Kashi Institute of Technology,Varanasi

(An Autonomous Institute of Dr. A.P.J.Abdul Kalam Technical University, Lucknow)

Evaluation Scheme & Syllabus

For

B.Tech. First Year

(Common to CSE & CSE-AIML)

(Effective from Session: 2024-25)

MS 23KM, Varanasi – Prayagraj (Allahabad) Highway, Mirzamurad, Varanasi
Uttar Pradesh - 221307

B.Tech. First Year, Semester-I

(Common to CSE & CSE-AIML)

S.N.	Course Category	Course Code	Course Title	Evaluation Scheme							
				Type	Periods			FA	SA	Total	Credit
					L	T	P				
1	BSC	BSC101	Applied Mathematics-I	T	3	1	0	70	30	100	4
2	HSMC	HSMC101	Professional Computing	T	2	1	0	70	30	100	3
3	PCCCS	PCCCS101	Fundamental of Computers & Emerging Technologies	T	2	1	0	70	30	100	3
4	PCCCS	PCCCS103	Fundamental of Web Designing	T	2	0	0	70	30	100	2
5	ESC	ESC101	Programming for Problem Solving	T	3	1	0	70	30	100	4
6	HSMC	HSMC151	Professional Computing Lab	P	0	0	2	70	30	100	1
7	PCCCS	PCCCS151	Fundamental of Web Designing Lab	P	0	0	2	70	30	100	1
8	ESC	ESC151	Programming for Problem Solving Using C Lab	P	0	0	2	70	30	100	1
9	CCA	CCA151	Co-Curricular Activities	-	-	-	-	-	-	100	0.5
10	MC	MCGP101	General Proficiency	-	-	-	-	-	-	100	0.5
11			MOOCS (for B.Tech honours degree)								
Total				**-**	**12**	**4**	**6**	**560**	**240**	**1000**	**20**

B.Tech. First Year, Semester-II

(Common to CSE & CSE-AIML)

SN	Course Category	Course Code	Course Title	Evaluation Scheme							
				Type	Period			FA	SA	Total	Credit
					L	T	P				
1	BSC	BSC104	Discrete Mathematics	T	3	1	0	70	30	100	4
2	HSMC	HSMC102	Professional Communication	T	2	1	0	70	30	100	3
3	PCCCS	PCCCS102	Basics of Python Programming	T	2	1	0	70	30	100	3
4	PCCCS	PCCCS104	Oops with C++	T	2	1	0	70	30	100	3
5	MOOC	MOOC102	MOOC-01 (One Course on C/Python/C++ as floated by SWAYAM)	T	2	0	0	70	30	100	2
6	PCCCS	PCCCS152	Basics of Python Programming Lab	P	0	0	4	70	30	100	2
7	PCCCS	PCCCS154	Oops With C++ Lab	P	0	0	4	70	30	100	2
8	CCA	CCA152	Co-Curricular Activities	-	-	-	-	-	-	100	0.5
9	MC	MCGP102	General Proficiency	-	-	-	-	-	-	100	0.5
10			MOOCS (for B.Tech honours degree)								
Total				**-**	**11**	**4**	**4**	**560**	**240**	**1000**	**20**

FA: Formative Assessment, **SA**: Summative Assessment, **L**: Lecture, **T**- Tutorial, **P:** Practical

Abbreviation Used:

PCC: Professional Core Courses
HSMC: Humanities, Social Science and Management Course
MOOC: Massive Open Online Course

CCA: Co-Curricular Activities
MC: Mandatory Courses
ESC: Engineering Science Courses
BSC: Basic Science Course

DETAILED SYLLABI

B.Tech 1St Year

- Computer Science & Engineering
- Computer Science & Engineering (Artificial Intelligence & Machine Learning)

(Effective from Session: 2024-25)

(Common to B.Tech-CSE & CSE-AIML)						
Semester : I			**Course Category Code : BSC**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
BSC101	**Applied Mathematics I**		**3**	**1**	**0**	**4**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Course Outcome	**CO1**	*Understand the concept of Eigen values, Eigen vectors and apply the concept of rank to evaluate linear simultaneous equations.*				K_2,K_5
	CO2	*Remember the concept of differentiation to find successive differentiation, Leibnitz Theorem, and find partial and total derivatives.*				K_1,K_5
	CO3	*Applying the concept of partial differentiation to evaluate extrema, series expansion and Jacobians.*				K_3,K_5
	CO4	*Remember the concept of Beta and Gamma function; analyze area and volume.*				K_1,K_4
	CO5	*Apply the concept of Vector Calculus to analyze and evaluate directional derivative, line, surface and volume integrals.*				K_3,K_4,K_5
UNIT – I	**Matrices**					**Contact Hours : 08**
Rank of matrix by elementary transformation (Echelon and Normal form); Inverse of the matrix by Gauss-Jardon's method; Consistency of linear system of equations (Homogeneous and non homogeneous equation); Eigen values and Eigen vectors; Cayley-Hamilton theorem with application.						**CO1**
UNIT – II	**Differential calculus-I**					**Contact Hours : 08**
Successive Differentiation (nth order derivatives), Leibnitz theorem, Partial derivatives, Euler's Theorem for homogeneous functions and Total derivative.						**CO2**
UNIT – III	**Differential calculus-II**					**Contact Hours : 08**
Expansion of functions by Taylor's and Maclaurin's theorems for functions of one and two variables, Maxima and Minima of functions of several variables, Jacobians.						**CO3**
UNIT – IV	**Multiple integration**					**Contact Hours : 08**
Double integral, Triple integral, Change of order of integration, Change of variables, Beta and Gama function and their properties.						**CO4**
UNIT – V	**Vector calculus**					**Contact Hours : 08**
Gradient, Curl and Divergence and their Physical interpretation, Line, Surface and Volume Integrals, Gauss's, Green's and Stoke's divergence theorems.						**CO5**
Lecture Hours : 30		**Tutorial Hours :10**				**Total : 40**

Reference Books:

1. *E.Kreyszig,AdvanceEngineeringMathematics,JohnWiley&Sons,2005.*
2. *PeterV.O'Neil,AdvanceEngineeringMathematics,Thomson(Cengage)Learning,2007.*
3. *D.Poole,LinearAlgebra:AModernIntroduction,2ndEdition,Brooks/Cole,2005.*
4. *D.Poole,LinearAlgebra:AModernIntroduction,2ndEdition,Brooks/Cole,2005.*
5. *RayWylieCandLouisCBarret,AdvancedEngineeringMathematics,McGraw-Hill;SixthEdition..*

