

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
(Affiliated to Savitribai Phule Pune University, Pune)



Choice Based Credit System (CBCS)
Bachelor of Computer Applications (B.C.A. Science)

Syllabus of
F. Y. B. C.A. Science

Implemented from
Academic year 2021 -22

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)

Board of Studies in B. C.A. Science

Sr. No.	Name	Designation
1.	Prof.Arun.D.Gangarde	Chairman
2.	Prof. Priyamvada Patil	Member
3.	Dr.Shraddha Ingale	Member
4.	Dr.Mudassar Sahikh	Member
5.	Dr.Santosh Khamitkar	Academic Council Nominee
6.	Dr. Shankar Mali	Academic Council Nominee
7.	Dr.Nitin Patil	Vice Chancellor Nominee
8.	Mr.Summit Suryawanshi	Alumni
9.	Dr.Deepak Shikarpur	Industry Expert
10.	Prof.Deepali Jagdale	Co-Opted Member
11.	Dr. Madhukar Shelar	Co-Opted Member

1. Introduction of the programme

- The Bachelor of Computer Applications (BCA) is a undergraduate program of three-year that span six semesters.
- The course is mainly designed to bridge the gap between the study of computers and its applications.
- This program aims to shape computer professionals with the right moral and ethical values and can prepare students to face the challenges and opportunities in the IT Industry of India by building strong foundations.
- The syllabus focuses on the core fundamentals of computer science, but generally undergoes revision according to the industry requirement with the aim of increasing employment opportunities for students.
- BCA graduates can seek job opportunities in fields like software development, web design, systems management, quality assurance and software testing, Data Science, Cloud Computing.
- A BCA graduate can work in IT companies big and small in various roles.

2. Programme outcomes

1: An ability to apply knowledge of computing fundamentals for the solution of complex Problems.

2: An ability to design and develop as model, component, or process to meet desired needs with in constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability

3: Select and apply appropriate techniques, resources and modern IT tools, including prediction and modeling

4: An understanding of professional, social and ethical responsibility, norms of Industry practice.

5: An ability to function with multi-disciplinary teams

6: An ability to exhibit knowledge understanding and application management principles.

3. Eligibility:

1. Any Student who has passed the XII standard Examination in Science stream from Maharashtra State Board of secondary and Higher Secondary Education or equivalent Board of Examination, is eligible for admission to the First Year of this program.

or

2. Passed Three Year Diploma Course approved by the DTE, Maharashtra State or Equivalent authority.

4. Programme Structure and Course Titles:

B. C. A. (Science)

Sr. No	Class	Semester	Course Code	Course Title	Credits
1	F.Y	I	BCA-SC 101 T	Principles of Programming and C Programming Fundamentals	04
2	F.Y	I	BCA-SC 102 T	Fundamentals of Computers	04
3	F.Y	I	BCA-SC 103 T	Web Designing -I	04
4	F.Y	I	BCA-SC 104 T	Mathematics and statistical methods for Computer Science	04
5	F.Y	I	BCA-SC 105 P	Principles of Programming and C Programming Fundamentals Lab	1.5
6	F.Y	I	BCA-SC 106 P	Fundamentals of Computers Lab	1.5
7	F.Y	I	BCA-SC 107 P	Web Designing –I Lab	1.5
8	F.Y	I	BCA-SC 108 P	Mathematics and statistical methods Lab	1.5
9	F.Y	II	BCA-SC 201 T	Advance C Programming	04
10	F.Y	II	BCA-SC 202 T	Database Management Systems	04
11	F.Y	II	BCA-SC 203 T	Web Designing-II	04
12	F.Y	II	BCA-SC 204 T	Software Engineering	04
13	F.Y	II	BCA-SC 205 P	Advance C Programming Lab	1.5
14	F.Y	II	BCA-SC 206 P	Database Management Systems Lab	1.5
15	F.Y	II	BCA-SC 207 P	Web Designing-II Lab	1.5
16	F.Y	II	BCA-SC 208 P	Software Engineering Lab	1.5
17	S.Y	III	BCA-SC 301 T	Object Oriented Programming concept using C++	04
18	S.Y	III	BCA-SC 302 T	Data Structures using C	04
19	S.Y	III	BCA-SC 303 T	Advance Database Management Systems	04
20	S.Y	III	BCA-SC 304 P	Object Oriented Programming concept using C++	02
21	S.Y	III	BCA-SC 305 P	Lab Data Structures using C Lab	02
22	S.Y	III	BCA-SC 306 P	Advance Database Management Systems Labs	02
23	S.Y	III	307 T	Critical Thinking and Scientific Temper	2
24	S.Y	III	308 T	MIL	2
25	S.Y	III	309 T	React Js	2
26	S.Y	III	310 P	React Js Lab	2

Sr. No	Class	Semester	Course Code	Course Title	Credits
27	S.Y	IV	BCA-SC 401 T	Core Java Programming	04
28	S.Y	IV	BCA-SC 402 T	Python Programming	04
29	S.Y	IV	BCA-SC 403 T	Operating System Concepts	04
30	S.Y	IV	BCA-SC 404 P	Core Java Programming Lab	02
31	S.Y	IV	BCA-SC 405 P	Python Programming Lab	02
32	S.Y	IV	BCA-SC 406 P	Operating System Concepts Lab	02
33	S.Y	IV	407 T	Environmental Awareness	2
34	S.Y	IV	408 T	MIL	2
35	S.Y	IV	409 T	Entrepreneurship	2
36	S.Y	IV	410 P	Entrepreneurship Lab	2
37	T.Y	V	BCA-SC 501 (A) T	Software Development and Testing	04
38	T.Y	V	BCA-SC 502 (A) T		04
39	T.Y	V	BCA-SC 503 (A) T		04
				Group A	
40	T.Y	V	BCA-SC 501 (B) T	Computer Networking and Hardware	04
41	T.Y	V	BCA-SC 502 (B) T		04
42	T.Y	V	BCA-SC 503 (B) T		04
				Group B	
43	T.Y	V	BCA-SC 501 (C) T	Web Designing	04
44	T.Y	V	BCA-SC 502 (C) T		04
45	T.Y	V	BCA-SC 503 (C) T		04
				Group C	
46	T.Y	V	BCA-SC 504 P	Lab on BCA-SC 501(Group-A/B/C)	02
47	T.Y	V	BCA-SC 505 P	Lab on BCA-SC 502(Group-A/B/C)	02
48	T.Y	V	BCA-SC 506 P	Lab on BCA-SC 503(Group-A/B/C)	02
49	T.Y	V	507 T	Cyber Forensics	02
50	T.Y	V	508 P	Cyber Forensics Lab	02

