

# **COURSE STRUCTURE AND DETAILED SYLLABUS**

## **Master of Computer Applications (MCA)**

(Effective for the students admitted from the Academic Year 2012-2013)



**SREENIDHI INSTITUTE OF SCIENCE AND  
TECHNOLOGY, GHATKESAR,  
Hyderabad – 501 301.**

**SEMESTER –I**

SN	Course No	Course Title	L	P	Max Marks		Credits
					Int	Ext	
1	124CA01	Mathematical Foundations of Computer Science	4	-	40	60	4
2	124CA02	Programming in C	4	-	40	60	4
3	124EC01	Computer Organization and Architecture	4	-	40	60	4
4	124MA01	Numerical and Statistical Methods	4	-	40	60	3
5	124EN01	Business Communication	3	-	40	60	2
6	124MB04	Managerial Economics	4	-	40	60	3
7	124CA71	Programming Lab	-	3	40	60	2
8	124EC71	Computer Organization and ALP (8086) Lab	-	3	40	60	2
9	124EN71	English Lab	-	3	40	60	2

**SEMESTER- II**

SN	Course No	Course Title	L	P	Max Marks		Credits
					Int	Ext	
1	124MB45	Accountancy and Financial Management	4	-	40	60	3
2	124CA03	Data Structures and Algorithms	4	-	40	60	4
3	124CA04	E-Commerce	4	-	40	60	4
4	124CA05	Database Management Systems	4	-	40	60	4
5	124EN02	Soft Skills-I	4	-	40	60	2
6	124CA06	Objected Oriented Programming	4	-	40	60	3
7	124CA72	Data Structures and Algorithm Lab	-	3	40	60	2
8	124CA73	Database Management Systems Lab	-	3	40	60	2
9	124CA74	Objected Oriented Programming Lab	-	3	40	60	2

**SEMESTER – III**

SN	Course No	Course Title	L	P	Max Marks		credits
					Int	Ext	
1	124CA07	Web Technologies	4	-	40	60	4
2	124CA08	Operating Systems	4	-	40	60	3
3	124CA09	Data Warehousing and Mining	4	-	40	60	4
4	124CA10	Computer Networks & Security	4	-	40	60	4
5	124CA11	Software Engineering	4	-	40	60	4
6	124MA72	Logical Reasoning	3	-	40	60	2
7	124CA75	Web Technologies Lab	-	3	40	60	2
8	124CA76	Data Warehousing and Mining Lab	-	3	40	60	2
9	124CA77	Computer Networks & Security Lab	-	3	40	60	2
10	124CA78	Technical Paper Writing and Seminar	-	3	-	50	2

**SEMESTER – IV**

SN	Course No	Course Title	L	P	Max Marks		Credits
					Int	Ext	
1	124CA12	Mobile Computing	4	-	40	60	4
2	124CA13	Object Oriented Analysis and Design	4	-	40	60	4
3	124CA14	Unix Network Programming	4	-	40	60	4
4		Open Elective-1	4	-	40	60	3
	124MB56	Banking Operations, Insurance and Risk Management					
	124MA02	Operations Research					
	124BT37	Culture, Values, Professional Ethics And Intellectual Property Rights					
5		Professional Elective-1	4	-	40	60	4
	124CA15	Machine Learning					
	124CA16	Compiler Design					
	124CA17	Computer Graphics					
6	124MA71	Quantitative Aptitude	3	-	40	60	2
7	124CA79	Mobile Application Development Lab	-	3	40	60	2
8	124CA80	UML Lab	-	3	40	60	2
9	124CA81	Unix Network Programming Lab	-	3	40	60	2

10	124CA82	Seminar (Independent study and review paper)	-	3	50	-	2
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**SEMESTER – V**

SN	Course No	Course Title	L	P	Max Marks		credits
					Int	Ext	
1	124CA18	Artificial Intelligence	4	-	40	60	4
2	124CA19	Management Information System	4	-	40	60	4
3	124CA20	.Net Framework And C#	4	-	40	60	4
4		Open elective-2 ( FOREIGN LANGUAGE)	4	-	40	60	3
	124FL01	Basic Spanish					
	124FL02	Basic French					
	124FL03	Basic German					
	124MB51	International Business					
	124MB52	Technology Management					
5		Professional Elective-2	4	-	40	60	4
	124CA21	Distributed Database Systems					
	124CA22	Software Project Management					
	124CA23	Human Computer Interaction					
6	124EN03	Soft Skills-II	3	-	40	60	2
7	124CA83	Artificial Intelligence Lab	-	3	40	60	2
8	124CA84	.Net Framework And C# Lab	-	3	40	60	2
9	124CA85	Comprehensive Viva	-	-	50	-	2
10	124CA86	Project Seminar	-	3	50	-	2

**SEMESTER – VI**

SN	Course No	Course Title	L	P	Max Marks		credits
					Int	Ext.	
1	124CA87	Project Work	-	-	-	-	11

**I SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x		x								x

**(124CA01) MATHEMATICAL FOUNDATIONS OF  
COMPUTER SCIENCE**

**UNIT-I**

*The student would understand various kinds of relations and functions*

**Relations:** Properties of binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Hasse diagram.

**Functions:** Inverse Function, Composition of functions, Lattice and its Properties.

**Combinatorics:** Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial and Multinomial theorems, the principles of Inclusion – Exclusion.

**UNIT II:**

*Logical operations with relation statements are explained in this unit*

**Mathematical Logic:** Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers.

**UNIT-III**

*Predicate logic for problem solving is discussed in detail in this unit*

**Predicates:** Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction.

**Algebraic structures:** Algebraic systems, Examples and general properties, Semi groups and monoids, groups, and sub groups, homomorphism, Isomorphism.

**UNIT-IV**

*Various kinds of graphs are explained along with their representation*

**Graphs** - Basic concepts - Connectedness - Isomorphism – complements – Matrix representation of graphs - Adjacency and Incidence Matrices, Planar Graphs- Euler Graphics.

**UNIT-V**

*Tree as a special kind of graphs are explained together with their application*

**Trees-** Spanning trees, Minimal Spanning tree Algorithms - Hamiltonian directed graphs - Strongly connectedness, Chromatic Numbers.

## **UNIT-VI**

*Automate as recognizer of strings and languages is discussed*

Finite Automata – Context-Free Grammars –Push-down Automata - Equivalence of CFL's and PDA's – Introduction to normal forms.

### **Text Books**

1. Discrete Mathematical Structures with applications to computer science Trembly J.P. & Manohar .P, TMH
2. Introduction to Automata theory, Languages and computation, second edition, John E Hopcroft, Rajeev Motwani, Jeffrey D.Ullman.

### **Reference Book:**

1. “Applied Algebra for Computer Science”, 1976, PHI - Arthur Gill.
2. “Graph theory and application to Engineering and computer Science”, 1986, PHI-Narsingh Deo.

**I SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
X	X	X		X						X

**(124CA02) PROGRAMMING IN C****UNIT – I**

*The objective of the Unit is to get the basic concepts of c-language*

History of C Language, Introduction, Character set, tokens, constants, variables and keywords, data types, Storage classes, operators, precedence of operators, Input and output operations.

**UNIT – II**

*By the end of the Unit the student can use decision control and loop control structures to write programs*

Decision control structures, Switch statement, Loop control structures, break and continue statements, Nested loops.

Arrays: 1-Dimensional arrays, Array initialization, 2 Dimensional arrays, Introduction to multidimensional arrays.

**UNIT – III**

*The objective is to write programs using structures and pointers*

Structures: Declaring a structure, structure initialization, array of structures, nested structures, unions.

Pointers: Declaration of Pointer variables, Initializing pointer variables, pointer expressions.

Dynamic Memory allocation: Allocating a block of memory, releasing the memory.

**UNIT – IV**

*By the end of the Unit the student can write programs using functions*

Functions: Function definition, types of functions, and functions with parameters and return values, parameter passing techniques passing array as argument, passing structure as argument, recursive functions, storage classes, and pointer to a function. Strings, input output functions, string handling functions.

**UNIT – V**

*The objective of the Unit is to write programs using files*

File Management: Defining and opening a file, closing a file, error handling during I/O operations - Command Line Arguments.

Preprocessor Directives: Macro substitution, File Inclusion, Compiler Control Directives.

**UNIT – VI**

*The objective of the unit is to get the basic concepts of object- oriented languages*

Introduction to object oriented languages: Object oriented programming paradigm, basic concepts of Object oriented programming, benefits of OOPS, Applications of OOPS, concept of class and objects.

**Text Books:**

1. Programming in ANSI C: E.Balaguruswamy , 3<sup>rd</sup> edition .
2. Object oriented programming with C++ by E.Balaguruswamy, 4<sup>th</sup> edition Mc-Graw Hill Companies.

**References:**

1. Let us C by Yashwanth P. Kanetkar 8<sup>th</sup> edition BPB publications.
2. “The C Programming Language”, 2nd Edition, 1995, PHI. B.W. Kerninghan, D.M.Ritchie



**I SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
x				x						x

**(124EC01) COMPUTER ORGANISATION AND ARCHITECTURE****UNIT-I**

*The objectives of this unit is to give fundamental knowledge about gates, registers etc.*

Fundamentals of Digital Computers, Number Systems, Binary Arithmetic, Boolean Algebra, Map Simplifications, Gates -Combinational Circuits – Half Adder, Full Adder, Decoder, Multiplexer, Sequential Circuits – Registers, Shift Registers, Counters.

**Unit-II**

*The student would be able to write small programs in assembled languages after this unit*

CPU, Arithmetic and Logic Unit, 8086-Instruction Sets, Instruction cycle, Addressing Modes and formats, Instruction Pipeline, Processor organization, Register organization, Control Unit Operation.

**UNIT-III**

*The student would be able to write small programs in assembled languages after this unit*

Assembly language programs for 8086 involving arithmetic logical, Branch & Call, and Data transfer, instructions, sorting evaluation of arithmetic expressions, string manipulation by 8086 programs.

**UNIT-IV**

*The students would be able to understand memory organization*

Memory: Internal Memory, External Memory, Memory Organization, Associative Memory, Virtual Memory, Cache Memory.

**UNIT-V**

*The student would understand asynchronous data transfer*

External Devices, I/O modules, Programmed I/O, Interrupt Driven I/O, Direct Memory Access, I/O Channels and processors, Asynchronous Data Transfer.

**UNIT-VI**

Reduced Instruction Set Computers, Complex Instruction Set Computers, Super Scalars, Vector, Parallel Cluster, Distributed Computers. Introduction to Embedded and Multi core processors.

**TEXT NPPLS:**

1. "Computer Organization and Architecture", 7th Edn. 2006, PHI.- William Stallings
2. Digital Design, 4th Edn, 2007, Pearson- M. Moris Mano and Michael D. Ciletti.
3. Advanced microprocessor and Peripherals – A.K. Ray and K. M. Bhurchandi, TMH, 2000.
4. Interfacing with computer by – Dugles V. Hall.

**REFERENCE BOOKS:**

1. "Computer Architecture and Organisation", 3rd Edn., 1998, McGraw Hill - Hayes, J.P.
2. "Computer System Architecture" –3rd Edition-Pearson Education - Morris Mano -
3. "Computer Organization" – Car Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
4. "Fundamentals or Computer Organization and Design", - Sivaraama Dandamudi Springer Int. Edition.

**I SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	x								x

**(124MA01) NUMERICAL AND STATISTICAL METHODS****UNIT-I**

*At the end of the unit the student is expected to learn how find the real root of an algebraic and transcendental equations.*

Sources and various types of errors – Chopping and Rounding in different number systems –stability of numerical algorithms- Transcendental and polynomial equation - Iterative method- Regula-Falsi method – Newton-Raphson method - Roots of polynomials.

**UNIT-II**

*In this topic the student will learn how to obtain the solutions for the system of linear algebraic equations using analytical and numerical methods.*

Interpolation – Polynomial interpolation - Lagrange and Newton interpolation.  
Solution of system of linear algebraic equations - Gauss elimination - Gauss-Jordan method -Jacobi and Gauss-Seidel methods.

**UNIT-III**

*In Unit-III, the student will learn how to solve a Ordinary Differential equation using a numerical method to obtain an approximate solution.*

Euler's method and its modified form – Runge-Kutta method of fourth order – Predictor-Corrector methods - Milne's method - Adams' method.

**UNIT-IV**

*At the end the Unit –IV the student will learn how to find the probability for an event using discrete and continuous probability distributions.*

Random variable – Discrete and Continuous – Distribution function - Probability distributions- Binomial, Poisson and Normal Distributions.

Data fitting- Method of least squares - Correlation and regression - Linear regression - Correlation coefficient - Multiple linear regression.

**UNIT- V**

*In this topic the student will learn how to form the sampling distribution of mean and proportion.*

**UNIT-VI**

*In this Unit the student will learn how to test the given statement about mean and variance for small and large samples, test for the goodness of fit and analysis of variance.*

Tests of Hypothesis – Type – I and type – II errors- Hypothesis concerning means for large samples - Student t-test, F-test and Chi-Square test - Testing for Attributes .

**REFERENCE BOOKS:**

1. Probability and Statistics for Engineers – Walpole and Meyer.
2. Probability and Statistics for Engineers – Miller and John E. Freund, PHI Publishers.
3. Probability and Statistics for Engineers – Walpole and Meyer.
4. Advanced Engineering Mathematics - Jain and S.R.K. Iyengar, Narosa Publishing House.
5. Applied Numerical Analysis – Addison Wesley- Gerald, C.F., and Wheatley, P.O.

**I SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
							X			X

**(124EN01) BUSINESS COMMUNICATION****Unit –I**

*To enable the students to learn the correct usage of sentence structure*

Structure of the sentence- Tenses-Correction of sentences

**UNIT-II**

*To train the students to make effective technical paper presentations in their preferred career.*

Presentation skills- Types of presentations- public speaking – paper presentations-power point presentations-Tips on powerful presentation.

**UNIT - III**

*To make the students to realize how Listening, Speaking , Reading and Writing are important for effective communication.*

Types of Communication - - Effective listening, speaking, reading and writing –barriers of listening and speaking.

**UNIT - IV**

*To enables the students to identify barriers to effective communication and to differentiate between formal and informal communication and verbal and non-verbal communication.*

Informal conversation Vs Formal expression; Verbal and non-verbal communication, barriers to effective communication – kinesics.

**UNIT - V**

*To [prepare the students to note the difference between spoken and written communication and prepare them to write with clarity and brevity using appropriate tone.*

Written communication - differences between spoken and written communication -features of effective writing such ‘as clarity, brevity and appropriate tone’.

**UNIT - VI**

*To enhance the students ability in e-mail writing and business correspondence.*

Business correspondence – business etiquette – business vocabulary-Different kinds of written communication in business organizations- E-mail writing.

**REFERENCE BOOKS:**

1. Contemporary Business Communication – Scot Ober
2. Basic Business Communication – Lesikar / Flatley
3. Business Strategies – (vol.s1 &2) - Monipally
4. Essentials of Business Communication, Rajendra Pal, J S KorlahaHi :Sultan Chand & Sons, New Delhi

**I SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
	x		x			x				

**(124MB04) MANAGERIAL ECONOMICS****UNIT I**

*To know the basic ideology of ME and in broad applications*

**INTRODUCTION TO MANAGERIAL ECONOMICS:** Definition, Nature and Scope, Relationship with other areas in Economics, Production Management, Marketing, Finance and Personnel, Operations research .Impact of IT on managerial economics - The role of managerial economist.

**UNIT II**

*To understand the principles of managerial economics and the differences*

**OBJECTIVES OF THE FIRM:** Managerial theories ,Behavioral theories of firm .Basic economic principles – the concept of opportunity cost, incremental concept, scarcity, Marginalism, Equi-marginalism, Time perspective, discounting principle, risk and uncertainty.

**UNIT III**

*To understand the concept of demand and forecasting*

**THEORY OF DEMAND:** Demand Analysis,- significance –Demand functions-Law of demand - Elasticity of demand,. Supply Analysis – Supply function, Elasticity of Supply. Significance of elasticity, Need for forecasting, forecasting techniques.

**UNIT IV**

*To understand the objectives of production function*

**PRODUCTION ANALYSIS:** Production function, Marginal Rate of Technical Substitution, Isoquants and Isocosts, Production function with one/two variables, Cobb-Douglas Production Function, Returns to Scale and Returns to Factors, Economies of scale- Innovations and global competitiveness.

**UNIT V**

*To know the cost output relation in the short run and long run*

**COST THEORY AND ESTIMATION:** Cost concepts, determinants of cost, cost-output relationship in the short run and long run, short run vs. long run costs, average cost curves, Overall Cost leadership. Profit Management: Nature, scope, Theories of profit, Measurement policies, Cost – Volume- Profit Analysis.

## UNIT VI

*To understand the market structures and pricing strategies*

**MARKET STRUCTURE AND PRICING PRACTICES:** Features and Types of different competitive situations - Price-Output determination in Perfect competition, Monopoly, Monopolistic competition and Oligopoly both the long run and short run. Pricing philosophy – Pricing methods in practice: Price discrimination, product line pricing. Pricing strategies: skimming pricing, penetration pricing, Loss Leader pricing. Pricing of multiple products.

### References:

- Varshney and maheshwari: Managerial economics, Sultan Chand & Sons, New Delhi.
- Managerial Economics-Mark Hirschey-Cengage
- Petersen, Lewis and Jain: *Managerial Economics*, Pearson/PHI, 2006
- Gupta: *Managerial Economics 1e* TMH 2005.
- Dominic Salvatore, Managerial Economics, Thomson, 2006
- Keat, Managerial Economics : Economic Tools for Today's Decision Makers, Pearson Education, 2007
- Mote Paul: Managerial Economics 1e TMH 2004
- Froeb: Managerial Economics—A Problem Solving Approach, Thomson, 2007.
- Mehta, P.L., *Managerial Economics Analysis, Problems, Cases*, Sultan Chand and Sons, New Delhi, 2001.
- James L. Pappas and Eugene F. Brigham: *Managerial Economics*, Pearson Education, New Delhi, 2006.