Text Book:

1. *B.V.Ramana,HigherEngineeringMathematics,McGraw-HillPublishingCompanyLtd.,2008.*
2. *B.S.Grewal,HigherEngineeringMathematics,KhannaPublisher,2005.*
3. *RK.Jain&SRK.Iyenger,AdvanceEngineeringMathematics,NarosaPublishingHouse2002.*
4. *Shanti Narayan ,A text Book of Matrices,S.Chand & Co.*

5. *N.P.Bali. , A text Book of Engineering Mathematics,N.P.Bali*
6. *H.K.Dass ,Introduction to Engineering Mathematics ,S.Chand & Co.*

Video Content:

Unit-1:
https://youtu.be/jLP5Xs8Z8yE?si=Nk9ZxUcOZ6YP-lkU
https://youtu.be/Pgft33DBmUs?si=t0Ah50E49fnY4ZRn
Unit-2:
https://youtu.be/1Cl2Pje4noo?si=8ZdDhtllyQowAjYS
https://youtu.be/gx7NQXl4NC0?si=ZgAIWJcyKpBKFqQW
Unit-3 :
https://youtu.be/AS1UnsPJ8e4?si=PlnSp-IaGrS1c2fC
https://youtu.be/8T7Y_nl8yF8?si=j6_Kz3gAuQwKLbMP
Unit-4 :
https://youtu.be/dLqKr9F2cbA?si=KgpQby-ipVsT29Lr
https://youtu.be/TccLmZ0GW7g?si=HNIhnsHJWyYi_suM
Unit-5:
https://youtu.be/AGX0-tZ5rgQ?si=xoSLJ9A3Le5hayFo
https://youtu.be/WwY50hCSiSc?si=QEJuQXgwssa3VWjO

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering			**Programme : B.Tech**			
Semester : I			**Course Category Code : HSMC**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
HSMC101	**Professional Computing**		**2**	**1**	**0**	**3**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Course Outcome	**CO1**	*Understand the basic concepts of computer fundamentals, including the block diagram of a computer and different generations of computers.*				K_1, K_2
	CO2	*Convert numbers between binary, octal, decimal, and hexadecimal systems.*				K_1, K_2
	CO3	*Perform basic operations in Windows such as using Windows Explorer, managing files and folders, and utilizing built-in applications like Paint, Notepad, WordPad, and Calculator.*				K_2
	CO4	*Gain the ability to perform basic operations in MS-Excel, including starting the application, understanding the spreadsheet interface, and managing basic spreadsheet tasks.*				K_1, K_3
	CO5	*Introduction to Libre Office, understanding its components and basic functionalities as an office suite alternative.*				K_2, K_3
UNIT – I	**Fundamental of Computer and Information Technology**					**Contact Hours : 6**
Introduction to Computer Fundamentals: Introduction to Computer, Block Diagram of Computer, Generation of Computers, Classifications of computers, Computer Memory, Input and Output Devices. Computer Virus, Types of Viruses, Computer languages: Machine, Assembly and High-level language, Assembler, Compiler and interpreter, Algorithms and flow chart.						**CO1**
UNIT – II	**Fundamental of Number System**					**Contact Hours : 6**
Number System: Number System: Binary, Octal, Decimal, and Hexadecimal representation of Characters: ASCII and EBDIC codes.						**CO2**
UNIT – III	**Fundamental of Operating System**					**Contact Hours : 6**
Basics of Operating System: Definition of Operating System, Functions of Operating Systems Working with Windows Operating System: Introduction, The Desktop, Structure of Windows, Windows Explorer, File and Folder Operations, The Search, The Recycle Bin, Configuring the Screen, Adding or Removing New Programs using Control Panel, Applications in windows (Paint, Notepad, WordPad, Calculator), Comparison of DOS and Windows, Basic DOS Commands.						**CO3**
UNIT – IV	**Office Automation Tools**					**Contact Hours : 6**
MS-Office: Introduction to MS-Office and its integrated nature-MS-Word: Starting Word, new documents, entering text, changing text, aligning, underlining, and justifying text. Tables – creation, adding rows and columns, splitting, and combining cells, Borders. Saving, closing, and operating documents, Adding headers and footers. MS-Excel: Introduction, Starting MS-Excel, Basics of Spreadsheet, MS-Excel Screen and Its Components, Elementary Working with MS-Excel.						**CO4**
UNIT – V	**Fundamental of Linux Operating System**					**Contact Hours : 6**
Introduction to Operating System and Linux: History, Overview of Linux Shell, Bourne, Korn, Cshell, Linux releases, Linux File Systems (ext) and versions. Introduction to Libre Office						**CO5**
Lecture Hours : 20		**Tutorial Hours : 10**				**Total : 30**

Reference Books

1. *Analysis & Design of Information System by James A. Senn.*
2. *System Analysis and Design by Elias M.Awad.*
3. *System Analysis & Design Hand Book, V.K. Jain, Wiley Dreamtech.*

Text Book :

1. *Analysis, Design of Information System,Rajaraman, PHI Management.*

Video Content:

1. *https://www.youtube.com/live/RLeRipmm154?si=6SguAGIW-gUvi9pX*
2. *https://youtu.be/YHSLkNzLuqc?si=uygK_LKeCq6shNPI*
3. *https://youtu.be/rrw-Pv3rc0E?si=UlvNRhVZlmzWYgtu*
4. *https://youtu.be/gtO_izQfTWg?si=DdBCWGg9OCwraqHv*

