Edition, W. W. Norton & Company.
4.	Greg Perry and Dean Miller, “C Programming Absolute Beginner’s Guide”, 3rd Edition , Kindle eTextbook Store.
5.	Mike McGrath ,”C Programming in easy steps”, 5th Edition, McGraw Hill Education.

Syllabus		
Unit I	FUNDAMENTALS OF C LANGUAGE	06 hours
	1. History of Programming Language 2. Introduction of Flowcharts and Algorithms 3. Language fundamentals <ul style="list-style-type: none"> i. Tokens ii. Data types iii. Declaration of Variables 4. Operators <ul style="list-style-type: none"> i. Types of operators ii. Precedence and associativity 	1 1 2 2
Unit II	DECISION MAKING AND LOOPING	08 hours
	1. Decision making structure <ul style="list-style-type: none"> i. If statement ii. If-else statement iii. Nested if-else statement iv. Conditional operator v. Switch statement 2. Loop control structures <ul style="list-style-type: none"> vi. while loop vii. Do-while loop viii. For loop ix. Nested for loop 3. Jump statements break, continue, goto and exit	4 3 1
Unit III	ARRAYS AND STRINGS	08 hours
	1. Introduction to one-dimensional Array <ul style="list-style-type: none"> i. Definition ii. Declaration iii. Initialization 	2

	2. Accessing and displaying array elements 3. Introduction to two-dimensional Array <ul style="list-style-type: none"> x. Definition xi. Declaration xii. Initialization 4. Accessing and displaying array elements <ul style="list-style-type: none"> i. Addition, Multiplication, 5. Introductions to Strings <ul style="list-style-type: none"> i. Definition ii. Declaration iii. Initialization iv. Standard library functions 	
Unit IV	FUNCTIONS	08 hours
	1. Introduction <ul style="list-style-type: none"> i. Purpose of function ii. Function definition iii. Function declaration iv. Function call 2. Types of functions <ul style="list-style-type: none"> i. Call by value ii. Call by reference 3. Recursion 4. Storage Classes	



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F.Y.B.COM(C.A)

Semester I (NEP 2026 Pattern)

Course Title : DATABASE MANAGEMENT SYSTEM	Semester : I
Course Code : 26CBCA12MM	No. of Credits : 02
Nature of Course : Major	Total Teaching Hours : 30 Hrs

Course Objectives

1.	To provide a sound introduction to the discipline of database management system as a subject.
2.	To give an introduction to systematic design approaches covering conceptual, logical and physical view
3.	To present the concepts and techniques relating to query processing using SQL

Course Outcome

1.	Understand and effectively explain the concepts of database technologies.
2.	Design and implement a database schema for give problem domain and normalize database
3.	To make the students understand the students about SQL Queries.

Syllabus		
Unit I	Database Management System	04
	<p>1) Introduction of Basic Concept and Definitions</p> <p>DBMS</p> <ul style="list-style-type: none"> i. Data and Information ii. Data Vs. Information iii. Data Dictionary iv. Data Item or Field v. Record <p>2) Definition of DBMS</p> <p>3) Applications of DBMS</p> <p>4) Advantages and Disadvantages of DBMS</p> <p>5) Users of DBMS</p> <ul style="list-style-type: none"> i. Database Designers ii. Application programmer iii. Sophisticated Users iv. End Users <p>6) Overall System structure</p>	
Unit II	Relational Model	07
	<p>1. Basic Terms</p> <ul style="list-style-type: none"> i. Relation ii. Tuple iii. Attribute iv. Cardinality v. Degree of relationship set vi. Domain <p>2. Keys</p> <ul style="list-style-type: none"> i. Super Key ii. Candidate Key 	

	<ul style="list-style-type: none"> iii. Primary Key iv. Foreign Key <p>3. Relational Algebra Operations</p> <ul style="list-style-type: none"> i. Select ii. Project iii. Union iv. Difference v. Intersection vi. Cartesian Product vii. Natural Join <p>4. Relational Algebra Case Study</p>	
Unit III	SQL (Structured Query Language)	12
	<ul style="list-style-type: none"> 1. Introduction 2. History Of SQL 3. Basic Structure 4. DDL Commands 5. DML Commands 6. Simple Queries 7. Nested Queries 8. Aggregate Functions 	
UNIT IV	Relational Database Design	07
	<ul style="list-style-type: none"> 1. Introduction 2. Anomalies of un normalized database 3. Normalization 4. Normal Form i. 1 NF ii. 2 NF iii. 3 NF iv. 4 BCNF 	

Suggested Readings

1.	“Database System”, By Henry korth, 6th Edition, Silberschatz.
2.	SQL, PL/SQL the Programming Language Oracle, Ivan Bayross , 4th Edition,
3.	“Database Systems Concepts”, Shio Kumar Singh, 3rd Edition, Pearson.
4.	“Introduction to SQL”, Reck F. van der Lans 4th Edition,
5.	“Modern Database Management”, Jeffery A Hoffer, Ramesh, HeikkiTopi, 5th Edition, Pearson.
6.	”Database Management Systems”, DebabrataSahoo 6th Edition, Tata.
7.	Website Links: https://docs.oracle.com/cd/E11882_01/server.112/e40540/intro.htm https://docs.oracle.com/cd/E11882_01/server.112/e40540/tablecls.htm#CNCPT010 https://docs.oracle.com/cd/E11882_01/server.112/e40540/indexiot.htm#CNCPT721