Sr. No	Class	Semester	Course Code	Course Title	Credits
51	T.Y	VI	BCA-SC 601 (D) T	Software Development and Testing Group D	04
52	T.Y	VI	BCA-SC 602 (D) T		04
53	T.Y	VI	BCA-SC 603 (D) T		04
54	T.Y	VI	BCA-SC 601 (E) T	Computer Networking and Hardware Group E	04
55	T.Y	VI	BCA-SC 602 (E) T		04
56	T.Y	VI	BCA-SC 603 (E) T		04
57	T.Y	VI	BCA-SC 601 (F) T	Web Designing Group F	04
58	T.Y	VI	BCA-SC 602 (F) T		04
59	T.Y	VI	BCA-SC 603 (F) T		04
60	T.Y	VI	BCA-SC 604 P	Lab on BCA-SC 601(Group-A/B/C)	02
61	T.Y	VI	BCA-SC 605 P	Lab on BCA-SC 602(Group-A/B/C)	02
62	T.Y	VI	BCA-SC 606 P	Lab on BCA-SC 603(Group-A/B/C)	02
63	T.Y	VI	607 T	Cyber Forensics	02
64	T.Y	VI	608 T	Cyber Forensics Lab	02
		06	52		140

Syllabus

SEMESTER-I

Semester-I	Paper -I
Course Code: BCA-SC 101T	Title of the Course :Programming principles and Programming in C
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes (Cos):

1. To learn the fundamental concepts of computers and problem solving techniques.
2. To think logically and demonstrate the functional behavior of various real world problems.
3. Analyze a computational problem and develop an algorithm/flowchart to find its solution
4. Develop readable C programs with branching and looping statements, which uses Arithmetic, Logical, Relational or Bitwise operators.
5. Divide a given computational problem into a number of modules and develop a readable multi-function C program by using recursion if required, to find the solution to the computational problem

Unit I: Programming Principles**(10)**

- 1.1 Introduction: Types of Programming languages, History, features and application
- 1.2 Introduction to Algorithms: Definition & Characteristics of algorithm
- 1.3 Pseudo code and Flowchart.
 - pseudocode statements and flowchart symbols
- 1.4 Steps in Problem Solving
- 1.5 Problem Solving Strategies
 - Top down design.
- 1.6 Introduction to Programming
 - Program and Programming
 - Programming Languages
 - Program development cycle

Types of software's

compiler, Interpreter, Loader and Linker

1.7 Fundamentals in C

History of 'C', Features of C, A Simple C Program ,Program execution phases

Character set, Identifier, Keywords.

Constants, Integer Constants, Real Constants, Character Constants, String Constants, ,
Backslash character constants.

Variables Rules for naming Variables Declaration of Variable, Assigning Values to
Variables, Initialization.

Unit II: Data Types, Operators and Expressions

(12)

2.1 Data types

Basic data types

Enumerated types

Type casting

Declarations and Expressions

Expressions, Precedence and Associativity, Expression Evaluation, Type conversions.

Modifiers, Const Qualifier

Dealing with each data types, Memory representation of each type

2.2 Types

Arithmetic operators

Increment and decrement operators

Relational operators

Logical operators

The bitwise operators

The assignment operators

The conditional operator

The size of operator

The comma operator

Type casting operator

Precedence and order of evaluation

Unit III: Input-Output Library Functions (06)

3.1 Unformatted I-O Functions

Single Character Input-Output

String Input-Output

3.2 Formatted I-O Functions

printf() with Width Specifier

scanf() with Width Specifier

Unit IV: Control statements (12)

4.1 Introduction

4.2 Types of Statements

Expression Statements.

Compound Statements.

Selection Statements.

If, if...else, switch

Iterative Statements.

for loop, while loop, do-while loop.

Jump Statements.

Goto, continue, break, return, Exit()

Unit V: Function (10)

5.1 Introduction

Definition, need of using functions, Advantages of using functions

5.2 Function Prototype

Declaration, calling a function, Defining a function

5.3 Return statement

5.4 Types of functions

Recursion, Nested functions, main() function, Library Function

5.5 Local and global variables

Unit VI: Array

(10)

6.1 Introduction

Definition, Declaration of array, Need, Boundary Checking

6.2 One Dimensional arrays

Initialization, accessing element of 1D arrays, Reading and displaying elements

6.3 Two dimensional arrays

Declaration of 2D arrays, Initialization of 2D arrays, Accessing element of 2D arrays ,
Reading and displaying elements.

6.4 Memory representation of array [Row Major, Column Major]

6.5 Multidimensional array

6.6 Array and Function

1D array and function

Passing individual array elements to a function, passing individual array
elements address to a function, passing whole 1d array to a function

2D array and function

Passing individual array elements to a function, passing individual array
elements address to a function, passing whole 2d array to a function

Suggested Readings:

1. R.G.Dromey, "How to Solve it by Computer", Pearson Education, India, 2008.
2. "C" Programming" Brian W. Kernighan and Denis M. Ritchie.
PHI 2nd Edition
3. Let us C Yashwant P. Kanetkar,
BPB publication
4. 21st Century C Ben Klemens O'Reilly 1st 2012
5. E. Balaguruswamy, "Programming in ANSI C", ISBN: 9781259004612, Tata Mc-Graw
Hill Publishing Co Ltd.-New Delhi

Semester-I	Paper -II
Course Code: BCA-SC 102T	Title of the Course :Fundamentals of Computers
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes (Cos) :

1. Understanding the concept of input and output devices of computers and recognize the basic terminologies.
2. Familiarize operating systems, programming languages, networking, multimedia and internet.
3. Understand the basic computer organization.
4. Understand the memory and I/O organization of the computer.

