II SEMESTER

S No	CODE	Subject	Hours	Credits	Internal Marks	External Marks
1	T2	Tamil	6	3	25	75
2	E2	English	6	3	25	75
3	CS3	Object Oriented Programming with C++	4	4	25	75
4	CS4	**Lab 3:** Object Oriented Programming with C++	6	4	40	60
5	AS2	Mathematical Foundations II	4	4	25	75
6	SBS2	**Lab 4:** Linux Programming	2	2	40	60
7	NME2	Introduction to Internet	2	2	25	75
		Total	30	22		

CS3: Object Oriented Programming with C++

(4 Hours - 4 credits)

Unit I:

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – User- defined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II:

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III:

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

Unit IV:

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output with manipulators.

Unit V:

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

Object Oriented Programming with C++**,** E. Balagurusamy, Sixth Edition**-**2013, McGraw Hill Education (India) Private Limited, New Delhi.

Unit I : Chapter 1 (Except 1.3, 1.4), Chapter 2 (Only), Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4
Unit II : Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)
Unit III : Chapter 7, Chapter 8
Unit IV : Chapter 9, Chapter 10
Unit V : Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Reference Books:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C++, Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

CS4: Lab 3: Object Oriented Programming with C++

(6 Hours - 4 credits)

Section A :

1. Printing Prime numbers between two given numbers.
2. Printing 3 digit numbers as a series of words. *(Ex. 543 should be printed out as Five Four Three).*
3. Finding area of geometric shapes using function overloading.
4. Inline functions for simple arithmetic operations.
5. Demonstrating the use of Pre-defined Manipulators.
6. Demonstrating the use of friend function.
7. Creating student mark list using array of objects,368
8. Demonstrating constructor overloading.
9. Overloading the unary – operator.
10. Demonstrating single inheritance.
11. Demonstrating the use of **this** pointer.
12. Designing our own manipulator.

13. Illustrating function templates.
14. Illustrating class templates.

Section B

1. Overloading the binary + operator.
2. Demonstrating Multiple inheritance.
3. Demonstrating Multilevel inheritance.
4. Demonstrating Hierarchical inheritance.
5. Demonstrating Virtual functions.
6. Processing mark list using binary file.
7. Count number of objects in a file.
8. Demonstrating the use of Command-line arguments.

AS2: MATHEMATICAL FOUNDATIONS II

(4 Hours – 4 Credits)

Unit I:

Introduction to statistics – primary and secondary data – classification, tabulation and Diagrammatic Representation of statistical data – Bar-charts, Pie-diagrams' – Graphical Representation of data – Histograms, Frequency polygon, Ogives.

Unit II:

Measures of dispersion – characteristics – coefficient of dispersion - Coefficient of variation – Moments – skewness and kurtosis – Pearson's coefficient of skewness - Bowley's coefficient of Skewness – Coefficient of skewness based upon moments.

Unit III:

Simple correlation – Karl Pearson's coefficient of correlation – correlation coefficient for A bivariate frequency distribution – Rank correlation – Regression – lines of regression – Properties of regression coefficient.

Unit IV:

Events and sets – sample space – concept of probability – addition and multiplications Theorem on probability – conditional probability and independence of evens – Baye's Theorem – concept of random variable – Mathematical Expectation

Unit V:

Concept of sampling distributions – standard error – Tests of significance based on t, Chi- square and F distributions with respect to mean, variance.

Text Book:

Statistical Methods, S.P.Gupta, Sultan chand and sons, 2004.
Unit I : Chapters 1, 2.2, 2.2.1, 2.2.2, 2.2.3 – 2.2.5
Unit II : Chapters 7 and 8
Unit III : Chapters 9, 9.1, 9.2, 9.3, 10, 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.3
Unit IV : Chapter 16
Unit V : Chapters 18.3, 18.4, 18.7.1, 18.7.2, 19

Reference Books:

1.Statistics, Dr. S.Arumugam and A.Thangapandi Issac, New Gamma Publication house, 2002.
2.Kishor S.Trivedi - Probability and statistics with reliability queuing and Computer Science Applications - Prentice Hall of India(P) Ltd., New Delhi - 1997.
3. Discrete Mathematics - Seymour Lipschutz, Marc Lars Lipson Schaum's Outlines- by, 3rd Edition., Tata McGraw Hill, Education Pvt. Ltd., New Delhi. 5th Reprint 2012.

