

ANNAMALAI UNIVERSITY

Annamalai Nagar, Chidambaram.

B.Sc. Information Technology

SYLLABUS

CBCS PATTERN - (2021 - 22)

Semester	Part	Course	Instru Hour/Week	Credit	TITLE	Exam Hrs.	Marks		Total	
							CIA	UNI. EXAM		
I	I	Language - I	6	4	Tamil /Other Languages	3	25	75	100	
	II	English - II(CE)	6	4	Communicative English -I	3	25	75	100	
	III	Core Theory I		6	4	Introduction to Information Technology	3	25	75	100
		Core Practical - I (CP)		3	2	Basic Computer usage Lab	3	25	75	100
		First Allied-I (AC)		7	3	1. Algebra and Calculus	3	25	75	100
	PE		6	3	Professional English - I	3	25	75	100	
	IV	Environmental Studies		2	2	Environmental Studies	3	25	75	100
TOTAL			36	22			175	525	700	
II	I	Language- II	6	4	Tamil /Other Languages	3	25	75	100	
	II	English – II(CE)	6	4	Communicative English –II	3	25	75	100	
	III	Core Theory - II		5	4	Programming in C	3	25	75	100
		Core Practical - II (CP)		2	2	Programming in C Lab	3	25	75	100
		First Allied - II (AC)		7	5	1. Numerical Analysis and statistics 2. Operation Research	3	25	75	100
	PE		6	3	Professional English - II	3	25	75	100	
	IV	Value Education		2	2	Value Education	3	25	75	100
IV	Soft Skill		2	1	Soft Skill	3	25	75	100	
TOTAL			36	25			200	600	800	
III	I	Language - III (LC) -	6	3	Tamil /Other Languages	3	25	75	100	
	II	English Language - III (CE)	6	3	Communicative English -II	3	25	75	100	
	III	Core Theory - III (CC)		6	5	Programming in C++	3	25	75	100
		Core Practical - III (CP)		3	2	Programming In C++ Lab	3	40	60	100
		Second Allied Course - I (AC)		7	4	Digital Computer fundamentals	6	25	75	100
	III	Non Major Elective I		2	2	BASICS OF COMMUNICATION	3	25	75	100
	TOTAL			30	19					600

IV	I	Language Course –IV (LC) - Tamil*/Other Languages ** #	6	3		3	25	75	100	
	II	English Language Course–IV (ELC)	6	3		3	25	75	100	
	III	Core Course – IV (CC)		5	5	Programming in Java	3	25	75	100
		Core Practical - IV (CP)		3	2	Programming in Java Lab	3	40	60	100
		Second Allied Course- II - Practical (AC)		3	3	Digital Computer fundamentals lab	3	40	60	100
	Second Allied Course–III (AC)		3	2	Computer And Organization Architecture	3	25	75	100	
	IV	Non Major Elective II		2	2	Communication And Personality Development	3	25	75	100
		Skill Based Elective - I		2	2	Tourism And Travel Agency	3	25	75	100
		TOTAL	30	22					800	
V	III	Core Course V [CC]		6	6	Data Structures and Algorithms	3	25	75	100
		Core Course VI [CC]		6	6	Computer Networks	3	25	75	100
		Core Course VII[CC]		5	5	Operating Systems	3	25	75	100
		Core Practical V [CC]		4	3	Computer Graphics and Animation Lab	3	40	60	100
	Major Based Elective - I		5	5	Software Engineering	3	25	75	100	
	IV	Skill Based Elective - II		2	2	Skill Based Elective - II	3	25	75	100
		Skill Based Elective – III		2	2	Skill Based Elective – III	3	25	75	100
		TOTAL		30	29					800
VI	III	Core Course VIII [CC]		6	6	Mobile Computing	3	25	75	100
		Core Course IX [CC]		6	6	Database Systems	3	25	75	100
		Core Practical VI [CP]		5	4	Database Systems Lab	3	40	60	100
		Major Based Elective - II		6	6	Programming in PHP	3	25	75	100
		Major Based Elective - III		6	6	Dot Net Lab	3	40	60	100
V	Extension Activities		-	1	Extension Activities	-	-	-	-	
	Gender Studies		1	1	Gender Studies	3	25	75	100	
	TOTAL		30	30					600	
	G.TOTAL		180	140					4000	

ANNAMALAI UNIVERSITY

Annamalai Nagar, Chidambaram.

B.Sc. Information Technology

SEMESTER - I

CORE COURSE I

INTRODUCTION TO INFORMATION TECHNOLOGY

Objective

To Provide the Basic Concepts in Information Technology

Unit I

Introduction to Computers Generation of Computers Classification of Digital Computer
- Anatomy of Digital Computer.

Unit II

Architecture of Computer CPU and Memory Secondary Storage Devices Input Devices Output
Devices.

Unit III

Introduction to Computer Software - Programming Language Operating Systems
Introduction to Database Management System - Data Mining and on-line Analytical Processing.

Unit IV

Computer Networks - WWW and Internet - Email - Intranets Mobile Computing and Business
on the Internet.

Unit V

Introduction to Multimedia - Multimedia Applications Computers at Home, Education,
Entertainment, Science, Medicine and Engineering - Introduction to Computer Security Computer
Viruses, Bombs, Worms.

