Objectives

The Syllabus for B.Sc. Computer Science degree under non-semester system has been enabling the students to understand the knowledge of computer.

Eligibility:

Candidates who have undergone 10+2 pattern with Mathematics as one of the subjects in +2 level are eligible for admission to I year of the B.Sc. (CS) Degree program.

Syllabi for B.Sc. (Computer Science) under Non-Semester pattern

I Year

1. Mathematical Foundation-I
2. Programming in C
3. Digital principles and application
4. Office Automation
5. Computer organization
6. Systems Software
7. Programming in C Lab
8. Office Automation Lab

II Year

1. Mathematical Foundation-II
2. OO Programming in C++
3. Data Structures and Computer Algorithms
4. Operating System
5. Software Engineering
6. Visual Programming
7. C++ and Data Structures Lab
8. Visual Programming Lab

III Year

1. Computer Graphics
2. Relational Database Management system
3. Computer Networks
4. Web Technology
5. Programming in Java
6. Operation Research
7. RDBMS Lab
8. Web programming Lab

Question Pattern
Section-A (Answer All Questions)  10 X 3 = 30 Marks
Section-B (Either or Choice)  5 X 6 = 30 Marks
Section-C ( 4 Out of 6)  4 X 10 = 40 Marks

A candidate shall be declared as passed if he/she scored a minimum of 35% marks in each subject.

**I YEAR**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Subject:</th>
<th>Max. Mark</th>
<th>Pass Mark</th>
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<tbody>
<tr>
<td>1</td>
<td>Mathematical Foundation-I</td>
<td>100</td>
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<tr>
<td>2</td>
<td>Programming in C</td>
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<tr>
<td>3</td>
<td>Digital principle and application</td>
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<td>4</td>
<td>Office Automation</td>
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<td>5</td>
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<td>6</td>
<td>System Software</td>
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<td>7</td>
<td>Programming in C Lab</td>
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<tr>
<td>8</td>
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**II YEAR**

<table>
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<tr>
<td>2</td>
<td>OO Programming in C++</td>
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<td>35</td>
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<tr>
<td>3</td>
<td>Data Structures and computer</td>
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<td>algorithms</td>
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<td>4</td>
<td>Operating System</td>
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<td>35</td>
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<tr>
<td>5</td>
<td>Software Engineering</td>
<td>100</td>
<td>35</td>
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</table>
The following list of parameters taken into account for the evaluation of the practical examinations

**For Language-based programming.**

(C/C+/JAVA/VISUAL BASIC etc.,)

**Algorithm-Coding-Compilation-Debugging – Result - Viva Voce.**

### III YEAR

<table>
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<th>Subject:</th>
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<td>Relational Database Management system</td>
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<td>3</td>
<td>Computer Networks</td>
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<tr>
<td>8</td>
<td>Web Programming Lab</td>
<td>100</td>
<td>35</td>
</tr>
</tbody>
</table>
UNIT I
Set theory - Relations, equivalence relations - partial order - Function - binary operations - groups: definitions and examples - elementary properties

UNIT II
Logic - introduction - connectives - truth tables - Tautology implication and equivalence of formulae

UNIT III

UNIT IV
Graph theory: Introduction - definition and examples - degrees and sub graphs - matrices - connectedness: walks, trials and paths, connectedness and components.

UNIT V
Eulerian graphs - Hamiltonian graph - trees: characterization of trees, centre of a tree.

TEXT BOOKS:
1. Modern Algebra by S. Arumugam & A. Thangapandi Issac, Scitech publications 2005 (for units I, III)
2. Discrete Mathematics by Dr. M. K. Venkattraman, Dr. N. Sridharan, Dr. N. Chandrasekaran, National Publishing Company, 2000. (for unit II)
3. Invitation to Graph Theory by S. Arumugam and S. Ramachandran, Scitech Publications, 2005, CD Chennai. (for units IV, V)

Unit I: Chapters 1, 2, 3, 1.3, 2.2
Unit II: Chapter IX
Unit III: Chapters 7.3 - 7.7
Unit IV: Chapters 2.1, 2.2, 2.3, 2.8, 4.0, 4.1, 4.2
Unit V: Chapters 5, 6