**I SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	x		x						x

**(124CA71) PROGRAMMING LAB**

- 1) Write a C program to find both the largest and smallest number in a list of integers.
- 2) Write a C program to find the sum of individual digits of a positive integer.
- 3) Write a C program to find the GCD (greatest common divisor) of two given integers.
- 4) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
- 5) Write C programs that use both recursive and non-recursive functions to find the factorial of a given integer.
- 6) Write a C program to determine if the given string is a palindrome or not.
- 7) Write a C program to find the roots of a quadratic equation.
- 8) Write a C program that uses functions to perform the following:
  - a) Addition of Two Matrices
  - b) Multiplication of Two Matrices
- 9) A Fibonacci Sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
- 10) Write a C program to count the lines, words and characters in a given text.
- 11) Write a C program that overloads the + operator and relational operators (suitable)
 

to perform the following operations:

  - a) Concatenation of two strings.
  - b) Comparison of two strings.
- 12) Write a C program which copies one file to another.
- 13) Write a C program to reverse the first n characters in a file.
- 14) Write a C program to display the contents of a text file.
- 15) Write a C program that uses a function to convert a number to a character string.

- 16) Write a C program that uses a recursive function to find the binary equivalent of a given non-negative integer n.
- 17) Finding roots of equations: Bisection Method.
- 18) Finding roots of Equations: Newton-Raphson Method.
- 19) Finding roots of Equations: Secant Method.
- 20) Solving algebraic equations: Gauss Elimination Method.
- 21) Numerical Integration - Trapezoidal rule, Simpson's 1/3 rule, 3/8 rule.
- 22) Differential Equations - Runge-Kutta 2 order and 4th order method.
- 23) Diagrammatic and graphical representation of various statistical data and frequency distributions, Cumulative frequency curve.
- 24) Computation of various measures of location, dispersion, moments, skewness and kurtosis.
- 25) Computation of correlation coefficients - regression lines(raw data and grouped data) - correlation coefficients.

### **Text Books**

1. Programming in C, P.Dey & M. Ghosh, Oxford Univ.Press.
2. C by Balaguruswamy.

**I SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
x				x						x

**(124EC71) COMPUTER ORGANIZATION AND ALP (8086) LAB****List of Sample Problems/Experiments:**

Write assembly language programs for the following using MASAM.

1. Write assembly language programs to evaluate the expressions:

i)  $a = b + c - d * e$

ii)  $z = x * y + w - v + u / k$

a. Considering 8-bit, 16 bit and 32 bit binary numbers as b, c, d, e.

b. Considering 2 digit, 4digit and 8 digit BCD numbers.

Take the input in consecutive memory locations and results also.

Display the results by using "int xx" of 8086. Validate program for the boundary conditions.

2. Write an ALP of 8086 to add two exponential numbers which are in IEEE 754 notation.

Display the results by using "int xx" of 8086. Validate program for the boundary conditions.

3. Write an ALP of 8086 to take N numbers as input. And do the following operations on them.

a) Arrange in ascending and Descending order.

b) Find max and minimum

c) Find average

Considering 8-bit, 16 bit binary numbers and 2 digit, 4digit and 8 digit BCD numbers.

Display the results by using "int xx" of 8086. Validate program for the Boundary conditions.

4. Write an ALP of 8086 to take a string of as input (in 'C' format)and do the following Operations on it.

a) Find the length                      b) Find it is Palindrome or not

c) Find whether given string substring or not.

d) Reverse a string                      e) Concatenate by taking another sting

Display the results by using "int xx" of 8086.

5. Write the ALP to implement the above operations as procedures and call from the main procedure.

6. Write an ALP of 8086 to find the factorial of a given number as a Procedure and call from the main program which display the result.

7. Write an assembly language program to encrypt digits as shown below:

Input digit : 0 1 2 3 4 5 6 7 8 9

Encrypted digit : 4 6 9 5 0 3 1 8 7 2

Your program should accept a string consisting of digits. The encrypted string should be displayed using "int xx" of 8086.

8. Write a procedure to locate a character in a given string. The procedure receives a

pointer to a string and character to be located. When the first occurrence of the character is located, its position is returned to main. If no match is found, a negative value is returned. The main procedure requests a character string and a character to be located and displays the result.

9. Write an assembly language program to read a string of characters from the user and that prints the vowel count. Display the results by using “int xx” of 8086.

ex. Input : Advanced Programming in UNIX

Out put:

Vowel	count
a or A	3
e or E	1
i or I	3
o or O	1
u or U	1

10. A computer uses RAM chips of 1024 X 1 capacity.
- How many chips are needed, and how should their address lines be connected to provide a memory capacity of 1024 bytes?
  - How many chips are needed to provide a memory capacity of 16K bytes?
11. A computer employs RAM chips of 256X8 and ROM chips of 1024 X 8. The computer needs 2K bytes of RAM, 4K bytes of ROM, and four interface units, each with four registers. A memory-mapped I/O configuration is used. The two highest-order bits of the address bus are assigned 00 for RAM, 01 for ROM, 10 for interface registers.
- How many RAM and ROM chips are needed?
  - Draw a memory-address map for the system.
  - Give the address range in hexadecimal for RAM, ROM and interface.
12. Obtain the complement function for the match logic of one word in an associative memory. Draw the logic diagram for it and compare with the actual match logic diagram.
13. A two-way set associative cache memory uses blocks of four words. The cache can accommodate a total of 2048 words from main memory. The main memory size is 128K X 32.
- Formulate all pertinent information required to construct the cache memory.
  - What is the size of the cache memory?
14. A digital computer has a memory unit of 64K X 16 and a cache memory of 1K words. The cache uses direct mapping with a block size of four words.
- How many bits are there in each word of cache, and how are they divided into functions? Include a valid bit.
  - How many bits are there in the tag, index, block, and word fields of the address format?
  - How many blocks can the cache accommodate?

15. An address space is specified by 24 bits and the corresponding memory space by 16 bits.
- How many words are there in the address space?
  - How many words are there in the memory space?
  - If a page consists of 2K words, how many pages and blocks are there in the system.
16. A virtual memory has a page size of 1K words. There are eight pages and four blocks.

The associative memory page table contains the following entries. Make a list of all virtual addresses(in decimal) that will cause a page fault.

Page	Block
0	3
1	1
4	2
6	0

### **TEXT BOOKS:**

- IBM PC Assembly Language and Programming, P. Abel, 5th Edition, PHI/Pearson Education.
- Introduction To Assembly Language Programming, Sivarama P.Dandamudi, Springer Int. Edition,2003.

### **Reference Book:**

- The 8088 and 8086 Microprocessors: Programming , Interfacing, Software, Hardware and Application,4<sup>th</sup> edition, W.A. Triebel, A.Singh, N.K. Srinath, Pearson Education.

**I SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
							X			X

**(124EN71) ENGLISH LAB****Objectives:**

The language Lab focuses computer-aided multi-media instruction and language acquisition to achieve the following targets:

To expose the students to a variety of self-instructional, learner-friendly modes of language learning.

To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer based competitive exams such GRE, TOEFL, GMAT etc.

To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm.

To train them to use language effectively to face interviews, group discussions, public speaking.

To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

**ENGLISH LANGUAGE LABORATORY PRACTICE Syllabus**

The following course content is prescribed for the English Language Laboratory Practice

- Introduction to Phonetics.
- Introduction to Vowels and Consonants and associated Phonetic symbols.
- Introduction to Accent, Intonation and Rhythm.
- Situational Dialogues / Role Play.
- Public Speaking.
- Debate
- Group discussions
- Facing Interviews
- Resume preparation
- E-correspondence

**Minimum Requirement**

Computer aided multi media language lab with 30 systems with LAN facility.

Conventional Language Lab. with audio and video systems, speakers, headphones and a teacher console to accommodate 30 students.

**Suggested Software:**

Cambridge Advanced Learners' Dictionary with exercises

The Rosetta Stone English Library

Clarity Pronunciation Power

Mastering English in Vocabulary, Grammar, Spellings, Composition

Dorling Kindersley series of Grammar, Punctuation, Composition etc.

Oxford Advanced Learner's Compass, 7<sup>th</sup> Edition.

Language in Use, Foundation Books Pvt Ltd.

Learning to Speak English - 4 CDs.

Microsoft Encarta.

Murphy's English Grammar, Cambridge.

Time series of IQ Test, Brain-teasers, Aptitude Test etc.

English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.

### **Text Books for English lab :**

1. **Developing Communication Skills** by Krishna Mohan & Meera Benerji (Macmillan)
2. **Speaking English Effectively** by Krishna Mohan & NP Singh (Macmillan)
3. **Better English Pronunciation** by JDO Connor (UBS – Cambridge)
4. **Oxford Practice Grammar with Answers**, John Eastwood, Oxford
5. **Handbook of English Grammar and Usage**, Mark Lester and Larry Beason, Tata McGraw-Hill
6. **A text book of English Phonetics for Indian Students** by T. Balasubramanian (Macmillan)
7. **Lingua TOEFL CBT Insider**, by Dreamtech
8. **TOEFL & GRE** (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
9. **English Skills for Technical Students**, WBSCTE with British Council, OL
10. **A Handbook of English for Competitive Examinations**, by B Shyamala Rao, Blakie Books, Chennai.

**II SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
	x		x			x				

**(124MB45) ACCOUNTANCY AND FINANCIAL MANAGEMENT****UNIT I**

**Objectives:** *Students will be able to understand the financial statements contents*

**Accounting:** Principles, concepts and conventions, double entry system of accounting, Financial Accounting Vs Cost Accounting Vs Management Accounting, Types of Accounts, introduction to basic books of accounts, journal and ledger.

**UNIT II**

*The student will be able to prepare the statements projecting profit & losses of the organization for a period*

**Final Accounts:** Meaning and Definition of final accounts- Scope -Trail Balance – preparation of Final accounts - Trading Account, Profit & Loss Account and Balance Sheet.

**UNIT III**

*The student understands, the relationship between the variable as shown in the B/S and Income statements*

**Ratio analysis:** Advantages – Scope - Limitations – types of Ratios, Fund flow analysis – meaning and Definition, importance, Preparation of Fund flow analysis and Cash flow statement

**UNIT IV**

*Capital structure effects on changes in the operations will be known*

**Financial Management:** Meaning and scope, role of Financial Manager, Objectives of time value of money – Goals of Financial Management, Leverages: Operating, Financial leverages, combined leverage.

**UNIT V**

*Knowledge of capital budgeting cost of capital enables students to identify profitable new ventures*

**Capital Structure Decisions & Capital Budgeting:** Concept and measurement of cost of capital, Debt vs. Equity, cost of equity, preference shares, equity capital and retained earnings, weighted average cost of capital. Nature and techniques of capital budgeting: Payback method, Average rate of return and Time-Adjusted methods: IRR and NPV, Profitability index.

**UNIT VI**

*The technique of managerial c enables the students to plan BEP/Margins of safety*

**Marginal Costing:** Marginal costing and Break even analysis – concepts – cost volume profit analysis, Determination of Break even point, Margin of safety , PV Ratio analysis,



Impact of changes in Cost or Selling price on BEP Practical application of Break Even Analysis, Break Even Chart.

**Text Books:**

1. S.N.Maheswari: Financial Management, Sultan chand Company
2. Aryasri: accounting and Financial Management, TMH, 2009
3. Van Horne, James, C: financial Management and Policy, Pearson, 2009

**Reference:**

1. Prasanna Chandra, Financial Management, TMH, 2009
2. S.N. Maheswari, Financial Accounting, Sultan Chand, 2009
3. Khan and Jain, Financial Management, TMH, 2009

**II SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
X	X	X								X

**(124CA03) DATA STRUCTURES AND ALGORITHMS****UNIT-I**

*A connection between algorithms and data structures is established*

Introduction To Algorithms And Data Structures: Notion of algorithm, pseudo code, performance analysis- time complexity and space complexity, asymptotic notation (bigoh, omega, theta), data abstraction, concept of ADT, linear and non linear data structures, sequential and linked allocation, arrays and linked lists, representation of single, two and multi dimensional arrays, sparse matrices and their representation, the list ADT-array based implementation and linked list implementation.

**UNIT-II**

*The stack and query, important for operating systems is introduced*

Stacks And Queues: Stack ADT-array based implementation, linked list implementation, applications-infix to postfix conversion, postfix evaluation, implementation of recursion, Queue ADT- array based implementation, linked list implementation, circular queues, Dequeue ADT- array based implementation, linked list implementation, Priority Queues ADT- implementation, heaps.

**UNIT-III**

*Data structures needed for trees and graphs are introduced*

Trees And Graphs: Trees- Terminology and basic properties, tree ADT, binary tree ADT, data structures for representing binary trees-a vector based structure and linked structure, traversals of a binary tree, representing general trees with binary trees, threaded binary trees, graphs- graph ADT, basic terminology, data structures for representing graphs-edge list structures, adjacency list structures, adjacency matrix, graph traversals- DFS, BFS.

**UNIT-IV**

*Searching and sorting need special data structures and are introduced in this unit*

Search Trees: Binary search trees, operations- insertion, deletion and searching, AVL trees, operations- insertion and searching, B-trees, operations-insertion, deletion and searching, comparison of performance of search trees.

Searching And Sorting: Linear search, binary search, hashing-hash table, its implementation, hash functions, collision handling schemes, bubble sort, selection sort, insertion sort, quick sort, merge sort, heap sort, radix sort, comparison of searching and sorting methods.

**UNIT-V**

*Techniques for Algorithm design are introduced*

Algorithm Design methods-Greedy method-applications- Knapsack problem Kruskal's Algorithm for Minimum cost Spanning trees, job sequencing with dead lines, single source shortest path problem, Dynamic Programming method-applications-Ordering matrix multiplications, Optimal Binary Search Trees, APSP problem;{0/1}knapsack problem.

**UNIT-VI**

*Text processing and pattern matching algorithms are explained*

Text Processing: Pattern matching algorithms- Brute force, the Boyer-Moore algorithm, the KMP algorithm, tries- standard tries, compressed tries, suffix tries, text compression- Huffman coding algorithm.

**TEXT BOOKS:**

1. "Introduction to Algorithms", Second Edition, 2001, PHI. Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest and Clifford Stein.
2. "Fundamentals of Computer Algorithms", 2000, Galgotia- Ellis Horowitz, Sartaj Shani, and S.Rajasekaran.
3. "C and Data Structures,N.B. Venkateswarlu and Prof. E.V. Prasad

**Reference Books:**

1. "An introduction to Data Structures and Algorithms", J.A.Storer Springer .
2. Advanced data structures and algorithms in CPP by V.V.Muniswamy.

**II SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
						X		X	X	

**(124CA04) E-COMMERCE****UNIT-I**

*On the completion of the unit a student will be able to :*

- Know how Internet changed the Business Scenario
- Get an overview of e-commerce technology

Electronic Commerce-Frame work, anatomy of E-Commerce applications, E-Commerce Consumer applications, E-Commerce organization applications. Consumer Oriented Electronic commerce - Mercantile Process models

**UNIT-II**

*On the completion of the unit a student will be able to know about  
Risks in Electronic Payment systems*

Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems.

**UNIT-III**

*On the completion of the unit a student will be able to :  
· learn the terms and concepts of EDI & Supply chain Management*

Inter Organizational Commerce - EDI, EDI Implementation, Value added networks. Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

**UNIT-IV**

*On the completion of the unit a student will be able to :  
· understand Advertising and Marketing & corporate Data Warehouses*

Corporate Digital Library - Document Library, digital Document types, corporate Data Warehouses. Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research.

**UNIT-V**

*on the completion of the unit a student will be able to know about*

- Resource Discovery paradigms.
- Information search and Retrieval, Information Filtering and Data interface

Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering.

## **UNIT- VI**

*On the completion of the unit a student will be able to know about*  
•multimedia concepts

Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processings, Desktop video conferencing.

### **TEXT BOOKS:**

1. Frontiers of electronic commerce – Kalakata, Whinston, Pearson.

### **REFERENCE BOOKS:**

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
2. E-Commerce, S.Jaiswal – Galgotia.
3. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.
4. Electronic Commerce – Gary P.Schneider – Thomson.
5. E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver.

**II SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
	x	x						x		x

**(124CA05) DATA BASE MANAGEMENT SYSTEMS****UNIT I :**

*The student would have clear idea of entity –relationship diagrams*

Data base System Applications, data base System VS file System – View of Data – Data Abstraction –Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor, History of Data base Systems. Data base design and ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model – Conceptual Design for Large enterprises.

**UNIT II :**

*By the end of this unit the student would be able to query a data base using algebraic expressions.*

Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.

Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

**UNIT III :**

*The student would be able to query the database using SQL.*

Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity's – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

**UNIT IV :**

*The student would be able to normalize a data base.*

Schema refinement – Problems Caused by redundancy – Decompositions – Problems related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FOURTH Normal Form.

**UNIT V :**

*The objective of this unit to provide requisite knowledge to the student regarding transaction processing.*

Transaction Concept- Transaction State- Implementation of Atomicity and Durability – Concurrent – Executions – Serializability- Recoverability – Implementation of Isolation – Testing for serializability- Lock –Based Protocols – Timestamp Based Protocols- Validation- Based Protocols – Multiple Granularity, Recovery and Atomicity – Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management – Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

**UNIT VI :**

*The objectives of this unit to make the student familiar with indexing and hashing*

Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree based Indexing – Comparison of File Organizations – Indexes and Performance Tuning- Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

**TEXT BOOKS :**

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
2. Data base System Concepts, Silberschatz, Korth, McGraw hill, V edition.