Text Book:

1. Fundamentals of Information Technology ,Alexis Leon And Mathews Leon, Vikas
Publishing House Pvt. Ltd, 2009

Reference Book:

1. Information Technology The Breaking Wave, Dennis P. Curtin ,Kim foley, KunalSen and
Cathleen Morin, Tata-McGraw Hill Publications, 2005

**CORE PRACTICAL I
BASIC COMPUTER USAGE AB**

Objective:

To Impart Practical Training in Word Processing Software

Use MS-Office or Open Office for the following

1. Text Manipulation

Change the font size and type
Aligning and justification of text
Underlining the text
Indenting the text

- i. Prepare a Bio-data
- ii. Prepare a Letter

2. Usage of Numbering, Bullets, Footer and Headers Usage of Spell checks and Find and Replace

- i. Prepare a document in newspaper formats
- ii. Prepare a document with bullets and footers and headers

3. Tables and Manipulations

Creation, Insertion, Deletion (Columns & Rows) and usage of Auto Format

- i. Create mark sheet using table and find out the total marks
- ii. Create a calendar and Auto Format it.

4. Picture Insertion and Alignment

- i. Prepare a greeting card
- ii. Prepare a handout

5. Mail merge concepts

- i. Prepare a business letter for more than one company using mail merge
- ii. Prepare an invitation to be sent to specific addresses in the data source

6. A Presentation that shows five different Greeting Cards with Pictures.

7. Prepare Slides that helps you to teach about-Computer Networks.

8. A Presentation with different Animation Effects.

9. Prepare Slides that gives a Presentation about-Computers using Macros.

10. Usage of Formula and Built - in - functions

11. Inventory report preparation

12. Invoice report preparation

13. Drawing graphs

ALLIED MATHEMATICS

ALLIED COURSE I ALGEBRA AND CALCULUS

Objects

1. To learn the basic concepts in the integration
2. To train the students to solve the problems in Theory of Equations

UNIT I

Theory of Equations: Relation between roots & coefficients - Transformations of Equations Diminishing, Increasing & multiplying the roots by a constant Forming equations with the given roots - Rolle's Theorem, Descartes' rule of Signs (statement only) - simple problems.

UNIT II

Matrices Singular matrices - Inverse of a non-singular matrix using adjoint method Rank of a Matrix - Consistency Characteristic equation, Eigen values, Eigen vectors Cayley Hamilton's Theorem (proof not needed) Simple applications only

UNIT III

Differentiation: Maxima & Minima - Concavity, Convexity Points of inflexion - Partial differentiation Euler's Theorem - Total differential coefficients (proof not needed) - Simple problems only.

UNIT IV

Integration Evaluation of integrals of types

$$1) \int \frac{px+q}{ax^2+bx+c} dx \quad 2) \int \frac{px+q}{\sqrt{ax^2+bx+c}} dx \quad 3) \int \frac{dx}{a+b\sin x} \quad 4) \int \frac{dx}{a+b\cos x}$$

Evaluation using Integration by parts - Properties of definite integrals - Fourier Series in the range (0, 2 a) - Odd & Even Functions - Fourier Half range Sine & Cosine Series

UNIT V

Differential Equations: Variables Separables - Linear equations Second order of types $(aD^2 + bD+c)y = F(x)$ where a,b,c are constants and F(x) is one of the following types (i) e^{Kx} (ii) $\sin(kx)$ or $\cos(kx)$ (iii) x^n , n being an integer (iv) $e^{Kx} f(x)$

TEXT BOOK(S)

1. T.K. Manickavasagam Pillai & others, Algebra, Volume I, S.V Publications, 1985 Revised Edition (Units I, II)
2. S. Narayanan, T.K. Manicavachagam Pillai, Calculus, Vol. II, S. Viswanathan Pvt Limited, 2003. (Units II, IV and V)

REFERENCE(S)

1. M.L. Khanna, Differential Calculus, Jaiprakashnath and Co., Meerut-2004.

**CORE COURSE II
PROGRAMMING IN C**

Objective:

To impart basic knowledge of Programming Skills in C language.

Unit I

Introduction to C - Constants, Variables, Data types - Operator and Expressions.

Unit II

Managing Input and Output operations - Decision Making and Looping. Branching-
Decision

Unit III

Arrays Character Arrays and Strings - User defined Functions.

Unit IV

Structures and unions Pointers File management in C.

Unit V

Dynamic memory allocation - Linked lists- Preprocessors Programming Guide lines.

Text Book:

1. Balagurusamy E .,Programming in ANSI C, Sixth Edition, McGraw-Hill, 2012

Reference Book:

1. R.S.Bichkar, Programming with C, University Press, 2012

CORE PRACTICAL II PROGRAMMING IN C LAB

Objective :

To Impart Practical Training in C Programming Language

1. Write a Program to convert temperature from degree Centigrade to Fahrenheit.
2. Write a Program to find whether given number is Even or Odd.
3. Write a Program to find greatest of Three numbers.
4. Write a Program to using switch statement to display Monday to Sunday.
5. Write a Program to display first Ten Natural Numbers and their sum.
6. Write a Program to find Multiplication of Two Matrices.
- 7 Write a Program to find the maximum number in Array using pointer.
8. Write a Program to reverse a number using pointer.
9. Write a Program to solve Quadratic Equation using functions.
10. Write a Program to find factorial of a number using Recursion.
11. Write a Program to show Call by Value and Call by Reference.
12. Write a Program to add two numbers using pointer.
13. Write a Program to create a file containing Student Details.
14. Write a Program to update the details of student's information using various file modes.

ALLIED COURSE II
NUMERICAL ANALYSIS AND STATISTICS

Objects

1. To train the students in the numerical problems
2. To train the students in solving statistical problems

UNIT I

Algebraic & Transcendental equations : Bisection Method , Newton Raphson Method Tteration method Finite differences -Forward, Backward differences Newton's forward & backward difference interpolation formulae. Lagrange's interpolating polynomial.