2. PROGRAMMING IN C
UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

Text Book:

UNIT I: Chapters: 1-5
UNIT II: Chapter 6
UNIT III: Chapters 7,8
UNIT IV: Chapters:9,10
UNIT V: Chapter 11,12
Reference book:
Programming with C (Schaum’s Outline Series ), Gottfried, Tata McGraw Hill, 2006

3. DIGITAL PRINCIPLES AND APPLICATIONS

Unit - I Numbers Systems and Discrete Logic
   Boolean Algebra – NOR gates – NAND gates

Unit - II Circuit Analysis and Design

Unit – III Data Processing and Arithmetic circuits
   Binary Addition – Binary Subtraction – 2’s & 1’s complement representation – Complement Arithmetic – Arithmetic building blocks.

Unit – IV Flip-Flops, Clocks and timers

Unit – V Shift Registers and Counters

Text Book:

Unit I: Chapters: 1, 4
Unit II: Chapters: 2
Unit III: Chapters: 3.1 to 3.8, 5.1 to 5.7
Unit IV: Chapters: 8.1, 8.3, 8.6, 8.7, 8.8, 9.3, 9.4
Unit V: Chapters: 10, 11.1, 11.3, 11.5, 11.6

Reference Books:
Digital Logic and Computer Design, M.Morris Mano, PHI, 2005

4. OFFICE AUTOMATION

438
UNIT I:
Windows Operating System: Overview of different version of windows Opening, closing and resizing windows-enlarging-reverting, reducing the windows-basic windows elements-saving, printing file-quitting a program-file and folder-Working in Explorer-opening and closing a folder in Explore-Entertainment-working in paint-working in Wordpad and Notepad-system tools

UNIT II:

UNIT III:

UNIT IV:
Creating a Worksheet in Excel for Windows-Copying Formula-Formulas That Make Decisions-Styles-Functions in Excel-Using Autosum-Using autocalculate-References-Sum Function-Average Function-Creating Charts in Excel-Creating Graphs-Modifying Chart-Adding Data to Chart-Add a Data table to a Chart-Add a Trendline-Creating a Pivot Table Report-Modifying the Chart Type.

UNIT V:
Introduction to access-Tables-Simple Queries-Form.

Text Book:

5. COMPUTER ORGANIZATION

UNIT I:
Basic Computer Organization: Instruction Codes – Computer Registers – Computer Instructions – Timing and Control – Instruction Cycle – Control Memory – Address Sequencing

UNIT II:
CPU: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Program control

UNIT III:
Computer Arithmetic: Hardware Implementation and Algorithm for Addition,
Subtraction, Multiplication, Division – Booth Multiplication Algorithm – Floating Point Arithmetic

UNIT IV:
I/O and Memory Organization: I/O Interface – Asynchronous Data Transfer – Modes of I/O Transfer – Priority Interrupt – Direct Memory Access - Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory

UNIT V:
Advanced Processing: RISC, CISC Characteristics - Parallel Processing – Pipe Lining – vector processing – array processors – Multi processors – Interconnections structures

Text Book:

Chapters:
Unit I: 5.1 to 5.5, 7.1 to 7.2, Unit II: 8.1 to 8.5, 8.7, Unit III: 10.1 to 10.5
Unit IV: 11.2 to 11.6, 12.1 to 12.6 & Unit V: 8.8, 9.1, 9.2, 9.6, 9.7, 13.1, 13.2

Reference Books:
1. Structured Computer Organization, A. S. Tanenbaum, PHI.

6. SYSTEM SOFTWARE

UNIT I
Introduction to system software and machine Architecture – Simplified instructional Computer – Traditional machines – RISC Machines
Assemblers: Basic assembler functions, machine dependent and machine independent assemblers features – Assemblers design options.

UNIT II
Loader and Linkers: Basic Loader functions, machine dependent and machine independent loader features – Loader design options.

UNIT III
Macro Processors: Basic Macro Processor functions – machine independent Macro Processor features – Macro Processor design options.
UNIT IV
Compliers: Basic Complier functions – machine independent Complier features – Complier design options.

