J.J College of Arts and Science (Autonomous), Pudukkottai – 622 422

B.Sc – IT (Course Structure under CBCS)

(For the Candidates admitted from academic year 2016 - 2017 onwards)

SEM	Part	PaperCode	Course Title	Hrs / Week	Credit	Exam Hrs	Marks		Total Marks
							Int.	Ext	
I	I	U1RTL1	Language Course – I	5	3	3	25	75	100
	II	U1REL1	English Language Course – I	5	3	3	25	75	100
	III	U1RITCC1	Core Course – 1 IT for Beginners	6	5	3	25	75	100
		U1RITCC2P	Core Course – 2 Digital Document Preparation Practical	8	5	3	40	60	100
		U1RMIAC1	Allied Course I Essentials of Mathematics	6	3	3	25	75	100
TOTAL				**30**	**19**	**-**	**-**	**-**	**500**
II	I	U2RTL2	Language Course – II	5	3	3	25	75	100
	II	U2REL2	English Language Course- II	5	3	3	25	75	100
	III	U2RITCC3	Core Course – 3 Programming in C	4	5	3	25	75	100
		U2RITCC4P	Core Course – 4 Programming in C Practical	3	5	3	40	60	100
		U2RITORAC2	Allied Course II Operation Research	4	3	3	25	75	100
		U2RMNMAC3	Allied Course III Numerical Methods and statistics	4	3	3	25	75	100
	IV	U2RES	Environmental Studies	3	2	3	25	75	100
		U2RVE	Value Education	2	2	3	25	75	100

			TOTAL	**30**	**26**	**-**	**-**	**-**	**800**

III	I	U3RTL3	Language Course – III	5	3	3	25	75	100
	II	U3REL3	English Language Course- III	5	3	3	25	75	100
	III	U3RITCC5	Core Course – 5 Data Structures	5	5	3	25	75	100
		U3RITCC6	Core Course – 6 Object Oriented Programming in C++	5	5	3	25	75	100
		U3RITCC7P	Core Course – 7 Object Oriented Programming in C ++ Practical	5	5	3	40	60	100
		U3RITAC4	Allied Course IV Digital Electronics	5	3	3	25	75	100
			TOTAL	**30**	**24**	**-**	**-**	**-**	**600**
IV	I	U4RTL4	Language Course – IV	5	3	3	25	75	100
	II	U4REL4	English Language – IV	5	3	3	25	75	100
	III	U4RITCC8	Core Course – 8 Database Concepts	5	5	3	25	75	100
		U4RITCC9P	Core Course – 9 RDBMS Practical	3	5	3	40	60	100
		U4RITAC5	Allied Course V Computer Hardware and Troubleshooting.	5	3	3	25	75	100
		U4RITAC6	Allied Course VI Analysis and Design of Algorithms	5	3	3	25	75	100

	IV	U4RITSBE1	Skill Based Elective Course – I (Web User Interface)	2	2	3	25	75	100
TOTAL				**30**	**24**	**-**	**-**	**-**	**700**
V	III	U5RITCC10	Core Course – 10 J2SE Technology	6	5	3	25	75	100
		U5RITCC11	Core Course – 11 Operating System	6	5	3	25	75	100
		U5RITCC12P	Core Course – 12 J2SE Technology Practical	6	5	3	25	75	100
		U5RITMBE1	Major Based Elective Course - 1 Computer Architecture	6	4	3	25	75	100
	IV	U5RITSBE2	Skill Based Elective Course – II Web Design Tool	4	2	3	25	75	100
		U5RITIDC1	Inter Disciplinary Course – I Marketing Management	2	2	3	25	75	100
TOTAL				**30**	**23**	**-**	**-**	**-**	**600**
VI	III	U6RITCC13	Core Course – 13 VB.NET	6	5	3	25	75	100
		U6RITCC14P	Core Course – 14 VB. NET Practical	6	5	3	25	75	100
		U6RITMBE2	Major Based Elective Course – 2 Computer Networks	5	4	3	25	75	100
		U6RITMBE3	Major Based Elective Course – 3 Software Engineering	5	4	3	25	75	100
	IV	U6RITSBE3	Skill Based Elective Course – III Soft Skills	4	2	3	25	75	100
		U6RITIDC2	Inter Disciplinary Course – II Management Concepts	2	2	3	25	75	100
	V	U6RGS	Gender studies	2	1	3	25	75	100

			Extension Activities	-	1	-	-	-	-
TOTAL				**30**	**24**	**-**	**-**	**-**	**700**
Grand Total					**140**				**3900**

INFORMATION TECHNOLOGY FOR BEGINNERS - C.C- I

Objectives:

1. **To educate the beginners the fundamentals of computer hardware and software.**
2. **To make them understand how to create MS-Office applications**
3. **To teach them the basic concepts of internet and programming concepts.**

UNIT I: Internet and World Wide Web

Internet and World Wide Web- Home page, Website, Browser, Provider and Web Multimedia. Recent Trends in IT - Business, Industry, Education, Training and Entertainment. Anatomy of Computer, Types of computers-Super computers, Mainframes, personal computers and mini computers. Central Processing Unit-Memory-ROM, RAM, Virtual Memory and Cache Memory.