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Lab on Introduction to C Programming

Semester I (NEP 2026 Pattern)

Course Title : Lab on Introduction to C Programming	Semester : I
Course Code : 26BCA13MM	No. of Credits : 02
Nature of Course : Core Practical	Total Teaching Hours : 30 Hrs

Aims & Objectives of the Course

Sr.No.	Objectives
1.	To study various data types, arrays, strings and functions in C
2.	To learn briefly the concept of Decision Making and looping
3.	To understand built-in library functions

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	Explain use of appropriate data types, control statements
2.	Write programs using Array, String and function
3.	Use Pre-processor directives
4.	Demonstrate ability to use top-down program design

Best IDE used for C-Programming:

Sr. No	Name of IDE or Tools	Latest Version
1.	Turbo C	3.2/3.3
2.	Microsoft Visual Studio Code	1.56
3.	NetBeans	12.4

Assignment No	Assignment Name	No. Of Sessions
1	Assignment based on Data types and operators	1
2	Assignment based on if and if-else	6
3	Assignment based on Switch	5
4	Assignment based on Loop	6
5	Assignment based on Array and String	6
6	Assignment based on Function	6
	Total Number of Sessions	30



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Lab on Database Management System

F.Y.B.COM(C.A)

Semester I (NEP 2026 Pattern)

Course Title : Lab on Database Management System	Semester : I
Course Code : 26BCA11SE	No. of Credits : 02
Nature of Course : SEC	Total Teaching Hours : 30 Hrs

Aims & Objectives of the Course

Sr.No.	Objectives
1.	To study basic concepts of database management System
2.	To understand SQL Commands
3.	To understand how to Enables student to write SQL command to implements: Constraints and Relationships.

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	After completion of this course, students will able to write SQL DDL, DML queries ,they can understand Constraints and able to implement Relationships.

Best IDE used for C-Programming:

Sr. No	Name of IDE or Tools	Latest Version
1.	Oracle	10X
2.	Notepad	-

Assignment No	Assignment Name	No. Of Sessions
1	Assignment on DDL Commands (Table Creation).	2
2	Assignment on DDL Commands (Alter and Drop table).	2
3	Assignment on DML Commands (Insert, Update and Delete).	2
4	Assignment on RDB without Constraints.	3
5	Assignment on Table Creation with Constraints.	3
6	Assignment on RDB with constraints.	4
7	Assignment on Implementation of Select Command	14
	Total Number of Sessions	30



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F.Y.B.COM(C.A)

Semester I (NEP 2026 Pattern)

Course Title	Business and Professional Skills	
Course Code: 26CBCA11VS		No. of Credits: 02
Course Type: VSC		Total Teaching Hours: 30

Course Objectives

1.	To understand what is the role of communication in personal and business world
2.	To understand organizational system, organizational communication and their utility
3.	To develop proficiency in how to write business letters and other communications in required business communication
4.	To develop ability to maintain business style and professional image.

Course Outcome

1.	To understand and implement effective communication methods.
2.	To understand forms of communication and to develop ability to use it according to required situation.
3.	Ability to understand business correspondence and types of business letters.
4.	Ability to maintain and improve business style and professional image.

Syllabus		
Unit I	Introduction to Communication	10 Hours
	1. Meaning and definition of Communication	02
	2. Need for effective communication	02
	3. Role of Communication in social and economic system	02
	4. Principles of effective communication	02
	5. Barriers to communication and over comings	02
Unit II	Methods and Channels of Communication	15 Hours
	1. Methods of Communication	
	I. Verbal Communication	04
	a. Nature and Definitions of Verbal Communication	
	b. Oral Communication: Definition, Advantages and Disadvantages	
	c. Written Communication: Definition, Advantages and Disadvantages	
	II. Non Verbal Communication	04
	a. Definition, its importance and its inevitability	
	b. Kinesics: Body movements, facial expressions, posture, eye contact etc.	
	c. Proxemics: The communication use of space	
	d. Paralanguage: Vocal behaviour and its impact on verbal	

	<p>communication</p> <p>2. Channels of Communication</p> <p>I. Formal Channels</p> <p>a. Downward Communication: Definition, Illustrations, Merits and Demerits</p> <p>b. Upward Communication: Definition, Illustrations, Merits and Demerits</p> <p>c. Horizontal Communication: Definition, Illustrations, Merits and Demerits</p> <p>d. Diagonal Communication: Definition e. Illustrations, Merits and Demerits</p> <p>II. Informal Channels</p> <p>a. Grapevine Communication: Meaning and Definition</p> <p>b. Types and Illustrations</p> <p>c. Merits and Demerits</p>	<p>04</p> <p>03</p>
Unit III	Professional Image Building and E-mail Etiquettes	05 Hours
	<p>1. Professional Image Building;</p> <p>2. Business Attire,</p> <p>3. Grooming for Multicultural Environment</p> <p>4. Writing Business E-mails</p>	<p>02</p> <p>01</p> <p>01</p> <p>01</p>

