

**A.VEERIYA VANDAYAR MEMORIAL SRI PUSHPAM COLLEGE
(AUTONOMOUS),
POONDI, THANJAVUR DIST.**

**Question Pattern for UG and PG Programmes for students to be
admitted during 2014 – 2015 and afterwards.**

Total Marks: 75

QUESTION PATTERN

**SECTION – A
(Question 1 to 10)**

10 x 2 = 20 Marks

1. Short Answer Questions.
2. Two Questions from each unit (All are answerable)

**SECTION – B
(Question 11 to 15)**

5 x 5 = 25 Marks

1. 5 Paragraph type questions with "either / or" type choice.
2. One question from each unit of the Syllabus.
3. Answer all the questions.

**SECTION – C
(Question 16 to 20)**

3 x 10 = 30 Marks

1. 5 Essay type questions – any three are answerable.
2. One questions from each unit of the Syllabus.

Semester	Subject Code	Title Of The Paper	Hours Of Teaching / Week	No. of Credits
I	14U1CST1	$\sqrt{\mathfrak{R}} \mid \zeta \vdash \sqrt{\mathfrak{R}} \mid \mathbf{B} \Delta$ $(\chi \mid \leftrightarrow \Sigma \mid f, E \rightarrow \mid \mid >, \Sigma \zeta f \mid \Delta,$ $\sqrt{\mathfrak{R}} \mid \mathbf{B} \kappa \leftrightarrow \mid \zeta \rightarrow)$	6	3

$\{ \rightarrow: 1 \quad \neg \otimes \Phi \infty \perp$

... $\Sigma \leftrightarrow \Delta: 18$

1. $\sqrt{\leftrightarrow \zeta} \therefore o \equiv \mid \partial \mid \mid \zeta \mid \square \mid \mathfrak{k} \mid \otimes \wp \zeta \square \mid \zeta \otimes E \heartsuit \neg \wp \mid \tau > \Delta$

$(\mid \mathfrak{k} o > \zeta \mathbf{B} \Delta \quad \xi \vdash \kappa \mu \Delta)$

2. $\Sigma \zeta \therefore \mathfrak{R} \mid _ \mid \sigma \Theta \mid \square > \tau \infty \uparrow \dots > [$

$(\wp \mid \kappa \uparrow \mid \square > \lambda [E \oplus \heartsuit A)$

3. $\wp \zeta \leftrightarrow \mid \mathbf{B} \zeta \mid \square \bullet > \subseteq \mid \leftrightarrow \heartsuit \wp \zeta f _ \mid \perp$

$(\bullet > \subseteq \mid \leftrightarrow \heartsuit \neg \wp \mid \therefore, \bullet > \subseteq \mid \leftrightarrow \heartsuit \wp \lambda \mid \bullet > \subseteq \mid \leftrightarrow \uparrow > \zeta \mid \Delta,$

$\bullet > \subseteq \mid \leftrightarrow \dots > \sigma \lambda [\mu])$

4. $\wp \zeta \leftrightarrow \mid > \zeta \otimes [\square \mathbf{T} \leftrightarrow \uparrow > \zeta \Phi$

5. $\wp \otimes \mid \mathfrak{R} \dots \mid \zeta \otimes \mid f \mid _ \mathbf{B} \zeta \square \bullet \subseteq > \leftrightarrow \Delta \square \Sigma \zeta \mid$

$(\diamond \equiv \dots \mid \chi \mathbf{J} \mid \therefore \diamond [\Sigma \zeta \dots f, \diamond \equiv \mid \perp \Sigma \zeta \mid (> \tau \infty \Sigma \zeta, \gamma \subseteq \mid \leftrightarrow \zeta \Sigma \zeta \mid,$

$\mid [\spadesuit f \Sigma \zeta \mid, \therefore \mid \mathfrak{B} \zeta \langle \Sigma \zeta \rangle))$

6. $\mid \kappa \leftrightarrow \xi \uparrow \mu \square \mid \sigma \leftrightarrow \zeta \leftrightarrow [\mid \mid > (\mid \zeta \vee \rightarrow \Delta \mid \sigma \Theta \angle \Delta \therefore \neg \heartsuit \wp _ \mid \mid \neg)$

$\{ \rightarrow: 2 \quad \chi \mid \leftrightarrow \Sigma \mid f$

... $\Sigma \leftrightarrow \Delta: 18$

1. $\dots \mid \otimes \mid \sigma \square \sqrt{\leftrightarrow \zeta} \mid \wp \zeta \kappa \Delta (1 \xi > _ 15 \kappa \mid \leftrightarrow)$

2. $\dots \mid \otimes \mid \sigma \square \wp \mathbf{B} \square \equiv \mid \perp \neg > \zeta f \mid \Delta$

$\{ \rightarrow: 3 \quad E \rightarrow \mid \mid >$

... $\Sigma \leftrightarrow \Delta: 18$

1. $\dots \mid \otimes \mid \sigma \square \zeta \leftrightarrow _ \neg \mid \zeta \mid \mathfrak{R} \zeta \Delta \kappa \zeta \spadesuit \Delta \wp \zeta \mid (1 \xi > _ 10 \kappa \mid \leftrightarrow)$

$$2. \dots | \textcircled{R} | \sigma \square \therefore \dots \spadesuit \zeta \leftrightarrow \Rightarrow E > \Delta \xi \dashv \kappa \mu \Delta$$

$$\{ \rightarrow : 4 \ \Sigma \zeta f | \Delta$$

$$\dots \Sigma \leftrightarrow \Delta : 18$$

$$\zeta . \neg \kappa . \wp \zeta \ulcorner \bullet \heartsuit \div \leftrightarrow \therefore \setminus B [\square \neg | \langle > \therefore A \Uparrow > \lceil$$

$$\{ \rightarrow : 5 \ \sqrt{\Re} | B \ \kappa \leftrightarrow \rceil \zeta \rightarrow$$

$$\dots \Sigma \leftrightarrow \Delta : 18$$

$$E \rightarrow || > , A] \spadesuit \Delta , \Sigma \zeta f | \Delta , | \sigma | > , \chi | \leftrightarrow \Sigma | f$$

Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
I	14U1ENE1	PART – II ENGLISH PROSE, POETRY AND COMMUNICATION SKILLS	6	3

Objective

- To initiate the Students to understand English through Prose, Poetry and Basic Communicative Grammar

Unit – I

- 1) The Running Rivulets of Man,
- 2) Parliament is Marking Time,
- 3) The Lady in Silver Coat,
- 4) Mr. Applebaum at Play.

Unit – II

- 1) The Feigning Brawl of an Impostor,
- 2) Thy Life Is My Lesson,
- 3) Solve The Gamble,
- 4) The Stoic Penalty.

Unit – III

- 1) Nobility In Reasoning,
- 2) Malu the Frivolous Freak,
- 3) Bharath! Gird Up Your Loins!
- 4) Honesty is the Cream Of Chastity

Unit – IV

John Milton – On His Blindness.
Oliver Goldsmith – The Village Schoolmaster.
William Wordsworth – The Daffodils.
P.B.Shelley – Ozymandias.
Keats – La Belle Dame Sans Merci.
Hopkins – Thou Art Indeed, Just Lord.

Unit – V

Parts of Speech, Nouns, Pronouns, Conjunctions, Adjectives, Articles, Verbs, Adverbs, Interjection – sentence.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
I	14U1CSC1	PROBLEM SOLVING AND PROGRAMMING TECHNIQUES	6	5

COURSE OBJECTIVES:

- To understand the basic concepts of problem solving approaches and develop optimal program structure using conditional and iterative control structures and functions.
- To design, implement, test, and apply the basic C programming concepts.
- Apply the techniques of structured (functional) decomposition to break a program into smaller pieces and describe the mechanics of parameter passing.

UNIT I INTRODUCTION TO COMPUTER PROBLEM SOLVING

Hrs 20

Introduction–The Problem Solving aspect – Top down design – Implementation of algorithm–Program Verification–The efficiency of algorithm – The analysis of algorithm.

UNIT II PROGRAMMING, ALGORITHMS AND FLOWCHARTS

Hrs15

Programs and Programming – building blocks for simple programs -Programming life cycle phases – pseudo code representation – flow charts - Algorithm - Programming Languages-compiler–Interpreter, Loader and Linker - Program execution – Classification of Programming Language - Structured Programming Concept.

UNIT III BASICS OF 'C', INPUT / OUTPUT & CONTROL STATEMENTS

Hrs 15

An overview of C - data types and sizes - declarations - variables - constants – Operators- Expressions - Storage classes - Program control structures - Loop control structures – C formatted Input/Output - Arrays - Strings.