Unit I: Introduction

(15)

- 1.1 History of computer, classification of computer,
- 1.2 Basic anatomy of computer

Input and output, control unit, ALU and memory, working of computer, working of micro computer

- 1.3 Input & Output Devices

Input Devices:

Keyboard, Point and draw devices, mouse, joystick, track ball, light pen,
Data Scanning devices :image scanner, OCR, OMR, MICR, Bar code reader,
card reader

Voice Recognition Device, Digitizers

Output Devices:

Monitor, Printer, laser printer, dot-matrix printer, ink jet printer Projector

1.4 Data representation

Number system, binary, octal, decimal, hexadecimal, conversions, binary arithmetic, complements, fixed and floating point representation, character representation, BCD, ASCII, EBCDIC codes

1.5 Memories [Memory hierarchy]

1.6 Registers [Types of Registers]

1.7 Cache Memory

1.8 Primary Memory

RAM

How data is stored in a RAM

DRAM and SRAM

ROM

ROM BIOS/ Firmware

Types of ROM

1.9 Secondary Memory

Hard disk

Structure of a hard disk, how data is stored in a hard disk, concept of tracks, sectors, clusters, cylinders

formatting of hard disk (low level formatting and HI level formatting)

Floppy [data storage mechanism]

CD [data storage mechanism]

Unit II: Computer software and hardware

(5)

2.1 Introduction

Meaning of computer software and hardware, difference between hardware and software,

2.2 Types of software

2.3 Types of computer languages (low level, machine level, assembly level, high level)

2.4 Translator, assembler, compiler, interpreter

Unit III: Operating System (10)

3.1 Definition and function

3.2 Batch processing

3.3 Spooling

3.4 Multiprogramming

3.5 Multiprocessing

3.6 Time sharing

3.7 Online and real time processing

3.8 Library and Utility programs

Unit IV: Introduction to computer organization (15)

4.1 Architecture of computer organization

4.2 Block diagram of CPU

4.3 Functions of CPU

4.4 General register organization

4.5 Flags, Concept of RISC and CISC, ALU

4.6 Organization of pipelining

4.7 Overview of super-scalar and super-pipelined organizations

4.8 Control unit operation

4.9 System buses

Multi-bus organization and stack organization.

Unit V: Memory and I/O organization (15)

5.1 System memory

5.2 classification of memories

5.3 Memory organization

5.4 Cache memory

Types and organization

5.5 Virtual memory

Meaning, implementation

5.6 Memory management unit.

5.7 Input/output

Types of I/O data transfer, Need of I/O interface, Accessing I/O devices

5.8 Direct Memory Access and DMA controller

5.9 Interrupts and Interrupt Controllers.

Suggested Readings:

1. Computer Fundamental By P.K. Sinha Chapters: 1-5, 7-10, 12, 14-16.
2. Computer for Beginner By V.P. Jaggi and S. Jain. Chapters : 1, 2, 3, 5, 7
3. Computer organization - V. Carl, Zvonko G., Safwat G.Zaky, McGraw-Hill, international Edition.
4. Computer organization - William Stalling, PHI, Fourth Edition

Semester-I	Paper -III
Course Code: BCA-SC 103T	Title of the Course :Web Designing - I
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes:

1. Define the basics in web design
2. Visualize the basic concept of HTML
3. On completion of the course, student will be able to Design a responsive web site using HTML.

UNIT I: Introduction to Web Technologies (10)

1.1 Brief History of Internet

Introduction to Web Technologies

1.2 Creation of a web site

Working of Website

Introduction of Clients- Servers and Communication

Client and Server Scripting Languages

1.3 Internet-Basic, Internet Protocols (HTTP,FTP,IP)

World Wide Web (WWW)

HTTP Request message, HTTP Response message

Types of Websites (Static and Dynamic Websites)

UNIT II: Introduction To Html (12)

2.1 Editors for HTML

Basic HTML Document

HTML Document Structure

2.2 HTML Tags

HTML Elements

HTML Attributes

HTML Basic Tags

2.3 HTML – FORMATTING Tags Types

2.4 HTML – IMAGE Tag

2.5 HTML – LISTS and its Types

UNIT III: Html – Tables

(10)

3.1 Table Tags

Cellpadding and Cellspacing Attributes

Colspan and Rowspan Attributes

3.2 Tables Backgrounds

3.3 Table Height and Width

3.4 Table Caption

3.5 Table Header, Body, and Footer

3.6 Nested Tables

UNIT IV: Html-Form

(12)

4.1 HTML Form

4.2 HTML Form Attributes

Action attribute

Target attribute

Method attribute (GET and POST)

AutoComplete attribute

novalidate attribute

4.3 HTML Form Element

TextFields

Password Fields

Labels

Radio-Button

Checkbox

Submit button

UNIT V: Advanced Html Tags (08)

5.1 Embedding Audio and Video

5.2 Working with Text

5.3 Working with Frames

5.4 Working with Multimedia

UNIT VI: Html 5 Introduction (08)

6.1 Limitations of HTML

6.2 Introduction and Advantages of HTML 5

6.3 First HTML5 Document

6.4 Overview of New Features of HTML5

6.5 List of HTML elements removed from HTML5

Suggested Readings:

1. Ivan Bayross -“HTML, DHTML, JavaScript, Pearl & CGI”, Fourth Revised Edition, BPB Publication.
2. HTML: The Complete Reference, Second Edition - Thomas A. Powell
Osborne/McGraw-Hill Berkeley New York St. Louis San Francisco
3. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) .

Semester-I	Paper -IV
Course Code: BCA-SC 104T	Title of the Course : Mathematics and statistical methods for Computer Science
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes:

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

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 relation
3. Apply basic counting techniques and use principles of probability
4. Given a data, compute various statistical measures of central tendency
5. Use appropriate Sampling techniques

Unit I : Set Theory and Logic**(10)**

1.1 Sets

Set Theory

Need for sets

Representation of sets

Set Operations

Cardinality of Set

Types of sets-bounded and Unbounded Sets, Countable and Uncountable Sets, Finite and Infinite Sets, Countably Infinite and Uncountably Infinite Sets, Power Set .