Suggested Readings

1.	Meenakshi Raman, Prakash Singh, “Business Communication”, Oxford.
2.	HomaiPradhan , N.S. Pradhan, “Business Communication”, Himalaya Publishing House
3.	R.K. Madhukar,”Business Communication”, Vikas Publishing House.
4.	Biswajit Das. IpswwtaSatpathy,”Business Communication and personality Development”, 3rd Edition, Excel Books
5.	P.D Chaturvedi, MukeshChaturvedi ,”Business Communication – Concepts, Cases and applications”, 5th Edition,Dorling Kindersley.
6.	HorySankarMukerjee,”Business Communication – Connecting at work”, 9th Edition, Oxford.
7.	Courtland L. Bovee, John V. Thill, AbhaChatterjee,”Business Communication Today”, 2nd Edition, Pearson.
8.	Eileen Scholes,”Hand Book of internal Communication”, 1st Edition, Infinity Books.
9.	Linda B., Iris V.,”Intercultural Communication in the Global Workplace”, 10th Edition, Tata McGraw Hills.



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F.Y. B.Com (CA) Foundation Of Computing

Semester I (NEP 2026 Pattern)

Course Title : Foundation Of Computing		Semester : I
Course Code : 26SBCA110EA		No. of Credits : 02
Nature of Course : Open Elective		Total Teaching Hours : 30 Hrs

Sr. No.	Course Objectives
1.	To provide students with an understanding of basic computer concepts, system components, and operating systems.
2.	To familiarize students with number systems and data representation in computers.
3.	To provide foundational knowledge of computer system architecture, networking, ethics, and security.

Sr. No.	Learning Outcome
1.	Students will be able to explain fundamental computer concepts and use basic computing tools effectively.
2.	Students will be able to apply number system concepts and understand data representation in computers.
3.	Students will be able to describe computer system architecture, memory, and basic networking concepts.

Syllabus		
Unit No	Title with Contents	No. of Lectures
Unit I	Introduction to Computer	13
	1. Components of a Computer System	2
	2. Operating Systems (OS)	2
	3. Data, Information, and Knowledge	2
	4. File and Folder Management	2
	5. Basics of Internet and Email	2
	7. Introduction to MS Office Tools	2
	8. Ethics & security	1
Unit II	Number System	7
	1. Fundamentals and Applications	2
	2. Number Representation in Computers	1
	3 . Types of Number Systems	2
	I. Decimal Number System (Base 10)	
	II. Binary Number System (Base 2)	
	III. Octal Number System (Base 8)	
	IV. Hexadecimal Number System (Base 16)	
	4. Number System Conversion	
		2
Unit III	Computer System Architecture	10

1. Input–Process–Output (IPO) Cycle	1
2. Central Processing Unit (CPU)	3
I. Arithmetic Logic Unit (ALU)	
II. Control Unit	
III. Registers	
3. Primary Memory (RAM,ROM)	
4. Secondary Memory	2
5. Computer Networks and Types of Networks	2
	2

Suggested Readings	
1.	Introduction to Computers – Dr. Priti M. Tailor, Dr. Purva Desai, Dr. Viral B. Polishwala
2.	"Fundamentals of Computers" by V. Rajaraman
3.	"Fundamentals of Information Technology" by Deepak Bharihoke
4.	Digital Fundamentals by Thomas L. Floyd — Excellent for number systems (binary, octal, hex) and basic digital concepts.

Website Reference Links:

<https://www.geeksforgeeks.org/computer-science-fundamentals/computer-fundamentals-tutorial/>

https://youtu.be/3pXr3N_Wwp8?si=NWRhKNXz52bbzwDO

<https://share.google/HuiaATnljRXmgQV6e>



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Semester I (NEP 2026 Pattern)

Course/ Paper Title	Statistics for Computer Applications
Course Code	26SBST11OE
Semester	I
No. of Credits	2

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	Frequency Distribution	8
	1. Raw data, variable, discrete variable, continuous variable, constant, attribute with illustration.	1
	2. Classification- Concept and definition of classification, 2 objectives of classification, types of Classification.	1
	3. Frequency Distribution- Discrete and Continuous frequency distribution, Cumulative frequency and Cumulative frequency 3 distribution.	2
	4. Graphs & Diagram- Histogram, Ogive curve, Pie-Diagram, Bar Diagram, Multiple bar Diagram Sub-divided bar diagram.	4

Unit II	Measure of Central Tendency and Measure of Dispersion	14
	1. Concept and meaning of Measure of Central Tendency, Objectives of Measure of Central Tendency, Requirements of good Measure of Central Tendency.	2
	2. Types of Measure of Central Tendency, Arithmetic Mean (A.M), Median, Mode for discrete and Continuous frequency distribution, Merits & Demerits of A.M Median , Mode, Numerical Problem.	3
	3. Determination of Mode and Median graphically.	1
	4. Empirical relation between mean, median, mode	
	5. Combined Mean., Numerical Problems .	1
	6. Concept and meaning of Measure of dispersion, Requirements of good Measure of dispersion.	1
	7. Types of Measure of Dispersion- Absolute & Relative Measure dispersion (Range, Standard Deviation (S.D.), Variance, Quartile Deviation, Coefficient of Range,	3
	8. Coefficient of Quartile Deviation, and Coefficient of Variation (C.V).	2
	9. Combined Standard Deviation.	1
Unit III	Correlation & Regression	8
	1. Concept and meaning of Correlation, Types of correlation (for ungrouped data).	1
	2. Methods to study Correlation: Scatter Diagram, Karl Pearson correlation coefficient, Spearman Rank Correlation Coefficient (with ties and without ties).	2
	3. Regression- Concept and meaning of regression, line of regression equation of Y on X (Y-Dependent variable, X Independent variable).	2
	4. Regression coefficients, properties of regression coefficients.	2
		1