UNIT II: Input and Output Devices

Input and Output Devices-Keyboard,scanner,mouse,monitor and printer-Secondary Storage Media-Magnetic, optical and solid state devices –Needs of Backup-Introduction to Software-System software and Application software - Types of Operating Systems-Server, Mainframe, Handheld and Embedded operating systems.

UNIT III: Word Processing:

Word Processing: Entering and Editing documents –Word wrap,Editing,Spelling checker,Grammer checker,Thesaurus,Find and Replace, Merge printing and Footnotes. Formatting Documents-Tables and styles -Word Processing Features-Desktop Publishing versus word processing ,Spreadsheet Applications – Entering data, functions and chart type-Database Applications-creating database and creating queries -Internet Connectivity.

UNIT IV: Communications:

Communications-The Electronic web: Network Applications-Fax, voice mail and Email –Types of Network - Local Area Network and Wide Area Network -Topologies of Network. Multimedia - Tools of Multimedia.

UNIT V: Programming and System Development:

Programming and System Development: Programming Languages-First Generation, Second Generation and Third Generation- Programming Techniques-Flowchart, Branching and Looping. Personal, Social and Ethical issues.

TEXT BOOK

1. Dennis P.Curtin, Kim Foley, Kunal Sen, Cathleen Morin, "Information Technology the Breaking Wave", Tata McGraw Hill Publication, 2005. [**Unit-I:** Chapter 1,2,3 , **Unit-II:** Chapter 4,5,6, **Unit-III:** Chapter 7,8, **Unit-IV:** Chapter 9,10,11, **Unit-V:** chapter 12,13]

DIGITAL DOCUMENT PREPARATION PRACTICAL - C.C-II

1. Create a simple word processing document like Bio-data and a Letter by manipulating text.

2. Prepare a document in the Newspaper format in multicolumn using bullets, footer&header

3. Create a Calendar using tables in MS-word and also prepare a Greeting Card using Template.

4. Prepare a letter in MS word using Mail merge.

5. Create a mark list using formula and built-in function in MS-Excel

6. Draw a chart for a mark list in M.S Excel.

7. Create a computer based presentation using multiple slides in Power Point

8. Give the animation effects to the slides and use the design templates in PowerPoint presentation

9. Create a Database Table and do data insertion/query/updating/deletion.

10. Create a Simple Web Page using HTML.

Core Course-3 (Semester-II)

PROGRAMMING IN C

Objectives:

1. To teach the basic concepts of C.
2. Educating the students how to construct control statements and loops in C
3. To teach them the usage of arrays and structures
4. Making the students to build their own applications in C.

Unit I: Introduction to C

Introduction to C – Tokens-Identifiers, Keywords, Constants, Variables, Data types –Built-in types and Pre-defined types- Operators-Types of operstors and Expressions-Types of Expressions.

Unit II –Control Structures

Managing Input and Output operations – Decision Making and Branching –simple if, if else, Nested if and if else ladder, switch, break, continue - Decision making and Looping- while, do while and for loop.

Unit III - Arrays

Arrays –single-dimensional, Multi-dimensional Array- Character Arrays and Strings – User defined Functions.

Unit IV – Structures and Pointers

Structures and unions – Pointers – File management in C-naming, opening, closing and appending a file.

Unit V –Programming Guidelines

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

Text Book:

1.Balagurusamy E .,Programming in ANSI C , Third edition, Tata McGraw-Hill, 2006(ISBN – 0-07-053477-2)[Unit-1 (Chapters - 1, 2, 3) ; Unit-2 (Chapters – 4, 5, 6) ; Unit-3 (Chapters – 7,8,9) ;Unit-4 (Chapters – 10, 11,12); Unit-5 (Chapters – 13,14,15)]

Reference Book:

1. Byron S Gottfried “Programming with C”, Schaums Outline Series – Tata McGraw Hill Publications, New Delhi.

Core Course-4 (Semester-II)

PROGRAMMING IN C PRACTICAL

1. Solution of a Quadratic Equation (all cases).

2. Sum of Series (sine, cosine, exponential).

3. Ascending and descending order of numbers using Arrays (Use it to find Largest and Smallest Numbers).

4. Sorting of names in Alphabetical order.

5. Matrix operations (Addition, Subtraction, Multiplication – using functions.

6. Finding factorials, generating Fibonacci Numbers using recursive functions.

7. String manipulations without using string functions (string length, string comparison, string copy, palindrome checking, counting words and lines in strings (Use function pointers).

8. Creation and processing of Sequential files for payroll and Mark list preparation (use structures for Record Description).

9. Basic exercise in dynamic memory allocation & Pointer usage.

10. Solution of Algebraic and transcendental Equations: Newton-Ralphson method.

11. Numerical Integration – Trapezoidal Rule.

12. Numerical Integration –Simpson's (1/3, 3/8) Rules.

CORE COURSE-5 (SEMESTER-III)

DATA STRUCTURES

Objectives:

1. To create a clear idea about logical structures of data.
2. To teach the students how to do manipulation with the different data structures.
3. To make them learn applications of data structures.