UNIT II

Numerical differentiation Numerical Integration using Trapezoidal rule and Simpson's first & second rules (proof not needed) Solutions to Linear Systems Theory Gaussian Elimination Method - Jacobi & Gauss Siedal iterative methods and problems

UNIT III

Numerical solution of ODE: Solution by Taylor Series Method, Euler's Method, Runge Kutta 2nd order method- Adam's Predictor Corrector Method and Milne's Predictor Corrector Methods

UNIT IV

Arithmetic Mean - Geometric Mean - Harmonic Mean - Median, Mode , Standard Deviation -Quartile Deviation - Percentiles - Expectation - Variance and covariance

UNIT V

Correlation and Regression - Properties of Simple Correlation and regression coefficients -Simple Numerical Problems only.

TEXT BOOK(S)

1. S.S.Sastry, Numerical Analysis (Unit 1, 2,3)
2. Gupta.s.c & Kapoor, V.K, Fundamentals of Mathematical Statistics, Sultan Chand & sons, New Delhi -1994. (Units 4 & 5)

REFERENCE(S)

1. M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, 1999.
2. C.E. Froberg, Introduction to Numerical Analysis, II Edn., Addison Wesley, 1979.

**ALLIED COURSE III
OPERATIONS RESEARCH**

Objects:

1. To train the students to solve assignment problems, transportation problems
2. To train the students in network problems.

UNIT I

Operations Research Introduction Basics of OR - OR & decision making - Role of Computers in OR Linear programming formulations & graphical solution of two variables- Canonical & standard forms of LPP

UNIT II

Simplex Method: Simplex Method for constraints -Charne's method of penalties- Two phase Simplex method.

UNIT III

Transportation problem Transportation algorithm -Degeneracy algorithm - Degeneracy in Transportation Problem , Unbalanced transportation problem Assignment algorithm -Unbalanced Assignment problem .

UNIT IV

Sequencing problem: Processing of n jobs through two machines Processing of n jobs through 3 machines - processing of two jobs through m machines.

UNIT V

Networks: Network - Fulkerson's rule - measure of activity PERT computation CPM computation - Resource scheduling.

TEXT BOOK(S)

1. Manmohan & Gupta, Operations Research, Sultan Chand Publishers, New Delhi

REFERENCE(S)

- 1: Prem Kumar Gupta and D.S. Hira, Operations Research: An Introduction, S. Chand and Co., Ltd. New Delhi,
2. Hamdy A. Taha, Operations Research (7th Edn.), McMillan Publishing Company, New Delhi, 1982.

CORE COURSE III

PROGRAMMING IN C++

Objective:

To impart basic knowledge of Programming Skills in C++ language.

Unit I

Principles of Object- Oriented Programming – Beginning with C++ - Tokens, Expressions and Control Structures – Functions in C++

Unit II

Classes and Objects – Constructors and Destructors – New Operator – Operator Overloading and Type Conversions

Unit III

Inheritance: Extending Classes – Pointers- Virtual Functions and Polymorphism

Unit IV

Managing Console I/O Operations – Working with Files – Templates – Exception Handling

Unit V

Standard Template Library – Manipulating Strings – Object Oriented Systems Development

Text Book

1. Balagursamy E, Object Oriented Programming with C++, Tata McGraw Hill Publications, Sixth Edition, 2013

Reference Books

1. Ashok Kamthane, Programming in C++, Pearson Education, 2013.

CORE PRACTICAL III
PROGRAMMING IN C++ LAB

Objective :

To Impart Practical Training in C++ Programming Language

1. Classes

Write a Program using a class to represent a Bank Account with Data Members – Name of depositor, Account Number, Type of Account and Balance and Member Functions – Deposit Amount – Withdrawal Amount. Show name and balance. Check the program with own data.

2. Constructor & Destructor

Write a program to read an integer and find the sum of all the digits until it reduces to a single digit using constructor, destructor and default constructor.

3. Default & Reference Argument

Write a program using function overloading to read two matrices of different data types such as integers and floating point numbers. Find out the sum of the above matrices separately and display the total sum of these arrays individually.

4. Operator Overloading

- a. Addition of Two Complex Numbers.
- b. Matrix Multiplication

5. Inheritance

Prepare Pay Roll of an employee using Inheritance.

6. Pointers

- a. Write a Program to find the number of vowels in a given text
- b. Write a Program to check for Palindrome

7. Files

Prepare Students Mark List in a file with Student Number, Mark in four subjects and Mark Total. Write a program to arrange these records in the ascending order of Mark Total and write them in the same file overwriting the earlier records.

8. Exception Handling

Prepare Electricity Bill for customers generating and handling any two Exceptions.

SECOND ALLIED PHYSICS I

(For B.Sc. Information Technology Student only)

DIGITAL COMPUTER FUNDAMENTALS

Unit I Number Systems and Codes

Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Binary Addition and Subtraction – Binary Multiplication and Division – Octal Numbers – Hexadecimal Numbers – Binary Codes – Error Detecting and Correcting Codes.

Unit II Boolean Algebra and Logic Gates

Boolean Algebra: Definitions – Fundamentals of Boolean Algebra – Laws and Theorems of Boolean Algebra – Boolean Functions – Minterms and Maxterms — DeMorgan's Theorems. Logic Gates: AND, OR, NOT, NAND, NOR and Exclusive

OR Gates – Applications of XOR Gate – The Exclusive NOR Gate – Positive and Negative Logic – Logic Characteristics – Bipolar Logic Families – Integrated Circuits — Universal Building Blocks (UBB) – NAND Gate as UBB – NOR Gate as UBB.