TEXT BOOK:

1. Mathematical Statistics-J.N. Kapur and H.C. Saxena S. Chand Publication
20th Edition, New Delhi

Unit I: Chapter1. Unit II:

Chapter2. Unit III:

Chapter3. **References:**

1. J.N. Kapur and H.C. Saxena S. Mathematical Statistics. Sultan Chand and Sons Publishers, New Delhi
2. GirishPhatak. Business Statistics. Tech – Max Pune
3. Dr. S. K. Khandelwal. Statistics for Business. International Book House New Delhi
4. J.K. Sharma. Fundamentals of Business Statistics. Pearson New Delhi
5. G.C. Beri. Business Statistics. McGraw-Hill companies New Delhi
6. R.S. N. PillaiBagavathi. Statistics Theory and Practice. Sultan Chand and Sons Publishers, New Delhi.
7. Dr. S. K. Khandelwal. Statistics for Managerial decision Making. International BookHouse New Delhi
8. Ken Black. Business Statistics For Contemporary Decision Making.
WileyIndiaEditionNew Delhi

REFERENCE WEBSITES:

1. https://onlinecourses.nptel.ac.in/noc20_mg23/preview

Semester II



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Semester II (NEP 2026 Pattern)

Course Title : ADVANCED C PROGRAMMING	Semester : II
Course Code : 26BCA21MM	No. of Credits : 02
Nature of Course : Major	Total Teaching Hours : 30 Hrs

Course Objectives	
1.	To study advanced concepts of programming using the 'C' Language.
2.	To understand code organization with complex data types and structures.
3.	To work with files and graphics.

Course Outcome	
1.	Easy to develop our own data types also helpful in data structures.
2.	To create own macros for the constant values.
3.	Creating different types of files using different file functions.
4.	Easy to handle memory management.
5.	Students can make their own mini projects using graphics.
6.	Students will be able to understand how to interact with computer hardware by using different libraries in C.

Syllabus		
Unit I	STRUCTURES	05 hours
	1. Introduction to Structures i. Definition ii. Declaration 2. Accessing Members. 3. Structure operations 4. Nested Structures	1 1 2 1
Unit II	POINTER	08 hours
	1. Definition and Concept, Advantage of using pointer 2. Pointer arithmetic 3. Array of pointers 4. Pointers and Functions 5. Dynamic Memory Allocation	1 1 2 2 2
Unit III	UNION	05 hours
	1. Union i. Definition, Syntax. 2. Working with union 3. Initializing union, Advantages of union 4. Structures versus union	1 2 1 1
Unit IV	FILE HANDLING	07 hours
	1. File i. Definition ii. File Opening Modes 2. Functions: fopen(), fclose(), fgetc(), fputc(), fgets(), fputs(), fscanf(), printf(), getw(), putw(), fread(), fwrite(), fseek(), ftell() etc. 3. File Management	1 3

	<ul style="list-style-type: none"> i. Opening/Closing a File ii. Input/output operations on Files iii. Error Handling During I/O Operations iv. Command Line Arguments 	3
Unit V	GRAPHICS PROGRAMMING	05 hours
	1. Introduction of graphics	1
	2. Graphical functions	2
	3. Simple Programs	2

Suggested Readings	
1.	Schildt Herbert," C: The Complete Reference (Tata McGraw Hill Edition)", McGraw Hill
2.	Behrouz A. Forouzan, Richard F. Gilberg, "A Structured Programming Approach Using C (Third Edition 2007)", Cengage Learning India
3.	Brian Kernighan, Dennis Ritchie, "The 'C' programming language (Second Edition), PHI
4.	Ajay Mittal, Pearson," Programming in C (First Edition 2010)", Cengage Learning India.
5.	B. Gottfried, "Programming with C (Fourth Edition)", Tata McGraw Hill
6.	E. Balagurusamy,"Programming in ANSI C (Seventh Edition)", McGraw Hill
7.	YashwantKanetkar,"Let Us C (15th Edition 2016)", BPB



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Lab on Advanced C Programming

F.Y.B.COM(C.A)

Semester II (NEP 2026 Pattern)

Course Title : Lab on Advanced C Programming	Semester : II
Course Code : 26BCA23MM	No. of Credits : 02
Nature of Course : Core Practical	Total Teaching Hours : 30 Hrs

Aims & Objectives of the Course

Sr.No.	Objectives
1.	To study basic concepts of Structure and Pointers.
2.	To understand concept of Union and Enumeration.
3.	To understand concept of File Handling functions.
4.	To work with graphics.

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	Implement the given Structure program.
2.	Write programs using Pointers, Union.
3.	Use File Handling concept.
4.	Use graphics methods to draw line, circle, rectangle etc.