UNIT 1 : **Data structures**

Data structures: introduction to data structures-Ordered lists-Representation of Arrays-Stacks and Queues: Stacks – Queues –Circular Queues-Evaluation of expressions- Multiple Stacks and Queues.

UNIT 2 : Linked list

Single Linked List-Linked Stacks and Queues-Polynomial Addition –Doubly Linked Lists.

UNIT 3: **Trees**

Basic Terminology- Binary tree Representation- Binary tree Traversal- Threaded Binary tree – Binary tree Representation of Trees.

UNIT 4: **Graphs**

Terminology and Representation – Traversal – Connected Components and Spanning trees – Shortest paths and – Activity Network, Topological Sort.

UNIT 5: Applying Data Structure for Problem Solving

Insertion sort-quick sort- heap sort- Decision Trees – Game trees.

TextBook:

“Fundamentals of Data Structure s“ , Ellis Horowitz , Sartaj Sahani

[**Unit-1** - (chapter 2,3), **Unit-2** - (Chapter- 4) **Unit-3** - (Chapter-5) **Unit-4-** (Chapter- 6) **Unit-5-** (Chapter-6,7)].

Reference Book:

"Data Structures and Algorithms", Alfred V Aho, John E.Hopcroft, Jeffrey D.Ullman Pearson Education

CORE COURSE-6 (SEMESTER-III)

OBJECT ORIENTED PROGRAMMING IN C++

Objectives:

1. **To teach the basic concepts of OOP.**
2. **Educating the students the tokens of C++**
3. **To instruct the students to construct control statements, loops,functions in C++**
4. **To teach how to use the OOP details like class, contructor, overloading, overiding etc.**
5. **Making the students to build their own applications in C++.**

Unit-I

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

Unit II

Classes and Objects – Constructors and Destructors – Type of Constructor-New Operator – Operator Overloading and Type Conversions

Unit III

Inheritance: Types of Inheritance- Extending Classes – Abstract Classes– Pointers.

Unit IV

Virtual Functions and Polymorphism -Managing Console I/O Operations

Unit V

Working with Files- Manipulating Strings.

Text Book

1. Balagurusamy. E - "Object Oriented Programming with C++", Tata McGraw Hill Publications, 2006 Third edition.,[Unit-1 (Chapters - 1, 2, 3, 4) ; Unit-2 (Chapters – 5, 6,7 ,16) ; Unit-3 (Chapters – 8.9)Unit-4 (Chapters – 10, 11, 12, 13); Unit-5 (Chapters – 14, 15, 16, 17)]

Reference Books

1. Barbara Johnston, C++ Programming today, Pearson education/Prentice-Hall of India. ISBN: 81-317-1079-3, 2007.
2. Steve Oualline, Practical C++ programming, O.Reilly/Shroff publishers & Distributors. ISBN: 81-7366-682-2.

CORE COURSE-7 (SEMESTER-III)

OBJECT ORIENTED PROGRAMMING IN C++ PRACTICAL

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.

ALLIED COURSE IV (SEMESTER III)

DIGITAL ELECTRONICS

Objectives:

- **To teach the students about the basic number systems.**
- **To educate them logic gates and Boolean algebra.**
- **To make the students understand the Combinational circuits and sequential circuits**
- **To teach them the role of flip-flops**

UNIT I: Number Systems

Binary number system – Binary to decimal conversion – Decimal to binary conversion – Binary Addition – Binary subtraction – Multiplication and division – Octal numbers – Hexa decimal numbers

UNIT II : Logic Gates and Boolean Algebra

Boolean Algebra and logic gates – AND, OR, NOT, NAND, NOR, EX-OR – Boolean algebra **:** Definitions – Fundamentals of Boolean algebra – Boolean functions – Minterms and maxterms – Laws and theorems of Boolean algebra – De'Morgans theorem – UBB – NAND gate as UBB – NOR gate as UBB.

UNIT III: K map:

K map: K map – Sum of products –Product of sums– Don't care conditions – Overlapping groups – Rolling the Map – Eliminating Redundant groups.

UNIT IV: Combinational Logic Circuits

Introduction – Adders – The half Adder – The full Adder – Subtractors – BCD Adder – Multiplexer – DEMUX – Decoders – Encoders

UNIT V: Sequential Logic Circuits

Counters and shift Registers **:** Counters – Asynchronous or Ripple counter – Ring counter – Twisted ring counter - State diagrams and state tables

Text Book:

Digital Electronics – K.MEENA, PHI Learning Pvt.Ltd. NewDelhi, 2009.
[Unit I- Chapter 1 Unit II-Chapters 2,3 Unit III - Chapter 3 Unit IV-Chapter 4 Unit V- Chapter 6]

Reference Book:

Computer System Architecture – M.Morris Mano, Third Edition,
PHI Learning pvt.Ltd, NewDelhi, 2007

Core Course 8 (Semester IV)
DATABASE CONCEPTS

Objectives:

1. **Explain the main advantages of modern database management systems over file systems.**
2. **Design, create, and query relational databases to satisfy user requirements.**
3. **Design, build and deploy database-backed applications with dynamic website front-end.**
4. **Implement data access control mechanisms for database and application security.**
5. **Analyze the ethical issues and responsibilities related to records management and its impact on privacy, discrimination, etc. and its local and global impact on society.**

UNIT I: Introduction

Introduction – database application – purpose of database system – view of data – database languages – relational databases – database design – object based and semi structure database – data storage and querying transaction management – data mining and analysis database architecture – database user and administration – history of database system.