Unit III K Map Techniques

Karnaugh Map with 2, 3 and 4 variables - Sum of Products - AND-OR Network and Product of Sum - NAND and NOR Implementation — AND-OR-INVERT Implementation – OR-AND-INVERT Implementation – Don't Care Conditions – Circuits Binary Adders - Half and Full Adders – BCD Adder - Binary Subtractors – Half and Full Subtractors – Multiplexers (4:1 line) – 1 to 4 line Demultiplexers – Decoders: BCD to decimal, BCD to Seven Segment. Encoders: 4:2 line, Octal to Binary - Floating Point Number System – Range of Stored Numbers.

Unit V Sequential Logic Circuits:

Flip Flops – RS Flip Flop – Clocked RS Flip Flop – D Flip Flop – JK Flip Flop – T Flip Flop – Triggering of Flip Flops – Master Slave Flip Flop – Conversion of D Flip Flop and T Flip Flop – Clock – Counters and Shift Registers: Counters – Asynchronous or Ripple Counter – Ring Counter – Twisted Ring Counter – State Diagrams and State Tables – Magnitude Comparator – Programmable Arrays of Logic Cells – Shift Registers - SISO – SIPO – PISO.

Text Book:

1. Principles of Digital Electronics, Dr. K. Meena, PHI Learning Private Limited, New Delhi, 2009.

Reference Book:

1. Digital Logic Design, M. Morris Mano, Pearson Education, 2010
2. Digital Technology, Virendrakumar, New Age international (P) Ltd., publisher, New Delhi, 2001.

SECOND ALLIED PRACTICAL
DIGITAL COMPUTER FUNDAMENTALS LAB

(Any 12 experiments)

1. Verification of Logic gates
2. Construction of Half and Full adder
3. Construction of Half and Full subtractor
4. K-Map
5. Arithmetic Logic Unit
6. Study of Multiplexer and De-multiplexer
7. Encoder and Decoder using diodes
8. Flip-flops using NAND and NOR gate
9. Shift Register
10. Up Down Counters
11. Ring Counter
12. Johnson counter / Twisted ring counter
13. NAND as UBB
14. NOR as UBB
15. Study of RAM

NON MAJOR ELECTIVE I

(For B.Sc. Information Technology Student only)

21UINTN35-1: BASICS OF COMMUNICATION

Objective:

To introduce the students to communication and how to make communication effective

UNIT I

Communication –History and Development, definition, meaning, need and scope

UNIT II

Process of communication, levels of communication, functions, importance of communications, communication as a social science, communication and language, communication and information.

UNIT III

Types of communication-Intra Personal, Inter Personal-focused and unfocused interactions, three stages of interpersonal communication – Phatic, personal and intimate stage, Group Communication, and Mass communication-massline communication, interactive communication.

UNIT IV

Forms of communication-Verbal and Non-Verbal Communication – 9 Characteristics, advantage and disadvantage, difference between verbal and non-verbal communication.

UNIT V

Basic Models-Lasswell, Shannon and Weaver, Wilbur Schramm, SMCR. Communication barriers-Physical, Psychological, Mechanical, Language and Cultural barriers. Methodology: Students will be given both theoretical and practical exposure to the process of Communication. Role Play, discussions and assignments will be part of the methodology.

Reference Books:

1. Kevalj.kumar(2010).Mass Communication in India, Jaico publishing.
2. Srinivas R.Melkote Sandhya Rao (2001).Critical Issues in communication, Sate Publications.
3. B.K. Chaturvedi Dr. S.K. Mitall (2011). Mass communication, Global vision.

**CORE COURSE IV
PROGRAMMING IN JAVA**

Objective:

To understand the basic concepts of Object Oriented Programming with Java language

Unit I

Object Oriented Programming : Introduction to OOP – Objects and Classes – Characteristics of OOP – Difference between OOP and Procedure Oriented Language – Introduction to java Programming : Introduction – Features of Java – Comparing java and Other Languages – Applications and Applets – Java Development Kit – Complex Programs – Java Source File Structure – Prerequisites for Compiling and Running Java Programs

Unit II

Java Language Fundamentals : The Building Blocks of Java – Data Types – Variable Declarations – Wrapper Classes – Operations and Assignment – Control Structures – Arrays – Strings – StringBuffer Class

Unit III

Java as an OOP Language : Defining Classes – Modifiers – Packages - Interfaces

Unit IV

Exception Handling : Introduction – Basics of Exception Handling – Exception Hierarchy – Constructors and Methods in Throwable Class - Unchecked and Checked Exceptions – Handling Exceptions in Java – Exception and Inheritance – Throwing User-defined Exceptions – Redirecting and Rethrowing Exceptions – Advantages of Exception Handling Mechanism – Multithreading : Introduction – Creating Threads – Thread Life-cycle – Thread Priorities and Thread Scheduling – Thread Synchronization– Daemon Threads – Thread Groups – Communication of Threads

Unit V

Files and I/O Streams : Overview – Java I/O – File Streams – FileInputStream and FileOutputStream – File Streams – RandomAccess File – Serialization - Applets : Introduction – Java Applications versus Java Applets – Applet Life-cycle – Working with Applets – The HTML APPLET Tag – The java.Applet package

Text Book:

1. Object Oriented Programming through Java, P.Radha Krishna, University Press, 2011

Reference Book:

1. Java Programming, K.Rajkumar, Pearson India, 2013.

CORE PRACTICAL IV
PROGRAMMING IN JAVA LAB

Objective :

To Impart Practical Training in Java Programming Language

1. Write a program to sort the given numbers using arrays.
2. Write a program to implement the FIND and REPLACE operations in the given multiple text.
3. Write a program to implement a calculator to perform basic arithmetic Operations.
4. Write a program to find the area of a rectangle using constructor
5. Write a program to find the student's percentage and grade using command line arguments.
6. Write a program to draw circle or triangle or square using polymorphism and inheritance.
7. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
8. Write a program to create threads and assign priorities to them
9. Write a program to develop an applet to play multiple audio clips using multithreading.
10. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

SECOND ALLIED PHYSICS II

(For B.Sc. Information Technology Student only)

COMPUTER AND ORGANIZATION ARCHITECTURE

UNIT I Computer Organization, Architecture and Functions

Organization and Architecture – Structure and function – Computer Component – Computer Function – Interconnection Structures – Bus Interconnections.