Best IDE used for Advance C:

SR No	Name of IDE or Tool	Latest Version
1.	Turbo C	3.2/3.3
2.	Notepad++	7

Assignment No	Assignment Name	No. Of Sessions
1	Assignment on structures	6
2	Assignment on Pointers	6
3	Assignment on Union and Enumeration	6
4	Assignment on File handling	6
5	Assignment on graphics programming	6
	Total Number of Sessions	30



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Offered as	Minor
Course/ Paper Title	Applied Mathematics
Course Code	26CBCA21MN
Semester	II
No. of Credits	2

Sr. No.	Objectives
1.	Learn basic terminology formal logic, sets, relations, functions and perform the operations associated with same.
2.	Use formal logic proof and logical reasoning to solve problems.
3.	To acquaint students with some basic concepts in Mathematics.

Sr. No.	Outcome
1.	Relate and apply techniques for constructing mathematical proofs and make use of appropriate set operations, propositional logic to solve problems.
2.	Use function or relation models to interpret associated relationships.
3.	Understand various types of matrices and operations on matrices

Evaluation Process:

Evaluation process for each paper of 2 credit comprises of Continuous Internal Evaluation

(CIE) for 20 marks and End Semester Examination (ESE) for 30 marks.

For Continuous Internal Evaluation (CIE), evaluation will be done continuously. Internal assessment will be of **20** marks for a paper of 50 Marks. These 20 marks are divided as follows:

CIE for 2 Credits Theory Paper: It will be divided as follows:

Sr. No.	Components		Marks
1.	CIE I	There will be a compulsory Test on Demand MCQ Examination of 20 marks of each subject which would be converted into 5 Marks.	5
2.	CIE II	Two Class Tests 10 Marks Each. Converted to 5 Marks.	5
3.	CIE III	Mid Sem Exam of 20 Marks converted to 5 Marks.	5
4.	CIE IV	Participation in two activities at department/ college level 5 Marks	5
		In case of a student failing to score under the category, the attendance can be considered to give marks	
		Total	20

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	Set Theory, Logic and functions	10
	1. Propositional Logic.	2
	2. Propositional Equivalences.	2
	3. Sets.	2
	4. Set Operations.	2
	5. Functions.	2
Unit II	Relations and Graphs	10
	1. Relations and their properties.	1
	2. n- ary Relations and their applications.	1
	3. Representing Relations.	1
	4. Closure of Relations	1

	5. Equivalence Relations.	1
	6. Partial Orderings.	1
	7. Graphs and Graph Models.	1
	8. Graph Terminology and Special Graphs.	1
	9. Representing Graphs.	1
	10. Connectivity.	1
Unit III	Linear Equations and Matrices	10
	1. Linear systems	2
	2. Matrices Dot Product and Matrix Multiplication	2
	3. Matrix Transformations	2
	4. Solutions of Linear Systems of Equations	2
	5. LU- Factorization.	2

Text book:

1. KENNETH H ROSEN (Indian Adaptation by Kamala Krithivasan), Discrete Mathematics and Its Application with Combinatorics and Graph Theory, Seventh Edition, Special Indian Edition, McGraw Hill Education (India) Private Limited

Unit I: Chapter 1: Sec. 1.1, 1.2.,

Chapter 2: Sec. 2.1, 2.2, 2.3.

Unit II: Chapter 7: Sec. 7.1, 7.2, 7.3, 7.4, 7.5, 7.6.

Chapter 8: Sec. 8.1, 8.2, 8.3 (Only Representing Graphs), 8.4.

2. B. Kolman , D. Hill, Introductory Linear Algebra, An Applied First Course, Pearson Edn; 8th Edn; (2008)

Unit III: Chapter : 1

Reference books:

1. Bernard Kolman, Robert C. Busy, Sharon Cutler Ross, Discrete Mathematical Structures, Sixth Edition, PHI Learning Private Limited.

2. H. Anton, Chris Rorres, Linear Algebra with Applns., Wiley, 7th Edn; (1994)

Website:

1. https://onlinecourses.nptel.ac.in/noc20_cs82/preview.



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F.Y.B.COM(C.A)

Semester II (NEP 2026 Pattern)

Course Title : RELATIONAL DATABASE MANAGEMENT SYSTEM	Semester : II
Course Code : 26BCA22 MM	No. of Credits : 02
Nature of Course : Major	Total Teaching Hours : 30 Hrs

Course Objectives

1.	Enables students to understand relational database concepts and transaction management concepts in database system.
2.	Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.
3.	Enable students to manage the concurrent transaction and Recovery System.

Course Outcome

1.	Students will able to understand various RDBMS products, difference between DBMS and RDBMS and to get knowledge of Front End and Back end.
2.	Students will able to write PL/SQL programs using Exception Handling, Views, procedure, function, cursor, trigger and package.
3.	Students will able to understand Transaction Concepts, How to reduce the waiting time and recover the transaction from failure.
4.	Students will able to understand concept of concurrency and how to resolve issues during concurrent execution of transactions.