UNIT II: Relational Model

Relational model – structure of relational database – fundamental relational algebra – additional relational algebra – extended relational algebra operations – null values – modification of the database

UNIT III: Introduction to SQL

SQL – database definition – basic structure of SQL queries – set operations – aggregate functions – null values – nested sub – queries – complex queries – view – modification of the database – joined relations – SQL data types and schema – integrity constraints – authorization – embedded SQL.

UNIT IV: Relational Language

Relational language – tuble relational calculus – domain relational calculus – QBE (query by example) – database designed and the ER model – over view of design process – three constraints – ER design issues – weak entity set – database design for banking enterprise.

UNIT V: Relational Database Design:

Relational database design feature of good database design – automatic domain and first normal form – first normal from decomposition using functional dependency – decomposition using multi – valued dependency – more normal forms database design process.

TEST BOOK

Database system Concepts, Abraham Silberschatz, Henry F.Korth,Sundarsan , Fifth Edition. Unit I(Chapter 1) Unit II (Chapter 2) Unit III (Chapter 3,4) Unit IV (Chapter 5,6) Unit V (Chapter 7)

Reference Book:

Database Systems– S.K.Singn,Published by Dorlong Kindersley(India) Pvt Ltd

CORE COURSE-9 (SEMESTER-IV)

RDBMS- PRACTICAL

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 calculate 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 students percentage and grade using command line arguments.

6. Write a program to draw a circle or triangle or square using polymorphism and Inheritance.

7. Implement multiple inheritance concept in java using interface, you can choose your own example of a company or education institution or a general concept which require the use of interface to solve a particular.

8. Write a Program to create threads and assign priorities to them.

9. Write a Program to develop an applied to play multiple audio clips using multithreads.

10. Write a program to create a window with the check boxes called red, green and blue the applet should change the color according to the selection.

ALLIED COURSE-V (SEMESTER-IV)

COMPUTER HARDWARE AND TROUBLESHOOTING

Objectives:

1. **To teach the students the basic concepts of Computer Hardware.**
2. **To impart inbound knowledge about Advanced Memory Techniques.**
3. **Learning Magnetic Storage device**
4. **Learning basics optical Storage device**
5. **Learning basics Troubleshooting Techniques**

UNIT 1: Introduction to Computer Hardware

Fundamentals of PC Technology: Building Blocks of PC – Principles of CPU Instructions- Multiprocessor: CPU Operation – Troubleshooting of CPU.

UNIT 2: Memory Techniques

Memory: Memory works – Memory chips and modules – Module sizes and banks of memory- DRAM Timing and memory types – Advanced Memory techniques – Troubleshooting.

UNIT 3: Storage Devices

Magnetic Storage Devices: Magnetic Storage - Hard disk storage device – Floppy Disk storage device – Cartridge devices – Troubleshooting.

UNIT 4: I/O Devices

Optical Storage Device: Optical storage media – CD ROM Devices – DVD Drives – Recordable Drives – Troubleshooting.

UNIT 5: Troubleshooting Techniques

Keyboards and Pointing Devices: Keyboards – Pointing Devices – Video sub Systems: Video Adapters – Monitors.

TEXT BOOK:

PC Hardware – The Complete Reference by Craig Zacker and John Rourke, Tata McGrawHill, 2001 Edition.
Unit 1: Chapters 1 and 2, Unit 2: Chapter 3. Unit 3: Chapter 7. Unit 4: Chapter 8.
Unit 5: Chapter 10 and 11.

REFERENCE BOOK:

IBM PC and CLONES: Hardware, Troubleshooting and maintenance by Govindarajulu. B, Tata-McGraw-Hill, Second Edition.

ALLIED COURSEVI(SEMESTER-IV)

ANALYSIS AND DESIGN OF ALGORITHMS

Objectives

Upon completion of this course, students will be able to do the following:

- Analyze the asymptotic performance of algorithms.
- Write rigorous correctness proofs for algorithms.
- Demonstrate a familiarity with major algorithms and data structures.
- Apply important algorithmic design paradigms and methods of analysis.
- Create efficient algorithms in common engineering design situations.

UNIT I: ALGORITHM ANALYSIS

Introduction - algorithm definition and specification – performance analysis – trees – dictionaries – priority queues – sets and disjoint set union – graphs – basic traversal and search techniques.

UNIT II: DIVIDE AND CONQUER, GREEDY METHOD

Divide – and – conquer: General method – binary search – Finding maximum and minimum - merge sort – quick sort – The Greedy algorithm - General method – knapsack problem.

UNIT III: DYNAMIC PROGRAMMING

Dynamic Programming - general method – multistage graphs – all pair shortest path – optimal binary search trees – 0/1 Knapsack – traveling salesman problem.