UNIT V
Other System Software: Database Managements Systems – Text Editors – Interactive Debugging Systems
Text book:
1. System Software An Introduction to System Programming by Leland L. Beck, Addison-Wesley Publication, 2005
   Chapters: 1 – 5, 7 (Without Implementation Examples).

Reference Book:

7. LAB : PROGRAMMING IN C
1. To reverse a given number and check if it is a palindrome.
2. To evaluate Sine Series.
3. To find the nth Fibonacci number.
4. To check if a number is Prime or not.
5. To Sort an Array.
6. To check if a number is Adam or Not.
7. To reverse a given String and check if it is a Palindrome.
8. To find Factorial value using Recursion
9. To add and subtract two Matrices
10. To multiply two Matrices
11. To solve Quadratic Equation –Switch
12. To find NCR and NPR values using Function
13. To prepare Pay Bill – Structure
14. To prepare Mark Sheet – Structure
15. To demonstrate the use of bitwise operators
16. To prepare Mark Sheet – File

8. LAB -OFFICE AUTOMATION

MS-WORD
1. Open a word document to prepare your Resume by performing the following operations.
   (a) Formatting the Text-Alignment & Font style
   (b) Page setup (margin alignment, page height & width)
2. Create a word document to prepare an application form (College, Bank, etc)
3. Create a student mark sheet using table, find out the total & average marks and display the result.
4. Design an invitation of your course inauguration function using different fonts, font sizes, bullets and Word Art / Clip Art.

5. Mail Merge concept
   (a) Prepare a business letter for more than one company using mail merge.
   (b) Prepare an invitation and to be sent to specific addresses in the data source.

**MS – EXCEL**

6. Create suitable work sheet with necessary information and use Data sort to display results. Also use Data filters to answer at least five different criteria.

7. Create suitable work sheet with necessary information and make out a suitable chart showing gridlines, legends and titles for axes.

8. Prepare salary bill in a worksheet showing Basic Pay, DA, HRA, Gross salary, PF, Tax and Net salary using suitable Excel Functions.

9. Create, display and interact with data using Pivot Tables and Pivot Charts of Excel feature.

**POWER POINT**

10. Create a power point presentation to explain various aspects of your college using Autoplay.

11. Create a power point presentation to explain the sales performance of a company over a period five years. Include slides covering the profile of the company, year wise sales and graph with gridlines, legends and titles for axis. Use Clip Art and animation features.

12. Create a power point presentation from template.

13. Prepare a power point presentation using Auto Wizard and see its various views.

14. Prepare a power point presentation with audio and video effect.

**MS-ACCESS**

15. Create a table for storing marks of 10 students. The fields of the table are given below: Reg. No., Name, Mark1, Mark2, Mark3, Test average (Best Two/2), assignment seminar and total marks (test average + alignment + seminar). The fields Mark1, Mark2, Mark3 should not allow the user to enter a mark greater than 25 and should display proper message in such case. Similar constraint for the field ‘Assignment’ is 5 marks and for the field ‘seminar’, it is 10 marks.

16. Create a table showing names of authors of at least 10 different books, title of books, the prices of these books, name of publishers and year of publication. Also create select, action and cross-tab queries to display the records from this table meeting the criteria used in these queries.
17. Create a form to enter the data directly into this form. The fields required are: Basic Pay, DA, HRA, Gross salary, PF, Income tax and Net salary.

18. Create a report that displays the customer name, address, phone number, Item code, product quantity of the customers whose orders have been pending for over a month.

II YEAR
1. MATHEMATICAL FOUNDATION - II

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

UNIT III

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 Books
Unit I - Chapter 1,2,2,2.1,2.2,2.2,2.2.3,4,5.
Unit II - Chapter 7,8
Unit III-Chapter 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 - Chapter 18.3,18.4,18.7.1,18.7.2,19.

Reference Book
2. OBJECT ORIENTED PROGRAMMING IN C++

UNIT I
Basic concepts of Object oriented programming – Benefits of OOP’s – Application of OOP – Structure of C++ program – Basic data type – Derived data type – User defined data type, operators in C++, Control statements, inline function, function overloading.