5.	Students learn different type of failure and recover the data from that failure.
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Syllabus		
Unit I	Introduction To RDBMS	02
	1. Introduction to popular RDBMS product and their features 2. Difference Between DBMS and RDBMS 3. Relationship among application programs and RDBMS	
Unit II	PLSQL	17
	1. Overview of PLSQL 2. Data Types 3. PLSQL Block 4. Exception Handling <ul style="list-style-type: none"> i. Predefined ii. User defined exceptions 5. Views 6. Functions , Procedures 7. Cursor <ul style="list-style-type: none"> i. Definition ii. Types of cursor- implicit, explicit (attributes) 8. Trigger	
Unit III	Transaction Management	04
	1. Transaction Concept 2. Transaction Properties	

	3. Transaction States 4. Concurrent Execution 5. Serializability i. Conflict Serializability ii. View Serializability	
UNIT IV	Concurrency Control	04
	1. Lock Based Protocol i. Locks ii. Granting of Locks iii. Two Phase Locking Protocol 2. Timestamp Based Protocol i. Timestamp ii. Timestamp ordering protocol iii. Thomas's Write Rule 4. Deadlock Handling i. Deadlock Prevention ii. Deadlock Detection iii. Deadlock Recovery	
UNIT V	Recovery System	03
	1. Failure Classification i. Transaction Failure ii. System Crash iii. Disk Failure 2. Recovery & Atomicity i. Log based Recovery ii. Deferred Database Modification iii. Immediate Database Modification	

	iv.Checkpoints	
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Suggested Readings	
1.	Database System Concepts”, Silberschatz, Korth, Sudershan,”5th Edition, McGraw-Hill.
2.	Database Management System “,Bipin Desai,”4thEdition, Galgotia Publication.
3.	An Introduction to Database Systems”, C. J.Date, A.Kannan, S.Swamynathan,”8th Edition
4.	,”SQL/PLSQL the programming language of oracle”, Ivan Bayross 4th Revised Edition, BPB Publication
5.	<p>Website Reference Link:</p> <ul style="list-style-type: none"> ● https://docs.oracle.com/database/121/LNPLS/toc.htm ● https://www.tutorialspoint.com/plsql/index.htm ● https://www.techonthenet.com/oracle/index.phphttps://www.w3schools.com/sql/sql_intro.asp ● https://www.geeksforgeeks.org/sql-tutorial/



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Lab on Relational Database Management System

F.Y.B.COM(C.A)

Semester II (NEP 2026 Pattern)

Course Title : Lab on Relational Database Management System	Semester : II
Course Code : 26BCA21VS	No. of Credits : 02
Nature of Course : VSC	Total Teaching Hours : 30 Hrs

Aims & Objectives of the Course

Sr.No.	Objectives
1.	To study basic concepts of Relational database management System
2.	To understand relational database concepts and transaction management concepts in database system.
3.	To understand how to Enables student to write PL/SQL programs that use: View, procedure, function, package, cursor and trigger.

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	After completion of this course, students will able to write PL/SQL programs using view, procedure, function, package, cursor and trigger.

Best IDE used for RDBMS :

Sr. No	Name of IDE or Tools	Latest Version
1.	Oracle	10X
2.	Notepad	-

Assignment No	Assignment Name	No. Of Sessions
1	Assignment on Data Types: PL SQL Block and Control Structure	4
2	Assignment on Error and Exception	4
3	Assignment on View	4
4	Assignment on Function	5
5	Assignment on procedure	5
6	Assignment on cursors	4
7	Assignment on Triggers	4
	Total Number of Sessions	30



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F.Y.B.COM(C.A)

Semester II (NEP 2026 Pattern)

Course Title : Principles of Management	Semester : II
Course Code : 26BCA21SE	No. of Credits : 02
Nature of Course : Major	Total Teaching Hours : 30 Hrs

Course Objectives

1.	To provide basic knowledge and understanding about various concepts of Business Management.
2.	To help the students to develop cognizance of the importance of management principles.
3.	To provide an understanding about various functions of management.
4.	To provide them tools and techniques to be used in the performance of the managerial job.

Course Outcome

1.	The students will be able to understand the various functions and levels of management.
2.	The students will be able to understand the role of various Management Thinkers in development of Management and Motivational Theories.

3.	The students will be able to develop a Planning, decision making and controlling skills.
4.	The students will be able to developed Team building skills

SYLLABUS		
UNIT - I	Management	10
	<ol style="list-style-type: none"> 1. Meaning definition of Management 2. Need for Management study 3. Process and levels of management 4. Functions of management 5. Contribution of F.W. Taylor, Henry Fayol, Peter Drucker, Mintzberg and Michel Porter in development of management thoughts 	
UNIT - II	Motivation	10
	<ol style="list-style-type: none"> 1. Meaning, Importance and Theories of motivation 2. Maslow's Need Hierarchy Theory 3. Herzberg's Two Factor Theory 4. Douglas MC Gregor's Theory of X and Y 5. Ouchi's Theory Z 6. McClelland's Theory 	
UNIT - III	Planning and Direction	10
	<p>Planning</p> <ol style="list-style-type: none"> 1. Meaning, definition and nature of Planning 2. Forms and types of Planning 3. Steps in Planning 4. Limitations of Planning 5. Meaning and techniques of Forecasting 	