UNIT II Memory organization

Computer Memory System Overview – Cache Memory principles –Semiconductor Main Memory: Organization – DRAM and SRAM – Types of ROM – Error Correction.

UNIT III I/O Modules

External Devices - I/O Modules – Programmed I/O – Direct Memory Access –I/O Channels and Processors.

UNIT IV Instruction sets, processor organization and control unit Machine Instruction Characteristics – Types of operands – Addressing –Instruction formats – processor organization – Register Organization –instruction cycle. Control Unit: Micro Operations – Control of the processor.

UNIT V Parallel Processing

Parallel Organization – Multiprocessor Organization – Symmetric multiprocessors – Multithreading and Chip icroprocessor – Non uniform memory Access - Vector Computation.

Text Book :

Computer Organization & Architecture Designing for Performance – William Stallings, Pearson Education, 2014

Reference Book :

Computer Architecture and Organization : From 8085 to Core 2 Duo and Beyond, Subrata Ghoshal, Pearson Education, 2011

NON MAJOR ELECTIVE II

(For B.Sc. Information Technology Student only)

COMMUNICATION AND PERSONALITY DEVELOPMENT

Objective:

To help the students improve their personality with giving importance to communication

UNIT I

Personality Development: concept of personality development, the self: self-awareness, self-actualization, self-esteem and self-development.

UNIT II

Communication: Importance of communication in personality development, Communication skills, Language skills, listening skills, interpretive skills, feedback in communication.

UNIT III

Group communications: Dynamics of group communication, process and methods, role of individuals in group communication.

UNIT IV

Interview: Types of interviews, preparing for an interview, answering in an interview, importance of body language in an interview.

UNIT V

Communication activities for students: Role play, one to one communication, use of body language, expressions, group communication, public speaking. Methodology: The students will have a theoretical and practical orientation on using communication as a tool for personality development.

ReferenceBooks :

1. KaulacharyaJagdish Sharma (2010).Body Language, Fusion Books.
2. Rajeev Sethi (2004). Building a Successful Career, Infinity books.
3. Worchel & Cooper (1976). Understanding social Psychology, The Dorsey Press.

SKILL BASED ELECTIVE I (IV SEMESTER)

(For B.Sc. Information Technology Student only)

TOURISM AND TAVEL AGENCY

Unit I

Definition of Tourism – Types of Tourism – Basic Components of Tourism Motivation for Tourism.

Unit II

Different kinds of Accommodations: Star Hotels – Resort Groups – Cottages –Time share Hotels – Motels. Different kinds of Transport: Air Transport – Rail Transport – Sea way Transport and Road Transport.

Unit III

Tourism Development in India: Sargent Committee – Ministry of Tourism - ITDC – TTDC – Trade Fair – Travel Agents Association of India (TAAI).

Unit IV

Travel Intermediaries: Travel Agency – Tour Operator – Tourist Guides – International Air Transport Association (IATA) - Pacific Area Travel Association (PATA) – International Civil Aviation Organisation (ICAO) - World Tourism Organisations (WTO).

Unit V

Documentation: Passport - Visa – Emigration and Immigration – Foreign Exchange – Balance of Payment – Insurance Cover – Overseas Tour Packages.

References:

Ramachary, Tourism in India, 2001

A.K. Bhaattia, Tourism in India, 2001

Davison Rob, Toursim Pitman, London 2004

G.K. Puri, Handbook of Tourism.

CORE COURSE V

DATA STRUCTURES AND ALGORITHMS

Objective:

To understand the concepts of Data Structures and Algorithms.

Unit I

Arrays and sequential representations – ordered lists – Stacks and Queues – Evaluation of Expressions – Multiple Stacks and Queues – Singly Linked List – Linked Stacks and queues – Polynomial addition.

Unit II

Trees – Binary tree representations – Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Graphs and Representations – Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

Unit III

Algorithms – Priority Queues - Heaps – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

Unit IV

Greedy Method: The General Method – Optimal Storage on Tapes – Knapsack Problem – Job Sequencing with Deadlines – Optimal Merge Patterns.

Unit V

Back tracking: The General Method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

Text Books:

1. Fundamentals of Data Structure – Ellis Horowitz, Sartaj Sahni, Galgotia Publications, 2008
2. Computer Algorithms – Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, University Press, 2008.