UNIT IV

Hrs 20

Function-Function Arguments-Function prototype-Recursion-Structure–Unions–Bit Manipulations and Enumerations–Self-Referential Structures–Dynamic Memory Allocation.

UNIT V

Hrs 20

Pointers – Introduction – Pointer and Arrays – Pointers and Strings – Pointer and Structures – Pointers and Data structures- File processing.

REFERENCES:

1. E. Balagurusamy, 'Programming in ANSI C', Tata McGraw Hill. 4th Edition, 2008.
2. Deitel & Deitel, "C How to program", Third Edition, Pearson Education Asia.
3. Yashavant Kanetkar, "Understanding Pointers in C", 4th Revised & Updated Edition, 2008, Bpb Publications
4. Cormen, Leiserson, Rivest, Stein, "Introduction to Algorithms", McGraw Hill , Publishers, 2002
5. Peter Norton, "Introduction to Computers", Sixth Edition, Tata McGraw Hill Publications, 2007.
6. Reema Thareja, "Programming in C", Oxford University Press, 2011.
7. How to solve it by computer, R.G.Dromey, Pearson Education, fifth edition, 2007.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
I	14U1CSCP1	Software Lab-I C Programming	3	3

Objective

- ❖ To Understand programming techniques in C

C Programming

I Control structures 21

1. Fibonacci Series
2. Prime number
3. Quadratic equation – switch statement
4. NCR

II Arrays

5. Sorting

III Matrix

6. Addition and Subtraction
7. Multiplication

IV Using Structure and file

8. E.B. Bill
9. Pay Bill
10. Mark List

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
I	14U1CSMAA1	Allied Mathematics – I	5	3

Objectives:

- To introduce the basic concept of summation of series and special types of matrices, Trigonometry.
- To introduce Higher level integral.

UNIT-I

Binomial, exponential and log arithmetic series (without proof)-Summation using the three series.

Ref:

Chapter 2, 3-Ancillary mathematics-vol-1.Algebra T.K.M.Pillai (Relevant portions only).

UNIT-II

Cayley – Hamilton theorem (No Proof) – Characteristics equation – Roots and Vectors – Symmetric, Orthogonal, Unitary, Hermitian Matrices – simple examples.

Ref:

Chapter 6 – Ancillary Mathematics Vol.I T.K.M Pillai (Relevant portions only).

UNIT-III

Radius of curvature (Cartesian and parametric)-Partial derivatives of a function of two functions- Jacobians of 2 and 3 variables.

Ref:

- 1.Chapter 1 Sec.6, chapter3 sec.3.2,3.3-Ancillary Mathematics Vol. II , T.K.M. Pillai.
 - 2.Chapter 7 calculus vol.II T. K. M. Pillai (Relevant portions only)
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UNIT-IV

Beta and Gamma integral (Simple problems only)- Evaluation of double and triple integrals.

Ref:

Chapter-5, Calculus vol.II T. K. M. Pillai (Relevant portions only)

UNIT-V

Trigonometry- Hyperbolic functions-Relation between circular and hyperbolic functions-separation of real and imaginary parts of hyperbolic functions-Inverse hyperbolic functions-separation of real and imaginary parts of inverse hyperbolic function.

Ref:

Chapter III, IV- Trigonometry- T.K.M.Pillai (Relevant portions only)

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
I & II	14U2CSMAA2	Allied Mathematics – II (NS)	3+3	-

Objectives:

- To introduce concepts of correlation and basic graph theory.
- To introduce concepts numerical solution of ODE, interpolation and 3 dimensional analytical geometry.

Unit - I

Correlation – Rank correlation – Regression – Index number.

Ref:

Chapter 10, 11, part II, Chapter 5 – statistical methods – S.P.Gupta Sultan & chand. (Relevant portions only)

Unit - II

Interpolation - Gregory - Newton forward & Backward interpolation formula (no proof)- Simple problems only - Interpolation with unequal intervals- Newton's divided difference formula (Statement only)- Lagrange's formula Simple problems only- Numerical differentiation Newton's forward & Backward difference formula (Statement only)- Simple problems only.

Ref:

Dr.M.K.Venkatraman - Numerical methods in Science and Engineering.

Unit - III

Numerical solution of ordinary differential equation - Taylor series - Euler's method - Euler's modified method - R.K 4th order method.

Ref:

Chapter 10- Dr.M.K.Venkatraman Numerical methods in Science and Engineering.

Unit – IV

Standard Equation of plane - Straight lines - S.D between two skew lines - Spheres (Up to intersection of plane)

Ref:

Analytical Geometry 3D-T.K.M.Pillai (Relevant portions only)

Unit-V

Introduction _ Definition _ finite and infinite graphs _ Incidence and degree _ Isolated vertex , pendent vertex and null graph, paths and circuit _ Isomorphism _ sub graphs _ walks, paths and circuits _ connected graphs Definitions and examples of incidence matrix, Circuit matrix, Cut-set matrix, path matrix, adjacency matrix.

Ref:

Chapter I and Chapter II (Relevant portions only) - graph theory with application to Engineering and Computer Science - Narsingh Deo (1992).

Semester	Subject Code	Title Of The Paper	Hours Of Teaching / Week	No. of Credits
II	14U2CST2	$\forall f \mathcal{R} \zeta \vdash \sqrt{\mathcal{R}} B \Delta -$ $\wp B[\xi] \oplus \uparrow > \tau \infty - \sqrt{\mathcal{R}} \square \kappa \leftrightarrow \vdash \zeta \rightarrow$	6	3

$\{\rightarrow: 1$

... $\Sigma \leftrightarrow \Delta$: 18

1. $\mathbb{J} \vdash \Theta \zeta \spadesuit \otimes \Delta \wp \subseteq \vdash \square \dots > \kappa \zeta \leftrightarrow \Delta \square \dots | \zeta \langle \rightarrow \mathbb{J} \heartsuit \wp \rangle | \Delta$
2. $\mathbb{J} \vdash \Sigma \zeta \Upsilon \mathcal{R} | \leftrightarrow \otimes \vdash \square \dots > \kappa \zeta \leftrightarrow \Delta \square \wp \gamma \Delta \mathbb{J} \xi | \oplus \square \mathbb{J} \uparrow > \zeta \mathbb{J} f | \Delta \square$
 $\mathbb{J} \mathcal{R} | \mathbb{J} | \zeta \wp \vdash \wp \rangle | \Delta$
3. $\bullet \subseteq \leftrightarrow \vdash \square \dots > \kappa \zeta \leftrightarrow \Delta \square \mathbb{J} \kappa \zeta^{\text{TM}} \vdash \wp \rangle | \Delta (\forall \oplus | \dots \langle \zeta | \otimes \subseteq \forall [\wp \Delta \dots)$
4. $\therefore \zeta \setminus \mathcal{R} | \kappa \zeta \otimes | \vdash \square \mathbb{J} \kappa \zeta \otimes | \Delta \square \partial \mathbb{J} \otimes \wp \uparrow \mu$

$\{\rightarrow: 2$

... $\Sigma \leftrightarrow \Delta$: 18

1. $\neg \wp \setminus B \zeta \infty \kappa \zeta \vdash \square \mathbb{J} \neg \vdash \vdash \zeta \alpha \square$ 4. $\therefore \zeta \setminus \mathcal{R} | \equiv | \otimes |$
2. $\Sigma \Delta \vdash \zeta \infty \kappa \zeta \vdash \square \mathbb{J} \kappa \zeta \Phi \neg \vdash \vdash \zeta \alpha \square$
 $(\chi B \vdash \kappa \oplus \Upsilon B \vdash \Sigma \vdash \Delta \dots \xi > _ 10 \wp \zeta f _ | \perp)$
3. $\gamma \mathbb{J} f \zeta \perp \square \mathbb{J} \heartsuit \wp \zeta | \kappa$
 $(\therefore \zeta | \alpha \uparrow \mathbb{J} \equiv | \perp \dots \xi > _ 10 \wp \zeta f _ | \perp)$
4. $\mathbb{J} \vdash \vdash \equiv | B \zeta \infty \kappa \zeta \vdash \square \neg \wp \setminus B \mathbb{J} \neg \vdash \vdash \zeta \alpha (\xi > _ 10 \wp \zeta f _ | \perp)$