1.2 Propositional Logic

Logic

Propositional Equivalences

Application of Propositional Logic- Translating English Sentences

Proof by Mathematical Induction and Strong Mathematical Induction

Unit II : Relations and Functions**(10)**

2.1 Relations

Properties

n-ary Relations and Applications

Representing Relations

Closures of Relations

Equivalence Relations

Partial Orderings

Partitions

Hasse Diagram

Lattices

Chains and Anti-Chains

Transitive Closure

Warshall's Algorithm

2.2 Functions

Surjective

Injective and Bijective Functions

Inverse Functions and Compositions of Functions

Unit III: Counting

(10)

3.1 The Basics of Counting

3.2 Rule of Sum and Product

3.3 Permutations and Combinations

3.4 Binomial Coefficients and Identities

3.5 Generalized Permutations and Combinations

3.6 The Pigeonhole Principle

Unit IV : Data presentation and Aggregation

(10)

4.1 Data Types

Attributes, Variable, Discrete and Continuous Variable

4.2 Data Presentation

Frequency Distribution

Histogram

Ogive

Box-Plot

Bar Plots

4.3 Mean, Median, Mode and other Measures of Central Tendency

Arithmetic Mean (AM)

Weighted Arithmetic Mean

Arithmetic Mean Computed from Grouped Data

Concept of Mean , Median , Mode, Geometric Mean (GM), Harmonic Mean(HM), Quartiles, Deciles and Percentiles.

4.4 Standard Deviation and Other Measures of Dispersion

Standard Deviation

Root Measure Square

Variance

Absolute and Relative Dispersion

Unit V: Correlation Theory and Sampling

(10)

5.1 Moments , Skewness and Kurtosis

Moments

Computation of Moments for Group Data

Skewness

Kurtosis

Computation of Skewness and Kurtosis

5.2 Correlation

Bivariate data

Scatter Plots

Linear Correlation

Correlation of Attributes

Coefficient of Correlation

5.3 Linear Regression

Concept

Least-Squares Method

Regression Lines

5.4 Elementary Sampling Theory

Sampling Theory

Random Samples and Random Numbers

Sampling with and Without Replacement

Stratified sampling

Unit VI: Probability and Hypothesis Testing :

(10)

6.1 Probability

Random Experiment

Sample Space

Events Types and Operations of events

Probability Definition

Axioms (The Four Elementary Theorems) of Probability (without Proof)

Conditional Probability

'Bayes' Theorem (without Proof)

Examples

Mathematical Expectations

6.2 Standard Deviation

Continuous and Discrete

PDF/PMF

Introduction and properties (without proof) for Binomial

Normal , standard Normal ,Chi-square, t , F distributions

Suggested Reading:

1. Mathematics Structures for Computer Science by Judith Gersting- Macmillon.
2. Foundation Mathematics for Computer Science –Visual Approach by John Vince, Springer
3. Probability & Statistics - by SPIEGEL, McGraw Hill
4. Fundamentals of Statistics by S.C. Gupta
5. Fundamentals of Applied Statistics by S.C. Gupta

Semester-I	Paper -V
Course Code: BCA-SC 105 P	Principles of Programming and C Programming Fundamentals Laboratory
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcome:

Practical Implementation of the topic covered in theory includes :

1. Understand the logic for a given problem, Write the algorithm of a given problem and draw a flow chart of a given problem.
2. Recognize and understand the syntax and construction of C programming code.
3. Know the steps involved in compiling, linking and debugging C code.
4. Learn the methods of iteration or looping and branching.
5. Make use of different data-structures like arrays
6. Understand how to access and use library functions.
7. Understand function declaration and definition and use of user defined functions.

Assignments**Assignment 1.**

- a) Write a C program to find sum and average of three numbers.
- b) Write a C program to find the sum of individual digits of a given positive integer.
- c) a) Write a C program to find the roots of a quadratic equation..

Assignment 2.

- a) Write a C program to generate prime numbers between 1 to n.
- b) Write a C program to Check whether given number is Armstrong Number or Not.
- c) Write a C program to evaluate algebraic expression $(ax+b)/(ax-b)$.

Assignment 3.

- a) Write a C program to check whether given number is perfect number or Not.
- b) Write a C program to check whether given number is strong number or not.

Assignment 4.

- a) Write a C program to generate the first n terms of the Fibonacci sequence
- b) Write a C program perform arithmetic operations using switch statement.

Assignment 5

- a) Write a C program to find factorial of a given integer using non-recursive function.
- b) Write a C program to find factorial of a given integer using recursive function.

Assignment 6

- a) Write C program to find GCD of two integers by using recursive function.
- b) Write C program to find GCD of two integers using non-recursive function.

Assignment 7

- a) Write a C program to find both the largest and smallest number in a list of integers.
- b) Write a C Program to Sort the Array in an Ascending Order.
- c) Write a C Program to find whether given matrix is symmetric or not.

Assignment 8

- a) Write a C program to perform addition of two matrices.
- b) Write a C program that uses functions to perform Multiplication of Two Matrices.

Assignment 9

- a) Write a C program to use function to insert a number in to given main array at a given position.
- b) Write a C program that uses functions to delete n numbers from a given position in a given array.

Assignment 10

- a) Write a C program using user defined functions to determine whether the given number is palindrome or not.
- b) Write a C program using user defined functions to determine whether the given number is armstrong or not.
- c) Write a C program using user defined functions to determine x raise to y

Assignment 11

- a) Write a C program to pass a 1 D array to a function. using user defined function calculate the sum and average of the array.
- b) Write a C program to pass a 2 D array to a function. using user defined function calculate the sum and average of the array elements

Semester-I	Paper -VI
Course Code: BCA-SC 106 P	Fundamentals of Computers Lab
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcome :

1. Demonstrate an advanced knowledge of the Word Processing package, MS Office and a knowledge of how to design & create effective and structured documents like technical reports, letters, brochures, etc.,
2. Demonstrate the skills in the appropriate use of various features of the spread sheet package MS Excel and also to create useful spreadsheet applications like tabulated statements, balance sheets, statistical charts, business statements, etc.
3. Demonstrate the skills in making an effective presentation with audio and video effects using the MS Excel package
4. Draw graphical pictures, flow charts, block diagrams etc., using the drawing tools available in MS Word or MS Power Point and incorporate them into documents and presentations.