UNIT II

Defining operator overloading- overloading unary operator –overloading binary operator – rules for operator overloading

UNIT III
Inheritance-single inheritance-multilevel inheritance-multiple inheritance-hierarchical inheritance-hybrid inheritance- virtual base class- polymorphism- pointer – pointer to object- this pointer-virtual function-pure virtual function - pointers to object-this pointer-pointers to derived class-virtual function-pure virtual function.

UNIT IV
I/O Operation: Introduction- C++ Streams –C++ stream classes-unformatted I/O operations-formatted console I/O Operation, Managing Output with manipulators

UNIT V
Files: Introduction-class for file stream operations-opening and closing files-detecting end of file-more about open (): File modes-File pointer and their manipulation-sequential input and output operations-updating a file: Random access-error handling during file operation-Command line argument.

Text Book:

Reference Books:

3. DATA STRUCTURES AND COMPUTER ALGORITHMS

UNIT I:
Algorithms-importance of developing efficient algorithms-Analysis-order-Divide and Conquer: Binomial coefficients-Floyds algorithm for shortest paths-Dynamic programming and optimization problems-chained matrix multiplication-Optimal binary search tree-The travelling salesperson problem.

UNIT II:
Greedy Approach: Minimum spanning trees-Dijkstra’s algorithm for single source shortest path-Scheduling-Huffman code.
UNIT III:

UNIT IV:
Linked List –Introduction-representation of linked list in memory-Traversing a linked list-searching a linked list-memory allocation-insertion and deletion in a linked list –implementation of Stack using array and linked representation-an application of stack recursion-Queues-Linked representation of queues.

UNIT V:

Text Books:

Reference Books:
2. Data Structures-Seymour Lipschutz-Tata McGrawhill-Year 2006

4. OPERATING SYSTEM

UNIT I

UNIT II

UNIT III
UNIT IV
Real Memory Organization And Management: Introduction, Memory Organization, Memory Management, Memory Hierarchy, Memory Management Strategies, Contiguous Vs Non Contiguous Memory Allocation, Fixed Partition Multiprogramming, Variable Partition Multiprogramming
Virtual Memory Management : Introduction, Page Replacement, Page Replacement Strategies , Page Font Frequency, Page Size

UNIT V
Disk Performance Optimization: Introduction, Why Disk Scheduling Necessary, Disk Scheduling Strategies, Rotational Optimization


Text Book:

Unit I
Chapter-1  1.1,1.2,1.12,1.13,
Chapter-3  3.1,3.2,3.3,3.4,3.5

Unit II
Chapter 5  5.1,5.2,5.3,5.4,(up to 5.42),5.5,5.6
Chapter -6  6.1,6.2

Unit-III
Chapter-7  7.1,7.2,7.3,7.4,7.5,7.6,7.7,7.8,7.9,7.10
Chapter-8  8.1,8.2,8.3,8.4,8.5,8.6,8.7

Unit-IV
Chapter-9  9.1,9.2,9.3,9.4,9.5,9.6,9.8,9.9
Chapter-11  11.1,11.5,11.6,11.8,11.9,11.10

Unit-V
Chapter-12  12.1,12.4,12.5,12.6
Chapter-13  13.1,13.2,13.3,13.4,13.5,13.6,13.7,13.8,

Reference Book
5. SOFTWARE ENGINEERING

UNIT I
Introduction to software engineering: Some definitions –Some size factors –Quality and productivity factors - Managerial issue.

Planning a software project: Defining the problem –Developing a solution strategy – planning the development process –planning an organization structure–other planning activities.

UNIT II

UNIT III
Software requirements definition: The software requirements specification – format languages and processors for requirements specification.

UNIT IV

UNIT V
Verification and validation Techniques: Quality assurance –Static analysis – symbolic exception – Unit testing and Debugging –system testing – formal verification.