$\{\rightarrow: 3$

... $\Sigma \leftrightarrow \Delta$: 18

1. $\mathbb{J} \mathbb{J} \mathcal{R} \vdash \square \mathbb{J} \vdash \vdash \subseteq \rangle \leftrightarrow \Delta \square (\xi > _ > \subseteq \rangle \leftrightarrow \Delta \square | _ \sigma: 10 \wp \zeta f _ | \perp)$
2. $\zeta \vdash \vdash \leftrightarrow \zeta \vdash \wp \leftrightarrow \vdash \square * \spadesuit \zeta \otimes E B \Delta \vdash \vdash \vdash \perp | \langle \uparrow > \tau \in (\xi \vdash \kappa \mu \Delta)$
3. $\mathbb{J} \setminus f \leftrightarrow \zeta \otimes \heartsuit \wp \mathcal{R} | \sigma \leftrightarrow \zeta B \vdash \square \zeta \cup \oplus \zeta \vdash \mathcal{R} \zeta \oplus \kappa \Rightarrow E \square \Sigma \zeta \otimes | \kappa \langle \Delta$
4. $T \leftrightarrow \vdash \vdash \zeta \xi M \kappa \vdash \square \mathbb{J} \mathcal{R} | \zeta \kappa \wedge \vdash \vdash \Delta \wp | \Delta \square A B \kappa \zeta \heartsuit A$
5. $\zeta \square \equiv \zeta | \vdash \vdash > \zeta [\otimes \zeta] A \square \xi | \psi [\otimes > | \Delta (1 \xi > _ 4 \wp \zeta f _ | \perp)$

$\{\rightarrow: 4 \wp B[\xi] \oplus \uparrow > \tau \infty$

... $\Sigma \leftrightarrow \Delta$: 18

$\kappa \zeta \mathcal{R} | B \partial \vdash \vdash \heartsuit A \square A \square \vdash \downarrow E \kappa | | \perp \square \kappa \otimes \zeta \Delta, \kappa \otimes \tau | \zeta \sqrt{f} \equiv | \perp \square \spadesuit \downarrow \uparrow \mu \heartsuit \div | \omega \mathcal{N} \mathcal{R} | \Delta \vdash$
 $| \leftrightarrow, \langle | \leftrightarrow, \omega | \leftrightarrow \dots \kappa \rightarrow \wp \zeta | | \perp \square \neg \otimes \zeta \cup | | \langle \heartsuit \div \rangle \uparrow \mu \heartsuit \neg \wp \zeta \perp | \zeta \beta \Delta \xi | \oplus \square \Omega \rightarrow \uparrow > \upsilon \zeta \Xi |$
 $| \perp \square \otimes \setminus B \zeta \spadesuit > \tau \in \kappa | \kappa \Delta \partial > _.$
 $\neg \otimes \zeta _ \otimes B _ \square \neg \otimes \zeta _ \kappa \vdash | \square \sqrt{\mathcal{R}} | \square \kappa | | \square \sqrt{\mathcal{R}} | B \kappa | | \square \neg \wp B \vdash \downarrow \neg \otimes \zeta _ \square \sqrt{\zeta} / \square |$
 $\zeta \leftrightarrow \square \Delta \square \partial \rightarrow \neg \wp \zeta \vdash \otimes \neg \wp B \vdash (\neg \wp \zeta \perp, \sqrt{f} \Delta, \vdash \Delta, E | \spadesuit, \zeta \square \Delta, \neg > \zeta \alpha _) \square \sigma \vdash \spadesuit \downarrow \neg \otimes \zeta _$
 $\square \sqrt{f} \downarrow \neg \otimes \zeta _ \square \chi \setminus \downarrow \neg \otimes \zeta _ \square \xi \cup \rightarrow \square \spadesuit \downarrow \otimes \Delta \square \sigma \zeta | \perp \square \sqrt{f} \Omega \vdash \square > [\sigma \vdash \spadesuit \square \div \oplus \sigma \vdash \spadesuit \square \neg$
 $> \setminus \Omega \vdash \sigma \vdash \spadesuit \square \zeta / \heartsuit A \sigma \vdash \spadesuit \square \kappa \vdash \kappa | \vdash _].$

$$\{\rightarrow: 5 \quad \sqrt{\mathfrak{R}} \mid \square \kappa \leftrightarrow \lceil \zeta \rightarrow$$

$$\dots \Sigma \leftrightarrow \Delta: 18$$

$$\sqrt{\mathfrak{R}} \mid \square \kappa \leftrightarrow \lceil \zeta \rightarrow \square > \tau \propto \uparrow \mu \mid \oplus \neg \kappa \neq \Xi|.$$

Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
II	14U2CSE2	PART – II ENGLISH EXTENSIVE READERS AND COMMUNICATIVE SKILLS	6	3

Objective

- To impart language and communicative skills through short stories, one act plays and communicative grammar

Unit – I

K.A.Abbas – The Sparrows
O’Henry – The Cop and the Anthem.
Guy de Maupassant – The Necklace.
R.K.Narayan – Engine Trouble.

Unit – II

Anton Chekov – The Proposal
O’Henry – While the Auto Watts

Unit - III

Saki – The Death Trap
Mahesh Dattani –The Girl who touched the stars
Claudia I.Haas – The Cellphone Epidemic

Unit – IV

Tense, Question Tag, Dialogue Writing, Paragraph Writing, Adjectives, Adverb

Unit – V

Voices, Degree of Comparison, Direct and Indirect

Book Prescribed:

Unit IV & V – Communicative grammar by the Department of English

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
II	14U2CSC2	Core –C++and Data Structures	6	5

Objective

- To Understand programming Techniques in C++
- To understand various data structures and their capabilities.

UNIT-I

Hrs18

Introduction to OOPs – Introduction to C++ - Programming constructs and Decision making – Arrays – Pointers – Functions.

UNIT-II

Hrs18

Classes and Objects – Inheritance – Virtual functions and Polymorphism – Files and templates.

Unit III

Hrs18

Introduction – How to create programs – Ordered list – Arrays – Representation of arrays – Sparse matrices – Stacks and queues – Evaluation of expressions.

Unit IV

Hrs18

Linked lists: Singly linked lists – Polynomial addition – Double and circular linked lists.

Unit V

Hrs18

Trees: Binary trees – Binary tree representations – Binary tree traversal – Threaded binary trees.

TextBooks:

1. "Object Oriented Programming with ANSI & Turbo C++", Ashok N.Kamthane, First, Indian print-2003, Pearson Education.
2. E. Balagurusamy, 'Programming in ANSI C++', Tata McGraw Hill, Third Edition, 2005.
3. Herbert schidt, " C++ The Complete Reference" , Tata McGraw Hill, Fourth Edition, 2003.
4. Fundamentals of Data structures by Ellis horowitz, Sartaz sahani, Galgotia Publications. 1976.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
II	14U2CSCP2	Software Lab-I C ++ PROGRAMMING LAB	3	3

C++ PROGRAMMING WITH DATA STRUCTURES LAB

1. Create a simple program using class and object
2. Write a C++ program to illustrate the use of the following concepts
 - i) Default arguments and
 - ii) Reference variable
3. Develop an object oriented to add two times. Assume that the time consists of the members hours, minutes and seconds. Use objects as arguments
4. Develop a C++ program to create two classes "class1" with data member number 1 and "class 2" with data member number 2. Develop inline functions to get values for data members and use friend function to add number 1 and number2.
5. Write a C++ program to define a class employee with data members with relevant details and calculate DA, MA, HRA net pay (DA = 71% of basic pay, MA= 10, HRA = 0.5% of basic pay). Create arrays of objects for 10 employees.
6. Write a overload function to multiply two matrices and for multiplying all the elements of the matrix by a constant
7. Write a C++ program to read the following information from the keyboard.
 - i) Reg. No.
 - ii) Name of the Student
 - iii) Mark 1
 - iv) Mark 2
 - v) Mark 3Use default, parameterized and copy constructor to initialize the objects and display the same.
8. Write a program in C++ using pointer for the following
 - a) To copy the contents of one string to another string
 - b) To concatenate the given two strings into a one string
9. Design a base class 'person' with data members empcode, name. Derive two classes "account" with data members pay and "admin" class with data member experience. The class "master" derives information from both "account" and "admin". Write a C++ program to create and display the information contained in "master" object using virtual functions
10. Write a C++ program using all types of inheritance
11. Write C++ program using own Manipulators (example setw, setfill etc.)
12. Write a program in C++ to read a file and to
 - a) Display the contents of the file into the screen
 - b) Display the number of characters and
 - c) The number of line in the files
13. Write C++ program using command line arguments.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
I & II	14U2CSMAA2	Allied Mathematics – II (NS)	3+3	4

Objectives:

- To introduce concepts of correlation and basic graph theory.
- To introduce concepts numerical solution of ODE, interpolation and 3 dimensional analytical geometry.

Unit - I

Correlation – Rank correlation – Regression – Index number.

Ref:

Chapter 10, 11, part II, Chapter 5– statistical methods – S.P.Gupta Sultan & chand. (Relevant portions only)

Unit - II

Interpolation - Gregory - Newton forward & Backward interpolation formula (no proof)- Simple problems only - Interpolation with unequal intervals- Newton's divided difference formula (Statement only)- Lagrange's formula Simple problems only- Numerical differentiation Newton's forward & Backward difference formula (Statement only)- Simple problems only.