**REFERENCES :**

1. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
3. Introduction to Database Systems, C.J.Date Pearson Education

**II SEMESTER**

	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
						X	X		X	X

**(124EN02) SOFT SKILLS –I****UNIT-I**

*To help the students in developing positive attitude, negating negative attitude.*

**Positive attitude:** Meaning- Attitude and behaviour- formation and change of attitudes- examples of positive attitude- positive attitude and its results-negative attitude and its results.

**UNIT-II**

*To guide the students in following proper etiquette and developing good manners.*

**Etiquette and Manners:** Modern etiquette- Benefits of etiquette- classification of etiquette- Practicing good manners- Professional manners.

**UNIT-III**

*To enrich the students in forming values and showing them the right path to tread upon.*

**Forming Values:** What is a value?- A core of values- values relating to self and others- Formation of values- Types of values-Power of values

**UNIT-IV**

*To train the students in Time Management.*

**Time Management:** Setting goals and prioritization of time; Major time management challenges.

**UNIT-V**

*To strengthen the students emotional intelligence*

**Resume Writing:** The purpose of resume-Types of resume-Do's & Don'ts in Resume writing-Cover letter.

**UNIT-VI**

*To equip the students with the knowledge of formal and informal interviews and Telephonic interviews.*

**Interview Skills:** Formal and informal interviews; telephonic interviews.



**TEXT BOOKS:**

**Prescribed:** Soft Skills (know yourself & know the world), Dr. K. Alex, S. Chand

**Reference:**

1. Knock-Out interviews answers, Ken Langdon , Wikki Cart Wright, Pearson Education
2. Effective Business Communication, H. A. Murphy, H.W. Hilde brandt & Jane P.Thomas, 7th Edition, McGrawHill .
3. Cool Time and the Two-Pound Bucket, Prentice, Macmillan
4. Cool Time and the Two-Pound Bucket, Prentice, Macmillan

**II SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x									x

**(124CA06) OBJECTED ORIENTED PROGRAMMING****UNIT- I**

*This unit tells about the C++ basics.*

**C++:** Structure of a C++ program, Data types, Declaration of variables, Expressions, Operators, Operator Precedence, Evaluation of expressions, Type conversions, Pointers, Arrays, Pointers and Arrays, Strings, Structures, References. Flow control statements- if, switch, while, for, do, break, continue, goto statements.

**UNIT- II**

*The objective of this unit isto introduce Object oriented concepts*

**C++ Classes And Data Abstraction:** Class definition, Class objects, Class scope, this pointer, Friends to a class, Static class members, Constant member functions, Constructors and Destructors, Data abstraction, ADT and information hiding.

**UNIT-III**

*The student would have an understanding of object oriented concepts like Interface and its types, polymorphism and its types*

Polymorphism-Function overloading-Operator overloading-Generic programming-necessity of templates- Function templates and class templates, Inheritance, Virtual Functions and Run Time Polymorphism, Exceptional Handling.

**UNIT-IV**

*The object is to give a brief understanding of basics of JAVA*

**Java:** Data types, variables, operators, and expressions; flow control statements; classes, objects, class modifiers, class members and access control, methods, input and output statements, string handling

**UNIT-V**

*The object is to give an idea about exception handling in JAVA*

Exception handling- Benefits of exception handling, throwing an exception, types of exceptions, usage of try, catch, throw, throws and finally key words, Exception objects and exception specifications, rethrowing an exception and catching exceptions, designing issues in exception handling.

**UNIT-VI**

*It gives an idea about multithreading and JAVA libraries.*

**Packages:** creating and accessing a package, importing packages. Multi threading- thread life cycle, creating multiple threads using Thread class and Runnable interface. Java library- java.util, java.io.

**TEXT BOOKS:**

1. "Problem solving with C++", The OOP, 4th Edition, Walter Savitch, Pearson Education.
2. "C++, The Complete Reference", 4th Edition, Herbert Schildt, TMH.
3. "The Complete Reference Java J2SE", 5th Edition, Herbert Schildt, TMH.

**REFERENCE BOOKS:**

1. "C++ Primer", 3rd Edition, S.B.Lippman and J.Lajoie, Pearson Education.
2. "The C++ Programming Language", 3rd Edition, B.Stroutstrup, Pearson Education.

**II SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	X								

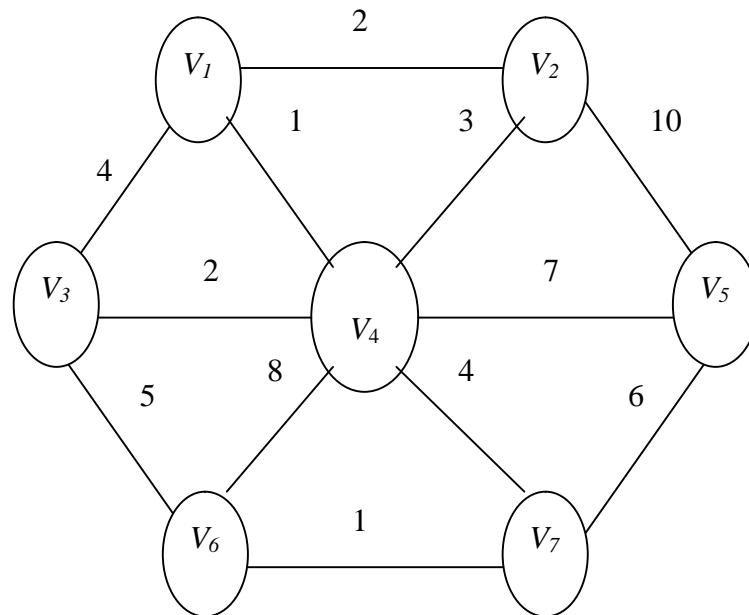
**(124CA72) DATA STRUCTURES AND ALGORITHM LAB**

- Write a program which reads coefficients of a polynomial into a float array and calculates the polynomial value at a given point x.  
You may take the following example.  
 $5x^7 + 7x^6 + 3x^2 - 6x + 1$  at  $x = 1$
- Write a program which reads 'n' students marks into rows of a two dimensional integer array and calculates the average, maximum and minimum for any specified test.  
You may take  $n=5$
- we know  
 $NCR(N,R) = NCR(N-1,R-1) + NCR(N-1,R)$   
Also given that  $NCR(N,0) = NCR(N,N) = 1$ , Write a recursive program to calculate NCR (n,r) for any given value of n and r. Find out what happens if  $r > n$
- Write a program which takes the address of an integer and reverses its value.
- Write a program which takes two complex numbers as input and outputs their sum and product.
- Write a program which takes a string along the command line and prints 'yes' if it is a palindrome and 'no' if it is not.
- Write a program which takes a two dimensional array as input and checks if it is a symmetric matrix.
- Write a program which reads n student marks in a class and then calculates the largest and second largest marks and how many students got them.
- Write a program which reads a number and prints it vertically.  
Ex: input: 1789    out put  
1  
7  
8  
9
- Write a program which prints all the ASCII characters.
- Let L be a list of size, say, 10. Read an integer 'n'. Reconstruct the list L, called chain, as follows.

- i. If  $n > 10$ , make the list size  $n$  by adding NULL nodes at the end.
  - ii. If  $n < 10$ , make the list size  $n$  by removing the nodes from the end.
12. Overload the operator  $=$  so that the expression  $x = y$  returns true if the two chains  $x$  and  $y$  are equal i.e., the  $i_{th}$  elements of both chains are equal for all  $i$ . Test your code.
13. Develop the class doubly linked list. Objects of this class are doubly linked lists with no header node. Write functions to perform the operations
- i. Insert
  - ii. Find and
  - iii. Delete.
14. Write a function to multiply polynomials using linked list representation.
15. Convert an in-fix expression into a post-fix expression, and write a program to evaluate the post-fix expression. You may make use of the following expression:

$$A+(B-C)*D+E$$

16. A d-queue is a data structure consisting of a list of items, on which the following operations are possible.
- Push(): Insert an item in front of the queue
  - Pop ( ) : remove the front item in the queue and return it.
  - Inject (x) : Insert item  $x$  at the rear- end of the queue.
  - Eject (x) : remove the rare item from the queue and return it.
- Write program to support the above operations and apply the above operation for the d-queue
- 2 4 5 8 10 12
17. Given two sorted lists  $L_1$  and  $L_2$ , write a procedure to compute  $L_1 \cup L_2$  using the basic list operations.
18. Write a function to remove the duplicate elements in a singly linked list.
19. Write a function which checks if an infix expression has balanced Parenthesis, The function returns true if it has balanced parenthesis else returns false.
20. Construct a binary search tree with the following data: 45,25,65,15,30,55,75,10,20,50,60,80. Write a function to insert 70 and delete 15.
21. Convert the above binary search tree into an AVL tree and write a program to delete a leaf node and a node with two children.
22. Construct a minimum cost spanning tree for the graph given below using Kruskal's algorithm



23. Make a pre-order traversal of the binary search tree constructed in problem 1.
24. For the data given in problem 1 apply quick-sort algorithm
25. Write a C++ program to insert into a B-tree and delete from a B-tree.

**II SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
	x	x								x

**(124CA73) DATABASE MANAGEMENT SYSTEMS LAB**

1. DDL Commands - Creation, Alter, Drop, Rename, Truncation of tables  
DML Commands – inserting rows into a table and modifying the data – Insert, Delete, Update, Select.  
Queries on DDL and DML commands.
2. Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
3. Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints. Example: - Select the roll number and name of the student who secured fourth rank in theclass.
4. Queries using Conversion functions (to\_char, to\_number and to\_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next\_day, add\_months, last\_day, months\_between, least, greatest, trunc, round, to\_char, to\_date) and Number functions.
5. Creation of Indexes, Sequences, and Synonyms  
System Privileges – Grant Command and Revoke Command.  
SQL Report generation for a simple Database.
5. i)Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)  
ii)Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
6. Develop a program that includes the features NESTED IF, CASE and CASE expression. The program can be extended using the NULLIF and COALESCE functions.
7. Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions, RAISE- APPLICATION ERROR.
8. Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.

9. Program development using creation of stored functions, invoke functions in SQL Statement and write complex functions.
10. Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
11. Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
12. Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers

**TEXT BOOKS :**

- 1)ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Education 3 Edition
- 2)ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc-Graw Hill.
- 3)SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S. Deshpande.



**II SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x									

**(124CA74) OBJECTED ORIENTED PROGRAMMING LAB**

- Write C++ programs that use both recursive and non-recursive functions  
To find the factorial of a given integer.  
To find the GCD of two given integers.  
To find the nth Fibonacci number.
- Implement the complex number ADT in C++ using a class. The complex ADT is used to represent complex numbers of the form  $c=a+ib$ , where  $a$  and  $b$  are real numbers. The operations supported by this ADT are:
  - Reading a complex number.
  - Writing a complex number.
  - Addition of Complex numbers.
  - Subtraction of complex numbers.
  - Multiplication of complex numbers.
  - Division of complex numbers.
 Note: 1. overload  $\ll$  and  $\gg$  operators in part a and part b.  
2. overload  $+$ ,  $-$ ,  $*$ ,  $/$  operators in parts c, d, e and f.
- Write C++ programs that illustrate how the following forms of inheritance are supported:
  - Single inheritance
  - Multiple inheritance
  - Multi level inheritance
  - Hierarchical inheritance
- Write a C++ program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class.
- Write a C++ program that illustrates how runs time polymorphism is achieved using virtual functions.
- Write a Java program for creating multiple threads
  - Using Thread class
  - Using Runnable interface
- Write a Java program that illustrates how run time polymorphism is achieved.
- Write a java program that illustrates the following
  - Creation of simple package.
  - Accessing a package.
  - Implementing interfaces.
- Write a java program that illustrates the following
  - Handling predefined exceptions
  - Handling user defined exceptions

**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		X	X	X					X	

**(124CA07) WEB TECHNOLOGIES****UNIT-I:**

*At the end of the unit I the student is expected to design web pages using HTML, DHTML, and JavaScript.*

**HTML Common tags-** List, Tables, images, forms, Frames; Cascading Style sheets; Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script  
**XML:** Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

**UNIT-II:**

*At the end of Unit II the students would be able to write programs using java beans and using components needed to his project needs.*

**Java Beans:** Introduction to Java Beans, Advantages of Java Beans, JDK, Introspection, Using Bound properties, Bean Info Interface, Constrained properties, Persistence, Customizes, Java Beans API, Introduction to EJB's

**UNIT-III:**

*The student is expected to use servlets, install a tomcat web-server, understand the life cycle of the servlets.*

**Web Servers and Servlets:** Tomcat web server, Introduction to Servlets: Lifecycle of a Servlet, JSDK, The Servlet API, The javax.servelet Package, Reading Servlet parameters, Reading Initialization parameters. The javax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues,

**UNIT-IV:**

*At the end of the unit the student is expected to compare the servlets and JSP, design components using MVC architecture.*

**Introduction to JSP:** The Problem with Servlet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat

**UNIT-V:**

*At the end of the unit V the student is expected to share data between different pages in JSP, design JSP components taking into consideration memory constraints.*

**JSP Application Development:** Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Data between Pages – Sharing Session and Application Data – Memory Usage Considerations

**UNIT VI:**

*At the end of the unit the student is expected to connect to data base using JDBC and use the database in JSP and servelts.*

**Database Access :** Database Programming using JDBC, Studying Javax.sql.\* package, Accessing a Database from a JSP Page, Application – Specific Database Actions, Deploying JAVA Beans in a JSP Page.

**TEXT BOOKS:**

1. Web Programming, building internet applications, Chris Bates 2<sup>nd</sup> edition, WILEY Dreamtech (UNIT s 1,2 ,3)
2. The complete Reference Java Seventh Edition by Herbert Schildt. TMH.
3. Java Server Pages –Hans Bergsten, SPD O’Reilly (UNITs 5,6,7,8)

**REFERENCE BOOKS:**

1. Programming world wide web-Sebesta, Pearson
2. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
4. Jakarta Struts Cookbook , Bill Siggelkow, S P D O’Reilly for chap 8.
5. Murach’s beginning JAVA JDK 5, Murach, SPD
6. An Introduction to web Design and Programming –Wang-Thomson
7. Web Applications Technologies Concepts-Knuckles, John Wiley
8. Java Script, D. Flanagan, O’Reilly, SPD.
9. Struts 2, Black Book, 2<sup>nd</sup> Edition, deamtech Press.
10. Web Warrior Guide to Web Programmimg-Bai/Ekedaw-Cengage Learning.
11. Beginning Web Programming-Jon Duckett, WROX.
12. Java Server Pages, Pekowsky, Pearson.

**III SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x				x						x

**(124CA08) OPERATING SYSTEMS****UNIT- I**

*The object of this unit is to give a brief introduction to operating systems.*

**Operating System Introduction**, Simple Batch, Multi programmed, timeshared, Personal Computer, Parallel, Distributed Systems ,Real-Time Systems, Operating-System services, System Calls, Virtual Machines, System Design and Implementation.

**UNIT- II**

*The student would have an understanding of whattare process threads, IPC & scheduling and their algorithm.*

**Process and CPU Scheduling** - Process concepts and scheduling, Operation on processes, Cooperating Processes, Threads, and Interposes Communication Scheduling Criteria, Scheduling Algorithm, Multiple -Processor Scheduling, Real-Time Scheduling.

**UNIT-III**

*The student would be able to understand about memory management*

**Memory Management and Virtual Memory** - Logical versus Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Segmentation with Paging, Demand Paging , Performance of Demanding Paging , Page Replacement ,Page Replacement Algorithm, Allocation of Frames, Thrashing.

**Unit -IV**

*This unit covers various file structures, file systems access methods and critical section problems and synchronization.*

**File System Interface and Implementation** -Access methods, Directory Structure, Protection, File System Structure, Allocation methods, Free-space Management, Directory Management, Directory Implementation, Efficiency and Performance.

**Process Management and Synchronization** - The Critical Section Problem, Synchronization Hardware, Semaphores, and Classical Problems of Synchronization,Critical Regions, Monitors.

**UNIT -V**

*The object is to give an idea about Deadlocks*

**Deadlocks** - System Model, Dead locks Characterization, Methods for Handling Dead locks Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, and Recovery from Deadlock.

**UNIT-VI**

*The student would have an understanding of Android O/S*

**Case Study-1-Windows:** Design principles, System Components, Environmental Subsystems, File system, Networking, Programmer Interface.

**Case Study- 2:** Introduction to Android Operating System, Android Design Principles, File system and Networking.

**TEXT BOOKS:**

- 1 “Operating System Principles”- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7<sup>th</sup> Edition, John Wiley
2. “Programming Android” - Ziqurd Mednieks, Laird Dornin, Blake Meike, Edition paperback, O’really Publishers.

**REFERENCE BOOKS:**

1. “Operating Systems” – Internals and Design Principles Stallings, Fifth Edition–2005, Pearson Education/PHI
2. “Operating System A Design Approach”-Crowley, TMH.
3. “Modern Operating Systems”, Andrew S Tanenbaum 2nd edition Pearson/PHI
4. 101 Google Android Tips, Tricks, Tweaks. – Jeff Walters, Edition Kindle.
5. Android forensics – Investigation Analysis and Mobile Security for Google Android by Andrew Hoog paperback edition.

**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		x	x						x	

**(124CA09) DATA WAREHOUSING AND MINING****UNIT-I**

*The student would be able to understand the concept of Data warehousing and Mining*

**Introduction:** Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining.

**Data Preprocessing:** Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation, Online Data Storage.

**UNIT-II**

*The student gets an understanding of the Architecture of Data Warehouse and gets familiar to concepts and description*

**Data Mining Primitives, Languages, and System Architectures:** Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems.