Reference Book:

1. Data Structures – Seymour Lipschutz, Tata McGraw Hill, Schaum's Outline Series, 2014

CORE COURSE VI COMPUTER NETWORKS

Objective:

To understand the Design and Organization of Computer Networks

Unit I

Overview and Physical Layer: Introduction: Data Communications- Networks- Network Types, Network Models: TCP/IP Protocol Suite- The OSI Model, Bandwidth utilization: Multiplexing- Spread Spectrum, Transmission Media: Guided Media-Unguided Media, Switching: Circuit Switched Network- Packet Switching-Structure of a switch

Unit II

DataLinkLayer: Error Deduction and Correction: Introduction- Cyclic codes- Forward error correction, Data link Control: Data link layer protocols- Media Access Control: Random Access- Controlled Access, Wireless Networks: IEEE 802.11- Bluetooth-Cellular Telephone- Satellite network- Connection devices,

Unit III

Network Layer Services: Packet Switching- Network layer performance-IPV4 Addresses- Internet Protocol-Routing Algorithms -IPV6 Addressing

Unit IV

Transport Layer: Transport Layer Protocols- User Datagram Protocol - TCP: TCP Services TCP features-Windows in TCP-Flow Control-Error Control- TCP Congestion Control-TCP timers

Unit V

Application Layers: Client Server Programming - Word Wide Web &HTTP-FTP- Email -DNS

Text Book:

1. Data Communications and Networking, Behrouz A Forouzan, Tata McGrawHill, Fifth Edition, 2013

Reference Book:

1. Data Communications and Networks, AchyutGodbole and AtulKahate, McGrawHill Education, 2011.

CORE COURSE VII
OPERATING SYSTEMS

Objective :

To provide the Fundamental Concepts in an Operating System.

Unit I Introducing Operating Systems

Introduction - What Is an Operating System-Operating System Software -A Brief History of Machine Hardware -Types of Operating Systems -Brief History of Operating System Development-Object-Oriented Design

Unit II Memory Management

Early Systems: Single-User Contiguous Scheme -Fixed Partitions-Dynamic Partitions- Best-Fit versus First-Fit Allocation -Deallocation - Relocatable Dynamic Partitions.Virtual Memory: Paged Memory Allocation-Demand Paging-Page Replacement Policies and Concepts -Segmented Memory Allocation-Segmented/Demand Paged Memory Allocation-Virtual Memory-Cache Memory

Unit III Processor Management

Overview-About Multi-Core Technologies-Job Scheduling Versus Process Scheduling-Process Scheduler-Process Scheduling Policies-Process Scheduling Algorithms -A Word About Interrupts-Deadlock-Seven Cases of Deadlock -Conditions for Deadlock- Modeling Deadlock-Strategies for Handling Deadlocks -Starvation-Concurrent Processes: What Is Parallel Processing-Evolution of Multiprocessors-Introduction to Multi-Core Processors-Typical Multiprocessing Configurations--Process Synchronization Software

Unit IV Device Management

Types of Devices-Sequential Access Storage Media-Direct Access Storage Devices-Magnetic Disk Drive Access Times- Components of the I/O Subsystem- Communication among Devices-Management of I/O Requests

Unit: V File Management

The File Manager -Interacting with the File Manager -File Organization-Physical Storage Allocation -Access Methods-Levels in a File Management System - Access Control Verification Module

Text Book:

1. Understanding Operating Systems, Ann McIver McHoes and Ida M. Flynn, CourseTechnology, Cengage Learning, 2011

Reference Book:

1. Operating Systems, AchyutGodbole and AtulKahate, McGraw Hill Publishing, 2010.

CORE PRACTICAL V

COMPUTER GRAPHICS AND ANIMATION LAB

Objective :

To Impart Practical Training in Computer Graphics and Animation related problems

Photoshop:

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images
(ii) Using brushes and creating multicolor real life images
2. Cropping, rotating, overlapping, superimposing, pasting photos on a page
3. Creation of a single image from selected portions of many
4. Developing a commercial brochure with background tints
5. Creating an image with multi-layers of images and texts.
6. Applying masks and filtering on images

Flash: Develop an image(s) and do the following.

1. Basic Drawing and Painting.
2. Working with Strokes and Fills
3. Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects
4. Creating and Managing Multiple Layers
5. Converting Text into Shapes
6. Animate using motion, shape, Tweening, and actions

MAJOR BASED ELECTIVE

SOFTWARE ENGINEERING

Objective:

To provide knowledge of the various phases of Software Engineering Process

Unit I

Introduction : Introduction to Software Engineering - Software Process - Software Process Models - Software Model - Requirements Engineering Principles : Requirements Engineering - Importance of Requirements - Types of Requirements - Steps involved in Requirements Engineering

Unit II

Requirements Analysis Modeling : Analysis Modeling Approaches - Structured Analysis - Object Oriented Analysis - Design and Architectural Engineering : Design Process and Concepts - Basic Issues in Software Design - Characteristics of Good Design - Software Design and Software Engineering - Function Oriented System vs Object Oriented System - Modularity, Cohesion, Coupling, Layering - Real Time Software Design - Design Models - Design Documentation

Unit III

Object Oriented Concepts : Fundamental Parts of Object Oriented Approach - Data Hiding and Class Hierarchy Creation - Relationships - Role of UML in OO Design - Design Patterns - Frameworks - Object Oriented Analysis - Object Oriented Design - User Interface Design : Concepts of User Interface - Elements of User Interface - Designing the User Interface - User Interface Evaluation - Golden Rules of User Interface Design - User Interface Models - Usability

Unit IV

Software Coding - Introduction to Software Measurement and Metrics - Software Configuration - Project Management Introduction - Introduction to Software Testing - Software Maintenance

Unit V

Web Engineering : Introduction to Web - General Web Characteristics - Web Application Categories - Working of Web Application - Advantages and Drawbacks of Web Applications - Web Engineering - Emerging Trends in Software Engineering - Web2.0 - Rapid Delivery - Open Source Software Development - Security Engineering - Service Oriented Software Engineering - Web Service - Software as a Service - Service Oriented Architecture - Cloud Computing - Aspect Oriented Software Development - Test Driven Development - Social Computing

Textbook:

1. Software Engineering, Chandramouli Subramanian, SaikatDutt, ChandramouliSeetharaman, B.G.Geetha, Pearson Publications, 2015.