Ref:

Dr.M.K.Venkatraman _ Numerical methods in Science and Engineering.

Unit - III

Numerical solution of ordinary differential equation - Taylor series - Euler's method - Euler's modified method - R.K 4th order method.

Ref:

Chapter 10– Dr.M.K.Venkatraman Numerical methods in Science and Engineering.

Unit – IV

Standard Equation of plane - Straight lines - S.D between two skew lines - Spheres (Up to intersection of plane)

Ref:

Analytical Geometry 3D-T.K.M.Pillai (Relevant portions only)

Unit-V

Introduction _ Definition _ finite and infinite graphs _ Incidence and degree _ Isolated vertex , pendent vertex and null graph, paths and circuit _ Isomorphism _ sub graphs _ walks, paths and circuits _ connected graphs Definitions and examples of incidence matrix, Circuit matrix, Cut-set matrix, path matrix, adjacency matrix.

Ref:

Chapter I and Chapter II (Relevant portions only) - graph theory with application to Engineering and Computer Science - Narsingh Deo (1992).

Semester	Subject code	Title of the course	Hours/ week	No.of. Credits
II	14U2CSMAA3	Allied Mathematics-III	5	3

Objectives

- * To study vector differentiation and vector integration with application.
- * To study Fourier series and Laplace transforms.
- * To study Operation Research.

Unit I

Differential equations – Second order differential equation with constant coefficient of the types $ay'' + by' + cy = eg(x)$ and $x'' \sin ax$ and $x'' \cos ax$ only - solution of partial differential equations of the form $f(p,q) = 0$;
 $F(z,p,q)=0$; $f(x,p,q)=0$; $f(y,p,q)= 0$; $f(x, p) = g(y, q)$; $z = px + qy$ $f(p, q)$:Lagrange's method for solving $Pp + Qq = R$.

Unit II

Laplace Transforms- Definition –Laplace Transforms of function e^{at} , $\cos at$, $\sin at$ and t^{n-1} where 'n' is positive integer- first shifting theorem-Laplace transforms of $e^{at} \cos bt$, $e^{at} \sin bt$, $e^{at} \cos hbt$, $e^{at} \sin hbt$, $e^{at} \cos hbt$, $e^{at} \sin hbt$, $e^{at} \cos hbt$, $e^{at} \sin hbt$. Transforms of $f'(t)$ and $f''(t)$ - Inverse transforms relating to the above standard forms. Application of solution of ordinary differential equation with constant coefficients (involving the above transforms).

Unit III

Fourier series – Definition – finding fourier coefficients for a given periodic function with period 2π -odd, even function – half range series.

Unit IV

Vector differentiation – divergence – curl-gradient-Laplacian operator-simple problems only.

Unit V

Vector integration – line integral, surface integral-volume integral. Application of Gauss – Stokes and Green's theorems(no proof of the theorem) simple problems.

TextBooks:

UNIT I - Differential equations – Tkm

UNIT II – Chapter 5 – Calculus Volume – III – TKM Pillai.

UNIT III – Chapter 6 – Calculus Volume III TKM Pillai.

UNIT IV , V– Vector Algebra & Analysis – TKM.

General reference:

1. Engineering mathematics-A. Singaravelu (volume I and II)

Semester	Subject Code	Title Of The Paper	Hours Of Teaching / Week	No. of Credits
III	14U3CST3	$ _{\zeta \heartsuit \div B \equiv \perp, \textcircled{R} \leftrightarrow \perp, \sqrt{ \mathfrak{R} } B \kappa \leftrightarrow _{\zeta} \rightarrow$	6	3

$\{ \rightarrow: 1 \quad |_{\zeta \heartsuit \div B \equiv | \perp} 1$

... $\Sigma \leftrightarrow \Delta: 18$

1. $E[\heartsuit \wp] |_{\zeta \leftrightarrow \Delta} \square A |_{\zeta} (\mathfrak{R} |_{\zeta}) f \Delta \square |_{\zeta \spadesuit} _ \kappa)$
2. $\therefore \setminus \dots \therefore || \lceil \square \therefore \lceil (\kappa \spadesuit \Delta A \mathfrak{R} | \quad |_{\zeta} >$
3. $(\kappa | \ E \subseteq _ \zeta \therefore \setminus \square \sigma \therefore | \lceil B | \sqrt{| \Delta \wp | \Delta}$
4. $| \Delta \wp \leftrightarrow _ \zeta \therefore _ \zeta B \square \Delta \square \bullet \subseteq _ \leftrightarrow |_{\zeta}) f \Delta \square (f _ \zeta \therefore \setminus \heartsuit \wp f \lceil \Delta (84 \wp _ \zeta f _ | \perp)$

$\{ \rightarrow: 2 \quad |_{\zeta \heartsuit \div B \equiv | \perp} 2$

... $\Sigma \leftrightarrow \Delta: 18$

1. $\neg \wp \setminus B A \leftrightarrow _ \zeta \square \Delta \square \sqrt{| \langle B _ \zeta [\zeta | \therefore _ \zeta \oplus \Sigma _ \zeta B \spadesuit _ \zeta | A \leftrightarrow _ \zeta \square \Delta (27 \wp _ \zeta f _ | \perp)$
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... $\Sigma \leftrightarrow \Delta: 18$

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$\{ \rightarrow: 4 \quad \neg \wp _ \zeta \mu \mathfrak{R} | \textcircled{R} | \leftrightarrow, \neg \therefore _ \zeta \alpha \neg \wp B | \heartsuit A \heartsuit \wp \lambda \vee E$

... $\Sigma \leftrightarrow \Delta: 18$

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$$\begin{aligned} & \{ \rightarrow : 5 \\ & \dots \Sigma \leftrightarrow \Delta : 18 \\ & \partial. \sqrt{\Re} \rfloor B \kappa \leftrightarrow \ulcorner \varsigma \rightarrow \\ & \wp \Re] \sqrt{\Re} \rfloor B \equiv | \perp \sqcap | \varsigma \heartsuit \div B \sqrt{\Re} \rfloor B \equiv | \perp \sqcap E \vee \sqrt{\Re} \rfloor B \equiv | \perp \end{aligned}$$

Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
III	14U3CSE3	PART – II ENGLISH SHAKESPEARE, EXTENSIVE READERS AND COMMUNICATIVE SKILLS	6	3

Objective

- To introduce the language of the world renowned dramatist and novelist to enhance the vocabulary and communicative skills of the learners.

Unit – I

Funeral Oration – Julius Caesar

Trial for a Pound of Flesh – The Merchant of Venice

Unit – II

He Kills Sleep – Macbeth

A Real Love at First Sight – Twelfth Night

Unit – III

When the Moor Kills, "So Good a wife" – Othello

In Love is a "Midsummer Madness" – Tempest

Unit – IV

The Mayor of Casterbridge (Abridged) – Thomas Hardy

Unit – V

Note making, Hints Developing, Expansion of Ideas and Proverbs, Sequence of Sentences Synonyms, Antonyms.

Book Prescribed:

Unit-I : II & III: Selected scenes from Shakespeare.

Unit IV: The Mayor of Casterbridge Abridged by E.F.Dodd

Unit V : Communicative Grammar.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
III	14U3CSC3	Core- Java Programming	6	6

Objective

- ❖ To understand Programming concepts in Java

Unit I

Hrs 18

Object Oriented Fundamentals and Java Evolution: Object oriented programming – encapsulation–inheritance–polymorphism – java genesis – characteristics – java programming techniques – reserved words – identifiers – literals – operators– separators – variables – types – arrays–operator precedence.

Unit II

Hrs 18

Flow Control And Classes: If – else – Break – switch – Return Statements – Looping – While – do while – For – Comma statements – Declaration – Object reference – Instance – variables – new operators – method declaration – method calling – this operators – Constructor – Method over loading – Inheritance – Super class – Dynamic method dispatch – Final – Static – Abstract classes.

Unit III

Hrs 18

Packages and Interfaces: Packages – The package statement – Import statements – Interface statement – implement statement – Constructor – String creation – String concatenation – Character Extraction.

Unit IV

Hrs 18

Exception Handling: Exception Handling Fundamentals – The java Thread model priorities – synchronization – Runnable – The synchronized statements – Dead lock – Thread API Summary.

Unit V

Hrs 18

Abstract Windowing Tools & Applets: Events – listeners – Events handling methods – Inheritance hierarchy control classes – Labels – Layouts – Windows and frames – Menus – dialogs – Mouse events – Adaptor classes – Inner classes. Applets – HTML Applet Tag – Order of Applet Initialization.