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering				**Programme : B.Tech**		
Semester : I				**Course Category Code : PCCCS**		
Course Code	**Course**			**Period / Week**		**Credit**
				L	**T**	**P**	**C**
PCCCS101	**Fundamental of Computers & Emerging Technologies**			**2**	**1**	**-**	**3**
Prerequisite	***At the end of this course, the students will be able to:***						**Bloom's Level**
Cousre Outcome	**CO1**	*Know the fundamental terms associated with computers.*					K_1, K_2
	CO2	*Know different types of computers, mobile devices, memory and various input and output devices.*					K_1,K_2
	CO3	*Get familiar with various computer codes.*					K_2
	CO4	*Learn Cloud based Google Products and emerging Technologies.*					K_1,K_3
	CO5	*Learn Gaming Technology, Communication Networks etc.*					K_2,K_3
UNIT – I	**Introducing Today's Technologies: Computers, Devices, and the WebToday's Technology**						**Contact Hours : 6**
Computers, Mobile and Game Devices, Data and Information, The Web, Programs and Apps, Operating Systems, Applications, Communications and Networks, Wired and Wireless Communications, Networks, Cloud Computing, Technology in Modern Business.							**CO1**
UNIT – II	**Processors, Memory, Adapters and Buses**						**Contact Hours : 6**
Motherboard, Processors, Memory, Hard disk drive, Portable flash memory, Input and Output Devices.							**CO2**
UNIT – III	**Computer Codes**						**Contact Hours : 6**
Introduction to Computer Codes Decimal System, Binary System, Hexadecimal System, Octal System, ASCII code.							**CO3**
UNIT – IV	**Conversion of Numbers (includes fixed and fractional numbers)**						**Contact Hours : 6**
Non-Decimal to Decimal, Binary to Decimal, Decimal to Binary, Binary to Octal, Octal to Binary, Octal to Decimal, Decimal to Octal, Binary to Hexadecimal, Hexadecimal to Binary, Hexadecimal to Decimal, Decimal to Hexadecimal							**CO4**
UNIT – V	**Latest Trends and**						**Contact Hours : 6**
Google Cloud and Products, Digital Security and Privacy, Supercomputers, Artificial Intelligence, 5G Technology, Biometric, Internet of Things(IoT), Cloud Computing, Augmented Reality/Virtual Reality (AR/VR), Blockchain and Crypto Currency, Robotics, Natural Language Processing (NLP), 3D Printing,Cyber world.							**CO5**
Lecture Hours : 20			**Tutorials Hours : 10**				**Total : 30**

Reference Books

- *Discovering Computers 2016 (First Edition) Cengage Learning By Misty E. Vermaat; Susan L. Sebok; Steven M. Freund; Jennifer T. Campbell; Mark Frydenberg (Shelly Cashman Series)*
- *Pearson India By M. Morris R. Mano*
- *Fundamentals of Computer(First Edition- 2009) Publisher: McGraw-Hill by Balaguruswamy*

Text Book:

- *Computer Fundamentals(First Edition-2010) Publisher: Pearson by Anita Goel*

Video Content:

- *https://youtu.be/AlAFytUkqHs?si=Q0_GmIGpJ7qfYpkn*
- *https://youtu.be/SzMiJFOa6w8?si=NQWJTJYxGpP2m32I*
- *https://youtu.be/hh83IP5hjv8?si=41kApYzzR45erMjO*

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering			**Programme : B.Tech**			
Semester : I			**Course Category Code : ESC**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
ESC101	**Programming for Problem Solving**		**3**	**1**	**0**	**4**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Cousre Outcome	**CO1**	*Understood the phases of problem solving techniques for simple problems.*				K_2,K_3
	CO2	*Able to write programs using the basic language constructs.*				K_3
	CO3	*Able to build a larger programs using function oriented approaches.*				K_3
	CO4	*Could write efficient programs using advanced concepts to optimize the memory.*				K_2
	CO5	*Could write programs to access data from the secondary storage efficiently.*				K_2,K_3
UNIT – I	**Algorithm Problem Solving**					**Contact Hours : 8**
History and Classifications of Computers – Components of Computer – Working Principle of Computer – Hardware – Software and its Types – Applications of Computers. Generations of Programming Languages – Introduction to Number System. Problem solving techniques: Program development life-cycle – Algorithms – building blocks of algorithms - Algorithmic problem solving-Flowchart– Pseudo code						**CO1**
UNIT – II	**Data, Expressions, Statements**					**Contact Hours : 8**
Introduction to C –C Program Structure – C Tokens: Keyword, Identifiers, Constants, Variables and Data types (simple and user-defined) – Operators and its types – Operator Precedence – Expression Evaluation – Type Conversion –Managing Input/output operations-Branching Statements – Looping Statements.						**CO2**
UNIT – III	**Arrays and Functions**					**Contact Hours : 8**
Arrays – Two dimensional arrays, Multidimensional arrays. Character arrays.Functions: Function Prototype, Passing Arguments to Function – Call by Value and Call by Reference – Nested function call – Library Functions – User-defined Functions – Recursion.Strings – String I/O functions, String Library functions – Storage classes.						**CO3**
UNIT – IV	**Structures, Unions and Pointers**					**Contact Hours : 8**
Structures – Arrays and structures – Nested structures – Structure as argument to functions– Union. Pointers – Declaration, Initialization and Accessing Pointer variable – Pointers and arrays – pointers as argument and return value – Pointers and strings - Pointers and structures.						**CO4**
UNIT – V	**File Management**					**Contact Hours : 8**
Introduction to File Concepts in C – File types – I/O operations on files – File modes – Random access to files – Command line arguments. Dynamic Memory Allocation: MALLOC, CALLOC, FREE, REALLOC. Introduction to preprocessor: Macro substitution directives – File inclusion directives –Compiler Control directives – Miscellaneous directives						**CO5**
Lecture Hours : 30		**Tutorial Hours – 10**				**Total : 40**

Reference Books :

1. *Byron Gottfried & Jitender Chhabra, "Programming with C", Schaum's Outlines Series, 2017.*
2. *Brian W. Kernighan & Dennis Ritchie. "The C Programming Language", Pearson Education India.*

Text Book:

1. *Balagurusamy. E, "Programming in ANSI C", Tata McGraw Hill, Seventh Edition, 2017.*

Video Content:

1. *https://youtu.be/irqbmMNs2Bo?si=d9HO8clLvVLuxDxd*
2. *https://youtu.be/si-KFFOW2gw?si=Zf3V8klsbEoE_1Rn*
3. *https://youtu.be/rLf3jnHxSmU?si=QqZoZo96sF34DwQ8*