Unit-1: MS Word 2010

- Introduction to MSWord, Menus, Shortcuts, Document types
- Working with Documents
 - a. Opening Files – New & Existing, Saving Files
 - b. Formatting page and Setting Margins
 - c. Converting files to different formats : Importing, Exporting , Sending files to others
 - d. Editing text documents : Inserting , Deleting ,Cut, Copy, paste , Undo, Redo , Find, Search, Replace
 - e. Using Toolbars, Ruler, Icons and help
- Formatting Documents
 - i. Setting Font Styles Font selection – style, size, color etc.,
 - ii. Type face – Bold Italic, underline, Case settings, iv. Highlighting, Special symbols
- Setting Paragraph style Alignments, Indents, Line space, Margins and Bullets and Numbering □ Setting Page Style Formatting, Border & Shading, Columns, Header & footer, Setting Footnotes, Inserting manual Page break, Column break and line break, Creating sections and frames, Inserting Clip arts, inserting pictures and other files, Anchoring & Wrapping

- Setting Document Styles Table of Contents, Index, Page Numbering, data & Time, Author etc., Creating Master Documents
- Creating Tables Table settings, Borders, Alignments, Insertion, deletion, Merging, Splitting, Sorting, Formula,
- Drawing Inserting Pictures/Files etc., Drawing Pictures, Formatting & Editing pictures, Grouping and ordering, Rotating
- Tools Word Completion, Spell Checks, Macros, Mail merge, Templates, Using Wizards, Tracking, Changes, Security .
- Assignments on same.

Unit-2: MS Power Point

- Introduction Opening new Presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts .
- Creating a presentation Setting presentation style, Adding Text to the presentation .
- Formatting a presentation Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide background, Slide layout □ Adding Graphics to the presentation Inserting pictures, movies, tables, etc into the presentation; Drawing Pictures using Draw .
- Adding effects to the presentation Setting Animation & transition effect, Adding audio and video.
- Printing Handouts and Generating standalone presentation viewer.
- Assignments on same.

Unit-3: MS Excel 2010

- Introduction Spreadsheet & its Applications , Opening spreadsheet, Menus & Toolbars & icons, Shortcuts , Using help . Working with Spreadsheets Opening a File, Saving Files, Setting Margins Converting files to different formats : i. Importing, Exporting and Sending files to others .
- Spreadsheet addressing : Rows, Columns & Cells, Referring cells and Selecting cells .
- Entering and Editing Data: Entering Data, Cut, Copy, paste, Undo, Redo, Find, Search & Replace Filling continuous rows, columns, Inserting -Data, cells, column, rows & sheets, Manual breaks .
- Computing data : Setting Formula, Finding total in a column or row, Mathematical operations (Addition, Subtraction, Multiplication, Division, Exponentiation), Using other Formula.
- Formatting Spreadsheets: Formatting – Cell, row, column & Sheet: Alignment, Font, Border & shading, highlighting values Hiding/Locking Cells
- Worksheet : Sheet Name , Row & Column Headers, Row Height, Column Width, Visibility – Row, Column, Sheet , worksheet Security
- Formatting – worksheet: Sheet Formatting & style - background, color, Borders & shading Anchoring objects, Formatting layout for Graphics, Clipart etc.,
- Working with sheets : Sorting, Filtering, Validation, Consolidation, Subtotal , Creating Charts, Selecting charts, Formatting charts, label, scaling etc.,

- Using Tools Error Checking, Spell Checks, Macros, Formula Auditing, Creating & using Templates.
- Tracking changes, customization, printing worksheet .
- Assignments on same

Semester-I	Paper -VII
Course Code: BCA-SC 107 P	Web Designing-I Lab
Credits: 1.5	Total Lectures: 45 Hrs

HTML Assignments

1: Introduction to HTML

Exercise:

1. Write HTML code to develop a web page having the background in red and title "My First Page" in any other color.
2. Create a HTML document giving details of your name, age, telephone, address, TLC code & enrollment no. aligned in proper order?
3. Write HTML code to design a page containing a text in a paragraph give suitable heading style.

2: Tags in HTML

Exercise:

1. Create a page to show different attribute of Font tag.
2. Create a page to show different attribute italic, bold, underline.
3. Design a page having background color given text color red and using all the attributes of font tag.

3: Tags in HTML

Exercise:

1. Write a HTML code to create a web page of blue color and display links in red color.
2. Write HTML code to create a WebPages that contains an Image at its center.
3. Create a web page with appropriate content and insert an image towards the left hand side of the page when user clicks on the image. It should open another web page.

4: Tags in HTML

Exercise:

1. Create a web Page using href tag having the attribute alink, vlink etc.
2. Create a web page, when user clicks on the link it should go to the bottom of the page.
3. Write a HTML code to create a web page of pink color and display moving message in red color.

5: Tags in HTML

Exercise:

1. Create a web page, showing an ordered list of name of your five friends.
2. Create a HTML document containing a nested list showing the content page of

- any book
3. Create a web page, showing an unordered list of name of your five friends.

6: Tags in HTML

Exercise:

1. Create a web page which should contain a table having two rows and two columns. fill in the data in the table created by you in question 1.
2. Create the following table in HTML with Dummy Data

Name of Train	Place	Destination	Train No.	Time		Fair
				Arrival	Departure	

7: Tags in HTML

Exercise:

1. Create the following table

a.

Color (White)		
RED	GREEN	BLACK

b.

Weather	DELHI	MUMBAI
	40	35

2. Write HTML code to create a web page that contain an image at the center of the page.
3. Write HTML code to generate following output

1	2	3	4
5	Image		6
7			8
9	10	11	12

8: Frames in HTML

Exercise:

1. Create a web page which should divide page into two equal frames

Frame1	Frame2
--------	--------

2. Create a web page which should generate following output:

Frame1	Frame2
	Frame3

3. Create a web page having two frames one containing lines and another with contents of the link. When link is clicked appropriate contents should be displayed on Frame 2.

9: Frames in HTML

Exercise:

1. Create a home page for a TLC in following format

TLC Information	
Links	Appropriate Information

10: Frames in HTML

Exercise:

1. Create a web page using all the attributes of the frame and other tags learned till now.

11: Frames in HTML

Exercise:

1. Design a form using all input types.
2. Create a simple form accepting
Name
Enrollment No.
and Submit button

12. Design and implement a static website using HTML as a Mini Project for this course

Semester -I	Paper -VIII
Course Code: BCA-SC 108 P	Mathematics and statistical methods for Computer Science
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcomes :

- i) To understand the relationship between two variables using scatter plot.
- ii) To compute coefficient of correlation, coefficient of regression.
- iii) To fit various regression models and to find best fit.
- iv) To fit the Normal distribution.
- vii) To generate model sample from given distributions.

Assignment:

1. Assignment on Set Theory and Logic .
2. Assignment on Relations and Functions .
3. Assignment on Counting .
4. Assignment on Data presentation and Aggregation .
5. Assignment on Correlation Theory and Sampling .
6. Assignment on Probability and Hypothesis Testing .