References:

1. PATRICK NAUGHTON, "The JAVA Hant Book" , Tata MC_Graw Hill Publishers Company Pvt. Ltd, 1996.
2. KENNY CHU – "The Complete Reference Java", Tata McGraw Hill Publishers company Pvt. Ltd, 1997.
3. Herbert schildt, "The Complete Reference Java 2" , Tata McGraw Hill Publishers company Pvt. Ltd, Fifth Edition. 2008.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
III	14U3CSCP3	Software Lab – II Java Programming Lab	3	3

Objective

❖ To apply the features of the Java.

1. Write a java program that will accept command line arguments and print the same in order (ascending & descending)
2. Write a java program that will print details about the current date, time, month, year, day of month & day of week
3. Write a java program
 - a. test equality between two strings
 - b. concatenate the two strings
 - c. find the length of the string
 - d. replace the 'i' in the string with 'z'
 - e. convert one of the string to upper & lowercase
4. Create an integer array to contain ten numbers. using random access file, write the array into a file called randl.dat. The program should read the contents of the rand.dat file backwards. Make use of try, catch & finally clauses
5. Create a subpackage called child whose base package is called parent. This should contain a class c1.class a contains a method called disp() to display a message "Inside sub package child- c1 class", create a class called parenttest, which imports this subpackage and calls the disp() method of the c1 class.
6. Write a java program to accept parameters on the command line. If there are no command line arguments entered, the program should print error message and exit. The program should check if the first file exists and if it is an ordinary file. If it is so contents of the first file should be copied to the second file, In case the first parameter is a directory, print message accordingly and exit. appropriate message should be displayed at all points.
7. Create applet to accept in integer as parameter and display name message as "Are You year old? "the age should be displayed in the blank space the default age should be 60.
8. Create applet to display string "I am in the center" in courier font, with size 30 and style bold and italic this text should be centered both horizontally and vertically.
9. Create an applet that lets the user adjust its background color, provided three scrollbars in your applet, one each for the three basecolors, red, green, blue.
10. Using html tag to create the college website (minimum 15 to 20 tag used)

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
III	14U3CSPA1	Allied Physics – I	6	4

Unit – Semiconductors Physics

Semiconductors–Characteristics–rectifier types–regulated power supply– Transistors–transistor biasing and stabilization–Field effect transistor characteristics(FET)- parameters measurement – MOSFET – SCR – characteristics –SCR as a switch.

Unit – II Transistor Amplifiers

R- C coupled amplifier - positive and negative feedback – feedback amplifier – current And voltage feedback – power amplifier – push pull amplifier – class A and class B and class c amplifier.

Unit – III Transistor oscillators

General theory – feedback requirements for oscillators– Hartley, Colpitt and phase shift oscillator – multi vibrators - Astable, bistable and monostable.

Unit – IV IC Fabrication

Integrated circuit –Advantages and disadvantages of IC-scale of integration- Making monolithic IC, Fafrication of components on monolithic IC (Diodes- Transistors – Resistors- Capacitors) – Ic pakings- Ic symbols.

Unit – V Linear Integrated Circuits

Operational amplifier – Characteristics – Parameters – Applications – Summing – Integrating- Differentiating – Logarithmic and Anti logarithmic amplifier – Sin ,Square, Triangular and Ramp Wave generation – Multi vibrators – Astable and Bistable – Schmitt trigger- Solution of Differential equations – Analog computation.

Books for study:

1. Integrated Electronics(Analog and digital circuits and systems),Jacob Millman and Christos c. HalKias,Tata McGraw Hill edition, New dehli.
2. Electronic Devices and Circuits: Millman and HalKias.
3. Micro Electronics, Digital and Analog circuit and System – Jacob Mill man.

Reference:

1. Principles of electronics,V.K.Mehtha and shalumehtha, S.Chand & company Ltd.
2. Basic Electronics, B.L. Theraja

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
III & IV	14U4CSPHAPL	Allied Physics Practical-II (NS)	2+2	-

LIST OF EXPERIMENTS;

1. Zener diode – Forward and reverse Characteristics.
2. R-C coupled amplifier- Study of frequency response
3. Hartley oscillator – Determination of L
4. NAND and NOR – Universal gates
5. Logic gates – Truth table Verification
6. Demorgan's theorem verification
7. FET – amplifier
8. Emitter follower Amplifier
9. Astable Multivibrator using Transistor
10. AND, OR and, NOT Logic ,Circuits using– discrete components
11. Half and Full adder circuits
12. Parallel Binary adder - IC 7483 function
13. Half and Full Sub tractors.
14. Colpitt's Oscillator – Determination of L

Semester	Subject Code	Title Of The Paper	Hours Of Teaching / Week	No. of Credits
IV	14U4CST4	$\otimes \equiv \sqrt{\mathfrak{R}} B \Delta - \partial \oplus \sqrt{\mathfrak{R}} B \Delta -$ $\neg \otimes \Delta \neg \therefore \varsigma \alpha - \sqrt{\mathfrak{R}} B \kappa \leftrightarrow \lceil \varsigma \rightarrow$	6	3

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$| o \uparrow \neg \rightarrow \zeta |$

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$\dots \Sigma \leftrightarrow \Delta : 18$

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Semester	Subject Code	Title of The Paper	Hours of Teaching/ Week	No. of Credits
IV	14U4CSE4	PART – II ENGLISH ENGLISH FOR COMPETITIVE EXAMINATIONS	6	3

Objective

- To prepare the learners for competitive examinations and to know the fundamentals of practical communication.

Unit – I

Grammar – Number, Subject, Verb, Agreement, Articles, Sequence of Tenses, Common Errors.

Unit – II

Word Power - Idioms & Phrases, one word substitutes, Synonyms, Antonyms, Words we often confuse, foreign words & phrases, spelling.

Unit – III

Reading & Reasoning – Comprehension, Jumbled Sentences.

Unit - IV

Writing Skills – Paragraph, Precis Writing, Expansion of an idea, Report Writing, Essay, Letters, Reviews (Film & Book)

Unit – V

Speaking- Public speaking, Group Discussion, Interview, Spoken English.

Prescribed Text:

1. V.Saraswathi, English for Competitive Examinations, Chennai, Emerald Publishers, 2000

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
IV	14U4CSC4	Core – Database Management Systems	6	6

Objective:

To know about concepts and techniques to design DBMS.

Unit I

Hrs 18

Introduction: Purpose of data base systems- View of data-Data models-Database Users and Administrators-Database Languages-Database Architecture-E-R Model:Basic concepts-Design issues-Constraints- Keys-ER-Diagrams-weak Entity set-Extended E-R features-Reduction to E-R schema

Unit II

Hrs 18

Relational model: structure – Relational Algebra: Fundamental, Additional & Extended operations Modification – View - Other Relational Database - Tuple Relational Calculus -Domain Relational Calculus.

Unit III

Hrs 18

SQL-Basic Structure-Set operation-aggregate Functions- null values- nested sub queries-Derived Relations-view-modification of database-join relations-Advanced SQL-Embedded SQL-Advanced SQL Features.

Unit IV

Hrs 18

Advanced SQL: Domain Constraints-Referential integrity-assertion-Application Design and Development-triggers-RDB design-Decomposition using Functional Dependency-Normalization Units-F.D,M.D,J.D.

Unit V

Hrs 18

Indexing & Hashing-Basic concepts -Ordered indices-B++ tree index files-B tree index files-Static Hashing-Multiple Key Access-Comparison of ordered indexing and hashing-index definition in SQL.

Text Books:

1. "Database System concepts", Abraham Silber Schatz, Henk F.Korth, S.Sudarsan, Fifth Edition, 2006, McGraw Hill.

General References:

1. Fred Mc Fadden, Jeffery A Hoffer, Mary B.prescott, "Modern Database Management", 5 Edition, Addison Wesley, 2000.
2. Elmasri, Navathe, "Fundamentals of Database System", Third Edition, Addison wesley, 2000.
3. Jeffrey D.Ulman, Jenifer widomj, "A First Course in Database System", pearson Education Asia, 2001
4. Bipin c Desai, "An Introduction to Database System", Galgotia publications Pvt Limited, 2001.
5. Database System Concepts, C.J. Date. Seventh Edition, 1993.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
IV	14U4CSCP4	Core – RDBMS Lab	3	3

Objective

❖ To apply RDBMS features through Oracle.

1. Library information processing.
2. Students mark sheet processing.
3. Telephone directory maintenance.
4. Gas booking and delivering system.
5. Electricity bill processing.
6. Bank transaction (SB)
7. Pay roll processing.
8. Inventory.
9. Question database and conducting quiz.
10. Purchase order processing.