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering				**Programme : B.Tech**		
Semester : I				**Course Category Code : PCCCS**		
Course Code	**Course**			**Period / Week**		**Credit**
				L	**T**	**P**	**C**
PCCCS103	**Fundamental of Web Designing**			**2**	**0**	**0**	**2**
Prerequisite	***At the end of this course, the students will be able to:***						**Bloom's Level**
Course Outcome	**CO1**	*Understand the basic concepts of web development, including the Internet, the Web, client-server architecture, and the distinctions between frontend and backend development.*					K_1, k_2
	CO2	*Demonstrate the ability to create and structure web pages using HTML, including the use of common elements (headings, paragraphs, links, lists, images, tables) and advanced features such as forms, input elements, and multimedia integration.*					K_1,K_2
	CO3	*Gain skills in applying CSS for styling text and boxes, using the box model, and implementing layout techniques such as positioning, floating elements, flexbox, and grid layout. Understand and utilize different CSS units and measurements.*					K_2
	CO4	*Utilize advanced CSS techniques, including CSS variables, pseudo-classes, and pseudo-elements, as well as transitions and animations. Design responsive web pages using media queries, a mobile-first approach, and responsive images and videos. Employ CSS frameworks like Bootstrap for rapid prototyping.*					K_1,K_3
	CO5	*Develop, structure, and manage a frontend web project incorporating HTML, CSS, and JavaScript. Implement version control using Git and successfully upload and maintain projects on GitHub for professional review.*					K_2,K_3
UNIT – I	**Overview Of Web Development**						**Contact Hours : 6**
Understanding the Internet and the Web, Client-Server, Architecture, Introduction to Frontend and Backend Development. **HTML Basics:** HTML Syntax and Structure, Common HTML Elements: headings, paragraphs, links, lists, images, tables, Semantic HTML. **Advanced HTML:** Forms and Input Elements, Multimedia: audio, video, HTML5 New Features.							**CO1**
UNIT – II	**Introduction to CSS**						**Contact Hours : 6**
CSS Syntax and Selectors, Inline, Internal, and External CSS, Styling Text and Boxes: Fonts, Colors, and Text Properties, Box Model: margins, padding,Borders. **Layout Techniques:** Display, Positioning, and Floating Elements, Flexbox and Grid Layout, CSS, Units and Measurements.							**CO2**
UNIT – III	**Advanced CSS Technique**						**Contact Hours : 6**
CSS Variables, Pseudo-classes and Pseudo-elements, Transitions and Animations. **Responsive Web Design:** Media Queries, Mobile-First Design Approach, Responsive Images and Videos. **CSS Frameworks:** Introduction to Bootstrap, Using Bootstrap for Rapid Prototyping.							**CO3**

UNIT – IV	**Introduction to Java Script**	**Contact Hours : 6**
JavaScript Syntax and Basics, Variables, Data Types, and Operators, Control Structures: conditionals and loops. **Functions and Events:** Defining and Calling Functions, Event Handling and DOM Manipulation. Arrays and Objects: Array Methods and Iteration, Working with Objects and JSON. Theoryofpredicate logic.		**CO4**
UNIT – V	**Project Work**	**Contact Hours : 6**
Structuring a Frontend Project, Project Development using above technologies i.e. HTML, CSS, JavaScript, Version Control with Git, uploading project on GitHub for companies review.		**CO5**
Lecture Hours : 20	**Tutorial Hours – 10**	**Total : 30**

Reference Books

1. *"HTML and CSS: Design and Build Websites" by Jon Duckett.*
2. *JavaScript and jQuery: Intercave Front-End Web Development" by Jon Duckett.*

Text Book:

1. *"HTML, CSS and JavaScript Guide "by Gaurav Vishwa.*

Video Content:

1. *https://youtu.be/JsbxB2l7QGY?si=p1C0Qz3N3EkjKh4w*
2. *https://youtu.be/0HxjsUqRlIs?si=wc7qUoy3NLXNx5KM*
3. *https://youtu.be/z0n1aQ3IxWI?si=XkXX0V2kBqz5cKrT*
4. *https://youtu.be/6mbwJ2xhgzM?si=VMUJXc1nyx1Q0b7i*

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering			**Programme: B.Tech**			
Semester : I			**Course Category Code : HSMC**			
Course Code	**Course**		**Period/Week**			**Credit**
			L	**T**	**P**	**C**
HSMC151	**Professional Computing Lab**		**0**	**0**	**2**	**1**
Prerequisite	***At the end of this course, the students will be able to:***					
Course Outcome	**CO1**	*Understand about MS-Office and Its Applications.*				
	CO2	*Understand the concept of internet and use of internet effectively*				
	CO3	*.Analyse the Fundamental of DOS and Linux operating system.*				
	CO4	*Apply the various types of Windows Command*				
	CO5	*Understand basics of various OS related concepts, from programmer's point of view, like files, directories, kernel, inodes, APIs, system calls, processes, signals, etc.*				

List of Practical's

1. Working with computer system and identifying peripherals.	**CO1**
2. Working with files and folders.	
3. Create, Edit and Save Documents.	
4. Use of Bullets, Numbering, Page Formatting in a Word Processing.	
9. Create, Open and Edit worksheet.	
10. Working with Formula and Functions in Worksheet.	
11. Sort, Filter and Validate Data	
12. Charts for Visual Presentation	
13. Worksheet Printing	
14. Slide Presentation	
15. Slide Presentation Using Tables and Charts	
16. Animation Effects to Text and Slides	
17. Audio and Video Files Presentation	
18. Configuration of Internet Connection	**CO2**
19. Browser Settings and Uses	
20. Date, Time, CD(Change Directory Command), MD(Make Directory)	CO3
21. RD(Remove Directory), PATH, Chkdsk, Copy, FORMAT, DISKPART	

22. Defrag, DEL, MOVE, HELP, EXIT	
23. MODE, DISKCPY, UNDELETE	CO4
24. How to Clear the Windows Command Prompt Screen?	
25. How to Chage Backgroud and Text Color in Command Prompt.	
26. General Purpose commands(date, who, who am I, uname, cal, tty, stty, echo, printf, bc, script, passwd ,finger)	CO5
27. File Handling utilities: a. directory related commands : pwd,mkdir,cd,rmdir,ls b. File related commands: cat, cp, mv, rm, chmod, chown, chgrp, file, find, ln, ulink, ulimit, unmask, touch	
28. Process Related Commands: a. ps, kill, nohup, at, batch, crontab, fg, bg, jobs	
29. Filters: a. cat, head, tail, cut, paste, cmp, comm, diff, sort, more, less, pg, tr, uniq etc….	
30. Network Related commands: a. telnet, ftp, rlogin, arp	
31. Network Related commands: a. telnet, ftp, rlogin, arp	