**Concepts Description: Characterization and Comparison:** Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

**UNIT-III**

*To understand the Association rules in Large Databases.*

**Mining Association Rules in Large Databases:** Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

**UNIT-IV**

*To understand the classification and prediction of data mining*

**Classification and Prediction:** Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

**UNIT-V**

*To understand about clustering*

**Cluster Analysis Introduction :**Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

**UNIT-VI**

*To understand and gets familiar to mining of complex types of data*

**Mining Complex Types of Data:** Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

**TEXT BOOKS:**

1. “Data Mining – Concepts and Techniques “- JIAWEI HAN & MICHELINE KAMBER Harcourt India.
2. “Data Mining Techniques” – ARUN K PUJARI, University Press
3. “Building the DataWarehouse”- W. H. Inmon, Wiley Dreamtech India Pvt. Ltd.

**REFERENCE BOOKS:**

1. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.
2. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION
3. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION
4. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION

**III SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
	x					x			x	

**(124CA10) COMPUTER NETWORKS AND SECURITY****UNIT-I**

*To understand the layer structured of networks*

Introduction to Networks, internet, protocols and standards, the OSI model, layers in OSI model, TCP/IP suite.

Physical Layer: Guided and Unguided transmission media

**UNIT-II**

*The student will understand the protocols in data link layer.*

Data Link Layer: Design Issues, Error detection and correction , Elementary Data Link Protocols, Sliding Window Protocols, Protocol Verification, Example Data Link protocols.

The Medium Access Sub Layer: The channel allocation problem, Multiple access Protocols, Ethernet , Wireless LANs , Broadband Wireless, Bluetooth ,Data Link Layer Switching.

**UNIT-III**

*To understand adoptive and non-adoptive routing algorithm*

The Network Layer: Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Quality Of Service, Internet Working, Network Layer in Internet.

**UNIT-IV**

*The student will grasp the methods of establishing connection.*

The Transport Protocol: The Transport Service, Elements of transport protocol, A simple Transport Protocol, Internet Transport Protocols UDP, Internet Transport Protocols TCP, Performance Issues.

**UNIT-V**

*Security aspects of networks in application layer are made clear to the students.*

The Application Layer: DNS-(Domain Name System), Electronic Mail, World Wide Web Multimedia.

Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security



**UNIT-VI**

*To make a student use cryptography for sending messages*

Network Security: Cryptography , Symmetric \_key Algorithms, Public–Key Algorithms, Digital Signatures, Management of public keys.

Communication Security, Authentications Protocols, E-mail Security, Web security, Social Issues.

**TEXT BOOKS:**

1. Computer Networks -- Andrew S Tanenbaum,4th Edition. Pearson Education/PHI
2. “Network Security Essentials” (Applications and Standards) by William Stallings Pearson Education.

**REFERENCE BOOKS:**

1. Computer Communications and Networking Technologies –Michael A.Gallo, William M .Hancock - Thomson Publication.
2. Data Communications and Networking – Behrouz A. Forouzan. Third Edition TMH.
3. “Hack Proofing your network by Ryan Russell”, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Perme, wiley Dreamtech,

**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
					X	X				X

**(124CA11) SOFTWARE ENGINEERING****UNIT I:**

*Understand the importance of software engineering development and process models; strengths and weaknesses*

**Introduction to Software Engineering:** The evolving role of software, Changing Nature of Software, Software myths.

**A Generic view of process:** Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

**Process models:** The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

**UNIT II:**

*Understand the Software requirement specification from Business Community and identify Best Methods for management of requirements*

**Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

**Requirements engineering process:** Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

**System models:** Context Models, Behavioral models, Data models, Object models, structured methods.

**UNIT III:**

*Understand design concepts and design model, how to create software architecture, architectural design, software architectural styles.*

**Design Engineering:** Design process and Design quality, Design concepts, the design model.

**Creating an architectural design:** software architecture, Data design, Architectural styles and patterns, Architectural Design.

**UNIT IV:**

*Understand the various models that can be used to describe an object-oriented design, and principles of user interface design as it relates to the development of software products.*

**Object-Oriented Design:** Objects and object classes, An Object-Oriented design process, Design evolution.

**Performing User interface Design:** Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

#### **UNIT V:**

*Why Software Metrics is important, look at Metrics with regard to Object Oriented programming software risks and how to identify software risks.*

**Product metrics:** Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

**Metrics for Process and Products:** Software Measurement, Metrics for software quality.

**Risk management:** Reactive vs Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

#### **UNIT VI:**

*Understand the software testing; identify best practices for managing testing process. Know how to apply quality concepts across the spectrum of IT related testing activities and artifacts.*

**Testing Strategies:** A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

**Quality Management:** Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

#### **TEXT BOOKS:**

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6<sup>th</sup> edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7<sup>th</sup> edition, Pearson education.

#### **REFERENCE BOOKS:**

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

**III SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
							X			X

**(124MA72) LOGICAL REASONING**  
**(Same as 121MA72)**

**Unit – I**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Series Completion: Number Series, Alphabet Series, Alpha – Numeric Series.  
 Number, Ranking & Time Sequence Test – Arithmetical Reasoning – Mathematical Operations

**Unit – II**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Analogy: Completing the Analogous Pair, Simple Analogy, Choosing the Analogous pair, Double Analogy, Word Analogy and Number Analogy.

**Unit – III**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Classification / Odd One Out: Word Classification , Number Classification , Letter Classification . Clocks & Calendar.

**Unit – IV**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Assertions and Reason – Logical Venn Diagrams – Alpha Numeric Sequence Puzzle.  
 Cubes and Dice – Analytical Reasoning

**Unit – V**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Blood Relations: Deciphering Jumbled up Descriptions, Relation Puzzle – Direction sense Test.

Data Sufficiency: Problems in which a question on any topic such as Coding – Decoding, Blood Relations , Directions ,Arithmetical Reasoning etc

**Unit – VI**

*Student can draw conclusions based on facts and evidence after a casual and rational analysis in his real life problems. Student can improve his/her mental capacity and get ability to arrive at answers in a logical way.*

Puzzle Test: Classification Type Questions, Seating Arrangements Comparison Type Questions , Sequential Order of Things ,Selection Based on given conditions, Family – Based Puzzles ,Jumbled Problems.

**Reference Book** : Verbal and Non Verbal Reasoning by R.S.Agarwal.

**III SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x			x						

**(124CA75) WEB TECHNOLOGIES LAB**

To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex amazon .com).

**Hardware and Software required :**

1. A working computer system with either Windows or Linux
2. A web browser either IE or firefox
3. Tomcat web server and Apache web server
4. XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free ] , Stylusstudio , etc.,
5. A database either Mysql or Oracle
6. JVM(Java virtual machine) must be installed on your system
7. BDK(Bean development kit) must be also be installed

**Week-1:**

Design the following static web pages required for an online book store web site.

**1) HOME PAGE:**

The static home page must contain three **frames**.

Top frame : Logo and the college name and links to Home page, Login page, Registration page,

Catalogue page and Cart page (the description of these pages will be given below).

Left frame : At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link “**CSE**” the catalogue for **CSE Books** should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

**2) LOGIN PAGE:****Objective :**

This page looks like below:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login : Password:			

**3) CATOLOGUE PAGE:**

The catalogue page should contain the details of all the books available in the web site in a table.

The details should contain the following:

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

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Book : XML Bible Author : Winston Publication : Wiely			\$ 40.5
	Book : AI Author : S.Russel Publication : Princeton hall			\$ 63
	Book : Java 2 Author : Watson Publication : BPB publications			\$ 35.5
	Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication			\$ 50

Reset

Submit

Note: Week 2 contains the remaining pages and their description.

Week-2:

## 4) CART PAGE:

The cart page contains the details about the books which are added to the cart.

The cart page should look like this:

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

## 5) REGISTRATION PAGE:

Create a “registration form “with the following fields

- 1) Name (Text field)
- 2) Password (password field)
- 3) E-mail id (text field)
- 4) Phone number (text field)
- 5) Sex (radio button)
- 6) Date of birth (3 select boxes)
- 7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
- 8) Address (text area)

WEEK 3:

## VALIDATION:

Write JavaScript to validate the following fields of the above registration page.

3. Name (Name should contains alphabets and the length should not be less than 6 characters).
4. Password (Password should not be less than 6 characters length).
5. E-mail id (should not contain any invalid and must follow the standard pattern

name@domain.com )

4. Phone number (Phone number should contain 10 digits only).

Note : You can also validate the login page with these parameters.

Week-4:

Design a web page using CSS (Cascading Style Sheets) which includes the following:

- 1) Use different font, styles:

In the style definition you define how each selector should work (font, color etc.). Then, in the body of your pages, you refer to these selectors to activate the styles. For example:

```

<HTML> <HEAD> <style type="text/css"> B.headline {color:red; font-
size:22px; font-family:arial; text-decoration:underline} </style> </HEAD>
<BODY> <b>This is normal bold</b><br> Selector {cursor:value} For
example: <html> <head> <style type="text/css"> .xlink {cursor:crosshair}
.hlink{cursor:help} </style> </head> <body> <b> <a href="mypage.htm"
class="xlink">CROSS LINK</a> <br> <a href="mypage.htm"
class="hlink">HELP LINK</a> </b> </body> </html> <b
class="headline">This is headline style bold</b> </BODY> </HTML>

```

2) Set a background image for both the page and single elements on the page. You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif);}
```

3) Control the repetition of the image with the background-repeat property.

As background-repeat: repeat Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4) Define styles for links as

```
A:link A:visited A:active A:hover
```

Example:

```
<style type="text/css"> A:link {text-decoration: none} A:visited {text-decoration: none}
A:active {text-decoration: none}
```



A:hover {text-decoration: underline; color: red;} </style>

5) Work with layers:

For example:

LAYER 1 ON TOP: <div style="position:relative; font-size:50px; z-index:2;">LAYER 1</div> <div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-index:1">LAYER 2</div> LAYER 2 ON TOP: <div style="position:relative; font-size:50px; z-index:3;">LAYER 1</div> <div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-index:4">LAYER 2</div>

6) Add a customized cursor:

Selector {cursor:value} For example:

```
<html> <head> <style type="text/css"> .xlink {cursor:crosshair}
.hlink{cursor:help} </style> </head> <body> <b> <a href="mypage.htm"
class="xlink">CROSS LINK</a> <br> <a href="mypage.htm"
class="hlink">HELP LINK</a> </b> </body> </html>
```

### Week-5:

Write an XML file which will display the Book information which includes the following:

- 1) Title of the book
- 2) Author Name
- 3) ISBN number
- 4) Publisher name
- 5) Edition
- 6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

### Week-6:

VISUAL BEANS:

Create a simple visual bean with a area filled with a color.

The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the “property window “.

#### Week-7:

- 1) Install TOMCAT web server and APACHE.  
While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.
- 2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls : <http://localhost:4040/rama/books.html> (for tomcat)

<http://localhost:8080/books.html> (for Apache)

#### Week-8:

User Authentication :

Assume four users user1,user2,user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a servlet for doing the following.

1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords ) available in the cookies.

If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display “ You are not an authenticated user “.

Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

#### Week-9:

Install a database(Mysql or Oracle).

Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Week-10:

Write a JSP which does the following job:

Insert the details of the 3 or 4 users who register with the web site (week9) by using registration

form. Authenticate the user when he submits the login form using the user name and password

from the database ( similar to week8 instead of cookies).

Week-11:

Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount )) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Week-12:

HTTP is a stateless protocol. Session is required to maintain the state.

The user may add some items to cart from the catalog page. He can check the cart page for the

selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method `session.invalidate()` ).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality using sessions.

**TEXT BOOKS:**

1. Java Server Programming for Professionals, 2nd Edition, Bayross and others, O'reilly,SPD, 2007.
2. JDBC, Servlets, and JSP ,Black Book, K. Santosh Kumar, dreamtech.
3. Core Web Programming, 2nd Edition, Volume 1, M.Hall and L.Brown, PHPTR.
4. Core Web Programming, 2nd Edition, Volume 2, M.Hall and L.Brown, PHPTR.
5. Core Java, Volume 1, Horstman and Cornell, 8th Edition, Pearson Education, 2008.
6. Core Java, Volume 2, Horstman and Cornell, 8th Edition, Pearson Education, 2008.
7. Java Programming: Advanced Topics, 3rd Edition, J.Wiggles worth and P.McMillan,Thomson, 2007.
8. Struts 2 for Beginners,S.Shah & V.Shah,The X Team,SPD,2<sup>nd</sup> edition.

**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		x	x						x	

**(124CA76) DATA WAREHOUSING AND MINING LAB****Data Warehousing and Data Mining:****Task 1: Credit Risk Assessment****Description:**

The business of banks is making loans. Assessing the credit worthiness of an applicant is of crucial importance. You have to develop a system to help a loan officer decide whether the credit of a customer is good, or bad. A bank's business rules regarding loans must consider two opposing factors. On the one hand, a bank wants to make as many loans as possible. Interest on these loans is the banks profit source. On the other hand, a bank cannot afford to make too many bad loans. Too many bad loans could lead to the collapse of the bank. The bank's loan policy must involve a compromise: not too strict, and not too lenient.

To do the assignment, you first and foremost need some knowledge about the world of credit. You can acquire such knowledge in a number of ways. 1. Knowledge Engineering. Find a loan officer who is willing to talk. Interview her and try to represent her knowledge in the form of production rules. 2. Books. Find some training manuals for loan officers or perhaps a suitable textbook on finance. Translate this knowledge from text form to production rule form. 3. Common sense. Imagine yourself as a loan officer and make up reasonable rules which can be used to judge the credit worthiness of a loan applicant. 4. Case histories. Find records of actual cases where competent loan officers correctly judged when, and when not to, approve a loan application.

**The German Credit Data:** Actual historical credit data is not always easy to come by because of confidentiality rules. Here is one such dataset, consisting of 1000 actual cases collected in Germany. credit dataset (original) Excel spreadsheet version of the German credit data. In spite of the fact that the data is German, you should probably make use of it for this assignment. (Unless you really can consult a real loan officer !)

A few notes on the German dataset • DM stands for Deutsche Mark, the unit of currency, worth about 90 cents Canadian (but looks and acts like a quarter). • owns\_telephone. German phone rates are much higher than in Canada so fewer people own telephones. • foreign\_worker. There are millions of these in Germany (many from Turrkey). It is very hard to get German citizenship if you were not born of German parents. • There are 20 attributes used in judging a loan applicant. The goal is the classify the applicant into one of two categories, good or bad.

**Subtasks : (Turn in your answers to the following tasks)**

1. List all the categorical (or nominal) attributes and the real-valued attributes separately. (5 marks)
2. What attributes do you think might be crucial in making the credit assessment ? Come up with some simple rules in plain English using your selected attributes. (5 marks)
3. One type of model that you can create is a Decision Tree - train a Decision Tree using the complete dataset as the training data. Report the model obtained after training. (10 marks)
4. Suppose you use your above model trained on the complete dataset, and classify credit good/bad for each of the examples in the dataset. What % of examples can you classify correctly ? (This is also called testing on the training set) Why do you think you cannot get 100 % training accuracy ? (10 marks)
5. Is testing on the training set as you did above a good idea ? Why or Why not ? (10 marks)
6. One approach for solving the problem encountered in the previous question is using cross-validation ? Describe what is cross-validation briefly. Train a Decision Tree again using cross-validation and report your results. Does your accuracy increase/decrease ? Why ? (10 marks)
7. Check to see if the data shows a bias against "foreign workers" (attribute 20), or "personal-status" (attribute 9). One way to do this (perhaps rather simple minded) is to remove these attributes from the dataset and see if the decision tree created in those cases is significantly different from the full dataset case which you have already done. To remove an attribute you can use the preprocess tab in Weka's GUI Explorer. Did removing these attributes have any significant effect? Discuss. (10 marks)
8. Another question might be, do you really need to input so many attributes to get good results? Maybe only a few would do. For example, you could try just having attributes 2, 3, 5, 7, 10, 17 (and 21, the class attribute (naturally)). Try out some combinations. (You had removed two attributes in problem 7. Remember to reload the arff data file to get all the attributes initially before you start selecting the ones you want.) (10 marks)
9. Sometimes, the cost of rejecting an applicant who actually has a good credit (case 1) might be higher than accepting an applicant who has bad credit (case 2). Instead of counting the misclassifications equally in both cases, give a higher cost to the first case (say cost 5) and lower cost to the second case. You can do this by using a cost matrix in Weka. Train your Decision Tree again and report the Decision Tree and cross-validation results. Are they significantly different from results obtained in problem 6 (using equal cost)? (10 marks)
10. Do you think it is a good idea to prefer simple decision trees instead of having long complex decision trees ? How does the complexity of a Decision Tree relate to the bias of the model ? (10 marks)

11. You can make your Decision Trees simpler by pruning the nodes. One approach is to use Reduced Error Pruning - Explain this idea briefly. Try reduced error pruning for training your Decision Trees using cross-validation (you can do this in Weka) and report the Decision Tree you obtain ? Also, report your accuracy using the pruned model. Does your accuracy increase ? (10 marks)
- 12.(Extra Credit): How can you convert a Decision Trees into "if-then-else rules". Make up your own small Decision Tree consisting of 2-3 levels and convert it into a set of rules. There also exist different classifiers that output the model in the form of rules - one such classifier in Weka is rules.PART, train this model and report the set of rules obtained. Sometimes just one attribute can be good enough in making the decision, yes, just one ! Can you predict what attribute that might be in this dataset ? OneR classifier uses a single attribute to make decisions (it chooses the attribute based on minimum error). Report the rule obtained by training a one R classifier. Rank the performance of j48, PART and oneR. (10 marks)

**Task Resources:**

- Mentor lecture on Decision Trees
- Andrew Moore's Data Mining Tutorials (See tutorials on Decision Trees and Cross Validation)
- Decision Trees (Source: Tan, MSU)
- Tom Mitchell's book slides (See slides on Concept Learning and Decision Trees)
- Weka resources:
  - o Introduction to Weka (html version) (download ppt version)
  - o Download Weka
  - o Weka Tutorial
  - o ARFF format
  - o Using Weka from command line

Task 2: Hospital Management System

**Data Warehouse consists Dimension Table and Fact Table.**

**REMEMBER The following**

Dimension

The dimension object (Dimension):

- \_ Name
- \_ Attributes (Levels) , with one primary key
- \_ Hierarchies

One time dimension is must.

**About Levels and Hierarchies** Dimension objects (dimension) consist of a set of levels and a set of hierarchies defined over those levels. The levels represent levels of aggregation. Hierarchies describe parent-child relationships among a set of levels.

For example, a typical calendar dimension could contain five levels. Two hierarchies can be defined on these levels:

H1: YearL > QuarterL > MonthL > WeekL > DayL

H2: YearL > WeekL > DayL

The hierarchies are described from parent to child, so that Year is the parent of Quarter, Quarter the parent of Month, and so forth.

### **About Unique Key Constraints**

When you create a definition for a hierarchy, Warehouse Builder creates an identifier key for each level of the hierarchy and a unique key constraint on the lowest level (Base Level)

Design a Hospital Management system data warehouse (TARGET) consists of Dimensions Patient, Medicine, Supplier, Time. Where measures are ' NO UNITS', UNIT PRICE.

Assume the Relational database (SOURCE) table schemas as follows

TIME (day, month, year),

PATIENT (patient\_name, Age, Address, etc.,)

MEDICINE ( Medicine\_Brand\_name, Drug\_name, Supplier, no\_units, Uinit\_Price, etc.,)

SUPPLIER :( Supplier\_name, Medicine\_Brand\_name, Address, etc., )

If each Dimension has 6 levels, decide the levels and hierarchies, Assume the level names suitably.

Design the Hospital Management system data warehouse using all schemas. Give the example 4-D cube with assumption names.

**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		x				x			x	

**(124CA77) COMPUTER NETWORKS AND SECURITY LAB**

1. Implement the data link layer framing methods such as character, character stuffing and bit stuffing.
2. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC CCIP .
3. Implement Dijkstra 's algorithm to compute the Shortest path in a graph.
4. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table art each node using distance vector routing algorithm
5. Take an example subnet of hosts . Obtain broadcast tree for it.
6. Take a 64 bit playing text and encrypt the same using DES algorithm.
7. Write a program to break the above DES coding
8. Using RSA algorithm Encrypt a text data and Decrypt the same



**III SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
					x		x			

**(124CA78) TECHNICAL PAPER WRITING AND SEMINAR**

There shall be a Technical Seminar to be taken up by the students in III Semester in the area of their chosen specialization. The Technical Seminar shall be evaluated on a continuous basis as follows for a maximum of 50 marks:

Evaluation by the Supervisor	10 Marks
Final Report	10 Marks
Presentation	30 Marks

**IV SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x									X

**(124CA12) MOBILE COMPUTING****UNIT I:**

*By the end of this unit the students would know the architecture of CSM*

**Mobile Computing (MC):** Introduction, Applications, Limitations.

**GSM:** Architecture, Localization and calling, Handover, Security, and GPRS Architecture

**UNIT II:**

*The students would be able to find the mobile IP address after of the completion of this unit*

**(Wireless) Medium Access Control:** Motivation for a specialized MAC (MACA: Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

**Mobile IP** (Goals, assumptions, entities and terminology, IP packet delivery), Dynamic Host Configuration Protocol (DHCP).

**Protocols:** Wireless Application Protocol (WAP) architecture, 802.11: Bluetooth architecture

**UNIT III**

*The students would know the architecture of mobile applications.*

**Mobile Ad hoc Networks (MANETs):** Overview, Properties of a MANET, security in MANETs.

**Routing algorithms:** Proactive-Destination-Sequenced Distance-Vector(DSDV), Reactive: Dynamic Source Routing (*DSR*) & *Ad hoc On-Demand Distance Vector (AODV)*

**UNIT IV**

*The students would know to design midlets.*

**J2ME Overview:** java 2 Micro Edition and the World of Java, Inside J2ME, J2ME and Wireless Devices

**J2ME Architecture and Development Environment:** J2ME Architecture, Small Computing Device Requirements, Run-Time Environment, MIDlet Programming, Java Language for J2ME, J2ME Software Development Kits, Hello World J2ME Style, Multiple MIDlets in a MIDlet Suite, J2ME Wireless Toolkit

**J2ME Best Practices and Patterns:** The Reality of Working in a J2ME World, Best Practices

**UNIT V**

*The storage of records in mobile devices will come char.*

**Commands, Items, and Event Processing:**

J2ME User Interfaces, Display Class, The Palm OS Emulator, Command Class, Item Class, Exception Handling

**High-Level Display: Screens:** Screen Class, Alert Class, Form Class, Item Class, List Class, Text Box Class, Ticker Class

**Low-Level Display: Canvas:** The Canvas, User Interactions, Graphics, Clipping Regions, Animation

**UNIT VI**

*The students will be able to configure blue tooth after the end of this unit*

**Record Management System:** Record Storage, Writing and Reading Records, Record Enumeration, Sorting Records, Searching Records, Record Listener.

**Generic Connection Framework:** The Connection, Hypertext Transfer Protocol, Communication Management Using HTTP Commands, Session Management, Transmit as a Background Process

**Text Books:**

- 1). **Jochen Schiller**, “Mobile Communications”, *Addison-Wesley*. (Chapters 4, 7, 9, 10, 11), second edition, 2004.
- 2) **Stojmenovic and Cacute**, “Handbook of Wireless Networks and Mobile Computing”, *Wiley*, 2002, ISBN 0471419028. (Chapters 11, 15, 17, 26 and 27)
- 3) J2ME: The Complete Reference, James Keogh, Tata McGrawHill.

**Reference Books:**

- 1) Reza Behravanfar, “Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML”, ISBN: 0521817331, Cambridge University Press, October 2004.
- 2) Enterprise J2ME: Developing Mobile Java Applications – Michael Juntao Yuan, Pearson Education, 2004
- 3) Beginning Java ME Platform, Ray Rischpater, Apress, 2009

**IV SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>k</b>
x	x	x		x	x					X

**(124CA13) Object Oriented Analysis & Design****UNIT-I**

*On the completion of the unit student should be able to :*

*· know the importance, principles of modeling, object oriented modeling, Conceptual model of UML, Architecture, SDLC, common modeling techniques in Classes, Relationships, and diagrams.*

**Introduction to UML:** Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

**Basic Structural Modeling:** Classes, Relationships and diagrams.

**UNIT-II**

*On the completion of the unit a student would be able to write programs using classes*

**Advanced Structural Modeling:** Advanced classes, advanced relationships, Interfaces, Packages, Class diagrams and Object diagrams

**UNIT-III**

*On the completion of the unit a student should be able to model basic behaviour:*

**Basic Behavioral Modeling-I:** Interactions, Interaction diagrams, Use cases, Use case diagrams, Activity Diagrams

**UNIT-IV**

*The objective of this unit is to make the student aware of advanced behavioral model.*

**Advanced Behavioral Modeling:** Events and Signals, State machines, State chart diagrams.

**Architectural Modeling:** Component, Deployment, Component diagrams and Deployment diagrams.

**UNIT-V**

*The student should be able to understand the artifacts and workflows of unified software development process.*

**Unified Software Development Process :** Artifacts, workers, workflows.

**The Core Workflows :** Requirements capture : From Vision to Requirements, Capturing Requirements as Use cases, Analysis.

## **UNIT-VI**

*This unit teaches the student about the workflows of design*

**The Core Workflows:** Design, Implementation, Test.

### **TEXT BOOKS:**

1. Grady Booch, James Rumbaugh, Ivar Jacobson : The Unified Modeling Language User Guide, Pearson Education.
2. The Unified software development process by Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.

### **REFERENCE BOOKS:**

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY-Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.
4. Mark Priestley: Practical Object-Oriented Design with UML, TATA McGrawHill
5. Applying UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.

**IV SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		X		X					X	X

**(124CA14) UNIX NETWORK PROGRAMMING****UNIT-I**

*Students learn several commands to manipulate files*

**Unix Utilities**-Introduction to Unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, ln, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w, finger, arp, ftp, telnet, rlogin, text processing utilities and backup utilities, detailed commands to be covered are cat, tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, tar, cpio.

**UNIT-II**

*The students learn should programming as a programming language*

**Problem solving approaches in Unix:** Using single commands, using compound Commands, shell scripts, C programs, building own command library of programs.

**Working with the Bourne shell:** what is a shell, shell responsibilities, pipes and input Redirection, output redirection, here documents, the shell as a programming language, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

**UNIT-III**

*Techniques for file handling and directory handlings are elaborated*

**Unix Files:** Unix file structure, directories, files and devices, System calls, library functions, low level file access, usage of open, creat, read, write, close, lseek, stat, fstat, octl, umask, dup, dup2. The standard I/O (fopen, fclose, fflush, fseek, fgetc, getc, getchar, fputc, putc, putchar, fgets, gets), formatted I/O, stream errors, streams and file descriptors, file and directory maintenance (chmod, chown, unlink, link, symlink, mkdir, rmdir, chdir, getcwd), Directory handling system calls (opendir, readdir, closedir, rewinddir, seekdir, telldir)

**UNIT-IV**

*Process tables and process control structures are explained*

**Unix Process and Signals:** What is process, process structure, starting new process, waiting for a process, zombie process, process control, process identifiers, **system call interface for process management**-fork, vfork, exit, wait, waitpid, exec, system, **Signals**- Signal functions, unreliable signals, interrupted system calls, kill and raise functions, alarm, pause functions, abort, sleep functions.

**UNIT-V**

*The three methods of message communications are elaborated*

**Interprocess Communication Overview:** Introduction to IPC, IPC between processes on a single computer system, IPC between processes on different systems, file and record locking, other unix locking techniques, pipes, FIFOs, streams and messages, namespaces, introduction to three types of IPC(system-V)-message queues, semaphores and shared memory.

**Message Queues-**Unix system-V messages, unix kernel support for messages, unix APIs for messages, client/server example.

**UNIT-VI**

*By the end of this unit, the students would be able to use socket system calls for communication*

**Semaphores-**Unix system-V semaphores, unix kernel support for semaphores, unix APIs for semaphores, file locking with semaphores.

**Shared Memory-**Unix system-V shared memory, unix kernel support for shared memory, unix APIs for shared memory, semaphore and shared memory example.

**Sockets:** Berkeley sockets, socket system calls for connection oriented protocol and connectionless protocol, example-client/server program.

**TEXT BOOKS:**

1. Unix Network Programming, W.R.Stevens Pearson/PHI.
2. Unix Concepts and Applications, 3rd Edition, Sumitabha Das, TMH.
3. Advanced Unix Programming, 2nd Edition, M.J.Rochkind, Pearson Education.