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
IV	14U4CSPA2	Allied Physics -II	6	4

Unit – I Number Systems

Decimal Binary, Octal, Hexa decimal Number SYSTEMS – conversions from one system to another-counting in binary system- binary addition. Subtraction , multiplication and division negative number .Representations – 1's and 2's complement notation – Real numbers Representation – BCD ASCII – Excess 3 codes .Digital Logic Circuits –RTL-DTL-DCTL-TTL-ECL circuits.

Unit – II Boolean Algebra and combinational logic circuits

Fundamental concepts of Boolean Algebra – Evaluation of logical expressions – basic laws of Boolean Algebra – Demorgan's theorem – verification – NAND and NOR as a Universal building Block – Karnaugh map – simplifying expressions.

Unit – III Flip Flops and Sequential Logic Circuits

Rs-T-D-JK-JK-M/S flip flops – Binary counters - (Mod 3,5,6,7,8) – Ripple counter-Parallel counter – race problem – series and parallel combination counter –Binary decade counter- Ring counter – up down counter – shift register – Left shift – Right shift operations.

Unit – IV Digital Arithmetic Circuits

Exclusive OR gate –Half adder – Full adder – Parallel binary adder – Half and Full subtractors – 8421 adder – Parallel Binary Adder/ Subtract or using 2's complement – BCD Adder.

Unit -V D/A and A/D Converters

1. D/A Converter-Binary Weighted resistor network-Binary ladder-accuracy and resolution.
2. A/D converters-Simultaneous conversion, counter type methods.
3. Dual slopes A/D converter-Voltage to frequency converters – A/D Converter using V to F conversion.

Text Book:

1. Digital Principles and application – A.P Malvino and Donald P.Leach, Tata Mc Graw Hill Publishing Company, New Delhi 1976.
2. Digital Computer Electronics – A.P Malvino.

Reference:

1. Introduction to Integrated Electronics (Digital and Analog) by V.Vijayendran, S.Viswanathan (printers & Publishers),PVT., LTD.,

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
III & IV	14U4CSPHAPL	Allied Physics Practical-II (NS)	2+2	2

LIST OF EXPERIMENTS;

1. Zener diode – Forward and reverse Characteristics
2. R-C coupled amplifier- Study of frequency response
3. Hartley oscillator – Determination of L
4. NAND and NOR – Universal gates
5. Logic gates – Truth table Verification
6. Demorgan's theorem verification
7. FET – amplifier
8. Emitter follower Amplifier
9. Astable Multivibrator using Transistor
10. AND, OR and, NOT Logic ,Circuits using– discrete components
11. Half and Full adder circuits
12. Parallel Binary adder - IC 7483 function
13. Half and Full Sub tractors.
14. Colpitt's Oscillator – Determination of L

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
V	14U5CSC5	Distributed technologies	6	6

Objective:

To impart knowledge about the distributed environment, its architecture and application development using J2EE and Net technologies.

Unit – I **Hrs18**

Distributed Hardware Architecture:

Evolution of personal Computer – PC to PC Communication – Local Area – Network – File server Architecture – Client – Server Architecture – Database Server Architecture – Corporate Network- Intranet – wide Area Network – Internet

Distributed Software Architecture:

Mainframe – File Sharing – Client Server Architecture: Single tier – 2 tiers – 3 tiers – N tier architecture – Distributed Application.

Unit – II: **Hrs18**

Distributed Application Development using J2EE: (Unit II & III)

J2EE Platform: J2EE Architecture–Containers–J2EE Technologies–Component Technologies–Service Technologies–Communication Technology–Developing J2EE Application

Distributed Computing Using RMI:

RMI Architecture – RMI Exceptions – Developing Applications with RMI – Introduction to Struts Framework

Unit – III: **Hrs18**

EJB Architecture and Design:

Introduction to EJB – The EJB Containers – J2EE and its Services – Working With EJB – Session Beans and Business Logic – Entity Beans and Persistence

Distributed Application Development using .NET: (Unit IV & V)

Unit IV: The NET Architecture: **Hrs18**

The vision and goals of .NET – The building blocks of NET – An Overview of .NET framework: The NET Evolution – Design goals of the NET framework – The NET framework Architecture – An Overview of .NET application.

Unit – V: ASP. NET: **Hrs18**

An Introduction to ASP.NET – An Overview of ASP.NET – Programming with ASP.NET – Web Forms and ASP.NET.

Books for Study:

1. Subrahmanyam Allamaraju, *"Professional Java Server Programming"– J2EE Edition Vol I* Shroff Publishers and Distributors Pvt. Ltd.

Unit I & II

Chapter 1 – Distributed Application Development using J2EE
Chapter 2 – Distributed Software Architecture

Unit III

Chapter 14,15 &16 – EJB Architecture and Design

Unit IV

2. Kevin Hoffman & Jeff Gabriel, *"Professional .NET Framework"*, Shroff Publishers and Distributors Pvt. Ltd. Chapters 1 & 2 (10 to 64 pages)

Unit V

3. Dave Mercer, *"ASP.NET – A Beginner's Guide"*, Tata McGraw Hill Publications Pvt. Ltd. Chapters 1, 2, 3 & 4

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
V	14U5CSC6	Discrete Mathematics	6	6

Objective:

To impart knowledge about the **Discrete Mathematics**

Unit I

Hrs 18

MATHEMATICAL LOGIC: Logical statement or Proposition-Types of Propositions-The Propositional Calculus-The Negation of a Proposition-Disjunction-Conjunction-Tautologies and Contradictions-Logical Equivalence-The Algebra of Propositions-Conditional Propositions-Converse Inverse and Contrapositive Propositions-The Negation of a Conditional Propositions-Biconditional Propositions-Arguments.

Unit II

Hrs 18

SET THEORY: Set-Set Designation-Null Sets and Unit Sets-Special Sets of Numbers-Universal Set-Subsets, Proper Subsets and Equal Sets-Set Operations-Union Operation-Properties of Union Operation-Intersection-Properties of Intersection operation-Distributive Properties-Complementation-Relative Complement-Properties of Complement-Properties of Difference-Symmetric Difference-Power Set-Cartesian Products-Generalized Set Theory.

Unit III

Hrs 18

RELATION AND FUNCTIONS: Relation –Equivalence Relation-Partition-Partial Order Relation-Function (Mappings)-Inverse Mapping-Composition Mapping-Binary Operations-Countable and Uncountable Sets.

Unit IV

Hrs 18

BOOLEAN ALGEBRA AND SWITCHING CIRCUITS: Introduction-Boolean Functions-Normal Form-Fundamental Forms of Boolean Functions-Application to switching Networks.

Unit V

Hrs 18

MATRICES: Revision-Diagonal Scalar, Unit and Triangular Matrix-Equal Matrices-The Transpose of Matrix Symmetric and Skew Symmetric Matrix-Algebra of Matrices-Properties of Addition of Matrices-Scalar Multiples of Matrices-Multiplication of Matrices-Inverse of Matrix-Geometric Transformation-Geometric Properties of plane Linear Transformation-Rotation-Reflection-Expansions and Compression-Shears-Translation-Successive Transformations-Inverse transformation-Complex Number in the form of a Matrix.

Textbook:

1. "Discrete Mathematics " 3rd Edition B.S.Vatssa.
2. Discrete mathematical structure with applications of computer science-P.Tremblay R.Manohar-McGraw Hill Publishing company limited.
3. An Introduction to matrices-S.C.Gupta-Sultan chand and sons publication .
4. Formal Languages and Automata Dr.Ranisiromoney-The Diosesan press,madras-1984.

Semester	Subject code	Title of the course	Hours of Teaching / Week	No.of Credits
V	14U5CSCP5	<i>Software Lab -V</i> Distributed technologies	6	6

Objectives:

To learn the practical knowledge of using distributed application development packages.

1. Distributed applications using RMI
 - a. Simple RMI application
2. Web based distributed application in J2EE platform with Java Servlets
3. Web based distributed application in J2EE platform with JSP
4. Enterprise Java Beans
 - a. Session Bean
 - b. Entity Bean

ASP .NET LAB

5. Simple Programs with ASP.NET
6. Web Forms and ASP.NET

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
V	14U5CSEL1A	Major Elective-I COMPUTER GRAPHICS	4	4

Objective

- ❖ To understand concepts and techniques in Graphics.

Unit I

Hrs 12

Introduction to computer graphics and applications: Display devices – Raster scan and random scan systems – Input Devices – Hard Copy Device - Graphics Software and functions, Software standards, PHIGS workstation.

Unit II

Hrs 12

Output Primitives: Line-drawing, circle generating, ellipse-generating algorithms – Filled-Area primitives – Fill area functions , Cell array - character generation.

Unit III

Hrs 12

Attributes of output primitives: Line, curve, color and gray scale level, area-fill, character, text, marker and Bundled attributes – Inquiry function – Antialiasing techniques.