Reference Books:

1. Software Engineering, Jibitesh Mishra, Pearson Education, 2011.

SKILL BASED ELECTIVE II (V SEMESTER)

CULTURAL TOURISM IN INDIA

Unit I

Travel for knowledge and education – travel during Ancient period-Nalanda,Taxila , Kanchipuram, Madurai, Medieval Period – Travellers – Abdul Razaak,Ibn Batuta, Marcopolo, Domingos Paes, Nuniz Modern Period – WilliamHawkins, Thomas Roe, Bernier.

Unit II

Culinary Traditions, Crafs, Melas, Emporias, Folklores, Traditions. MusicHindustani, Carnatic Dance – Kuchipudi, Odisi, Kathakalli,Bharathanattiyam.

Unit III

Tourist Centres in North – Delhi, Agra, Jaipur, Ajanta, Ellora. South – Belur,Helibed, Mysore, Mamallapuram, Kanchipuram, Madurai, Tanjore, Trichy.

Unit IV

Fairs – in Chennai, Chidambaram, Thiruvaiyaru and Kanyakumari. Festivals –Holi, Deepavali, Dasara, Ugadi, Onam, Pongal.

Unit V

Eco-Tourism – The concept – Eco Tourism in Coastal centres – Kanyakumari,Mahabalipuarum, Poompuhar, Kovalam. Hill Stations – Ooty – Masinakudi,Kodaikanal, Kerala – Kumaragam.

References:

1. Agarwal V.S. The Heritage of Indian Art, Publications divisions, Govt. of India, New Delhi 2003.
2. Basham A.L. The wonder That was India, 3rd Edition, London, 2002.
3. Basham A.L. (ed) A cultural History of India, Oxford University Press, New Delhi 2002.

SKILL BASED ELECTIVE III (V SEMESTER)

TOURISM PRODUCT - 3

Unit I

Geography of Tourism – South Indian Culture – Art & Architecture – Temples in west coast - ,Thiruvanandapuram and Guruvayur.

Unit II

Temples in Karnataka – Saravanabelagula, Behlur – Hampi – Helibid – Garden City Bangalore.

Unit III

Heritage Tourism – Eco Tourism – Cultural Tourism – Sports Tourism – Health Tourism- Adventure Tourism.

Unit IV

Temples in Tamil Nadu – Grand Temple in Tanjavur – Airavatheswara Temple in Darapuram – Cave Temples in Mamallapuram – Meenakshi Temples in Madurai – Church in Velankanni, Durgha in Nagore.

Unit V

Tourism marketing – purpose of Tourism marketing – marketing information systems (MIS) – Tourism promoting strategy – Tourism planning – Tourism advertisement strategy - publicity – overseas marketing and domestic marketing.

Reference Books:

1. Rometa Chawla – Economics of tourism and Development 2002
2. K.K.Sharma – Tourism and Economics Development 2003
3. M.Plankaj Bhalla – potential of Tourism in study of Himachal Pradesh 2004.
4. Diamond J. – Tourism role in economic development and cultural change 2004.
5. J. Jafari – Economic costs of tourism Developing countries 2002.

CORE COURSE VIII

MOBILE COMPUTING

To understand the Architectures, Synchronization Process and Operating Systems in Mobile Computing

Unit I

Mobile Communications - An Overview: Mobile Computing - Mobile Computing Architecture - Mobile Devices - Mobile System Networks - Data Dissemination - Mobility Management - Security

Unit II

Mobile Devices and Systems: Mobile Phones - Digital Music Players - Handheld Pocket Computers - Handheld Devices with Operating Systems - Smart Systems - Limitations of Mobile Devices - Automotive Systems

Unit III

GSM and Similar Architectures : GSM Services and System Architecture - Radio Interfaces - Protocols - Localization - Calling - Handover - Security - New Data Devices - General Packet Radio Service - High Speed Circuit Switched Data

Unit IV

Data Synchronization in Mobile Computing Systems : Synchronization - Synchronization Software for Mobile Devices - Synchronization Protocols - Mobile Devices Server and Management : Mobile Agent - Application Server - Gateways - Portals - Service Discovery - Device Management - Mobile File Systems - Security

Unit V

Mobile Operating Systems: Operating System - Palm OS - Windows CE - Symbian OS - Linux for Mobile Devices

Text Book:

1. Mobile Computing, Rajkamal, Oxford University Press, 2011.

Reference Book:

1. Mobile Computing, KumkumGarg, Pearson Education, 2010

CORE COURSE IX
DATABASE SYSTEMS

Objective:

To provide the basic concepts of the Database Systems including Data Models, Storage Structure, Normalization and SQL

Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View of Data --Database Languages - Relational Databases - Database Design -Object- Based and Semi structured Databases - Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit II

Relational Model: Structure of Relational Databases - Fundamental Relational- Algebra Operations Additional Relational-Algebra Operations- Extended Relational- Algebra Operations - Null Values - Modification of the Database.

Unit III

SQL: Data Definition - Basic Structure of SQL Queries - Set Operations- aggregate Functions - N u l l V a l u e s - Nested Subqueries - Complex Queries - Views - Modification of the Database - Joined Relations - SQL Data Types and Schemas - Integrity Constraints -Authorization - Embedded SQL.

Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus - Query-by- Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - 3 Constraints - Entity- Relationship Diagrams - Entity-Relationship Design Issues - Weak Entity Sets - Database Design for Banking Enterprise

Unit V

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies-More Normal Forms - Database- Design Process

Text Book:

1. Database System Concepts, Sixth edition, Abraham Silberschatz , Henry F. Korth, S. Sudarshan, McGraw-Hill-2010.

Reference Books:

1. Database Systems: Models, Languages, Design and Application, Ramez Elmasri, Pearson Education 2014

CORE PRACTICAL VI
DATABASE SYSTEMS LAB

Objective : To Impart Practical Training in MySQL

1. Create a table and perform the following basic mysql operations

- a) Set the primary key
- b) Alter the structure of the table
- c) Insert values
- d) Delete values based on constraints
- e) Display values using various forms of select clause
- f) Drop the table

2. Develop mysql queries to implement the following set operations

- a) Union
- b) Union all
- c) Intersect
- d) Intersect all

3. Develop mysql queries to implement the following aggregate functions

- a) Sum
- b) Count
- c) Average
- d) Maximum
- e) Minimum
- f) Group by clause & having clause

4. Develop mysql queries to implement following join operations

- a) Natural join
- b) Inner join
- c) Outer join-left outer, right outer, full outer
- d) Using join conditions

5. Develop mysql queries to implement nested subqueries

- a) Set membership (int, not int)
- b) Set comparison (some, all)
- c) Empty relation (exists, not exists)
- d) Check for existence of Duplicate tuples(unique, not unique)
- e)

6. Develop mysql queries to create a views and expand it.

7. Develop mysql queries to implement

- a) String operations using %
 - b) String operations using =, <
 - c) Sort the element using asc,desc
- [*create necessary relations with requires attribute]

8. Consider the following database for a banking enterprise

BRANCH(branch-name:string, branch-city:string, assets:real)

ACCOUNT(accno:int, branch-name:string, balance:real)

DEPOSITOR(customer-name:string, ccno:int)

CUSTOMER(customer-name:string, customer-street:string,
customer-city:string)

LOAN(loan-number:int, branch-name:string, amount:real)

BORROWER(customer-name:string, loan-number:int)

- i. Create the above tables by properly specifying the primary keys and the foreign keys
- ii. Enter at least five tuples for each relation
- iii. Find all the customers who have at least two accounts at the *Main* branch.
- iv. Find all the customers who have an account at *all* the branches located in a specific city.
- v. Demonstrate how you delete all account tuples at every branch located in a specific city.
- vi. Generate suitable reports.
- vii. Create suitable front end for querying and displaying the results.

MAJOR BASED ELECTIVE II

PROGRAMMING IN PHP

Objective :

To understand the Concepts of PHP and Ajax.

Unit I

Essentials of PHP - Operators and Flow Control - Strings and Arrays.

Unit II

Creating Functions - Reading Data in Web Pages - PHP Browser - HandlingPower.

Unit III

Object-Oriented Programming –Advanced Object-Oriented Programming .

Unit IV

File Handling –Working with Databases – Sessions, Cookies, and FTP

Unit V

Ajax – Advanced Ajax – Drawing Images on the Server.

Text Book:

1. The PHP Complete Reference, Steven Holzner, McGrawHill Education, 2007

Reference Books:

1. [PHP: A Beginner's Guide, VikramVaswani, McGraw Hill Education, 2008](#)

MAJOR BASED ELECTIVE III

DOT NET LAB

Objective :

To Impart Practical Training in Dot Net Programming Language

1. Design ASP.Net web form using Html Server Controls to enter job seeker's details.
2. Create an ASP.Net web form using Web control to enter E-Mail registration form.
3. Apply appropriate validation techniques in E-Mail registration form using validation controls.
4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.
5. Create a web application using ADO.Net that uses which performs basic data manipulations:

(i). Insertion (ii) Updating (iii) Deletion (iv) Selection Hint:
Do operations using Ms-Access and SQL-Server
6. Create an application using Data grid control to access information's from table in SQL server.
7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.

Case Studies (Must include basic database operations such as Insertion, Deletion, Modification, Selection and Searching)

8. Job Search Portal.
9. College Portal.
10. Company Portal.

Gender Studies

Objectives

- _ To make boys and girls aware of each others strengths and Weakness.
- _ To develop sensitivity towards both genders in order to lead an ethically enriched life.
- _ To promote attitudinal change towards a gender balanced ambience and women empowerment .

Unit – I

Concepts of Gender: Sex – Gender – Biological Determinism – Patriarchy – Feminism –

Gender Discrimination – Gender Division of labour – Gender Stereotyping – Gender Sensitivity– Gender Equity – Equality – Gender Mainstreaming - Empowerment.

Unit – II

Women’s Studies vs Gender Studies : UGC’s Guidelines – VII to XI Plans – Gender Studies : Beijing Conference and CEDAW – Exclusiveness and Inclusiveness.

Unit – III

Areas of Gender Discrimination : Family – Sex Ratio – Literacy – Health – Governance – Religion Work Vs Employment – Market – Media – Politics – Law – Domestic Violence – Sexual Harassment – State Policies and Planning .

Unit – IV

Women Development and Gender Empowerment : Initiatives – International Women’s Decade – International Women’s Year – National Policy for Empowerment of Women – Women Empowerment Year 2001 – Mainstreaming Global Policies .

Unit – V

Women’s Movements and Safeguarding Mechanism : In India National /State Commission for Women(NCW) – All Women Police Station – Family Court – Domestic Violence Act –

Prevention of Sexual Harassment at Work Place Supreme Court Guidelines – Maternity Benefit Act – PNDT Act – Hindu Succession Act 2005 – Eve Teasing Prevention Act – Self Help Groups – 73rd and 74th Amendment for PRIS.