**REFERENCE BOOKS:**

1. Unix system programming using C++, T.Chan, PHI.
2. Unix for programmers and users, 3rd Edition, Graham Glass, King Ables, Pearson Education.
3. Unix System-V Network Programming, Stephen A.Rago, Pearson Education.
4. Unix programming environment, Kernighan and Pike, PHI. / Pearson Education

**IV SEMESTER****OPEN ELECTIVE-I**

A	B	C	D	E	F	G	H	I	J	K
			X	X						X

**(124MB56) BANKING OPERATIONS, INSURANCE AND RISK  
MANAGEMENT**

**(Same as 121MB56 and 122MB56)**

**UNIT – I: INTRODUCTION TO BANKING BUSINESS:**

*Functioning of banking sector and its application to public*

Banking Sectors- Retail, Corporate, Rural, and International; Non-banking financial intermediaries; Types of advances and deposits in a bank, New Dimensions and Products. - Credit, Debit and Smart Cards, and e-Banking Structure of the Indian Banking System's. Commercial Banks – Public and Private Sector and Foreign Banks. Cooperative Banks.

**UNIT – II: BANKING REFORMS AND REGULATION:**

*Student understands the financing functioning of Banks*

Banking Regulation Act, 1949, Reserve Bank of India Act 1934, and Reserve Bank's Instruments of Credit Control. Deficiencies in Indian Banking including Problems Accounts and Non-Performing Assets, Banking Sector Reforms.

**UNIT – III: INSURANCE:**

*It covers the risk management involved in human life as well as general*

Need for and importance of insurance, branches of insurance (life and general insurance) policy and procedure.

**UNIT – IV: INSURANCE BUSINESS ENVIRONMENT:**

*Student gets idea about the government interference*

Mathematical basis of life insurance, reinsurance coverage, regulatory and legal framework governing the insurance, business and economics of insurance, need for changing mindset; Latest trends.

**Unit -V: INTRODUCTION TO RISK –**

*It deals with risk management process and how to overcome the risk*

Types of Risks facing Business and Individuals, Risk Management Process, Risk Management Methods, Risk Identification and Measurement, Risk Management Techniques: Non Insurance Methods.



## **Unit -VI: INSURANCE AS A RISK MANAGEMENT**

*It covers various aspects of problems faced by merchants.*

Techniques Principles: Principle of Indemnity, Principle of Insurable Interest, Principle of Subrogation, Principle of utmost good Faith, Requisites of Insurable Risks, Requirements of an Insurance Contract, Distinguishes Characteristics of Insurance Contracts, Role of Agents and Brokers.

### **TEXT BOOKS**

1. Varshney, P.N., Banking Law and Practice, Sultan Chand & Sons, New Delhi.
2. General principles of Insurance - Harding and Evanly
3. Mark S.Dorfman: Risk Management and Insurance, Pearson, 2009.

### **REFERENCES:**

- Scott E. Harringam Gregory R. Nichaus: Risk Management & Insurance, TMH, 2009.
- George E. Rejda: Principles of risk Management & Insurance, , 9/e, Pearson Education, 2009.
- G.Koteshwar: Risk Management Insurance and Derivatives, Himalaya, 2008
- Gulati: Principles of Insurance Management, Excel, 2009
- James S Trieschmann, Robert E. Hoyt & David N. Sommer: Risk Management & Insurance, Cengage, 2009.
- Dorfman: Introduction to Risk Management and Insurance, 8/e, Pearson, 2009.
- P.K.Gupta: Insurance and Risk Management, Himalaya ,2009.
- Vivek & P.N. Asthana: Financial Risk Management, Himalaya,2009

**IV SEMESTER****OPEN ELECTIVE-I**

A	B	C	D	E	F	G	H	I	J	K
X	X									

**(124MA02) OPERATIONS RESEARCH****UNIT –I**

*At the end of Unit-I, the student is expected to learn how to optimize the performance(profit or loss) under a set of resource constraints(machine-hours, man-hours, money, materials, etc.) as specified by an organization.*

Introduction to operations research; Basics definition, scope, objectives, phases, models and limitations of Operations Research. Linear programming problem. Formulation of LPP, Graphical solution of Lpp. Simplex method. Artificial variables, big- method, two-phases method, degeneracy and unbound solutions.

**UNIT – II**

*In Unit-II, the student will able to know how to minimize the cost of transportation from a set of sources to a set of destinations subject to the supply and demand of sources and destinations.*

Transportation Problem. Formulation , solution, unbalanced Transportation problem. Finding basic feasible solutions- northwest corner rule, least cost method and Vogel's approximation method. Optimality test, the stepping stone method and MODI method. Assignment model. Formulation. Hungarian method optimal solution. Solving unbalanced problem. Traveling salesman problem as assignment problem.

**UNIT-III**

*In this topic, the student is expected to learn how to find the sequence of jobs that will result in least idle time for the better utilization of equipment.*

Sequencing models. Solution of sequencing problem-processing n jobs through 2 machines-processing n jobs through 3 machines- Processing 2 jobs through m machines- Processing n jobs through m machines.

Replacement models. Replacement of items that Deteriorate whose maintenance costs increase with time without change in the money value. Replacement of items that fail suddenly, individual replacement policy, group replacement policy.

**UNIT IV**

*At the end the of Unit –IV, the student will be able to Optimize a large problem by splitting it into smaller sub-problems each of which involve in a few variables using the technique of dynamic Programming.*

Dynamic Programming. Characteristics of dynamic programming. Dynamic programming approach for Priority Management employment smoothening, capital budgeting, stage coach/shortest path, cargo loading and reliability problems.

**UNIT-V**

*Game Theory makes the student to learn how an executive have to make his decision against his competitor in choosing his alternatives among the predicted outcomes so as to maximize the profits or minimize the loss in an uncertain situation.*

Games theory – Competitive games, rectangular game, saddle point- Minimax (maximin) method of optimal strategies, value of the game, solution of games with saddle points, dominance principle. Rectangular games without saddle point- mixed strategy for 2 X 2 games.

**UNIT-VI**

*In Inventory management the student is expected to learn how to minimize the overall investment or inventor carrying at lowest possible level and consistency in operating requirements.*

Inventory models, Inventory costs. Models with deterministic demand- model (a) demand rate uniform and production rate infinite, model (b) demand rate non-uniform and production rate infinite, model (c) demand rate uniform and production rate finite.

**TEXT BOOKS:**

1. “Operations research”, Pearson Education, 2005, A.M.Natarajan, P.Balasubramani, A. Tamilarasi.
2. “Operations research”, Tata McGraw-Hill, 2008, P.Sankara Iyer.

**REFERENCE BOOKS:**

1. “Operations research”, R.Panneerselvam, PHI-2e, 2006,rp2008.
2. “Operations research”, N.V.S.Raju, HI-TECH, 2002

**IV SEMESTER****OPEN ELECTIVE-I**

A	B	C	D	E	F	G	H	I	J	K
				x						

**(124BT37) CULTURE, VALUES, PROFESSIONAL ETHICS AND  
INTELLECTUAL PROPERTY RIGHTS  
(Same as 121BT37 and 122BT37)**

**UNIT-1 INDIAN CULTURE:**

*By the end of the unit the student will able to:*

1. Know the importance of Indian culture.
2. Present its relevance in present age.

A Introduction to Culture Values and Ethics, Bharata, The Indian Concept of Human Life, Indian Civilization, Sanskrit and Indian Languages, Festivals, Sculpture, Music, Dance, Drama, Ayurveda, Family and its Importance, Indian Marriage System, Status of Women in Indian Society, Education, Purpose, Ancient System, Value Education, Interfaith Understanding, Happiness, Modernism and its Effect on Lifestyle, Mind and its Operation, Control of Mind, Yoga, Exemplary Life Sketches-Albert Einstein, Abraham Lincoln

**UNIT-II VALUE SYSTEM:**

*By the end of the unit the student will able to:*

1. Analyze the life sketches of great personalities.
2. List out values and essence of morals based on their life sketches.

Human Value System, Truthfulness, Righteousness, Peace, Non-Violence, Love, Kindness and Compassion, Humility, Faith, Courage, Optimism, Forgiveness, Ceiling on Desires (Control of Sense organs), Exemplary Life Sketches-M K Gandhi, Abdul Kalam

**UNIT-III ETHICS:**

*By the end of the unit the student will able to:*

1. Identify the core areas of ethics.
2. Apply ethics in their professional and student life.

Ethics in Ancient India, Ethics, Morals, Ethics and Human Life, Core Areas for Ethics, Values, Morality, Integrity, Honesty, Character, Loyalty, Trustworthiness, Courage and Confidence, Confidentiality, Secrecy and Transparency, Justification, Contracts and Spirit Promises and Schedules, Quarrels, Selfishness, Obstacles, Supporting Measures, Reputation and its sale, Decision Making in Ethics, Exemplary Life Sketches-Vishveshwaraiah, Jagadeesh Chandra Bose, Meghanad Saha

**UNIT- IV PROFESSIONAL ETHICS:**

*By the end of the unit the student will able to:*

1. Differentiate between organization and profession.
2. List out professional ethics
3. Work towards techniques of implementing professional ethics in future.

Occupation, Profession, Professional, Professional Organization, Obligations Of a Professional, Temptations, Aptitude, Importance of Professional Ethics for Engineers, Code of Ethics, Need for a Code, Impact of Ethical Behaviour, The Code of Ethics for Engineers, Fundamental Principles and Cannons, Commerce and Ethics, Marketing Ethics, Finance and Ethics, Science, Religion and Ethics, Medical Ethics, Genetics and Ethics, Politics and Ethics, Genders and Ethics, Media and Ethics, Computer Ethics  
Exemplary Life Sketches- Narayan Murthy, Homi Jahangir Bhabha

### **UNIT –V INTELLECTUAL PROPERTY RIGHTS (IPR):**

*Awareness of different types of IPs their significance-simplication*

Invention and Creativity, Basic Types of Property, Need for Protection of IPR, IP Types Industrial Property (Patents, Trade Marks, Trade Secrets, Industrial Designs and Integrated Circuits), Copyrights and Related Rights, Geographical Indications.

### **UNIT-VI**

*Present stage of IP laws in comparison to past & future changes at global level*

WIPO Mission and Activities, GATT & Trips, Indian Position on WTO and strategies, Indian IPR legislations-commitments to WTO-Patent Ordinance and the Bill, Draft of a National Intellectual Property Policy, Case Studies on IP

### **REFERENCES:**

1. The ABCs of Ethics by Michael. L. Buckner, Universe. Inc, New York Lincoln, Shanghai
2. Science, Faith and Ethics by Denis Alexander and Robert.S.White, Hendrickson Publishers, Massachusetts, USA, March 2006
3. Vedic Science Primer by PSR Murthy, BS Publications, Hyderabad
4. Medical Ethics-Global View Points, Edited by Diane Andrews, Hennig Feld, Green Haven Press
5. Divine Stories, Human Value Stories, Volume I and II, Sri Satya Sai Books and Publications

**IV SEMESTER****PROFESSIONAL ELECTIVE-1**

A	B	C	D	E	F	G	H	I	J	k
	x		x	x						x

**(124CA15) MACHINE LEARNING****UNIT – I**

*To understand the basic functions in the learning environment*

Introduction- Learning Input-Output Functions- Learning Requires Bias, Boolean Functions-Representation-Classes of Boolean Functions- CNF Functions.

**UNIT-II**

*To impart the introductory knowledge on different learning techniques in Neural Networks*

Neural Networks- Threshold Logic Units- Linear Machines- Networks of TLUs- Variations on Backprop, Statistical Learning- using Statistical Decision Theory- Learning Belief Networks.

**UNIT-III**

*To focus on in-depth understanding and addressing the problems related to decision trees*

Decision Trees-Definitions-Supervised learning of Univariate Decision Trees- Networks Equivalent to Decision Trees – Overfitting and Evaluation- The problem of Replicated Subtrees- The problem of Missing Attributes- Comparisons.

**UNIT-IV**

*To give a better stance on Logic programming and Computational learning*

Inductive Logic programming- Notation and definitions- A Generic ILP Algorithm- Inducing Recursive Programs-Choosing Literals to Add- Relationships Between ILP and Decision Tree Induction.

Computational learning Theory- Notation and Assumptions for PAC Learning Theory- PAC Learning- The Vapnik-Chervonenkis Dimension- VC Dimension and PAC Learning.

**UNIT-V**

*To comprehend and experiment the Unsupervised learning techniques*

Unsupervised learning- Clustering Methods- Hierarchical Clustering methods, temporal-difference Learning- Temporal Patterns and prediction Problems- Supervised and Temporal- Difference Methods- Incremental Computation of the  $(\nabla W)_i$ - An Experiment with TD methods.

**UNIT-VI**

*To learn more advanced learning techniques of Machine Learning*

Delayed-Reinforcement learning- The General problem- Temporal Discounting and optimal policies-

Q-Learning- Discussion, Limitations and Extensions of Q-Learning, Explanation-Based learning-deductive learning- Domain Theories- Evaluable Predicates.

**Text book:**

1." Introduction To Machine Learning",Nils J\_ Nilsson, Robotics Laboratory

**Reference book:**

1."Machine Learning and Data mining: Introduction to principles and algorithms, Igor Kononenko, Matjaz kumar

**IV SEMESTER****PROFESSIONAL ELECTIVE-1****(124CA16) COMPILER DESIGN****UNIT-I**

*The students would be able to analyse computer languages syntactically*

INTRODUCTION :Compilers-Grammars-Languages-Phases of compiler-compiler writing tools-Errors-Lexical phase errors, syntactic phase errors, semantic phase errors

**UNIT-II**

*The objective of this unit to make the students usage finite automata to write lexical analyser*

LEXICAL ANALYZER :Role of lexical analyzer-input Buffering –Specification and Recognition of tokens –Language for specifying

**UNIT –III**

*The lexical analysis phase of compiler is discussed*

Lexical analyzer-Finite Automata-Regular expression to NFA-Optimization of DFA based pattern matches –Design of a Lexical Analyzer Generator

**UNIT-IV**

*The student should be able to parse bothe better-up and to-down*

SYNTAX ANALYZER :Parsers-CFG-derivations and parse trees-capabilities of CFG-Top down parsing-Bottom Up parsing – LR parsing- SLR parsing -LALR parsing – CLR parsing – Operator Precedence – Predictive Parsing.

**UNIT-V**

*Intermediate code generation before the final complication is discussed at*

INTERMEDIATE CODE GENERATION : Syntax Directed Translation scheme-Implementation of Syntax Directed Translators-Intermediate code postfix notation, parse trees and syntax trees-Trees three address code –Quadruples, Triples –Translation of Assignment statements –Boolean expressions-Declaration –Flow control statements – Back patching.

**UNIT-VI**

*Optimization of intermediate code is discussed*

CODE OPTIMIZATION : Principal source of optimization-Issues in the design of a code generator-Run-Time storage management – Basic blocks and flow graphs Next use information-Simple code generator –DAG representation of basic blocks-Peepphole optimization – Code Generation



**TEXT BOOKS:**

1. A.V.Aho, Ravi Sethi, J. D. Ullman, Compilers –principles ,Techniques and tools, Addison Wesley publishing company, 1988.
2. Allen I. Holub, compiler Design in C, Prentice Hall of India, 1993.

**REFERENCES:**

1. Kenneth C. Loudon, Compiler Construction: Principles & Practice, Thomson Learning 2003
2. Muchnick, Advanced Compiler Design: Implementation, Academic Press.
3. Rajini Jindal , Compilers Construction & Design , Umesh Publications , Delhi. 2002  
Ronald Mak , Writing Compilers and Interpreters, 2nd Edition , John Miler & Sons , 1996 .

**IV SEMESTER****PROFESSIONAL ELECTIVE-1**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x							x		

**(124CA17) COMPUTER GRAPHICS****UNIT-I:**

*The objective of this chapter is to give an overview on Graphic Systems and how raster and random scanning is done*

Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices

**UNIT-II:**

*The objective of this chapter is to describe the Output Primitives like Lines , circles and filling patterns thru algorithms.*

**Output primitives:** Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms.

**UNIT-III:**

*The objective of this chapter is to describe 2-dimensional geometrical transformations*

**2-D geometrical transforms:** Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

**UNIT-IV:**

*The objective of this chapter is to describe 2-dimensional viewing Transformations and clipping Algorithms.*

**2-D viewing:** The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

**UNIT-V:**

*The objective of this chapter is to describe 3-dimensional geometric transformation and 3-dimensional object representations like curves and surfaces.*

**3-D Geometric transformations:** Translation, rotation, scaling, reflection and shear transformations, composite transformations. 3-D viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping.

**3-D object representation:** Polygon surfaces, quadric surfaces, Spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon rendering methods.

#### **UNIT-VI:**

*The objective of this chapter is to detect visible surface detection methods and computer Animations.*

**Visible surface detection methods:** Classification, back-face detection, depth-buffer, Scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods.

**Computer animation:** Design of animation sequence, general computer animation Functions, raster animation, computer animation languages, key frame systems, motion Specifications.

#### **TEXT BOOKS:**

1. “Computer Graphics *C version*”, Donald Hearn and M.Pauline Baker, Pearson Education
2. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.

#### **REFERENCE BOOKS:**

1. “Computer Graphics”, second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
2. “Computer Graphics Second edition”, Zhigand xiang, Roy Plastock, Schaum’s outlines, Tata Mc-Graw hill edition.
3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2<sup>nd</sup> edition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
5. Principles of Computer Graphics, Shalini Govil, Pai, 2005, Springer.
6. Computer Graphics, Steven Harrington, TMH

**IV SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
			x				x		x	X

**(124MA71) QUANTITATIVE APTITUDE**  
**(Same as 121MA71)**

**Unit I**

*Student will learn the techniques to solve all the problems in his real life and student can improve his mental capacity.*

Number System : Test for Divisibility , Test of prime number , Division and Remainder – HCF and LCM of Numbers - Fractions .

**Unit II**

*The quicker methods are useful to solve the problems within the time and if it is helpful in his duties.*

Average: Average of different groups , Replacement of some of the items - Percentage - Profit and Loss.

**Unit III**

*It helps in sharpening the mind*

Ratio and Proportion: Properties of Ratio , Comparison of Ratios , Useful Simple Results on Proportion – Partnership and Share – Mixtures.

**Unit IV**

*It helps in solving the practical life problems*

Simple Interest: Effect of change of P, R and T on Simple Interest - Compound Interest : Conversion Period , Difference between Compound Interest and Simple Interest – Time and Work – Time and Distance .

**Unit V**

*It can improve the numerical ability and accuracy in mathematical calculations*

Measurement : Area of Plane Figures , Volume and Surface Area of Solid Figures .

**Unit VI**

*Student can use QA in everyday life to figure out mathematically*

Data Interpretation : Tabulation , Bar Graphs , Pie Charts , Line Graphs.

**Reference Books :**

1. Quantitative Aptitude by R.S. Agarwal
2. Quantitative Aptitude by Abhijit Guha

**IV SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
			X				X		X	X

**(124CA79)MOBILE APPLICATION DEVELOPMENT LAB****Objective:**

In this lab, a student is expected to design, implement, document and present a mobile client/server system using standard Java and Java 2 Micro Edition (J2ME) platform. Specifically it is required to design and implement a system that consists mainly of a mobile client (MC) and a Proxy Server (PS). MC will be written in J2ME, MIDP 2.0, while PS will be written in standard Java. It is necessary to use a mobile phone emulator to develop and demonstrate the experiments.

It may be necessary to use other components or existing resources (servers) as needed. For instance a database local to PS or a web service available on the Internet that can be invoked by the PS.

**Week - 1: Installation of Java Wireless Toolkit (J2ME)**

- 1) If the Java Development Kit (JDK) is not there or only having the Java Runtime Environment (JRE) installed, install the latest JDK from <http://java.sun.com/javase/downloads/index.jsp>. Current stable release of Java is JDK 6 Update 7 but check the web page in case there are newer non-beta releases available.
- 2) Next, download the **Java Wireless Toolkit** (formerly called J2ME Wireless Toolkit) from: <http://java.sun.com/products/sjwtoolkit/download.html>.
- 3) Run the installer (for example, for Windows it is: sun\_java\_wireless\_toolkit- 2\_5\_2-windows.exe). The installer checks whether a compatible Java environment has been pre-installed. If not, it is necessary to uninstall old versions of Java and perform Step 1 again.

Once after successful installation of Java and the tool kit compile this program and run the following program in the toolkit.

**Steps to run this program in toolkit:**

1. Start -> All Programs -> Sun Java Tool Kit -> Wireless Tool Kit
2. Click New Project – Enter Project Name -> Enter Class Name -> Click on Create Project.
3. Choose appropriate API Selection and Configurations.
4. Place Java Source file in WTK2.1 / WTK2.2\apps\projectname\src
5. Build the Project.
6. Run the Project.