	<p>6. Meaning, Types and Steps in Decision Making Direction</p> <p>1. Meaning, Elements, Principles,</p> <p>2. Techniques and Importance of Direction.</p> <p>3. Concept of Team Work, Group Dynamics and principles regarding interpersonal communication and Group Behaviour</p>	
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SUGGESTED READINGS	
1.	Horold Koontz and IteinzWeibrich, Essentials of Management – McGraw hills International
2.	J.N.Chandan, Management Theory & Practice (Latest Edition)
3.	K.A Swathapa, Essential of Business Administration, Himalaya Publishing House
4.	Dr. L. M. Parasad, Principles & practice of management, Sultan Chand & Sons - New Delhi (Latest Edition)
5.	J. S. Chandan, Management: Concept and Strategies, Vikas Publishing House (Latest Edition)
6.	Tripathi, Reddy, Principles of Management, Tata McGraw Hill, (Latest Edition)
7.	Dr. L.M.Parasad, Principles & practice of management, Sultan Chand & Sons - New Delhi (Latest Edition)
8.	J. S. Chandan, Management: Concept and Strategies, Vikas Publishing House (Latest Edition)
9.	Francis Cherunilam, Business Environment and Policy – A book on Strategic Management, (Latest Edition)
10.	Dr. Y.K. Bhushan, Business Organization & Management, Sultan Chand & Sons - New Delhi (Latest Edition)



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F.Y. B.Com (CA) Web Design

Semester II (NEP 2026 Pattern)

Course Title : Web Design		Semester : II
Course Code : 26SBKA210EA		No. of Credits : 02
Nature of Course : Open Elective		Total Teaching Hours : 30 Hrs

Course Objectives

1.	To introduce students to HTML5 for creating web pages
2.	To familiarize students with commonly used HTML5 tags
3.	To develop basic web designing skills using HTML5 and CSS

Course Outcome

1.	Explain HTML5 structure and syntax
2.	Use HTML5 tags to create content-rich web pages
3.	Apply CSS to style web pages
4.	Design a simple static website

Syllabus		
UNIT I	Introduction to HTML5	(7 Hours)
	1. Introduction to HTML5 and Web Page Concept 2. Structure of an HTML5 Document i) <!DOCTYPE html> ii) <html>, <head>, <title>, <body> 3. Metadata Tags:<meta>, <link> 4. Text Content Tags: i) Headings: <h1> to <h6> ii) Paragraph: <p> iii) Line Break: iv) Horizontal Rule: <hr> 5. Text Formatting Tags: i) , <i>, <u> ii) <sub>, <sup>, , <ins> iii) <small>, <mark> 6. Comments: <!-- --> 7. Global Attributes: id, class, style, title	1 1 1 1 2 1 1
UNIT II	HTML5 Lists, Links, Images & Tables	(8 Hours)
	1. Lists: i) Ordered List: , ii) Unordered List: , iii) Definition List: <dl>, <dt>, <dd> iv) Nested List. 2. Hyperlinks:<a> 3. Images: i) Image Linking ii) Image mapping: <map>, <area> 4. Tables: <table>, <tr>, <th>, <td> 5. Table Sections: <thead>, <tbody>, <tfoot> 6. Attributes: border, rowspan, colspan	2 1 2 2 1
UNIT III	HTML5 Frames, Forms & Semantic Elements	(8 Hours)
	1. Frames: <iframe> 2. Form Tag: <form> 3. Input Elements: text, password, email, number, radio, checkbox, submit, reset, file, date, time, range etc. 4. Other Form Elements: <label>, <textarea>, <select>, <option>, <button> 5. HTML5 Semantic Elements: Element Type: <div>, Page Structure Tags:	1 3 2 2

	<header>, <nav>, <section>, <article>, <aside>, <footer>	
UNIT IV	CSS Basics	(7 Hours)
	1) Introduction to CSS	2
	2) Types of CSS: <ul style="list-style-type: none"> i) Inline CSS ii) Internal CSS (<style>) iii) External CSS (<link>) 	
	3) CSS Syntax and Selectors: <ul style="list-style-type: none"> i) Element Selector ii) Class Selector (.) iii) ID Selector (#) 	3
	4) Common CSS Properties: <ul style="list-style-type: none"> i) color, background-color ii) font-family, font-size iii) text-align, border iv) margin, padding etc. 	2

Website Reference Link:

1. **W3Schools – HTML5 Tutorial & Reference**
https://www.w3schools.com/html/html5_intro.asp
2. **GeeksforGeeks – HTML & HTML5 Tutorial**
<https://www.geeksforgeeks.org/html5-complete-reference/>
3. **JavaTpoint – HTML5 Tutorial**
<https://training.trainingtrains.com/html5-tutorial.html>
4. **Intro to HTML5 (University of Michigan)**
<https://intro-html.bauska.org/>

Suggested Readings

1.	Thomas A. Powell, HTML & CSS: The Complete Reference, 5th Edition, McGraw Hill Education
2.	Terry A. Felke-Morris, Web Development & Design Foundations with HTML5, 10th Edition, Pearson Education
3.	Jon Duckett, HTML and CSS: Design and Build Websites, 1st Edition, John Wiley & Sons
4.	Jennifer Niederst Robbins, Learning Web Design: A Beginner's Guide to HTML and CSS, 4th Edition, O'Reilly Media



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F.Y. B.Com (CA) Web Design

Semester II (NEP 2026 Pattern)

Course Title : Lab III Practical on Web Design	Semester : II
Course Code : 26SBCA21OEB	No. of Credits : 02
Nature of Course : Open Elective	Total Teaching Hours : 60 Hrs

Aims & Objectives of the Course

Sr.No.	Aims & Objectives
1.	To provide hands-on knowledge of HTML5 and CSS for creating and designing web pages.
2.	To enable students to develop well-structured, attractive, and user-friendly static websites.
3.	To help students gain practical skills in using web development tools and browser-based testing.