UNIT IV: BACKTRACKING

Backtracking: General method – 8-Queens problem – sum of subsets – graph coloring – Hamiltonian cycles – knapsack problem

UNIT V: TRAVERSALS, BRANCH AND BOUND

Graph traversals – Connected components – Spanning trees – Biconnected components – Branch and Bound – General methods (FIFO and LC) – 0/1 Knapsack problem – Introduction to NP-hard and NP-completeness.

TEXT BOOKS

1. Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, Computer Algorithms/C++, 2nd Edition, Universities Press, 2007.
2. Easwarakumar, K.S., ―Object Oriented Data Structures Using C++, Vikas Publishing House, 2000.

   Chapter: Unit I - 1,2; Unit II – 3,4; Unit III – 5; Unit IV – 7; Unit V – 6,8.

REFERENCES

1. Cormen, T.H., Leiserson, C.E., Rivest, R.L. and Stein, C., Introduction to Algorithms, 2nd Edition, Prentice Hall of India Pvt. Ltd, 2003.
2. Aho, A.V., Hopcroft J.E. and Ullman, J.D., The Design and Analysis of Computer Algorithms, Pearson Education, 1999.
3. Sara Baase and Allen Van Gelder, Computer Algorithms, Introduction to Design and Analysis, 3rd Edition, Pearson Education, 2009.

SKILL BASED ELECTIVE COURSE – I (SEMESTER IV)

WEB USER INTERFACE

Objective:

1. **To teach the basic concepts of internet**
2. **To make a crisp understanding about Email and Search engines**
3. **To give a detailed instruction about HTML**

UNIT I: BASIC INTERNET CONCEPTS

What is Internet – History – Host Machines and Host Names-Client / Server Model – Domain Names – Protocols- IPAddress.

UNIT II: ADVANCED INTERNET CONCEPTS

Anatomy of an Email Message –Viewing - Sending – Replying - Search Engines – Meta Search Engine.

UNIT III: HTML INTRODUCTION

History of HTML – HTML Document – Anchor Tags– Hyper Links-Sample HTML Documents

UNIT IV: HEAD AND BODY SECTIONS

Header Section – Title – Prologue – Links –Comment – Heading – Horizontal Rule – Paragraph – Images and Pictures- Ordered and Unordered List.

UNIT V: TABLES

Table Creation – ColSpan, RowSpan – Cell Spacing, Cell Padding– Nested Tables. FRAMES**:** Frameset Definition – Frame Definition – Nested Frames. FORMS**:** Action Attribute – Method Attribute – Drop Down List –Sample Forms.

TEXT BOOK(S)

1. Wendy G. Lehnert, “Internet 101 - A Beginners Guide to Internet and the World Wide Web”, Addison Wesley.
UNITS I & II

2. C. Xavier,”World Wide Web design with HTML”, Tata McGraw Hill Publishing Limited, New Delhi.
UNITS III, IV & V

CORE COURSE 10 (SEMESTER V)

J2SE –TECHNOLOGY

Objectives:

1. **To teach the fundamentals of Core Java.**
2. **Educating the students creating arrays and methods of Java.**
3. **To instruct the students about the exclusive concepts of OOP Inheritance, Polymorphism and Packages.**
4. **To teach how to create Applets and also about Multithreading.**
5. **Making the students to build their own applications in Java**

UNIT I: OOP and Java: Introduction

Object and classes-java language-The Primaries: Introduction-character set-Tokens-Constants-Variables-Operators and Expressions-Library Methods-Strings-I/O Statements-Control Statement: If Statement-Switch Statement-While Statement-Do While Statement-For Statement.

UNIT II: Arrays and Methods

Introduction-One dimensional arrays-Two dimensional arrays-methods- method overloading-recursion. Classes and Objects: Introduction-General form of a class-creation of objects-Usage of Constructor-This Keyword-Constructor overloading-copy constructor-Static data members-static methods-Finalize () Method-Inner Classes and Anonymous Inner Classes

UNIT III: Inheritance and Polymorphism

Introduction-Inheritance the variables in a classes - Inheritance the Methods in a classes – Inheritance and Constructors-Abstract classes-Final classes- Interface and Packages: Introduction-Interfaces-Structure of an Interface-Implementations of an interface-Interface Inheritance-Packages-Package statement-Placing the classes in a Package-package Hierarchy-Import Statement-Hiding the classes in a package-Access control Modifiers.

UNIT IV: Applets and AWT:

Introduction-The Life cycle of an applet-The applet classes-Development and Execution of a Simple Applet-Syntax of applet Tag-Methods in the Graphics class-Abstract Windowing Toolkit-Introduction-Events-Listeners-Event Handling Methods-Inheritance Hierarchy of Control classes-Labels-Button Control-Checkbox- control-Radio Button Control-Choice Control –List control-Scroll Bars.

UNIT-V: Exception Handling and Multithreading

Introduction-Default Exception Handling-Exception and Error Classes-Catch Block Searching Pattern-Throw Statement-Throws clause-Custom Exceptions-Multithreading: Introduction-Life cycle of a thread-creating and Running Threads-Methods in the Thread Class-Setting the priority of a thread-Synchronization-Dead lock-Inter Thread Communication-Applet involving Threads.