TEXT BOOK:

Chapters
Unit – I: 1. 1 – 1.4, 2.1-2.5, Unit – II: 3.1 - 3.4, Unit – III :4.1–4.3
Unit – IV: 5.1 – 5.9 & Unit – V: 8.1, 8.3 – 8.7, 9.1 – 9.5

REFERENCE BOOKS:
6. VISUAL PROGRAMMING

UNIT I - INTRODUCTION

UNIT II - FORMS AND MENUS
Managing Forms in Visual Basic – Visual Basic Menus: Adding a Menu to a Form – Modifying and Deleting Menu Items – Adding a Menu Separator – Adding access characters – Adding shortcut keys – Creating sub Menus – Creating immediate bang Menus – Using the Visual Basic Predefined Menus – Adding a check mark to a Menu Item – Disabling Menu Items – Handling MDI Form and MDI child Menus – Adding a list of Open Windows To an MDI form’s Window Menu – Making Menus and Menu Items Visible or Invisible – Creating and Displaying Popup Menus – Adding and Deleting Menu Items at Runtime – Adding bitmaps to Menus.

UNIT III - CONTROLS

UNIT IV - DATABASE CONCEPTS
Databases: Using DAO, RDO, And ADO: Creating and Managing Databases with the Visual Data Manager – Creating a Table, Filed with the Visual Data Manager – Entering a Data in Database with the Visual Data Manager – Adding a Data control – Opening a Database with the Data control, Remote Data Control, ADO Data Control – Connecting a Data bases using controls-Working with Database Objects in Code.

UNIT V – ACTIVEX AND OLE CONCEPTS
Creating ActiveX controls and Documents – OLE : Adding an OLE control to Form – Creating, Linking and Embedding an OLE Object at Design Time –Auto sizing an OLE Control – Using the OLE Control’s Pop-Up Menus at Design Time – Inserting an OLE Object into an OLE Control at Runtime – Deactivating OLE Objects – Activating OLE Objects with a Pop-Up Menu that lists All OLE Verbs – Activating OLE Objects from Code –Handling Multiple OLE Objects – Using OLE Control Arrays to handle Multiple OLE Objects.
TEXT BOOK


REFERENCE BOOKS


7.LAB - C++ AND DATA STRUCTURES

Write programs in C++ for the following:

1. To perform Area calculation using Function overloading (Min three functions).
2. To perform String manipulation (three different types) using function overloading.
3. To swap two values between two classes objects using friend function.
4. To find minimum of two numbers between two classes objects using friend function.
5. To overload unary minus operator which changes sign of given vector (3 elements).
6. To overload Binary operator which adds two complex numbers?
7. To process students mark list using multiple inheritance
8. To Process employee details using hierarchical inheritance
9. To Process family details using hybrid inheritance
10. To process electricity billing using binary file.
11. To process mark listing using binary file.
12. To perform stack operations.
13. To perform queue operations.
14. To manipulate singly linked list
15. To manipulate doubly linked list
16. To perform tree traversals

8.LAB - VISUAL BASIC

1. Simulating Calculator using control arrays.
2. Quick Search in List/Combo box.
4. Program to perform string copy and concatenation.
5. Program to perform an animation of a picture using Timer Control.
6. Create a “Text Styler” with font, Size and Style utilities.
7. Database creation using Data Manager.
8. Program to maintain Library books.
9. Program to prepare a payroll.
10. Program to prepare an electricity bill.
11. Program to prepare students mark sheet.
12. Program for inventory control.
13. Program for Student grade list using DAO/ RDO/ADO
14. Program for online quiz using OLE/ocx/dll
15. Report Generation

**III YEAR**

1. **COMPUTER GRAPHICS**

UNIT I

UNIT II

UNIT III
Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Gray Scale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Antialiasing

UNIT IV
Two –Dimensional Geometric Transformations : Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations – Transformations Between Coordinate Systems

UNIT V

**Text Book**

**Chapters**

Unit – I : 1.1 – 1.8, 2.1-2.3, 2.5, 2.6
Unit – II : 3.1, 3.2, 3.5, 3.11
Unit – III : 4.1 – 4.8
Unit – IV : 5.1 – 5.5
Unit – V : 6.1 – 6.11
REFERENCE BOOK:


2. RELATIONAL DATABASE MANAGEMENT SYSTEMS

UNIT I
INTRODUCTION TO DATABASE DESIGN: Database Design and ER Diagrams – Entities, Attributes, and Entity Sets – Relationships and Relationship Sets – Additional Features of ER Model – Conceptual Design With the ER Model.