Unit IV

Hrs 12

Geometric Transformations and Viewing : Basic transformations – Homogeneous coordinates – Composite transformations – Reflection and shear – Window-to-View Port transformation – Viewing functions – Point, line, Polygon, curve, text, exterior clipping operations.

Unit V

Hrs 12

GUI and Input Methods : The User Dialogue – Graphical input devices – Input functions – Interactive Picture – Construction Techniques – Virtual Reality Environments.

General References:

1. Donald Hearn and M.Pauline Baker, "Computer Graphics, C version", Second edition Reprint 2003, Pearson Education.

Unit I Chapters : 1,2

Unit II Chapters : 3

Unit III Chapters: 4

Unit IV Chapters : 5,6

Unit V Chapters : 8

2. Fundamentals of Interactive compute Graphics, J.D. Foley, A.VAN DAM, 1982 by Addition – wesley Publishing company.

3. Procedural Elements for computer Graphics, David F.Rogers 1985, McGraw Hill.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
V	14U5CSEL1B	Major Elective-I MULTIMEDIA TECHNOLOGIES	4	4

Objective

- ❖ To know about design principles of multimedia system.

Unit I

Hrs 12

Multimedia Overview: Introduction, Multimedia presentation and production, characteristics of a multimedia presentation, Multiple media, Utilities of multisensory perception, Hardware and software requirements, Uses of multimedia, Promotion of multimedia based contents, steps for creating multimedia presentation. Visual Display Systems: Introduction, cathode Ray Tube (CRT), Video Adapter Card, Video Adapter cable, Liquid Crystal Display (LCD), Plasma Display Panel (PDP).

Unit II

Hrs 12

Text: Introduction, Types of Text, Unicode Standard, Font, Insertion of Text, Text compression, File Formats. Image: Introduction, Image Types, Seeing colors, color models, Basic steps for Image processing, Scanner, Digital camera, Interface Standards, Image processing software, File formats, Image output on monitor, Image output on printer.

Unit III

Hrs 12

Audio: Introduction, Fundamentals Characteristics of sound, Elements of Audio systems, Microphone, Amplifier, Loudspeaker, Audio mixer, Musical Instrument Digital Interface(MIDI),MIDI messages, MIDI connections, Sound card, Audio File format and CODECs, Software Audio Players.

Unit IV

Hrs 12

Video: Introduction, Analog video camera, Transmission of video signals, Video signal format, Digital video, Digital Video Standards, PC Video, Video File Format and CODECs, Video editing, Video editing software.

Unit V

Hrs 12

Animation: Introduction, uses of animation, key frames and Tweening, Types of animation, Computer Assisted Animation, Creating movements, Principle of animation, some Techniques of Animation, Animation on the web, 3D Animation.

References:

Text Book:

Principles of Multimedia by Ranjan Parekh- the Tata McGraw Hill companies,Sixth Reprint 2008.

Chapters:

UNIT I: Chapter 1-1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9

Chapter 3-3.1, 3.2, 3.3, 3.4, 3.5, 3.6

UNIT II: Chapter 4-4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7

Chapter 5-5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.13, 5.14, 5.15, 5.16

UNIT III: Chapter 7-7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11, 7.14, 7.15, 7.19, 7.22(Up to 7.22.10), 7.23(up to 7.23.2), 7.24, 7.26, 7.28

UNIT IV: Chapter 8-8.1,8.2,8.3,8.4,8.5,8.6, 8.7, 8.8, 8.10 (up to 8.10.4),8.11, 8.12

UNITV: Chapter9-9.1,9.2,9.3,9.4,9.5,9.6,9.7,9.8,9.9,9.10,9.11,9.13,9.14,9.15,9.16

Reference: Multimedia System Design by Prabhat K.Andleigh and Kiran Thakar-PHI-2008

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
V	14U5CSEL2A	Major Elective – II SOFTWARE ENGINEERING	4	3

Objective

- ❖ To understand various phases in developing a Software.

Unit I

Hrs 12

Introduction to Software Engineering: introduction-some definitions-some size factor-Total effort devoted to software-distribution of effort-project size categories-how programmer spend their time-quality and productivity factors-managerial issues
Planning a software project: Introduction –defining the problem-goals and requirements-developing solution strategy-planning the development process-the phased life Cycle Model-Milestones,documents,and Reviews-the cost model –The prototype life Cycle Model.

Unit II

Hrs 12

Software Cost Estimation: Introduction software cost factor-programmer Ability –product complexity-product size-Available Time–Required level of Reliability-Level of technology-**Software cost estimation Techniques**-Expert Judgment-Delphi cost estimation-work breakdown structures-algorithmic cost models-staffing Level Estimation-Estimating software Maintenance costs.-**software Requirements Definition**-The Software Requirement specification-Formal specification Techniques-Relational Notations-implicit Equations /Recurrence Relations.

Unit III

Hrs 12

Software Design: Introduction-Fundamental design concepts-Abstraction-Information hiding-structure-modularity-concurrency-verification-Aesthetics-Modules and Modularization Criteria- design Notation-data flow diagrams-structure charts-HIPO Diagrams-procedure templates-pseudo code-structured flow charts-structured English-Design Tables-Design Techniques-Stepwise Refinement- Level of Abstractions-structured design-integrated top- down development-Jackson structured programming-summary of design techniques.

Unit IV

Hrs 12

Implementation Issues-introduction- structured coding techniques-single entry, single Exit Constructs-Efficiency considerations –Violations of single entry, single – data encapsulations-the go to statement-Recursions-coding style-standard and guidelines-documentation guidelines-supporting documents-internal documentations.

Unit V

Hrs 12

Verification and Validation Techniques-introduction-quality assurance-walkthroughs and inspections- walkthroughs- inspections-static analysis-Symbolic Execution-unit Testing and Debugging-unit testing- Debugging-system testing-integration testing-acceptance testing-Formal Verification-input –output Assertions-weakest preconditions structural induction.

Reference:

1. Richard E.Fairley,"Software Engineering Concepts", McGraw-Hill Book Company-1985.
2. Roger Pressman,"Software Engineering",Sixth Edition, McGraw-Hill Book Company, 2005.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
V	14U5CSEL2B	Major Elective - II SOFTWARE TESTING	4	3

COURSE OBJECTIVES

- To introduce the basics and necessity of Software testing.
- To introduce various testing techniques along with software production.
- To introduce the concepts of Software bugs and its impact.

UNIT I

Hrs 12

INTRODUCTION - Software Testing background – software bugs- cost of bugs- software testing realities- Testing Axioms – Precision and Accuracy-verification and validation- quality and reliability-testing and quality assurance.

UNIT II

Hrs12

SOFTWARE TESTING METHODOLOGY - Functional testing- Structural testing – Static and Dynamic testing – low level specification test techniques – Equivalence Partitioning – Data testing – State Testing – formal reviews – coding standards and guidelines – code review checklist – data coverage- code coverage.

UNIT III

Hrs 12

SOFTWARE TESTING TECHNIQUES - Configuration testing – Compatibility testing – foreign language testing – usability testing – testing the documentation - testing for software security – website testing.

UNIT IV

Hrs 12

AUTOMATED TESTING AND TEST TOOLS - Benefits of automation and tools – viewers and monitors – drivers – stubs – stress and load tools – analysis tools- software test automation – random testing – beta testing.

UNIT V

Hrs 12

TEST DOCUMENTATION - Goal of Test Planning – test phases – test strategy – resource requirements – test schedule – writing and tracking test cases- Bug tracking systems – metrics and statistics- risks and issues.

REFERENCE BOOKS:

1. Glenford J.Myers, Tom Badgett, Corey Sandler, "The Art of Software Testing",3rd edition, John Wiley & Sons publication, 2012.
2. Ron Patton, "Software testing" , second edition, Pearson education, 2009.
3. Boris Beizer, "Software testing techniques",DreamTech Press,2009.
4. Srinivasan Desikan, Gopalaswamy Ramesh, "Software testing- Principles and Practices", Pearson education, 2009.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
VI	14U6CSC7	Core- Computer architecture and Microprocessor	6	6

Objective

- ❖ To understand the programming techniques in Microprocessors.

Unit I

Hrs 18

Basic Computer and Design: Instruction codes – Computer Instructions – Timing & Control – execution of instruction – input/output and interrupt.

Central Processor Organization: Processor – bus organization – ALU – stack organization – instruction format – Addressing modes – data transfer and manipulation – program control.

Unit II

Hrs 18

Input – output organization: Peripheral device – I/O interface – asynchronous data transfer – direct memory access – input output processor – priority interrupt – multiprocessor system organization.

Unit III

Hrs 18

Memory: Volatile and non volatile memory – RAM-ROM – digital recording – techniques – auxiliary memory – microcomputer memory – hierarchy – associative memory – Virtual memory cache memory.