Text Book:

1. Programming with Java –C.Muthu.

Unit I -Chapters 1,2and 3, Unit II - Chapters 4 and 5, Unit III - Chapters 6 and 7
Unit IV - Chapters 8, 9 and 10, Unit V - Chapters 12 and 13

CORE COURSE 11 (SEMESTER V)

OPERATING SYSTEMS

Objectives:

1. **To teach the students about the history of Operating System.**
2. **To give them knowledge about Information Management and Process Management.**
3. **To make them understand deadlocks.**
4. **To create an in-depth knowledge about file system organization.**

UNIT – 1: OVERVIEW

Importance Of Operating Systems – Basic Concepts and Terminology – An Operating System Resource Manager – An Operating System Process Viewpoint (where these resource Managers Are Activated) – Other Views of an Operating System – I/O Programming – interupt Structure and Processing.

UNIT – 2: MEMORY MANAGEMENT

Single Contigupus Allocation – introduction to Multiprogramming – Paritioned Allocation – Relocatable Partitioned Memory Management – Paged Meomory Management – Demand-paged Memory Management – Segmented Memory Management – Segmented and Demand-paged Memory Management.

UNIT – 3: PROCESSOR MANAGEMENT

State Model – Job Scheduling – Functions – Policies – Job Scheduling in Nonmultiprogrammed Environment – Process Scheduling – Function – Policies – Process State Diagrams for Scheduling – Evaluation of Round –Robin Multiprogramming – Performance – Multiprocessor Systems – Process Sychronization.

UNIT – 4: DEVICE MANAGEMENT

Techniques for Device Management – Deivce Characteristics – Hardware Considerations – Channels and control Units – Device Allocation Considerations – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Virtual Devices – Design Of A SPOOLing System.

UNIT – 5: INFORMATION MANAGEMENT

Introduction – A Simple File System – General Model of a File System – Symbolic File System – Basic file System – Access Control Verification – Logical file System – Physical File System – Allocation Stategy Module – Device Strategy Module, I/O Initiator, Device Handler.

TEXT BOOK:

"OPERATING SYSTEM" StuartE.Madnick John J.Donovan 1974 by McGraw- Hill,Inc.
UNIT – 1 (CHAPTERS 1, 2) UNIT – 2 (CHAPTER 3) UNIT – 3 (CHAPTER 4)
UNIT – 4 (CHAPTER 5) UNIT – 5 (CHAPTER 6)

REFERENCE BOOK:

"Operating System Principles" Abraham Silberschatz Peter Baer Galvin Greg Gagne.

CORE COURSE – 12(Semester-V)

J2SE TECHNOLOGY PRACTICAL

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 calculate 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 students percentage and grade using command line arguments.

6. Write a program to draw a circle or triangle or square using polymorphism and Inheritance.

7. Implement multiple inheritance concept in java using interface, you can choose your own example of a company or education institution or a general concept which require the use of interface to solve a particular.

8. Write a Program to create threads and assign priorities to them.

9. Write a Program to develop an applied to play multiple audio clips using multithreads.

10. Write a program to create a window with the check boxes called red, green and blue the applet should change the color according to the selection.

MAJOR BASED ELECTIVE COURSE-I (SEMESTER-V)
COMPUTER ARCHITECTURE

Objectives:

1. **To teach digital core concepts like gates, Boolean algebra, flip flops.**
2. **To educate the students constructing Sequential, Combinational and Integrated circuits**
3. **To create inbound knowledge about CPU and** Data Transfer
4. **Educating them about IO Organizations.**

UNIT I: Digital Circuits

Digital computers-Logic Gates- Boolean algebra-Combinational circuits - flip flops-Sequential circuits.

UNIT II: Digital Components

Integrated circuits-Decoders-Multiplexers-Registers-Shift Registers-binary counters-Memory unit.

UNIT III: Data Representation

Data types-Complements-Fixed point Representation- Floating point Representation-Gray code-Error Detection codes-Register Transfer and Micro Operations: register Transfer -Bus and memory transfers-Arithmetic micro operations- Binary Adder – binary Subtractor-Binary Incrementor -Logic micro operations-Shift micro operations.

UNIT IV: Central Processing Unit

Central processing unit: General register organization-Stack organization-Instruction formats-Addressing modes-Data Transfer and Manipulation-Program control-Reduced Instruction Set Computer (RISC).

UNIT V: I/O Organizations

I/O Interface- Asynchronous Data Transfer –Modes of transfer- Priority Interrupt- DMA.

Textbook:

Computer system and Architecture, by M.Morris Mano III Edition, Prentice Hall India.
Chapters
Unit I-1,Unit II-2,Unit III-3,4,Unit IV-8,Unit V-11

Reference book:

Digital Electronics, K.Meena

SKILL BASED ELECTIVE COURSE –II (SEMESTER V)

WEB DESIGN TOOL (FLASH)

Objectives:

1. **To teach the students the introductory concepts of Flash**
2. **To educate them the vital portions of flash like Graphics,Transformations and Editing**
3. **To impart Knowledge about Animation.**

UNIT I: INTRODUCTON TO FLASH

Flash MX Environment – Toolbar – Toolbox – Timeline -Panels-Property Inspector.