UNIT II

UNIT III
SQL: QUERIES, CONSTRAINTS, TRIGGERS: The Form of a Basic SQL Query - UNION, INTERSECT, and EXCEPT – Nested Queries – Aggregate Operators – Null Values – Complex Integrity Constraints in SQL – Triggers and Active Databases – Designing Active Databases

UNIT IV

UNIT V

TEXT BOOK

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CHAPTERS:
UNIT – I : 1.1 – 1.9 , 2.1 – 2.5
UNIT – II : 3.1 – 3.7 , 4.1 – 4.3
UNIT – III : 5.2 – 5.9
UNIT – IV : 19.1 – 19.8

REFERENCE BOOKS:

3.COMPUTER NETWORKS

UNIT-I

UNIT-II

UNIT -III

UNIT-IV

UNIT-V

**TEXT BOOK**


**REFERENCE BOOKS**


**4. WEB TECHNOLOGY**

**UNIT I :**

**UNIT II :**

**UNIT III :**

**UNIT IV :**

**UNIT V :**
Introduction – Advantages of JSP – Developing First JSP – Components of JSP – Reading request information – Retrieving the data posted from a HTML file to a JSP File – JSP Sessions – Cookies – Disabling Sessions

**Text Book:**
Reference Books:
1. Mastering Javascript, J Jaworkski, BPB Publications, 1999
2. Core SERVLETS AND JAVA SERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson, Pearson Education India

UNIT I

UNIT II

UNIT III

UNIT IV
UNIT V:

Text book:

UNIT I: Chapters: 1,2,3,4
UNIT II: Chapter 5,6,7,8
UNIT III: Chapters 9,10,11
UNIT IV: Chapters 12,13,14
UNIT V: Chapter 15,16

Reference book:
Java and object oriented programming paradigm: Debasis Jana, Prentice-Hall in India Private Limited, New Delhi, 2008.

6. OPERATION RESEARCH

UNIT I
Development of OR—Definition of OR—Modeling—Characteristics & Phases—tools. Techniques & Methods—Scope of OR.

UNIT II
Linear Programming Problem—Formulation—Slack & Surplus Variables—Graphical Solution of LPP.

UNIT III
Simplex Method—Computational Procedure—Artificial Variables techniques—Big M method.

UNIT IV
Mathematical formulation of assignment problem—Methods for solving the assignment problems.

UNIT V
Mathematical formulation of transportation problem—Methods for solving the transportation problem.
Text Book:

Operation Research, S. D. Sharma, Kedar Nath Ram Nath & Co, 2004

Unit I: Chapter 1 (1.1, 1.2, 1.4, 1.5, 1.8, 1.9, 1.10, 1.11)
Unit II: Chapter 3 (3.1, 3.2, 3.3, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.4, 3.5)
Unit III: Chapter 5 (5.1, 5.2, 5.2.1, 5.3, 5.4, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4)
Unit IV: Chapter 11 (11.2, 11.3 and 11.4)
Unit V: Chapter 12 (12.2 to 12.8)

Reference Books:


7.LAB - RELATIONAL DATABASE MANAGEMENT SYSTEM

1. Introduction to SQL, an exercise on data types in SQL & Data Definition Language
2. Commands.
3. Exercise on Data Manipulation Language and transaction control commands.
4. Exercise on Types of Data Constraints.
5. Exercise on Joins (single-table or multi-table) and using normalization
6. Exercise on group-by clause and date arithmetic
7. Exercise on different functions (aggregate, math and string)
8. Exercise on different types of sub queries
9. Introduction to PL/SQL, Control Structures, Procedures and Functions, view
10. Introduction to triggers and cursors
11. Write a program that creates the function and calculating area of circle
12. Write a program that uses the concept of user defined exception

8.LAB : WEB PROGRAMMING

1. Array and flow control
2. Handling Exceptions
3. Multiple inheritance
4. Package Creation
5. Multithreading
6. File Creation
7. Designing applets
8. Static Web page using HTML
9. Designing any application form for a test & display the test result using Servlets
10. Shopping cart using JSP.