Unit IV

Hrs 18

Microprocessor architecture and microcomputer systems – Internal Architecture and memory interfacing – I/O devices – Introduction to instructions..

Unit V

Hrs 18

Interrupts – Interfacing data converters – Digital – to – analog converters, Analog-to-Digital Conversion. Programmable devices – interfacing keyboard and seven segment display. Programmable interrupt controller – 8255 A Programmable peripheral interface, 8279 A Programmable interrupt controller.

Text Book:

Computer System Architecture, Third Edition, Prentice Hall of India, 2005 – M.Morris Mano.

Reference:

1. Ramesh S.Gaonkar "Microprocessors Architecture , Programming and Application with the 8085", Tata McGraw Hill Third Edition, 1989.
2. Ramesh S.Gaonkar "Microprocessors Architecture , Programming and Application with the 8085", Penram International Publishing, Fifth Edition, 2009.
3. Digital Computer Fundamentals – Thomas C.Bartee. 6th Edition, 2005.
4. Computer Organization and Programming – C.W. Gean.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
VI	14U6CSC8	Core – Data Communication Networks	6	6

Objective

- ❖ To understand various layers and protocols for networks.

Unit I

Hrs 18

Introduction: Data communication – Networks – protocols and standards – topology – Transmission mode – Categories of network – Transmission media.

Unit II

Hrs 18

The OSI model – Digital Data Transmission – DTE – DCE interface – multiplexing – Error detection and correction.

Unit III

Hrs 18

Data link controls – Flow control – Error control – Data link protocols – Asynchronous protocols – synchronous protocols.

Unit IV

Hrs 18

Local Area Network – Metropolitan Area Network – Circuit Switching – Packet Switching – Message Switching – Network Layer – Integrated services Digital Network – ISDN Services – Broadband ISDN.

Unit V

Hrs 18

Networking and Internet working Devices–Transport Layer–Upper OSI Layers–TCP/IP.

Reference:

1. Introduction to Data Communication Networking – Tata McGraw Hill Edition.
Author: Behrouz.Ferouzan.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
VI	14U6CSC9	Core – Operating Systems	6	6

Objective

- ❖ To know about design principles of Operating System with different cases.

Unit I

Hrs 18

Introduction and Process Concepts : Definition of OS – Early History – History of DOS and UNIX operating system – definition of process – process states – process state transition – Interrupt processing – Interrupt classes – context switching – semaphores – Deadlock and Indefinite postponement.

Unit II

Hrs 18

Storage Management : Real Storage: Real storage management strategies – Contiguous Vs non – contiguous storage allocation – Single user contiguous storage allocation – Fixed partition multiprogramming – Variable partition multiprogramming – Multiprogramming with storage swapping. **Virtual Storage :** Virtual storage management strategies – page replacement strategies – Working sets – Demand paging – Page size.

Unit III

Hrs 18

Processor Management: Job and Processor Scheduling : Preemptive Vs No preemptive scheduling – Priorities – Deadline scheduling – FIFO – RR – Quantum size – SJF – SRT – HRN. **Distributed Computing:** Classification of sequential and parallel processing – Array processors – Dataflow computers – Multiprocessing – Fault tolerance.

Unit IV

Hrs 18

Device and Information Management: Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek optimization – FCFS – SSTF – SCAN – RAM Disks – optical disks. **File and Database Systems:** File system – Function – Organization – Allocating and freeing space – File descriptor – Access control matrix.

Unit V

Hrs 18

Case Studies: DOS: Memory Management – Overlaying – Extended and Expanded memory – Memory allocation – File system and allocation method – Internal and External common Memory management commands – File management commands. **UNIX:** Processes in UNIX – Memory management – I/O systems – File systems and allocation method – semaphores – command systems.

Reference:

1. H.M. Deital, "An introduction to operating system", Addison Wesley Second edition, 1998.
2. Andrew S.Tanenbaum "Modern Operating System", Prentice – Hall of India, Second Edition, 1996.

Semester	Subject Code	Title of the course	Hours of Teaching / Week	No. of Credits
VI	14U6CSEL3A	Major Elective-II WEB DESIGN	6	4

Objective

- ❖ To know about the techniques and concepts of Web Design.

Unit I

Hrs 18

HTML: Introduction-SGML-Outline of an HTML Document-Head Section-Body section-HTML Forms. DHTML: Introduction-CSS-DHTML Document Objects Model and collections-Event Handling-Filters and Transitions – Data Binding.

Unit II

Hrs 18

JAVASCRIPT: Introduction-Language Elements objects of Java script-Other objects. VBSCRIPT: Introduction-Embedding VBScript code in an HTML Document-Comments-Variables-Operators-Procedures-Conditional Statements-Looping Constructs-object and VBScript-Cookies.

Unit-III

Hrs 18

ASP: Introduction-Advantages of using Asp-First ASP Script-Processing of Asp Scripts with Forms-Variables and Constructs-Subroutines-Include/Virtual-ASP Cookies-Asp Objects-Connecting to Data with ASP.

Unit-IV

Hrs 18

SERVLETS: Introduction-Advantages of Servlets over CGI-Installing Servlets-The Servlet Life cycle-Servlet API-A Simple Servlet-Handling HTTP GET Requests-Handling HTTP POST Requests-Cookies-Session Tracking-Multi tier Applications using Database Connecting-Servlet chaining.

Unit-V

Hrs 18

JSP: Introduction-Advantages of JSP-Developing First JSP-Component of JSP-Reading Request Information-Retrieving the Data Posted from a HTML File to a JSP File-JSP Sessions-Cookies-Disabling sessions.

Text Book:

1. N.P Gopalan,J.Akilandeswari, "Web Technology" A Developer's Perspective, Prentice Hall of India Private Limited, New Delhi, 2008.
2. D.P. Nagpal, " Web Design Technology", S.Chand and Company Ltd., 2009

Semester	Subject Code	Title of the course	Hours of Teaching / Week	No. of Credits
VI	14U6CSEL3B	Major Elective – III OPEN SOURCE TECHNOLOGY	6	4

Objective

- ❖ To know about the techniques and concepts of Open source technology.

Unit I

Hrs 18

Introduction: shell programming: shell - pipes and redirection - shell as a programming language - shell Syntax.

Unit II

Hrs 18

Working with Files: File structure - Library functions - Low - level File Access - The standard I/O Library - File & Directory Maintenance.

Unit III

Hrs 18

Reading from & Writing to the Terminal - Terminal Structure - Terminal output - Debugging: Types of error - General debugging Techniques.

Unit IV

Hrs 18

Process management: Process structure - Starting new process - Signals - Threads - Thread attributes - Canceling a Thread.

Unit V

Hrs 18

Internet programming: CGI: Form elements - Sending information to the WWW server - Returning HTML to the client.

Reference:

1. Beginning LINUX programming - Neil Mathew & Richard Stones - Shroff Publications & Distributors Pvt Ltd., 1999.Chapters: Only relevant topics from chapters 1-3, 5, 9, 10 – 11 & 20.

General References:

1. Professional LINUX Microprogramming - Richard Stones& Neil Mathew, 2008.
2. WWW.advacedlinuxprogramming.com
3. WWW tdlp.Com4.WWW.stk.org

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
VI	14U6CSEL4PA	Major Elective - IV Software Lab – IV – Web Design Lab	4	3

Objective

- ❖ To apply web technology concepts.
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Asp Exercises

- 1) HTML Page - BIODATA
- 2) Design a calculator using VB Script.
- 3) Database to enter and retrieve student details (Add, Edit, Update, Delete)
- 4) Cookies in ASP
- 5) Adrotator
- 6) Session in ASP
- 7) Password Encryption and Decryption
- 8) Retrieve Database Details in table format
- 9) Address book using VBScript (Add, Edit)
- 10) Server variables in ASP.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
VI	14U6CSEL4PB	Major Elective - IV Software Lab-IV Open Source Lab	4	3

1. Write a shell program to create a menu for copy, edit, rename and delete a file.
 2. Write a shell program to generate menu creation.
 3. Write a shell program to prepare the E.B.Bill.
 4. Write a LINUX program to for file handling.
 5. Write a shell program for merging a file.
 6. Write a LINUX program to find a given word in the specific file.
 7. Write a shell program for file checking and formatting and difference between two files.
 8. Write a shell program to perform sorting and unsorting the file name.
 9. Write a shell program for sorting the file depends upon the primary key.
 10. Write a LINUX program to find whether the given number is palindrome number or not.
 11. Write a PHP program that adds products that are selected from a web page to a shopping cart.
 12. Write a PHP program to access the data stored in a mysql table.
 13. Write a PHP program interface to create a database and to insert a table into it.
 14. Write a PHP program using classes to create a table.
 15. Write a PHP program to upload a file to the server.
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