Syllabus

Semester II

Semester–II	Paper -I
Course Code: BCA-SC 201 T	Title of the Course : Advance C Programming
Credits: 4	Total Lectures: 60 Hrs

Course Outcome:

1. Use of Preprocessor Directive.
2. Implementation of Pointers.
3. Learn to dynamically allocate memory.
4. Efficient use of file handling.

Unit I: Introduction to C Preprocessor**(6)**

- 1.1 Definition of Preprocessor
- 1.2 Types of Preprocessors
- 1.3 Macro substitution directives
- 1.4 Macros versus function
- 1.5 File inclusion directives
- 1.6 Conditional compilation processors
- 1.7 Predefined macros
- 1.8 Preprocessor Operator

Unit II: Pointers**(12)**

- 2.1 Introduction
 - Definition and declaration
 - Initialization
- 2.2 Indirection operator
 - Address of operator
- 2.3 Types of Pointers
- 2.4 Pointer arithmetic
- 2.5 Dynamic memory allocation
- 2.6 Arrays and pointers
- 2.7 Pointer to array
- 2.8 Array of pointers

2.9 Function and pointers

Call by value and call by reference

Passing pointer to function

Returning pointer from function,

Function pointer

2.10 Pointers & const- Constant pointer, pointer to a constant

Unit III: Strings

(12)

3.1 Introduction

Definition

Declaration

Initialization

3.2 Importance of terminating NULL character

3.3 Strings & pointers

3.4 String and Function

User Defined

Standard library function strlen(), strcpy(), strcat(), strcmp() etc

3.5 Command line arguments – argc and argv

Unit IV: Structures and Union

(10)

4.1 Introduction

Definition

Declaration

4.2 Variables initialization

4.3 Accessing fields and structure operations

4.4 Nested structures

4.5 Array of structure variables

4.6 Structure and function

4.7 pointer and structure

Declaration

Initialization

Accessing members using pointer

Unit V:Union

(08)

5.1 Introduction

Definition

Declaration

Initialization

5.2 Differentiate between Union and structure

5.3 Accessing fields and structure operations

5.4 Nested structures and unions

Unit VI: File Handling

(12)

6.1 Introduction

Definition

Types of files

6.2 Concept of streams

6.3 Operations on text & binary files, Random access file

6.4 library functions for file handling – fopen, fclose, fgetc, fseek, fgets, fputc etc,feof,rewind etc

Suggested Readings:

1. R.G.Dromey, “How to Solve it by Computer”, Pearson Education, India, 2008.
2. “C” Programming” Brian W. Kernighan and Denis M. Ritchie.
PHI 2nd Edition
3. Let us C Yashwant P. Kanetkar,
BPB publication
4. 21st Century C Ben Klemens OReilly 1st 2012
5. E. Balaguruswamy, “Programming in ANSI C”, ISBN: 9781259004612, Tata Mc-Graw Hill
Publishing Co Ltd.-New Delhi

Semester –II	Paper -II
Course Code: BCA-SC 202 T	Title of the Course : Database Management Systems
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes (Cos)

After completion of this course, student will be able to

1. To understand the different issues involved in the design and implementation of a database system.
2. To study the physical and logical database designs and understand, database modelling.
3. To understand and learn Structured Query language and data manipulation language.
4. To develop an understanding of essential DBMS concepts.

Unit I: File Organization (07)

- 1.1 Introduction –Basic concept of File, File system, File operations
- 1.2 Physical / logical files
- 1.3 Record organization (fixed, variable length)
- 1.4 Types of file organization (heap, sorted, indexed, hashed)

Unit II: Introduction of DBMS (07)

- 2.1 Overview- Data, information, database, DBMS, field, record
- 2.2 File system Vs. DBMS
- 2.3 Component of database system
- 2.4 Describing & storing data (Data models - relational, hierarchical, network),
- 2.5 Levels of abstraction
- 2.6 Data independence
- 2.7 Structure of DBMS
- 2.8 Users of DBMS
- 2.9 Advantages of DBMS

Unit III: Conceptual Database Design (E-R model) (07)

- 3.1 Overview of DB design
- 3.2 ER data model- E-R diagram (entities, attributes, entity sets, relations, relationship sets)
- 3.3 Additional constraints
(key constraints, participation constraints, strong entities, weak entities)
- 3.4 Additional features of database design: aggregation, generalization, specialization
- 3.5 Case studies

Unit IV: Structure of Relational Databases (07)

- 4.1 Concepts of a table, a row, a relation, a tuple and a key in a relational database
- 4.2 Conversion of ER to Relational model
- 4.3 Integrity constraints
(primary key, referential integrity, Null constraint, unique constraint, check constraint)

Unit V: SQL (22)

- 5.1 Introduction
- 5.2 Basic structure of SQL query
- 5.3 DDL commands (create, drop, alter) with examples
- 5.4 DML commands (insert, update, delete) with example
- 5.5 DCL commands (grant, revoke)
- 5.6 DQL commands (select)
- 5.7 Set operations
- 5.8 Aggregate functions
- 5.9 Null values
- 5.10 Nested Subqueries
- 5.11 Modifications to Database (with examples)
- 5.12 SQL mechanisms for joining relations (inner joins, outer joins and their types)
- 5.13 Examples on SQL (case studies)

Unit VI: Relational Database Design (10)

- 6.1 Pitfalls in Relational-Database Design
(undesirable properties of a RDB design like repetition, inability to represent certain information)
- 6.2 Functional dependencies
(Basic concepts, Closure of set of functional dependencies, Closure of an Attribute set)
- 6.3 Concept of a Super Key and a primary key (Algorithm to derive a Primary Key for a relation)
- 6.4 Concept of Decomposition, Desirable Properties of Decomposition
(Lossless join and Dependency preservation)
- 6.5 Concept of Normalization - Normal forms (only definitions) 1NF, 2NF, 3NF, BCNF
- 6.6 Examples on Normalization

Suggested Readings:

1. Henry F. Korth, Abraham Silberschatz, S. Sudarshan Database System Concepts, ISBN: 9780071289597, Tata McGraw-Hill Education
2. Korry Douglas, PostgreSQL, ISBN: 9780672327568
3. John Worsley, Joshua Drake Practical PostgreSQL (B/CD), ISBN: 9788173663925 Shroff/O'reilly
4. Joshua D. Drake, John C Worsley Practical PostgreSQL, O'Reilly

Semester –II	Paper -III
Course Code: BCA-SC 203 T	Title of the Course : Web Designing-II
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes:

- Define the advances in web design
- Visualize the basic concept of JavaScript , CSS and XML
- Student will be able to Design a responsive web site using HTML,JavaScript,CSS,XML.