```
import javax.microedition.lcdui.*; import javax.microedition.midlet.*;
```

```
public class HelloWorld extends MIDlet{ private Form form; private Display display;
public HelloWorld(){ super(); } public void startApp(){ form = new Form("Hello
World"); String msg = "Hello World!!!!!!"; form.append(msg); display =
Display.getDisplay(this); display.setCurrent(form); } public void pauseApp(){ } public
void destroyApp(boolean unconditional){ notifyDestroyed(); } }
```

### ***Week - 2 Working with J2ME Features:***

Working with J2ME Features: Say, creating a Hello World program Experiment with the most basic features and mobile application interaction concepts (lists, text boxes, buttons, radio boxes, soft buttons, graphics, etc)

2.1 Create a program which creates to following kind of menu.

- \* cut
- \* copy
- \* past
- \* delete
- \* select all
- \* unselect all

2.2 Event Handling.

Create a menu which has the following options:

- \* cut - can be on/off
- \* copy - can be on/off
- \* paste - can be on/off
- \* delete - can be on/off
- \* select all - put all 4 options on
- \* unselect all - put all 4 options off

2.3. Input checking

Create an MIDP application which examine, that a phone number, which a user has entered is in the given format.

- \* Area code should be one of the following: 040, 041, 050, 0400, 044
- \* There should 6-8 numbers in telephone number (+ area code)

### ***Week - 3 Threads & High Level UI:***

3.1. Create a slide show which has three slides, which includes only text. Program should change to the new slide after 5 seconds. After the third slide program returns to the first slide.

3.2 High-level UI

Create a MIDP application, which show to the user 5-10 quiz questions. All questions have 4 possible options and one right option exactly. Application counts and shows to the user how many right answers were right and shows them to user.

3.3 Create a MIDP application, where the user can enter player name and points. The program saves the information to the record using RMS at MIDP device. Program should

also print out the top 10 player list to the end user. You can use this class in your game if you made own class for saving and reading record sets.

### ***Week - 4 Working on Drawing and Images***

4.1 Create a slide show which has three slides, which includes pictures at PNG format. Program should change to the new slide other 5 seconds.

4.2 Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array.

4.3 Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array. You can enter four data (integer) values to the input text field.

### ***Week - 5 Developing Networked Applications using the Wireless Toolkit***

Creating a Simple Client-Server Application

Create, compile and run a basic UDP-based client-server application.

Creating the Datagram Server project

- 1) Click on Wireless Toolkit 2.5.2 under the group: All Programs→Sun Java (TM) Wireless Toolkit 2.5.2.
- 2) Click on 'New Project...' button.
- 3) Enter project name as 'DatagramServer'. Enter MIDlet name as 'DatagramServer'. Note that the Midlet name is the same as the name of the class in the source code, which extends the MIDlet class, otherwise the application won't run.
- 4) Another window pops up where it is required to select a target platform. Select 'MIDP 1.0' from the drop down list.
- 5) After clicking OK, the project is created; and the Wireless Toolkit tells that the name of the folder where source code files are created. The path of the source code folder is displayed in the debug output window.

Creating and Compiling the DatagramServer source files

The Wireless Toolkit does not come with an IDE by default so Use any IDE or a text editor like Notepad.

- 1) Create a new text file called DatagramServer.java in the source folder of the project. The exact path of this folder is displayed in the Wireless Toolkit window.
- 2) Paste contents DatagramServer.java from into the source file.

Running your Server application on the Phone simulator

- 1) After compiling the project successfully, click on the Run button in the Wireless Toolkit window.
- 2) A graphical window depicting a phone handset will appear with the name of your application highlighted on its screen as shown below.

- 3) To start the application, click on the right soft-key (marked with a dot) below the 'Launch' command.
- 4) The phone simulator might ask if it is OK to run the network application. Select 'Yes' by clicking on the appropriate soft-key. The server is now up and running.
- 5) Keep the server running during the creation, compilation and running of the Datagram Client application.

### **Creating the Datagram Client project**

- 1) Use the same instance of the Wireless Toolkit that is used for creating and compiling the Datagram Server project.
- 2) Click on 'New Project...' button.
- 3) A new window pops up. Enter project name as 'DatagramClient'. Enter MIDlet name as 'DatagramClient'. Note that the Midlet name is the same as the name of the class in the source code, which extends the MIDlet class.
- 4) Another window pops up where one has to select a target platform. Select 'MIDP 1.0' from the drop down list.
- 5) After clicking OK, the project is created and the Wireless Toolkit tells where to place the source code files. The path of the source code folder is displayed in the debug output window as explained before.

### **Creating and Compiling the DatagramClient source files**

- 1) Create a new text file called DatagramClient.java in the source folder of the project.
- 2) Paste contents DatagramClient.java into the source file.
- 3) Then click on the Build button in the Wireless Toolkit window. If the compilation is OK, it will say Build Complete in the window's debug output window, otherwise it will show the errors. Note: In the source code, use the System.out.println() statement to output debug information to this window.

### **Running your Client application on the Phone simulator**

- 1) After compiling the project successfully, click on the Run button in the Wireless Toolkit window.
- 2) A graphical window depicting a phone handset will appear with the name of the application highlighted on its screen.
- 3) To start the application, click on the right soft-key (marked with a dot) below the 'Launch' command.
- 4) The phone simulator might ask if it is OK to run the network application. Select 'Yes' by clicking on the appropriate soft-key. The client is now up and running.
- 5) When the client executes on the phone simulator, one should see a text box with the caption 'Message'. Enter any message and press the right soft-key (corresponding to Send). If the client-server application is working properly, the screen of the server phone will display the message sent by the client and the client screen will now



display a message sent by the server in response. The response message from the server is the original client message in reverse.

- 6) Try various features of the phone simulator including the different look-and feel options.

### ***Week - 6 Authentication with a Web Server***

6.1 Write a sample program to show how to make a SOCKET Connection from j2me phone.

This J2ME sample program shows how to how to make a SOCKET Connection from a J2ME Phone. Many a times there is a need to connect backend HTTP server from the J2ME application. shows how to make a SOCKET connection from the phone to port 80.

6.2 Login to HTTP Server from a J2ME Program

This J2ME sample program shows how to display a simple LOGIN SCREEN on the J2ME phone and how to authenticate to a HTTP server.

Many J2ME applications for security reasons require the authentication of the user. This free J2ME sample program, shows how a J2ME application can do authentication to the backend server.

Note: Use Apache Tomcat Server as Web Server and Mysql as Database Server.

### ***Week - 7 & 8 Web Application using J2ME***

The following should be carried out with respect to the given set of application domains: (Assume that the Server is connected to the well-maintained database of the given domain. Mobile Client is to be connected to the Server and fetch the required data value/information)

- Students Marks Enquiry
- Town/City Movie Enquiry
- Railway/Road/Air (For example PNR) Enquiry/Status
- Sports (say, Cricket) Update
- Town/City Weather Update
- Public Exams (say Intermediate or SSC)/ Entrance (Say EAMCET) Results Enquiry

Divide Student into Batches and suggest them to design database according to their domains and render information according the requests.

**IV SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	x		x	x					x

**(124CA80) UML LAB**

The student should take up the following case studies and model them in different views i.e., Use case view, logical view, component view, Deployment view and perform Forward and Reverse Engineering.

1. Unified Library application.
2. Course Registration system.
3. ATM.
4. Online Banking system.

## IV SEMESTER

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
		x		x					x	X

### **(124CA81) UNIX NETWORK PROGRAMMING LAB**

1. Write a shell script to generate a multiplication table.
2. Write a shell script that copies multiple files to a directory.
3. Write a shell script that counts the number of lines and words present in a given file.
4. Write a shell script that displays the list of all files in the given directory.
5. Write a shell script (small calculator) that adds, subtracts, multiplies and divides the given two integers. There are two division options: one returns the quotient and the other returns remainder. The script requires 3 arguments: The operation to be used and two integer numbers. The options are add (-a), subtract (-s), multiply (-m), quotient (-c) and remainder (-r).
6. Write a shell script to reverse the rows and columns of a matrix.
7. Write a C program that counts the number of blanks in a text file.  
Using standard I/O  
Using system calls.
8. Implement in C the following Unix commands using system calls.
  - a) cat
  - b) ls
  - c) mv
9. Write a program that takes one or more file/directory names as command line input and reports the following information on the file:
  - a) File type.
  - b) Number of links.
  - c) Time of last access.
  - d) Read, Write and Execute permissions.
10. Write a C program that illustrates uses of the mkdir, opendir, readdir, closedir, and rmdir APIs.
11. Write a C program that illustrates how to execute two commands concurrently with a command pipe.
12. Write a C programs that illustrates the following:
  - a) Two-way communication with unidirectional pipes.

b) Two-way communication with bidirectional pipes

13. Write a C program that illustrates the creation of child process using fork system call.

14. Write a C program that displays the real time of a day every 60 seconds.

15. Write a C program that illustrates file-locking using semaphores.

16. Write a C program that implements a producer-consumer system with two processes. (Using semaphores)

17. Write a C program that illustrates inter process communication using shared memory system calls.

18. Write a C program that illustrates the following.

a) Creating a message queue.

a) Writing to a message queue.

b) Reading from a message queue.

19. Write a C program to develop simple client and server application using sockets (system calls).

#### **Text Books :**

1. **Advanced Unix Programming**, N.B.Venkateswarulu, BS Publications.

2. **Unix and Shell programming**, B.A.Forouzan and R.F.Gilberg, Thomson.

**IV SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
					x		x			

**(124CA82) SEMINAR (INDEPENDENT STUDY AND REVIEW PAPER)**

There shall be a Technical Seminar to be taken up by the students in IV Semester in the area of their chosen specialization. The Technical Seminar shall be evaluated on a continuous basis as follows for a maximum of 50 marks:

Evaluation by the Supervisor	10 Marks
Final Report	10 Marks
Presentation	30 Marks

**V SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	x								x

**(1204CA18) ARTIFICIAL INTELLIGENCE**

**UNIT-I**

*A student will be able to formulate problems which required intelligence*

Problem formulation, Problem Definition – Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics – Specialized production systems.

**UNIT-II**

*By the end of this unit, the student will be familiar with all design issues*

Problem solving methods – Problem graphs, Matching, Indexing and Heuristic functions– Measure of performance and analysis of search algorithms - Game playing.

**UNIT-III**

*The objective is to enable the student to properly represent knowledge*

Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic.

**UNIT-IV**

*The student should be able to plan the solution to the problem.*

Structured representation of knowledge - Basic plan generation systems – Strips – Advanced plan generation systems – K strips – D Comp. Expert systems – Architecture - Roles – Knowledge Acquisition – Meta knowledge, Heuristics - Knowledge representation – Production based system, Frame based system.

**UNIT-V**

*Chaining rules are discussed in this unit*

Inference – Backward chaining, Forward chaining, Rule value approach.

**UNIT-VI**

*Probabilities and fuzzy nature of statement are discussed*

Fuzzy reasoning –Certainty factors, Bayesian probability - Strategic explanations – Why, Why not and how explanations. Learning – Machine learning, adaptive learning - Typical expert systems.

**TEXT BOOKS:**

1. Elaine Rich, "Artificial Intelligence", 1985, McGraw Hill.

**Reference Books:**

1. Nilsson N.J., "Principles of Artificial Intelligence", 1992, Narosa

**SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
			x					x		

**(124CA19) MANAGEMENT INFORMATION SYSTEM**

**UNIT- I**

*The objective of unit is to know about MIS its role and meaning*

The meaning and role of MIS: What is MIS? Decision support systems, systems approach, the systems view of business, MIS organization within the company, Managers view of Information systems.

**UNIT –II**

*By the end of the unit we know about different theories in managements*

Management organizational theory and the systems approach Development of organizational theory, management and organizational behavior, management, information, and the systems approach , using Information systems for feedback.

**UNIT- III**

*The objective of the Unit is the key role of information systems to make a discussion.*

Information systems for decision making : Evolution of an information system, Basic information systems, decision making and MIS, MIS as a technique for making programmed decisions, decision assisting information systems. Communication systems basics. Strategic and project planning for MIS: General business planning, appropriate MIS response, MIS planning-general, MIS planning-details.

**UNIT-IV**

*By the end of the unit we get to know about conceptual system design concepts*

Conceptual system design: Define the problems, set system objectives, establish system constraints, determine information needs, determine information sources, develop alternative conceptual designs and select one, document the system concept, prepare the conceptual design report.

**UNIT-V**

*The objective of the Unit is to get the concepts of detailed system design*

Detailed system design: Inform and involve the organization, aim of detailed design, project management of MIS detailed design, identify dominant and trade off criteria, define the subsystems, sketch the detailed operating subsystems and information flows, determine the degree of automation of each operation, inform and involve the organization again, inputs, outputs, and processing, early system testing, software, hardware and tools, propose an organization to operate the system, document the detailed design, revisit the manager-user.



## **UNIT- VI**

*By the end of the Unit we know how to implement evaluate and maintain MIS*

Implementation, evaluation and maintenance of the MIS : Plan the implementation, acquire floor space and plan space layouts, organize for implementation, develop procedures for implementation, train the operating personnel, computer related acquisitions, develop forms for data collection and information dissemination, develop the files, test the system, cutover, document the system, evaluate the MIS, control and maintain the system

Pitfalls in MIS development: Fundamental weaknesses, soft spots, in planning, design problems, implementation : the TAR PIT. Applications of information systems to business. Security and ethical issues of information systems.

### **TEXT BOOK:**

1. "Information systems for modern management", 3rd Edition by R.G Murdick, J.E Ross and J. R clagget, PHI-1994.

### **REFERENCE BOOK:**

1. "Management information Systems", 4th edition by Robert Schultheis, Mary Sumner, PHI-1999.
2. Management Information Systems, 9/e, Laudon & Laudon, V.M.Prasad, Pearson, 2005.

**V SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
		X	X	X						

**(124CA20) .NET FRAMEWORK AND C#**

**UNIT - I**

*By the end of this Unit, the student will have an understanding of fundamental of VB Net*

**Fundamentals of Visual Basic**, Exception handling, windows forms, Control Classes, Different Types of Boxes, Labels, Buttons, Panels

**UNIT - II**

*The student would have an understanding of object oriented programming concepts in .Net by the end of this unit.*

**WINDOWS FORMS:** Different types of Bars, Menus, and Views.

**OBJECT - ORIENTED PROGRAMMING:** Classes and object constructors and destructors, inheritance, modifiers, Interfaces, Polymorphism, Late Binding.

**UNIT - III**

*The object is to give an idea about of web-forms and controls*

**WEB FORMS:** Working with webforms, Web forms and HTML, The Web control class, Web Forms and Boxes, Web Forms and Buttons, Validation Controls, Ad Rotators, Web Forms and HTML controls.

**UNIT - IV**

*The student will be learning about database concepts like ADD.NET*

**DATA ACCESS WITH ADO.NET :** Accessing data with the server explorer, Data adapters and Data sets, Binding Controls to databases, Handling databases in code, Database access in web Applications.

**UNIT - V**

*By the end of this Unit, the student will be able to create user controls, window- services and web services.*

Creating user Controls, Web user Controls, and Multithread creation  
Windows services, Web Services and Deploying applications.

**UNIT - VI**

*The object of this Unit is to give an understanding of fundamentals of C#*

**Introduction to C -Sharp (C#):** Inheritance and Polymorphism, Operator Overloading, Interfaces, Delegates and Events.

**TEXT BOOK :**

1. VB.NET PROGRAMMING (BLACK BOOK) BY STEVEN HOLZNER (Dreamtech- 2003)

**REFERENCE BOOKS:**

1. VB.NET PROGRAMMING BY T. GADDIS (Dreamtech)
2. Microsoft Visual Basic. Net step by step By Halvosrson (PHI)
3. OOP with Microsoft Visual Basic.Net By Reynold Hacrtte (PHI)

**TEXT BOOK :**

1. VB.NET PROGRAMMING (BLACK BOOK) BY STEVEN HOLZNER (Dreamtech- 2003)

**REFERENCE BOOKS:**

1. VB.NET PROGRAMMING BY T. GADDIS (Dreamtech)
2. Microsoft Visual Basic. Net step by step By Halvosrson (PHI)
3. OOP with Microsoft Visual Basic.Net By Reynold Hacrtte (PHI)

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
										X

**(124FL01) BASIC SPANISH**

**Aims and Objectives of the Course**

- i) To develop the following skills: Listening, speaking, reading & writing. Learners should be able to
  - (a) listen and comprehend elementary structures of the spoken language.
  - (b) participate in simple conversations in different situations of every day life.
  - (c) read and understand simple texts.
  - (d) write sentences and short paragraphs on general topics and situations.
- ii) To develop creative aspect in language learning i.e. the ability to work out different patterns and combinations with the help of basic grammatical structures and lexical items.
- iii) To introduce the learners to aspects of life and culture of Spanish and Latin American people.

**Course Contents**

Modules	Functional Aspects	Grammatical Aspects
Unit - I	Greetings, introductions, identifying others ; tools to ask meaning, pronunciation and spellings ; different nationalities and their languages; Hispanic names, family relations and professions; days of the week, months.	Basic structure of spelling and pronunciation; present indicative of the regular verbs ('ar'/er/ir,) and 'querer'; subject pronouns; interrogative sentences with 'Por qué ', and 'quién' ; causal phrase with 'porque' ; 'ser' and 'estar' ; negative sentences; adjectives of nationality.
Unit - II	Ordinal and cardinal numbers; quantities; to go shopping, identifying material, color, size etc; to go to a restaurant, food habits of Spanish and Latin American people.	Gender and number of nouns and adjectives; the verb 'tener'; interrogative sentences; demonstrative and qualitative adjectives.
Unit - III	To express opinions on something, contradict someone in a modest ways, suggest something, to value things aesthetically and intellectually;	Qualitative adjectives, forms and usage, gradations, superlative adjectives, exclamatory sentences; the verb 'gustar', forms and syntax; personal pronouns; definite and indefinite pronouns,

Unit – IV	expression of likes and dislikes; expression and reaction to certain things, (agreement or disagreement).	direct object pronouns; prepositions; verbs like ‘parecer’ and ‘encontrar’, their form and syntax, interrogative pronouns.
Unit – V	Expression of time; accepting and rejecting invitations; Spanish and Latin American time tables and	Present indicative of irregular verbs, expressions with ‘tener’ estar prepositional pronouns; interrogative sentences.
Unit - VI	Comparison of Latin American time table with Indian time tables; how to fix an appointment; climate, weather of the day.	

### **Techniques of Instruction**

Without prejudice to the specific language teaching approach adopted by the teacher, the following parameters are suggested for realising the above objectives and contents:

1. To avoid monotony in the classroom and to reduce the role of mechanical reproduction of the material learnt, stress should be laid on creativity in the classroom.
2. Use of modern technical aids, such as slide projectors, tape recorders, computers, CD-ROMs etc. should be encouraged.
3. Supplementary teaching material on cultural aspects, such as art, films etc. may be used in the classroom. An intercultural approach should be encouraged.