(Common to B.Tech-CSE & CSE-AIML)						
Department: Computer Science and Engineering			**Programme:B.Tech**			
Semester : I			**Course Category Code : ESC**			
Course Code	**Course**		**Period/Week**			**Credit**
			L	**T**	**P**	**C**
ESC151	**PPS Laboratory**		**0**	**0**	**2**	**1**
Prerequisite	***At the end of this course, the students will be able to:***					
Cousre Outcome	**CO1**	*Understood the program editing and compilation environment.*				
	CO2	*Able to write simple C programs using most frequently used control structures.*				
	CO3	*Apply the methods problems using arrays and functions.*				
	CO4	*Learnt to handle data processing using structures for simple applications.*				
	CO5	*Write programs that could handle file i/o and pointers.*				

Programming Using C	
1. Study of Compilation and execution of simple C programs 2. Basic C Programs, ArithmeticOperations, Area and Circumference of a circ. Swapping with and without Temporary Variables	**CO1**
3. Programs using Branching statements a. To check the number as Oddor Even. b. Greatest of Three Numbers. c. Counting Vowels. d. Grading based on Student's Mark. 4. Programs using Control Structures e. Computing Factorial of a number f. Fibonacci Series generation g. Prime Number Checking h. Computing Sum of Digit	**CO2**
5. Programsusing Arrays a. Sum of'n' numbers b. Sorting an Array c. Matrix Addition, Subtraction, Multiplication and Transpose 6. Programsusing Functions a. Computing nCr b. Factorial using Recursion c. Call by Value and Call by Reference	**CO3**

7. Programs using String Operations a. Palindrome Checking b. Searching and Sorting Names 8. Programs using Structure a. Student Information System b. Employee PaySlip Generation c. Electricity Bill Generation	**CO4**
9. Programs using Pointers a. Pointe rand Array b. Pointers as argument and return value c. Pointer and Structure 10. Programs using File Operation a. Counting No.of Lines,Characters and Black Spaces b. Content copy from one file to another c. Reading and Writing Data in File	**CO5**

(Common to B.Tech-CSE & CSE-AIML)

Semester : I		**Course Category Code : PCCCS**			
Course Code	**Course**	**Period / Week**			**Credit**
		L	**T**	**P**	**C**
PCCCS151	**Fundamental of Web Design LAB**	**0**	**0**	**2**	**1**

Prerequisite	***At the end of this course, the students will be able to:***	
Course Outcome	**CO1**	*To introduce the fundamentals of Internet, and the principles of web design.*
	CO2	*To construct basic websites using HTML and Cascading Style Sheets.*
	CO3	*To build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.*
	CO4	*Develop web pages using the HTML and CSS features with different layouts as per need of applications.*
	CO5	*Use the JavaScript to develop the dynamic web pages.*

List of experiment

1

Design the following static web pages required for an online book store website.
HOMEPAGE:

- The static home page must contain three frames.
- Top frame: Logo and the college name and links to Homepage, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

For example: When you click the link "CSE" the catalogue for CSE Books should be displayed in the Right frame. Right frame: The pages to the links in the left frame must be loaded here. Initially this page contains description of the web site.

Home Page –

Logo	**Web Site Name**			
Home	Login	Registration	Catalouge	Cart
CSE ECE EEE CIVIL				

2

Login Page - is page looks like

Logo	WebSite Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login Page User Name: Passwords: Submit Reset			

3

CATOLOGUE PAGE: The catalogue page should contain the details of all the books available in the website in a table. The details should contain the following:

1. Snap shot of Cover Page.
2. Author Name.
3. Publisher.
4. Price.
5. Add to cart button.

Logo	WebSite Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL		Book:XMLBible Author : Winston Publication:Wiely Book :AI Author:S.Russel Publication:Princetonhall	$40.5 $63	Add to cart Add to cart

4

CARTPAGE: The cart page contains the details about the books which are added to the cart. The cart page should look like this:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE	Book name	Price	Quantity	Amount
ECE	Java 2	$35.5	2	$70
EEE	XML bible	$40.5	1	$40.5
CIVIL	Total amount	- $130.5		

5	**REGISTRATION PAGE :** Create a" registration form" with the following fields 1)Name (Text field) 2)Password (password field) 3) E-mailid(text field) 4) Phone Number(text field) 5) Sex(radio button) 6) Date of birth(3 select boxes) 7) Languages known(checkboxes–English, Telugu, Hindi, Tamil) 8) Address(text area)
6	**Js VALIDATION:** Write ***JavaScript*** **to validate** the following fields of the above registration page. 1. Name (Name should contains alphabets and the length should not be less than 6 characters). 2. Password (Password should not be less than 6 characters length).
7	**Js VALIDATION:** 3. E-mailid (should not contain any invalid and must follow the standard pattern(name@domain.com) 4. Phone Number(Phone number should contain 10 digits only).
8	**CSS:** Design a web page using **CSS(C**ascading **S**tyle **S**heets**)** which includes the following: 1) Use different font, styles: In the style definition you define how each selector should work(font, color etc.). Then, in the body of your pages, you refer to these selectors to activate the styles. 2) Set a background image for both the page and single elements on the page.
9	**CSS:** 1) Control the repetition of the image with the background-repeat property. 2) Define styles for links as A:link A:visited A:active A:hover
10	Consider a small topic of your choice on which you can develop static Webpages and try to implemer all topics of html, CSS and Js within the topic. Choose any one topic. 1. Your Own Portfolio 2. To-Do List 3. Survey Form 4. A Tribute Page 5. A Questionnaire