SBS2: Lab 4: Linux Programming

(2 Hours – 2 Credits)

Section-A

1. Write a Linux script to find the number of users who have logged in.
2. Write a Linux script to see the current date, user name and current directory.
3. Write a Linux script to print the numbers 5,4,3,2,1 using While loop.
4. Write a Linux script to set the attributes of a file.
5. Write a Linux script to convert lowercase to uppercase using tr utility.
6. Write a Linux script to copy and rename a file.
7. Write a Linux script to add 5 numbers and find the average.
8. Write a Linux script to convert a decimal number to hexadecimal conversion.
9. Write a Linux script to find the factorial of a number.
10. Write a Linux script to check for palindrome.

Section-B

1. Write a Linux script to display Hello World in Bold, Blink effect and in different colors like red, green etc.
2. Write a Linux script to display a multiplication table.370
3. Write a Linux script to perform arithmetic operations using case.
4. Write a Linux script to add two real numbers.
5. Write a Linux script to display the following pattern: 1
22
333
4444
55555
6. Write a Linux script to find the sum of digits and reversing of a given number.
7. Write a Linux script to display the student mark details.
8. Write a Linux script to prepare electricity bill.
9. Write a Linux script to sort the numbers in ascending order.
10. Write a Linux script
(i) To create and append a file
(ii) (ii) To compare two files.

NME2: Introduction to Internet

(2 Hours – 2 Credits)

Unit I:

Introduction to internet: Internet- Growth of Internet and ARPANet - Owners of the Internet -Anatomy of Internet – History of WWW - Basic Internet Terminologies – Net etiquette - Internet Applications - Commerce on the Internet

– Governance on the Internet - Impact of Internet on Society.**TCP/IP Internet Technology and Protocols:** Packet Switching Technology - Internet Protocols - TCP/IP – Router - Internet Addressing Scheme- Machine Addressing - E-mail Addresses – Resource Addresses.

Unit II:
Interconnectivity: Connectivity types - Setting up a connection - Hardware requirements- Selection of a modem - Software requirements – Internet accounts by ISP-ISDN-Protocol options-Service options. **Internet Network:** Network Definition-Common terminologies – Node - Host- Workstation -Network Administrator - Network security - Network Components – Servers-client Server Communication Media - Types of Networks - Addressing in Internet – DNS - Network topologies – Ethernet – FDDI - ATM.

Unit III:
Browsers and Search engines: Browsers - What is a browser? – Parts of a browser window
-Running a browser - working with a Browser.**Search engines**: What is search engine? - Types of search engines - Search and meta search engines.

Unit IV:
E-mail: E-mail - E-mail Networks and Servers - E-mail Protocols - Structure of E-mail - Attachments – E-mail Clients - E-mail Clients - web based E-mail Address book – Signature File.

Unit V:
HTML Programming Basics: Introduction to HTML – HTML browsers - Different versions of HTML-HTML tags - Document overview - Header elements - Section headings - Block hedings - Lists-Inline elements – Images - working with Tables, Forms, Frames.

Text book:

Internet Technology and Web design, Ramesh Bangia, Firewall Media, (An imprint of Lakshmi Publications Pvt. Ltd.), Third Edition, 2011.
Unit I : Chapters 1 and 2
Unit II : Chapters 3 and 4
Unit III : Chapter 5(5.6), Chapter 8(8.11 &8.13)
Unit IV : Chapter 5 (5.1) & Chapter 6
Unit V : Chapter 9

Reference Books:

1. The Internet Book, Douglas E. Comer, Fourth Edition, PHI Learning Pvt. Ltd. , New Delhi, 2009.
2. Using the Internet the Easy Way, Young Kai Seng, Minerva Publications, First Edition, 2000.
3. Fundamentals of Information Technology By Alexis Leon and Mathews Leon, Vikas Publishing House Pvt. Ltd., Revised Edition.