4. Methods/techniques should be employed, which would encourage the learners to do independent work by way of reading writing and self-correction.

### **Books recommended:**

1. ELE INICIAL 1
2. Planeta @ E/LE (1). Matilde Cerrolaza, Oscar Cerrolaza, Begoña Llovel.

### **Edelsa, Madrid 1999.**

Entre Nosotros A. Sánchez, M. Ríos, J.A. Metalla. SGEL, Madrid, 1897

**V SEMESTER**

**OPEN ELECTIVE-2**

A	B	C	D	E	F	G	H	I	J	K
										X

**(124FL02) BASIC FRENCH**

**UN PRINTEMPS A PARIS**

***UNIT - I***

VOCABULAIRE : Professions et nationalités, vie quotidienne et loisirs, descriptions physiques et psychologiques, nombres cardinaux.

***UNIT - II***

GRAMMAIRE : Articles définis et indéfinis, genre et nombre des noms et des adjectifs, interrogation et négation, conjugaison du présent.  
PHONÉTIQUE : Intonation, liaison, voyelles orales et nasales.

***UNIT - III***

COMMUNICATION : Faire connaissance, inviter et répondre a une invitation, décrire les personnes.  
CIVILISATION : Paris, monuments et lieux publics. La vie de quatre parisiens de professions différentes.

**AVENTURE EN BOURGOGNE**

***UNIT -IV***

VOCABULAIRE : Logement et nourriture, vêtements et couleurs, fêtes et faits divers, nombres ordinaux.  
GRAMMAIRE : Articles partitifs, adjectifs démonstratifs et possessifs, prépositions et adverbes de quantité et de lieu, pronoms toniques, l'impératif, verbes pronominaux.

***UNIT - V***

PHONÉTIQUE : Intonation, semi-voyelles, liaison, consonnes sonores et sourdes.  
COMMUNICATION : Exprimer l'ordre et l'obligation, demander et commander, évaluer et apprécier, féliciter et remercier.

***UNIT - VI***

CIVILISATION : Une région de France: la Bourgogne, vie quotidienne à la campagne.

LE NOUVEAU SANS FRONTIÈRES -I (Text Book and Exercise Book published by CLÉ INTERNATIONAL- Philippe Dominique et al.)

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
										x

**(124FL03) BASIC GERMAN**

- Phonetics, culture and civilization components are built into the lessons in the prescribed book. :
- Communicative skills and conversational practice in situational contexts are developed and practiced with the topics dealt with in the lessons.
- Practice will be given in translation of simple texts from German to English and vice versa. :

***UNIT - I***

- Conjugation of Verbs in present tense ~ Imperative sentences ~ Yes-No Questions
- Position of Verb in a sentence
- Indefinite article and the definite article
- Possessive pronouns
- Cardinal Numbers
- Telling the Time

***UNIT - II***

- Past tense of the Verbs *sein* and *haben*
- Accusative case using the definite, indefinite articles and personal pronouns
- Indirect questions
- Verbs with separable and inseparable prefixes .
- Modal verbs "
- Future tense

***UNIT - III***

- Subordinate clauses: Conditional sentences with *wenn*; Causal sentences with *weil* and *denn*
- Dative case using the definite, indefinite articles and personal pronouns
- Reflexive pronouns
- Word building

***UNIT - IV***

- Prepositions with the accusative case
- Prepositions with the dative case
- Present perfect tense
- Prepositions with the accusative or the dative cases

***UNIT - V***

- Predicates and attributive adjectives; declension of adjectives; degrees of comparison
- Past tense of more complicated verbs
- The subjunctive in German .

### ***UNIT – VI***

- Indirect questions with *Daß*; *daß*-sentences ""
- The passive voice
- Relative sentences and relative pronouns
- The infinitive construction with *zu*
- *Vocabulary*

### **Text Book:**

1. Braun, K., Nieder, L., Schmoie, F. Deutsch als Fremdsprache IA. Ernst Klett Verlag. Stuttgart.  
Lessons 11 to 20



<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
		x				x				

**(124MB51) INTERNATIONAL BUSINESS**  
**(Same as 121MB51)**

**UNIT I**

*It deals with the cross cultural trade*

Globalisation Concept – Drivers of Globalisation – Management Focus – Impact of WTO on Developing Country – Tariff & non tariff barriers – International Environment : Legal & Cultural.

**UNIT II**

*It covers the benefits of doing international business*

International Trade Theory Overview – Absolute Advantage – Comparative Advantage – Heckscher Ohlin Theory – The Product Life Cycle Theory – New Trade theory – National Comparative Advantage: Porter’s Diamond

**UNIT III**

*It covers the mechanism of trade between countries*

The strategy of Entering in International Business Strategy and Firm – Profiting from Global Expansion – Responsiveness – Strategic Choices – Methods of Entry: Exporting, Licensing, Joint Venture & Mergers & Acquisition.

**UNIT IV**

*It covers the various new research projects in IB*

Global Marketing and R & D – Introduction – Globalization of Markets and Brands – Market – Segmentation – Global marketing Mix – International Product Life Cycle.

**UNIT V**

*This chapter deals with various methods in managing money at international level*

Financial Management in the International Business - Investment Decision – Financing Decision – Global Money Management - Accounting in the International Business – Country Differences in Accounting Standards – National and International – Standards – Accounting Aspects of Control Systems.

## **UNIT VI**

*It deals with various policies adopted by the Govt to regulate international trade.*

Foreign Direct Investment – FDI in world economy – FDI in India – Horizontal & Vertical FDI – Implication for Business. EXIM Policy of India & Export Procedure & Documentation – Impact of Foreign – currency rate on Indian Export & Import Business.

### **References:**

1. Charles W.L. Hill, International Business, Tata McGraw Hill Co. Ltd., New Delhi, 2004.
2. Thakur, Burton & Srivastava, International management, Tata McGraw Hill Co. Ltd., New Delhi, 2002.
3. Sharan. V., International Financial Management, Prentice Hall of India, New Delhi.

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
		x				x				

**(124MB52) TECHNOLOGY MANAGEMENT**

**Unit – 1 THE PROCESS OF TECHNOLOGICAL INNOVATION:**

*The objective of this unit is to understand the importance and process of technological innovation and factors contributing to Successful Technological Innovation.*

The Need for a Conceptual Approach, Technological Innovation as a Conversion Process, Factors Contributing to Successful Technological Innovation.

**Unit – 2 STRATEGIES FOR RESEARCH AND DEVELOPMENT:**

*The objective of this unit is to study the strategies for Research and Development in the Decision making and understanding the New Product Development.*

R&D as a Business, Resource Allocation to R&D, R&D Strategy In the Decision Making Process, Selection and Implementation of R&D Strategy, R and D and Competitive Advantage, New Product Development.

**Unit – 3 CREATIVITY AND PROBLEM SOLVING:**

*The objective of this unit is to understand the creativity and problem solving Techniques*

The Creative Process, Creative Individuals, Main Characteristics, Techniques for Creative Problem Solving.

**Unit – 4 FINANCIAL EVALUATIONS OF RESEARCH AND DEVELOPMENT PROJECTS:**

*The objective of this unit is to understand financial evaluations of research and development projects*

The Need for Cost Effectiveness, R&D Financial Forecasts, Risk as a Factor In Financial Analysis, Project Selection Formulae, Allocation of Resources, DCF and Other Techniques of evaluating R&D ventures.

**Unit – 5 RESEARCH AND DEVELOPMENT:**

*The objective of this unit is to understand Resource Allocation and Management for Research and Development projects*

Programme Planning and Control, Portfolio Planning, Project Planning and Control, Project Termination, Resource Allocation and Management.

### **Unit – 6 NEW PRODUCT DEVELOPMENT:**

*The objective of this unit is to understand the process of New Product Development*

New Product Development as a Competitive Strategy, Market Research For Developing New Products, Commercialization of Research Outcomes, Industrial Design, Product Architecture and Design For Manufacture, Developing Indigenous Substitute For Raw Materials.

### **Unit -7 TECHNOLOGICAL FORECASTING FOR DECISION MAKING:**

*The objective of this unit is to understand Technological forecasting for Decision making*

The Definition of Technological Forecasting, Forecasting System Inputs and Outputs, Classification of Forecasting Techniques, Organization For Technological Forecasting, Current Status.

### **Unit – 8 TRANSFER OF TECHNOLOGY:**

*The objective of this unit is to understand the process for transfer of technology*

Modes of technology transfer, Price of technology transfer, Negotiation for price of MOT.

### **REFERENCES**

1. Tarek Khalil, Management of Technology—The Key to Competitiveness and Wealth Creation, McGraw Hill, Boston, 2006.
2. V.K.Narayanan, Managing Technology and Innovation for Competitive Advantage, Pearson Education, 2006.
3. Norma Harrison & Danny Samson, Technology Management—Text and International Cases, McGraw-Hill International, 2005.
4. IGNOU Course material on Technology Management.
5. P.N.Rastogi, Managing Creativity, Macmillan India Ltd, 2003.
6. William L Miller and Longdon, Morris, Fourth Generation R & D, John Wiley & Sons Inc.
7. Pradip N Khandwalla: Lifelong Creativity—An Unending Fest, TMH, 2004.
8. Pradip N Khandwalla: Corporate Creativity, TMH, 2006.
9. White: The Management of Technology & Innovation Thomson,2007.

A	B	C	D	E	F	G	H	I	J	K
		x	x							x

**(124CA21) DISTRIBUTED DATABASE SYSTEMS**

**UNIT – I**

*At the end of this Unit the student will have the ability to understand the features and principles of distributed databases.*

Features of Distributed versus Centralized Databases, Principles Of Distributed Databases, Levels Of Distribution Transparency, Reference Architecture for Distributed Databases , Types of Data Fragmentation, Integrity Constraints in Distributed Databases.

**UNIT – II**

*At the end of this unit the student will s able to solve the queries in distributed systems.*

Translation of Global Queries to Fragment Queries, Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries. Optimization of Access Strategies, A Framework for Query Optimization, Join Queries, General Queries.

**UNIT – III**

*At the end of the unit the student is able to understand how the transaction process takes place in distributed databases.*

The Management of Distributed Transactions, A Framework for Transaction, Management , Supporting Atomicity of Distributed Transactions, Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions. Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

**UNIT –I V**

*At the end of this unit the student is able to understand the execution of transactions without inconsistency in distributed databases.*

Reliability, Basic Concepts, Nonblocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart, Distributed Database Administration, Catalog Management in Distributed Databases, Authorization and Protection

**UNIT – V**

*At the end of this unit the student will have the ability to understand the alternative client/server architectures.*

Architectural Issues, Alternative Client/Server Architectures, Cache Consistency Object Management, Object Identifier Management, Pointer Swizzling, Object Migration, Distributed Object Storage, Object Query Processing, Object Query Processor Architectures, Query Processing Issues, Query Execution , Transaction Management, Transaction Management in

Object DBMSs , Transactions as Objects.

## UNIT – VI

*At the end of this unit the student will be able to understand the query processing in distributed multi-DBMS.*

Database Integration, Scheme Translation, Scheme Integration, Query Processing Query Processing Layers in Distributed Multi-DBMSs, Query Optimization Issues. Transaction Management Transaction and Computation Model Multidatabase Concurrency Control, Multidatabase Recovery, Object Orientation And Interoperability Object Management Architecture CORBA and Database Interoperability Distributed Component Model COM/OLE and Database Interoperability, PUSH-Based Technologies

## TEXT BOOKS :

1. Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti McGraw-Hill

## REFERENCES:

1. Principles of Distributed Database Systems, M.Tamer Ozsü, Patrick Valduriez – Pearson Education.

A	B	C	D	E	F	G	H	I	J	K
	x		x		x	x				

**(124CA22) SOFTWARE PROJECT MANAGEMENT**

**UNIT-I**

*The student would know the drawbacks in conventional software management.*

Conventional Software Management: The waterfall model, conventional software Management performance.

Evolution of Software Economics: Software Economics, pragmatic software cost estimation.

**UNIT-II**

*The objective of this unit is to make the student improve software processes, and management.*

Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

**UNIT-III**

*The student would learn different phases of life cycle.*

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.

Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

**UNIT-IV**

*On the completion of the unit a student should be able be aware of different architectures and workflows of the process*

Model based software architectures: A Management perspective and technical perspective.

Work Flows of the process: Software process workflows, Iteration workflows, Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

Iterative Process Planning: work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

## **UNIT-V**

*The student learns automation of processes, project control on the completion of this unit.*

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.

Process Automation: Automation Building blocks, The Project Environment.

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

Tailoring the Process: Process discriminates.

## **UNIT-VI**

*The student learns next generation software economics and to do a case study.*

Future Software Project Management: modern Project Profiles, Next generation Software economics, modern process transitions.

Case Study: The command Center Processing and Display system- Replacement (CCPDS-R)

## **TEXT BOOKS:**

1. Software Project Management, Walker Royce: Pearson Education, 2005.

## **REFERENCE BOOKS:**

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw- Hill Edition.

2. Software Project Management, Joel Henry, Pearson Education.

3. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.



<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
	X		X		X			X		

**(124CA23) HUMAN COMPUTER INTERACTION**

**UNIT-I**

*At the end of this unit student would know the importance of user interfaces*

Introduction: Importance of user Interface – Definition, importance of good design. Benefits of good design. A brief history of Screen design.

**UNIT-II**

*Student would understand the characteristics of graphical user interface*

The graphical user interface – Popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

**UNIT-III**

*Student would develop knowledge on design process*

Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, and understanding business junctions.

**UNIT-IV**

*Students would acquire skills to design the interface*

Screen Designing:- Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design.

**UNIT-V**

*Students would be able to colors in multimedia*

Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls.Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

## **UNIT-VI**

*Student would acquire knowledge about drivers*

Software tools – Specification methods, interface – Building Tools. Interaction Devices – Keyboard and function keys – pointing devices – speech recognition digitization and generation – image and video displays – drivers.

### **TEXT BOOKS:**

1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamTech.  
Designing the user interface. 3rd Edition Ben Shneidermann , Pearson Education  
Asia

### **REFERENCE BOOKS:**

1. Human – Computer Interaction. Alan Dix, Janet Finckay, Gre Goryd, Abowd, Russell  
Bealg, Pearson Education

## V SEMESTER

A	B	C	D	E	F	G	H	I	J	K
							X		X	X

### (124EN03) SOFT SKILLS-II

#### UNIT-I

*To teach the students the art of public speaking.*

**Art of Public speaking:** Importance of public speaking- Benefits of Public speaking- Tips on public speaking

#### UNIT-II

*To guide the students in writing different types of Resume and Cover Letters.*

**Emotional Intelligence:** What is emotional intelligence; EI at work, Teamwork and EI, Increasing EI.

#### UNIT-III

*To help students in identifying their strengths and weaknesses as per SWOT analysis*

**SWOT analysis:** Importance of knowing yourself-process of knowing yourself-Benefits of SWOT analysis-Using SWOT analysis-SWOT analysis grid

#### UNIT-IV

*To train students in managing stress by identifying different kinds of stress.*

**Stress management:** Effects of stress-Kinds of stress-Sources of stress-Signs of stress- Tips on Stress management.

#### UNIT-V

*To teach students the different Managerial skills like General Management, Financial, Sales and Marketing and Human Resource Management.*

**Career management:** General Management Skills, Financial Management, Sales and Marketing Management, Human Resource Management

#### UNIT-VI

*To enable the students to look into the aspects of team building, role of a team leader and team members.*

**Team Building and Teamwork:** Aspects of team building-skills needed for teamwork-model of team building- characteristics of effective team-Role of team leader and team members.

#### TEXT BOOKS:

**Prescribed:** Soft Skills (know yourself & know the world), Dr. K. Alex, S. Chand

**Reference:**

1. Secrets of Power Presentations, Bender, MacMillan.
2. Transformational Leadership, Srivastava, McMillan.
3. Managing Corporate Culture, Ulrich, McMillan.

**V SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x			x						x

**(124CA83) ARTIFICIAL INTELLIGENCE LAB**

1. Write a program to solve Traveling Salesman problem. The heuristic function used, number of nodes generated, depth of the search at each stages should be given in the form of a table.
2. Write a program to solve 8 puzzle problem with different heuristics
3. Implement the alpha – beta search procedures. Use it to play the game tic-tac-toe. At the end of the game your program should give the number of nodes generated, cut-off values at each stages in the form of a table
4. Write an ATN interpreter. Minimize the amount of information that must be stored at each node to allow back-up
5. Write an Eliza like program to converse in some domain. The program should consist of two parts, a database of rules and the code that matches rules against the input and uses them to generate output. The left side of each rule should be a pattern that can be matched against a sentence input by the user. The right side should specify the response that the system will generate if the corresponding left side matches
6. Develop an knowledge base system consisting of facts and rules about some specialized knowledge domain of your choice.
7. Implement Unification Algorithms. Input data sets may be any Well Formed Formulas.
8. Write a program to schedule a meeting between five busy people using default reasoning. The output should give the time, place and day of the meeting.

**V SEMESTER**

A	B	C	D	E	F	G	H	I	J	K
		x	x	x						

**(124CA85) .Net Framework And C# LAB**

**Programs on**

1. Class Libraries
2. Assemblies and Deployment
3. Metadata and Reflection
4. .NET Programming Model

**V SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
	x			x						x

**(124CA85) COMPREHENSIVE VIVA**

There shall be a Comprehensive Viva-Voce in V semester. The comprehensive Viva-voce will be conducted by a committee consisting of Head of the Department and two senior faculty members from the department. The comprehensive viva-voce is aimed to assess the students understanding in various subjects he/she studies upto V semester. The comprehensive viva-voce is evaluated for 50 marks by the committee. .

**V SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x			x						

**(124CA86) MINI PROJECT AND SEMINAR**

There shall be a mini-Project in the V Semester. Mini project shall be submitted in report form and should be presented before a committee, which shall be evaluated for 50 marks. The committee consists of Head of the department and supervisor of the mini project and two senior faculty nominated by head.

Work in progress as evaluated by Internal guide	:	15 Marks
Demonstration of the mini project and report	:	15 Marks
Seminar presentation and defence	:	20 Marks



**VI SEMESTER**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
x	x	x	x		x	x		x	x	x

**(124CA87) PROJECT WORK**

Every candidate shall be required to submit a project report on a topic approved by project review committee. A Project Review committee (PRC) of the college is to be constituted with Head of the Department, Professors, and two other senior faculty members.

A candidate shall submit status report in three stages after five weeks, ten weeks and fifteen weeks. The PRC may recommend an improvement of the project or a change of project at any stage. The PRC may authorize the supervisor to check or verify if the quantum-quality of the revised version of work is acceptable or not. The supervisor will issue a letter to the student and permit him to continue the project work with a copy to the Head of the department.

A candidate is permitted to submit project/thesis only after successful completion of theory and practical courses with the approval of PRC not earlier than 16 weeks from the date of approval of the project work. For the approval of PRC the candidate shall submit the draft copy of thesis to the Head of the Department with the due recommendation of the supervisor and shall make a successful oral presentation before the PRC. Along with the draft thesis the candidate shall submit draft copy of a paper in standard format fit for publications in Journal/ Conference, based on the project/ thesis, to the Head of the Department with due recommendation of the supervisor. A pre-submission evaluation of the dissertation will be carried out by the PRC.

The viva-voce examination of the project report shall be conducted by a board consisting of the External examiner, the Head of the Department and Supervisor.

The Board shall jointly report candidates work as:

- A. Excellent
- B. Good
- C. Satisfactory
- D. Unsatisfactory

Head of the Department shall coordinate and make arrangements for the conduct of viva-voce examination.