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	Students will be able to create well-structured web pages using HTML5 tags and elements.
2.	Students will be able to design and style web pages using basic CSS properties.
3.	Students will be able to develop a simple static website using HTML5 and CSS.

Best IDE used for Python:

Sr. No	Name of IDE or Tools	Latest Version
1.	Notepad++	8.8.9 (as of Dec 2025)
2.	Visual Studio Code (VS Code)	1.108 (December 2025 release)

Assignment No	Assignment Name	No. Of Sessions
1	Assignment based on text formatting, Lists, Links and Images.	2
2	Assignment based on Frames, Tables and Forms in HTML5	2
3	Assignment based on Semantic HTML5 Layout	1
4	Assignment based on CSS Styling	1
5	Assignment based on CSS with text formatting, Lists, Links and Images.	2
6	Assignment based on CSS with Tables in HTML5	2
7	Assignment based on CSS with Forms in HTML5	2
8	Assignment based on Mini Project – Simple Web page HTML5 + CSS HTML5 semantic tags CSS styling Navigation menu	3
	Total Number of Sessions	15



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F.Y. B.Com (CA) Business Etiquettes

Semester II (NEP 2026 Pattern)

Course Title: Business Etiquettes	Semester : II
Course Code : 26CBCA21VE	No. of Credits : 02
Nature of Course : VSC	Total Teaching Hours: 30 Hrs.

Sr. No	Course Objective
1	Provide students with a comprehensive understanding of business etiquette and professional conduct in modern organizations.
2	Develop appropriate workplace behavior, ethical values, and professional discipline among students.
3	Enhance communication skills with emphasis on digital, virtual, and cross-platform professional interactions.

Sr. No	Learning Outcome
1	Understand the concepts, importance, and scope of business etiquette in organizational and professional contexts.
2	Demonstrate appropriate professional behavior, grooming, time management, and workplace manners.
3	Develop and maintain a positive professional and digital identity for career growth.

Syllabus		
Unit I	Introduction to Business Etiquette	10 Hours
	1. Fundamentals of Business Etiquette a. Meaning and Definition of Etiquette b. Concept and Scope of Business Etiquette c. Importance of Business Etiquette in Modern Organizations 2. Professional Behavior and Work Ethics a. Professional Conduct at the Workplace b. Work Ethics and Organizational Values c. Business Etiquette in a Digital Work Environment 3. Personal Presentation and Workplace Manners a. Personal Grooming and Corporate Dress Code b. Workplace Manners and Courtesy c. Professional Appearance and First Impressions 4. Time Management and Professional Discipline b. Importance of Time Management c. Punctuality in Professional Life d. Managing Work Responsibilities Effectively	2 1 1 1 2 2 1 1
Unit II	Business Etiquette in the Digital Era	10 Hours
	1. Digital Communication Etiquette (Netiquette) a. Concept and importance of Digital Etiquette (Netiquette) b. Professional use of Email and Email Etiquette c. Etiquette for Instant Messaging and Workplace Chat Tools 2. Virtual Meeting and Presentation Etiquette a. Video Conferencing and Virtual Meeting Etiquette b. Online Presentation Etiquette c. Virtual Communication Skills 3. Business Telecommunication Etiquette a. Telephone Etiquette in Business Communication b. Mobile Phone Etiquette at the Workplace 4. Social Media and Online Professionalism a. Social Media Etiquette for Professionals b. Managing Digital Identity c. Building and Maintaining Online Professional Image 5. Cyber Ethics and Responsible Digital Behavior a. Cyber Ethics in the Digital Workplace b. Responsible Use of Digital Platforms c. Ethical Issues in Online Communication	2 2 2 2 2

Unit III	Corporate & Social Etiquette	10 Hours
	1. Office Etiquette and Professional Relationships a. Corporate and Office Etiquette b. Professional Relationships at the Workplace c. Teamwork and Interpersonal Skills 2. Client and Customer Etiquette a. Client Handling Skills b. Customer Etiquette and Service Excellence c. Professional Communication with Stakeholders 3. Social and Business Dining Etiquette a. Business Dining Etiquette b. Social Etiquette in Corporate Events c. Professional Conduct in Formal and Informal Gatherings 4. Ethics and Professional Growth a. Ethics in Business Dealings b. Professional Etiquette for Career Growth c. Building a Positive Professional Image	2 1 1 2 2 2

Suggested Readings	
1.	Chaney, L. H., & Martin, J. S. – <i>The Essential Guide to Business Etiquette</i> Pearson Education.
2.	Post, E. & Post, P. – <i>Emily Post’s Etiquette</i> HarperCollins Publishers.
3.	Guffey, M. E., & Loewy, D. – <i>Essentials of Business Communication</i> Cengage Learning.
4.	Lesikar, R. V., Flatley, M. E., & Rentz, K. – <i>Business Communication: Making Connections in a Digital World</i> McGraw-Hill Education.

Website Reference Link:

- <https://careers.tcu.edu/students/career-tools/business-etiquette/>
- <https://www.planetspark.in/business-communication/professional-communication-etiquette>
- <https://erol.side.wa.edu.au/content/file/b2a6f491-32da-43ef-8426->
- <https://ebooks.inflibnet.ac.in/mgmt07/chapter/business-etiquettes/>