UNIT II: GRAPHIS TOOLS

: Drawing Tools – Object Selection Tools -Color Selection Tools – Viewing Tools.

UNIT III: PANELS

Design Panel – Development Panel. EDITING TECHNIQUES**:** Reshaping the Object – Optimizing the Curves — Softening the Edges.

UNIT IV: TRANSFORMATIONS

Arranging the Elements – Aligning Objects. ADVNCED CONCEPTS**:** Frames – Layers- Scenes

UNIT V: ANIMATION

Frame –By-Frame Animation – Motion Tweening – Shape Tweening – Text Animation – 3D Animation.

TEXT BOOK:

K K Thyagharajan , B Anbumani, "FLASH MX 2004", Tata McGraw-Hill Publishing Limited, New Delhi, 2004.

CORE COURSE-13 (SEMESTER VI)
VB.NET

Objectives:

1. To impart knowledge in understanding .NET Framework.
2. Understanding the structure of VB.NET Project.
3. Understanding main features of Integrated Development Environment (IDE).
4. Understanding controls in VB.NET.
5. Create applications using Microsoft windows forms.
6. Create applications that use ADO.NET.

UNIT 1: BASICS OF VB.NET

Introduction: The .net Framework and common language runtime- The visual basic integrated development environment – Operators- conditional and looping statements - Procedures – scope – Exception Handling.

UNIT 2: WINDOWS FORMS AND BASIC CONTROLS

All about Windows Forms – Textbox – Label – Link Label – Button – Checkbox – Radio Button – Panels – Group boxes – Message box – Input box – List box – Checked list box – combo box – Picture box.

UNIT 3: SPECIALIZED CONTROLS

Scrollbar – Splitters – Trace bars- Pickers – Notify Icons – Tool Tips – Timers – Menus – Built in Dialog boxes – Printing.

UNIT 4: ADVANCED CONTROLS

Image list – Tree view – List view – Tool bar- status bar – Progress bar- Tab.

UNIT 5: DATA ACCESS WITH ADO.NET

Databases – Accessing Data with the Server Explorer – Accessing data with Data Adaptor and datasets – Working with ADO.NET – Overview of ADO.NET objects.

TEXT BOOK

Visual Basic.net Programming Black Book by Steven Holzner, Dreamtech Press 2010 Edition.

Chapters

Unit-1: chapters 1, 2 and 3 Unit-2: chapter 4,5,6 and 7 Unit-3: chapters 8,9 Unit-4:chapter 10 Unit-5: chapter 21.

REFERENCE BOOK:

CORE COURSE-14 (SEMESTER VI)
VB.NET PRACTICAL

1. Write a program to accept any character from keyboard and display whether it is vowel or not
2. Write a VB.Net program to accept a string and convert the case of the characters.
3. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
4. Write a program to implement a calculator with memory and recall operations.
5. Develop a form in VB.NET to pick a date from Calendar control and display the day, month, and year details in separate text boxes.
6. Develop a VB.Net application to perform timer based quiz of 10 questions
7. Develop a VB.Net application using the File and Directory controls to implement a common dialog box.
8. Develop a database application to store the details of students using ADO.NET
9. Develop a database application using ADO.NET to insert, modify, update and delete operations.
10. Develop a VB.Net application using Datagrid to display records.
11. Develop a VB.Net application using Datagrid to add, edit and modify record

MAJOR BASED ELECTIVE COURSE II (SEMESTER – VI)

COMPUTER NETWORKS

Objectives:

1. **To make a proper understanding about the fundamentals of Computer networks.**
2. **To teach the concepts of different media.**
3. **To give an inbound knowledge about the individual layers in detail.**

UNIT-I: Introduction

Uses of Computer Networks- Network Hardware - Network Software-Reference Model: OSI Model-TCP/IP Model.

UNIT-II: Physical Layer

Guided Transmission Media-Wireless Transmission-Communication Satellites-The public Switched telephone Network.

UNIT-III: The Data Link Layer

Data Link Layer Design Issues-Error Detection and Correction-Simplex Stop and Wait Protocol-Sliding Window Protocols-HDLC-High Level Data Link Control.

UNIT-IV: The Network Layer

Network Layer Design Issues-Routing Algorithms-Congestion Control Algorithms. Quality of Services: Requirements-Techniques of Achieving Good Quality of Service-Internetworking.

UNIT-V: The Transport Layer

Services Provided To The Upper Layers-Transport Service Primitives-Berkeley Sockets. The Application Layer: Domain Name System-Electronic Mail-The World Wide Web.

TEXT BOOK:

1. Andrew S. Tanenbaum, "Computer Networks", 4th Edition, Prentice hall India.

[**Unit-I: Chapter1** (1.1, 1.2, 1.3, 1.4, 1.5), **Unit-II:** Chapter 2(2.2, 2.3, 2.4, 2.5), **Unit- III:** chapter 3(3.1, 3.2, 3.3.2, 3.4, 3.6.1), **Unit- IV:** Chapter 5(5.1, 5.2, 5.3, 5.4.1, 5.4.2, 5.5), **Unit-5**:Chapter 6(6.1.1, 6.1.2, 6.1.3),Chapter7(7.1, 7.2, 7.3)].