(Common to B.Tech-CSE & CSE-AIML)						
Semester : II			**Course Category Code : BSC**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
BSC 104	**Discrete Mathematics**		**3**	**1**	**0**	**4**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Course Outcome	**CO1**	*Apply the concept of Set, Relation, function and Counting Techniques.*				K_3
	CO2	*Apply the concept of Lattices and Boolean Algebra to create Logic Gates and Circuits, Truth Table, Boolean Functions, Karnaugh Map.*				K_3,K_6
	CO3	*Remember and apply the concept of Mathematical Logic for Circuits Output.*				K_1,K_3,K_5
	CO4	*Understand the concept of Graph theory evaluate engineering problems and construct the graph.*				K_2,K_4
	CO5	*Remember the concept of Formal Logic ,Group and Rings to evaluate real life problems.*				K_1,K_5
UNIT – I	**Set, Relation,Function and Counting Techniques**					**Contact Hours : 6**
Introduction on Set Function and Relation,Mathematical Induction,: Injective and surjective functions, composition of function, Inverse function, Use of function in coding theory, Relation composition of relation, Equivalence relation.Discrete numeric function and Generating functions, recurrence relations and their solution , Pigeonhole principle.						**CO1**
UNIT – II	**Boolean Algebra and Lattice**					**Contact Hours : 6**
Introduction, Partially ordered sets, Hasse Diagram, Maximal and Minimal element, Upper and Lower bounds, Isomorphic ordered sets, Lattices, Bounded Lattices and , Distributive Lattices. Duality, Boolean Algebras as Lattices, Minimization of Boolean Expressions, prime Implicants, Logic Gates and Circuits, Truth Table, Boolean Functions, Karnaugh Maps.						**CO2**
UNIT – III	**Mathematical Logic**					**Contact Hours : 6**
Proposition & Propositional Form conditional and Bi-conditional Statements, Negation operation, Logic connectives and compound statements, conjunction, disjunction, truth tables, Duality conditional and in-conditional statements.						**CO3**
UNIT – IV	**Graph theory**					**Contact Hours : 6**
Definition of a graph, finite and infinite graphs, Incidence and degree, null graph, Sub graphs walks, Paths and circuits in a graph, connected graphs, Trees, Properties of Trees,. Matrix Representation of Relation. Digraphs.						**CO4**
UNIT – V	**Group, Ring ,Field and Ideal**					**Contact Hours : 6**
Semi group, Monoid Group, Group,The Dihedral group,Quotient Groups, Cosets, Lagrange's theorem , Generators of Group, Cyclic and permutation groups, Properties of groups, Rings and Fields (definition, examples and standard results only), Ideals						**CO5**
Lecture Hours : 20		**Tutorials Hours : 10**				**Total : 30**

Reference Books
1. *C.L. Liu, "Elenments of Discrete Mathematics" Mc Graw Hill Book Co., 1985* 2. *N. Deop, "Graph Theory with applications to Engineering and Computer Science", PHI 1993.* 3. *B. Colman and Robert C. Busby, "Discrete Mathematical structure for Computer Science," PHI.*
Text Book:
1. *Olympia Nicodemi, "Discrete Mathematics" CBS Publication, Delhi.*
Video Content:
1. *https://youtu.be/NZeGqylTSN4?feature=shared* 2. *https://youtu.be/RppxMfN9JqE?feature=shared*

(Common to B.Tech-CSE & CSE-AIML)						
Semester : **II**			Course Category Code : **HSMC**			
Course Code	Course		Period / Week			Credit
			L	T	P	C
HSMC102	**Professional Communication**		**2**	**1**	**0**	**3**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Course Outcome	**CO1**	*Understand the importance of professional communication in various contexts, including workplace interactions and professional relationships.*				K_2
	CO2	*Master the art of crafting a professional resume or CV that effectively highlights qualifications, experience, and skills.*				K_1,K_2
	CO3	*Understand the impact of gestures, postures, and overall personal appearance on communication effectiveness.*				K_3
	CO4	*Assess and understand individual personality traits and their impact on personal and professional interactions.*				K_1,K_3
	CO5	*Learn to create effective PowerPoint presentations, including design, content organization, and visual aids.*				K_3
UNIT – I	**Introduction of Communication Skills**					**Contact Hours : 6**
Role and purpose of Professional Communication, Introducing/Meeting New People, Giving Self Introduction, Interview Skills, Mock Interview Practice.						**CO1**
UNIT – II	**Business Communication**					**Contact Hours : 6**
Resume/C.V. Writing, Soft Skills and Hard Skills, Polite Conversation, Email Writing, Letter Writing.						**CO2**
UNIT – III	**Non- Verbal Communication**					**Contact Hours : 6**
Body Language and Personal Appearance: - Gestures and Postures, Kinesics and Proxemics, Tips for Improving Non Verbal Communication, Self-Grooming.						**CO3**
UNIT – IV	**Personality Development**					**Contact Hours : 6**
Personality Analysis, SWOT Analysis, Personality and other factors contributing to career development, Debate practice, Group Discussion.						**CO4**
UNIT – V	**Presentation Skills**					**Contact Hours : 6**
Preparation of PowerPoint presentation, Presentation skills, Seminars and Webinars, Etiquettes & Netiquettes to be followed in:- Personal Interview, Telephonic Interview, Group Discussion, Debate & Seminar.						**CO5**
Lecture Hours : 20		**Tutorials Hours :10**				**Total : 30**

Reference Books :

1. *Technical Communication by Meenakshi Raman and Sangeeta Sharma, Oxford University Press,2004.*
2. *Technical Communication by Mike Markel and Stuart A. Selber, Bedford/St. Martin's, 2022.*
3. ***The Art of Learning: An Inner Journey to Optimal Performance** by Josh Waitzkin, Free Press, 2007.*
4. ***Personality Development and Soft Skills** by Barun K. Mitra, Oxford University Press.*

Text Books:
1.Business communication by K.K. Sinha, Galgotiya Publishing Company, New Delhi. *2.Technical Communication by Malti Agrawal, Krishna Prakashan Media Ltd, Meerut.* *3.Soft skills by Dr.K.Alex, S.Chand & Company Ltd. New Delhi,2009.* *4. Professional Communication by Malti Agarwal, Krishna Prakashan Media Ltd, Meerut, 2013*
Video Content:
https://www.youtube.com/live/UudSwjqFdNM?si=2FQ1t32X8Blqrx79 ***https://youtu.be/OLVUrgQ_BbA?si=hyL95ifShFr7T-6a*** ***https://youtu.be/muXfu-wgLeA?si=H9TO2pRmvbR9PCoO*** ***https://youtu.be/i7og-Xripf0?si=x4T0e-CjyXZXoHXN*** ***https://youtu.be/Q074YSGwRTM?si=0-htw4k-HpG8qTpf***