UNIT I: Introduction**(10)**

1.1 JavaScript Introduction

1.2 JavaScript Syntax

- Variable Declaration
- Operators
- Control Statements
- Error Handling

UNIT II: Arrays And Functions**(12)**

2.1 Arrays

2.2 Functions

- Built-in Functions
- Date Functions
- Time Functions
- User defined Functions

2.3 JS Strings

- JS String methods.

2.4 Popup Boxes

- Alert box
- Prompt box
- Confirm box

UNIT III: Dom And Javascript Objects

(10)

3.1 HTML Forms

3.2 DOM (Document Object Model)

3.3 Working with HTML and its elements.

3.4 Working with Objects and Classes.

3.5 JavaScript Built in Objects

- Classes
- Inheritance
- Static

UNIT IV: Introduction To Cascading Style Sheets

(12)

4.1 Concept of CSS

4.2 Creating Style Sheet

4.3 CSS Properties

4.4 CSS Styling (Background, Text Format, Controlling Fonts)

4.5 Working with Block Elements and Objects.

UNIT V: CSS Advanced

(08)

5.1 Working with Lists and Tables

5.2 CSS Id and Class

5.3 Box Model (Introduction, Border Properties, Padding Properties, Margin Properties)

- CSS Color
- Creating page Layout and Site Designs

UNIT VI: Introduction To Xml (Extended Markup Language)

(08)

6.1 What is XML?

6.2 XML document Structure

6.3 XML parser

6.4 The document object model

6.5 The simple XML extension

- Changing a value with simple XML

Suggested Readings:

1. Ivan Bayross -“HTML, DHTML, JavaScript, Pearl & CGI”, Fourth Revised Edition, BPB Publication.
2. HTML: The Complete Reference, Second Edition - Thomas A. Powell
Osborne/McGraw-Hill Berkeley New York St. Louis San Francisco
3. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) .

Semester–II	Paper -IV
Course Code: BCA-SC 204 T	Title of the Course : Software Engineering
Credits: 4	Total Lectures: 60 Hrs

Course Outcomes :

After successful completion of this course, learner will be able to

1. Compare and contrast various Software Engineering models
2. Decide on appropriate process model for a developing a software project
3. Classify software applications and Identify unique features of various domains
4. Prepare System Requirement Specification (SRS) for the given problem
5. Design and analyse Data Flow diagrams

Unit I: Introduction to System Engineering (06)

- 1.1 Definition
- 1.2 Basic Components
- 1.3 Elements of the system
- 1.4 System Components
- 1.5 Types of System

Unit II: Introduction to Software Engineering (10)

- 2.1 Definition of Software
- 2.2 Characteristics of Software
- 2.3 Software Application Domain
- 2.4 Definition of Software Engineering
- 2.5 Need for software Engineering
- 2.6 Mc Call's Quality factors
- 2.7 The Software Process
- 2.8 Software Engineering Practice

Unit III: Software Development Life Cycle (SDLC) and Methodologies (10)

- 3.1 Introduction
- 3.2 Activities of SDLC
- 3.3 A Generic Process Model
- 3.4 Prescriptive Process models: Waterfall Model, Incremental Process Models,
Evolutionary process Models (Prototyping and Spiral Model)
- 3.5 Concurrent Models, Types

Unit IV: Requirement Engineering (10)

- 4.1 Introduction
- 4.2 Requirement Engineering Tasks
- 4.3 Establishing Groundwork for understanding of Software Requirement
- 4.4 Requirement Gathering
- 4.5 Feasibility study
- 4.6 Fact Finding Techniques

Unit V: Analysis and Design Engineering (10)

- 5.1 Decision Tree and Decision Table
- 5.2 Data Flow Diagrams (DFD)
- 5.3 Data Dictionary
- 5.4 Elements of DD
- 5.5 Advantages of DD
- 5.6 Input and Output Design
- 5.7 Pseudocode
- 5.8 Case Studies on above topics

Unit VI: Agile Development (10)

- 6.1 Agility
- 6.2 Agile Process: Principles, The Politics of Agile Development, Human Factors
- 6.3 Extreme Programming (XP)
- 6.4 Adaptive Software Development (ASD)
- 6.5 Scrum
- 6.6 Dynamic System Development Model (DSDM)

Suggested Readings:

1. Software Engineering: A Practitioner's Approach- Roger S. Pressman, McGraw hill International Editions 2010(Seventh Edition)
2. System Analysis, Design and Introduction to Software Engineering (SADSE) - S. Parthasarthy, B.W. Khalkar.
3. Analysis and Design of Information Systems (Second Edition) - James A. Senn, McGraw Hill
4. System Analysis and Design- Elias Awad, Galgotia Publication, Second Edition
5. Fundamentals of Software Engineering- Rajib Mall, PHI Publication, Fourth Edition

Semester–II	Paper -V
Course Code: BCA-SC 205 P	Title of the Course : Advance C Programming Lab
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcomes:

1. Implement Programs with pointers and arrays, perform pointer arithmetic, and
2. Efficient use of pre-processor.
3. Write programs that perform operations using derived data types.
4. Handling of data through files. (text and binary)

Assignments:

1. Write the Program to implement macros for example:-define constant and array size
- 2) Write the Program to
 - a. find maximum of two integers
 - b. check whether a number is positive ,negative or Zero
 - c. check given number is even or odd
- 3) Write the Program to illustrate the use of #pragma
- 4) Write a program to Interchange values of two numbers using pointers
- 5) Write a program to display the elements of an array containing n integers in reverse order using pointer
- 6) Write a program to reverse the elements of an array containing n integers using pointer
- 7) Write a program to multiply two numbers using function pointer
- 8) Write a Program to accept an array and print the same using double pointer
- 9) Write a program to calculate average of array of n numbers .Pass the array to a function and use pointers
- 10) Write a program to find the number of vowels, consonants, digits and white space in a string.
- 11) Write a program to accept a word and a string .Remove / delete the given word from a string. Example: - if word is= “Hello” and the String is “Hello All Well Come” The output is:- “All Well Come”
- 12) Write a program that accepts names of n cities and write functions for the following: a) Search for a city b) Display the longest names
- 13) Write a program which accepts a sentence from the user and replaces all lower case letters by uppercase letters. 4) Write a program to find the First Capital Letter in a String. write a function iscap() to find the first capital letter. 5) Write a program to remove all other characters in a string except alphabets.
- 14) Write a program to compare two strings. If they are not equal display their length and if equal concatenate them
- 15) Write a program to pass two strings to user defined function and copy one string to another using pointer
- 16) Write a program to reverse string, without using another string variable.

- 17) Write a program to display the arguments passed using command line argument (refer to above example).
- 18) Write a program to add two numbers using Command Line Arguments
- 19) Write a program to create student structure having fields roll_no, stud_name, mark1, mark2, mark3. Calculate the total and average of marks
- 20) Write a program to create student employee having field emp_id, emp_name, designation. Pass this entire structure to function and display the structure elements.
- 21) Write a program to declare a structure "employee"(name, age, salary) which contains another structure "address"(house number, street) as member variable. Accept the details of one employee and display it. (using pointer variable)
- 22) Write a program to store and access "name, subject and percentage" for two student. (using union)
- 23) Write a program to create a file, read its contents and display on screen with each case of character reversed.
- 24) Write a program to create a file called emp.rec and store information about a person in terms of his name, age and salary.
- 25) Write a program to accept two filenames as command line arguments. Copy the contents of the first file to the second such that the case of all alphabets is reversed.
- 26) Write a program to write data of 5 employees to a binary file and then read the file.

Semester–II	Paper -VI
Course Code: BCA-SC 206 P	Title of the Course : Database Management Systems Lab
Credits: 2	Total Lectures: 45 Hrs

Course Outcomes:

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

1. Prepare E-R Diagram for the given problem statement
2. Formulate appropriate SQL DDL Queries
3. Formulate appropriate SQL DML Queries

Guidelines for Assessment Continuous assessment of laboratory work is to be done based on overall performance of student.

For each lab assignment, the instructor will assign grade/marks based on parameters with appropriate weightage.

Suggested parameters include- timely completion, performance, innovation, efficient codes, punctuality and neatness.

Sr. No.	Assignment
1	Case study – ER diagram
2	Case study – ER diagram (with generalization)
3	Case study – ER diagram (with aggregation)
4	Using PostgreSQL (demo of PostgrSQL)
5	Data Definition queries (Create)
6	Data Definition querie (Alter)
7	Data Definition queries (Drop)
8	SQL DML Select queries
9	Queries using joins
10	Aggregate Functions and Group by and Having Clauses
11	Nested Queries
12	Data Manipulation queries (Insert)
13	Data Manipulation queries (Delete)
14	Data Manipulation queries (Update)

Semester–II	Paper -VII
Course Code: BCA-SC 207 P	Title of the Course : Web Designing-II Lab
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcomes:

1. Analyze a web page and identify its elements and attributes.
2. Create web pages using Cascading Style Sheets.
3. Build dynamic web pages using JavaScript (Client side programming).
4. Create XML documents and Schemas.

Assignments:

- 1) Write a javascript to display message ‘Good Morning’ using alert box.
- 2) Write a javascript to display message ‘Good Afternoon’ using function.(Hint: use Event ‘Onload’).
- 3) Write a javascript function to validate username and password for a membership form.
- 4) Using Javascript function, display the string in different formatting styles(Bold, italic, underline, strikethrough, hypertext etc)
- 5) Write a Javascript to create a FIFO queue . Insert new element in it (Hint: Use concept of Array)
- 6) Write a Javascript program to accept name of student, Change font color to red, font size to 18 if student name is present otherwise on clicking on empty text box display image which change its size (Use onblur, onload, onmouseover, onmouseleave, onmouseup)
- 7)Write a script to create XML file named “Course.xml”

```

<Course>
  <Computer Science>
    <Student name>.....</Student name>
    <Class name>.....</Class name>
    <percentage>..... </percentage>
  </Computer Science>
</Course>

```

Store the details of 5 students who are in TYBSc.
- 8) Link “Course.xml” file to the CSS style sheet and get well formatted output as given below

Property Name	Student Name	Class Name	Percentage
Color	Blue	Green	Red
Font-family	Bodoni MT	Arial, Helvetica, sans-serif	Impact, Charcoal, sans-serif
Font-style:	italic	Normal	oblique
Font Size	16 pts	12pts	14pts

9) Create a XML file which gives details of movies available in “Mayanagari CD Store” from following categories

- a. Classical
- b. Action
- c. Horror

Elements in each category are in the following format

```
<Category>
  <Movie Name>---- </Movie Name>
  <Release Year>----- </Release Year>
</Category>
```

Save the file with name “movies.xml”.

10) Create an application that reads “book.xml” file into simple XML object. Display attributes and elements
(Hint:simple_xml_load_file() function)

11) Write a script to create “cricket.xml” file with multiple elements as given below

```
<Cricket team>
<Country = India>
  <Player Name >----- <Player Name >
  <Wickets>----- </Wickets>
  <Runs> -----</Runs>
</Country>
</Cricket team>
```

Also add country = “England” and its elements

Semester –II	Paper -VIII
Course Code: BCA-SC 208 P	Title of the Course : Software Engineering Lab
Credits: 1.5	Total Lectures: 45 Hrs

Course Outcome:

After successful completion of this course, student

1. Can produce the requirements and use cases the client wants for the software being produced.
2. Participate in drawing up the project plan. The plan will include at least extent and work assessments of the project, the schedule, available resources, and risk management can model and specify the requirements of mid-range software and their architecture.
3. create and specify such a software design based on the requirement specification that the software can be implemented based on the design.
4. Can assess the extent and costs of a project with the help of several different assessment methods

List of Experiments

Syllabus:

1. Develop requirements specification for a given problem (The requirements specification should include both functional and non-functional requirements. For a set of about 20 sample problems
2. Develop DFD Model (Level 0, Level 1 DFD and data dictionary) of the sample problem (Use of a CASE tool required).
3. Develop Structured design for the DFD model developed.
4. Develop Flow-Charts to understand basic problem solving technique.

(Minimum 5 case studies should be solved on the above experiments)