(Common to B.Tech-CSE & CSE-AIML)						
Semester : II				**Course Category Code : PCCCS**		
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
PCCCS102	**Basics of Python Programming**		**2**	**1**	**0**	**3**
Prerequisite	***At the end of this course, the students will be able to:***					
Course Outcome	**CO1**	*Understood the phases of problem solving techniques for simple problems.*				
	CO2	*Able to write programs using the basic language constructs.*				
	CO3	*Able to build a larger programs using function oriented approaches.*				
	CO4	*Could write efficient programs using advanced concepts to optimize the memory.*				
	CO5	*Could write programs oops concept based.*				
UNIT – I	**Introduction of Python**					**Contact Hours : 6**
The Programming Cycle for Python, Python IDE, Interacting with Python Programs, Elements of Python, Type Conversion. Expressions, Assignment Statement, Arithmetic Operators , Operator Precedence, Boolean Expression.						**CO1**
UNIT – II	**Conditionals and loops**					**Contact Hours : 6**
Conditional statement in Python (if-else statement, its working and execution), Nested-if Statement and Elif statement in Python, Expression Evaluation & Float Representation Purpose and working of loops, While loop including its working, For Loop, Nested Loops, Break and Continue.						**CO2**
UNIT – III	**Data structure, function and string**					**Contact Hours : 6**
Parts of A Function, Execution of A Function, Keyword and Default Arguments, Scope Rules. Length of the string and perform Concatenation and Repeat operations in it, Indexing and Slicing of String Tuples, Unpacking Sequences, Lists, Mutable Sequences, List Comprehension ,Sets, Dictionaries. Treat functions as first-class Objects, Lambda Expressions.						**CO3**
UNIT – IV	**Sieve of Eratosthenes, File I/O, Exceptions and Assertions Modules**					**Contact Hours : 6**
Generate prime numbers with the help of an algorithm given by the Greek Mathematician named Eratosthenes, whose algorithm is known as Sieve of Eratosthenes, File input and output operations .In Python Programming Introduction, Importing Modules Abstract data types and ADT interface .In Python Programming. Class definitionand other operations in the classes, Special Methods (such as in it, str, comparison methods and Arithmetic methods etc.),Class Example, Inheritance, Inheritance and OOP.						**CO4**

UNIT – V	Iterators & Recursion	Contact Hours : 6
Recursive Fibonacci, Tower Of Hanoi Simple Search and Estimating Search Time, Binary Search and Estimating Binary Search Time Selection Sort, Merge List, MergeSort, Higher Order Sort.		**CO5**
Lecture Hours : 20	**Tutorials Hours – 10**	**Total : 30**

Reference Books

1. *Python Cookbook: Recipes for Mastering Python 3 (3rd Edition)*
2. *Python Crash course By Eric Matthews*
3. *Learning Python By Mark Lutz*

Text Books:

1. *Python in Nushell By Alex Martelli*
2. *Think Python By Allen Downey*

Video Content :

1. *https://youtu.be/7wnove7K-ZQ?si=P156wu3SJcrpWh6i*
2. *https://youtu.be/7wnove7K-ZQ?si=jbHkbuXv_kGF9vrS*
3. *https://youtu.be/7wnove7K-ZQ?si=Cf9TnYDaekqizKco*

(Common to B.Tech-CSE & CSE-AIML)						
Semester : II			**Course Category Code : PCCCS**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
PCCCS104	**OOPS WITH C++**		**2**	**1**	**-**	**3**
Prerequisite	***At the end of this course, the students will be able to:***					**Bloom's Level**
Course Outcome	**CO1**	*Understand the Basic concept of Object Orientation, object identity and Encapsulation.*				K_2,K_3
	CO2	*Understand the Basic concept of Basic Structural Modeling.*				K_3
	CO3	*Know the knowledge of Object oriented design, Object design.*				K_2
	CO4	*Know the knowledge of C++ Basics.*				K_3
	CO5	*Understand the Basics of object and class in C++.*				K_2,K_3
UNIT – I	**Introduction to Object Oriented Programming**					**Contact Hours : 8**
Overview of structured programming approach, Object oriented programming approach, Characteristics of object oriented languages, C++ Program Structure, Character Set and Tokens, Data Type, Type Conversion, Preprocessor Directives, Namespace, Input/Output Streams and Manipulators, Dynamic Memory Allocation with new and delete, Control Statements. **Functions:** Function Overloading, Inline Functions, Default Argument, Pass by Reference, Return by Reference, Scope and Storage Class. **Pointers:** Pointer variables declaration & initialization, Operators in pointers, Pointers and Arrays, Pointer and Function.						**CO1**
UNIT – II	**Classes & Objects**					**Contact Hours : 8**
Structures and Classes, A Simple Class and Object, Accessing members of class, Initialization of class objects: (Constructor, Destructor), Default Constructor, Parameterized Constructor, Copy Constructor, Constructor Overloading,Objects as Function Arguments, Returning Objects from Functions, Memory allocation for Objects, Static members, Member functions defined outside the class.						**CO2**
UNIT – III	**Polymorphism & Inheritance**					**Contact Hours : 8**
Fundamental of operator overloading, Restriction on operator overloading, Operator functions as a class members, Overloading unary and binary operator, Data Conversion (basic to basic, basic to user-defined, user-defined to basic), Introduction to inheritance, Derived Class and Base Class, Access Specifiers (private, protected, and public), Types of inheritance, Public and Private Inheritance, Constructor and Destructor in derived classes, Aggregation.						**CO3**
UNIT – IV	**Abstract Class, Virtual Function, & Exception Handling**					**Contact Hours : 8**
Concept of Virtual functions, Late Binding, Abstract class and pure virtual functions, Virtual Destructors, Virtual base class, Friend function and Static function, Friend Class,this pointer, Polymorphism and its roles.Function templates, Function templates with multiple arguments, Exceptional Handling (Try, throw and catch), Use of exception handling.						**CO4**

UNIT – V	File handling	Contact Hours : 8
Stream Class Hierarchy for Console Input /Output, Unformatted Input /Output, Formatted Input/Output with ios Member functions, Formatting with Manipulators, Stream , File Input/output with Streams, Opening and Closing files, Read/Write from File, File Access Pointers and their Manipulators, Sequential and Random Access to File.		CO5
Lecture Hours : 30	Tutorial Hours – 10	Total : 40

Reference Books :

1. *Object Oriented Design by Rumbaugh (Pearson publication).*
2. *Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.*
3. *The Compete Reference C++, Herbert Schlitz, TMH.*

Text Books:

1. *Object-oriented programming with C++ byE.Ba1agurusamy, 2nd Edition, TMH.*
2. *C++ and Object Oriented Programming Paradigm, PHI.*

Video Contents:

1. *https://youtu.be/nGJTWaaFdjc?si=8j7w0MrK2hY_tSFy*
2. *https://youtu.be/j8nAHeVKL08?si=ca1NEfADGakB_lUJ*
3. *https://youtu.be/z9bZufPHFLU?si=taCwhDXzTvhSM3WY*

(Common to B.Tech-CSE & CSE-AIML)						
Semester : II			**Course Category Code PCCCS**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
PCCS152	**Basics of Python Programming Laboratory**		**0**	**0**	**4**	**2**
APrerequisite	***At the end of this course, the students will be able to:***					
Course Outcome	**CO1**	*Understood the program editing and compilation environment.*				
	CO2	*Able to write simple Python programs using most frequently used controlstructures.*				
	CO3	*Apply the methods problems using String, tuple and functions.*				
	CO4	*Learnt to handl Input Output operation and ADT.*				
	CO5	*Binary Search Tree, bubble sort, merge sort.*				

Programming Using Python	
1. Study of Compilation and execution of simple python programs 2. Basic python Programs • Arithmetic Operations • Area and Circumference of a circle • Swapping with and without Temporary Variables	**CO1**
3. Programs using Branching statements • To check the number as Odd or Even • Greatest of Three Numbers 4. Programs using Control Structures • Computing Factorial of a number • Fibonacci Series generation • Prime Number Checking • Computing Sum of Digit	**CO2**
5. Programs using list ,tuple a. Sum of two list. b. Show a name ,age with tuple 6. Programs using Functions a. Factorial using Recursion b. Call by Value and Call by Reference c. Adding two number with the help of function	**CO3**
7. Programs using String Operations a. Palindrome Checking 8. Programs using class a. Show the area of rectangle with class. b. Using inheritance make a program	**CO4**
9. Programs using sorting a. Make a program with selection sort. 10. Programs using Recursive Fibonacci.	**CO5**

(Common to B.Tech-CSE & CSE-AIML)						
Department : Computer Science and Engineering			**Programme : B.Tech**			
Semester : II			**Course Category Code : PCCCS**			
Course Code	**Course**		**Period / Week**			**Credit**
			L	**T**	**P**	**C**
PCCCS154	**OOPS with C++ LAB**		**0**	**0**	**4**	**2**
Prerequisite	***At the end of this course, the students will be able to:***					
Course Outcome	**CO1**	*Able to differentiate structure oriented programming and object oriented programming*				
	CO2	*Able to understand and apply various object oriented features*				
	CO3	*Able to know concepts in operator overloading, function overloading & polymorphism.*				
	CO4	*Design programs involving constructors, destructors.*				
	CO5	*To implement the concept of files, templates and exceptions.*				

List of experiment

1	**EXERCISE-1 (BASICS)** • Write a CPP Program to demonstrate the structure of a C++ program. • Write a CPP Program to display the names of header files, definitions and list of functions supported. • Write a program to show the base of a numeric value of a variable using **Hex, Oct** and **Dec**manipulator functions. • Write a CPP Program to use of the standard manipulators normally used in the stream classes. • Write a CPP Program to demonstrate the usage of bit fields. • Write a CPP Program to define constant pointer and pointer to constant and perform possible operations. • Write a CPP Program access a variable in different scopes by using scope resolution operat or and the use of comma operator.
2	**EXERCISE-2 (CLASSES & OBJECTS)** • Write a CPP Program to swap two numbers using call by value, call by address, call by reference and return by reference. • Write a CPP Program to calculate square and cube of a number using inline functions and macros. (Demonstrate the use of inline functions compared to macros). • Write a CPP Program to find the area of a rectangle, a triangle and surface area of a sphere using function overloading. • Write a CPP Program to declare all members of a class as public, Access the members using objects. (Use public, protected, private). • Write a CPP Program to access the member functions inside and outside a class. • Write a CPP Program to access private data using non-member functions. (Use friend function). • Write a CPP Program to pass objects to functions by pass by value method.

3	**EXERCISE-3 (CONSTRUCTORS AND OPERATOR OVER LOADING)** • Write a CPP Program to show that "for each object constructors is called separately" and read the values through keyboard (Use Constructor). • Write a CPP Program to create constructor with arguments and pass the arguments to constructor. • Write a CPP Program to create object and release them using destructor. • Write a CPP Program to perform addition, subtraction, multiplication of two objects using operator keyword. • Write a CPP Program to overload unary and binary operator overloading with friend function.
4	**EXERCISE-4 (INHERITANCE AND POLYMORPHISM)** • Write a CPP Program to derive a class publicly from base class. Declare base class members under public, private and protected. • Write a CPP Program to derive single and multiple inheritances. • Write a CPP Program to declare virtual base class. Derive a class using two virtual classes. • Write a CPP Program to implementation of Virtual Function. • Write a CPP Program to Implementation of Pure Virtual Function.
5	**EXERCISE- 5 (FILES, TEMPLATES AND EXCEPTION HANDLING)** • Write a CPP Program to write and read text in a file. Use ofstream and ifstream classes. • Write a CPP Program to open a file for writing and reading purpose. Use open () function. • Write a CPP Program write text in a file. Read the text from the file from EOF. Display the contents in reverse order. • Write a CPP Program to demonstrate that the data is read from file using ASCII format. • Write a CPP Program to find the factorial of a number. Throw multiple exceptions and define multiple catch statements to handle exceptions. • Write a C++ Program to illustrate template class.
6	• Write C++ program to demonstrate Overloading new and delete operator • Write C++ program to compare two Strings using Operator Overloading • Write C++ Program to concatenate two strings using Operator Overloading • Write a C++ Program to Find the Number of Vowels, Consonants,Digits and White Spaces in a String • Write a C++ Program to remove all Characters in a String except Alphabets. • Write a C++ Program to Find the Frequency of Characters in a String • Write C++ Program for remove all duplicates from the input string. Print all the duplicates in the input string. • Write C++ Program for remove characters from the first string which is present in the second string • Write C++ Program to check if strings are rotations of each other or not • Write C++ Program to read a string .Add the same string in the reverse order to the end of the same string. • Write C++ program to declare string objects .Perform assignment and concatenation with the string objects.