REFERENCE BOOK:

1. Behruz A.Ferouzan,"Data Communication and Networking",4th Edition, Tata McGraw Hill Publication.

MAJOR BASED ELECTIVE COURSE III (SEMESTER VI)

SOFTWARE ENGINEERING

Objectives:

1. **To teach the students the basic concepts of** software engineering
2. **To impart inbound knowledge about** software life cycle
3. **To give them proper guidelines to implementation ,verification and validation**

UNIT-I

Introduction to software engineering: Introduction-Size factors-Quality and productivity factors-Managerial issues. Planning a software project: Introduction-Defining the problem-Planning the development process-Planning an organizational structure-Other planning activities.

UNIT-II

Software cost estimation: Introduction-Software cost factors-Software cost estimation techniques-Staffing level estimation-Estimating software maintenance costs. Software

requirements definition: Introduction-The Software requirement specification-Languages and processors for requirement specification.

UNIT-III

Software design: Introduction-Fundamentals design concepts-Modules and modularization criteria-Design notations-Design techniques.

UNIT-IV

Implementation issues: Introduction-Structured coding techniques-Coding style-Standards and guidelines-Documentation guidelines.

UNIT-V

Verification and validation techniques: Introduction-Quality Assurance-Walkthroughs and Inspections-Static analysis-Unit testing and debugging-System testing-Formal verification-Software Maintenance: Maintenance concepts.

Text Book

Software engineering concepts, Richard E.Fairley, Tata McGraw Hill Publishing company Limited.2003 Reprint.

Chapters

Unit I-1, 2,Unit II-3,4,Unit III-5,Unit IV-6,Unit V-8,9

Reference Book

Pressman, Roger S., Software engineering, A practitioner's approach, Sixth edition, McGraw-Hill International edition, 2005 (ISBN 007-124083-7)

SKILL BASED ELECTIVE COURSE – III (SEMESTER VI)

SOFT SKILLS

UNIT I: Overview of Soft skills

Overview: Communication skills –Interpersonal skills – Leadership qualities – Lateral thinking, Creativity and innovation – Time Management –Stress management – People Skills (i) Ego styles – Professional Skills

UNIT II: Attitude

Attitude : Types of attitudes - Negative attitudes - Reactive attitudes - Victim attitudes - Planning attitudes - Entrepreneurial attitude - Implicit and Explicit attitudes - Rational attitude - Irrational attitude - Positives attitude

UNIT III: Emotional Intelligence and Interpersonal skills

Emotional Intelligence: What is emotional Intelligence – Four branch model .Interpersonal skills: Introduction -Positive character traits – Formal interpersonal skills-Reasons for poor interpersonal skills –Poor emotional intelligence-Defiance-Lack of co-operation-Incompatibility-Stress.

UNIT IV: Self – Development and Leadership

Self – Development: Self-awareness – Motivation - Maslow's theory of Hierarchy and Needs – self – analysis through SWOT – Leadership Qualities: Meaning – Traits Leadership – Honesty – Integrity – Dedication – Responsibility – Goal setting – Knowledge of Self and the Team – Decision making - Management – leadership and vision .

UNIT V: Speaking Skills and Interview skills

Speaking Skills -The sounds in English – Benefits of Speaking – Self – development Through Speaking Skills- Tasks-Interview skills: Types of interviews – Other types of interviews – Preparing for a Face-to-Face Interview.

SKILL BASED ELECTIVE COURSES

SOFT SKILLS

UNIT I: Overview of Soft skills

Overview: Communication skills –Interpersonal skills – Leadership qualities – Lateral thinking, Creativity and innovation – Time Management –Stress management – People Skills (i) Ego styles – Professional Skills

UNIT II: Attitude

Attitude : Types of attitudes - Negative attitudes - Reactive attitudes - Victim attitudes - Planning attitudes - Entrepreneurial attitude - Implicit and Explicit attitudes - Rational attitude - Irrational attitude - Positives attitude

UNIT III: Emotional Intelligence and Interpersonal skills

Emotional Intelligence: What is emotional Intelligence – Four branch model .Interpersonal skills: Introduction -Positive character traits – Formal interpersonal skills-Reasons for poor interpersonal skills –Poor emotional intelligence-Defiance-Lack of co-operation-Incompatibility-Stress.

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WEB DESIGN TOOL (FLASH)

Objectives:

4. **To teach the students the introductory concepts of Flash**
5. **To educate them the vital portions of flash like Graphics,Transformations and Editing**
6. **To impart Knowledge about Animation.**

UNIT I: INTRODUCTON TO FLASH

Flash MX Environment – Toolbar – Toolbox – Timeline -Panels-Property Inspector.

UNIT II: GRAPHIS TOOLS

: Drawing Tools – Object Selection Tools -Color Selection Tools – Viewing Tools.

UNIT III: PANELS

Design Panel – Development Panel. EDITING TECHNIQUES**:** Reshaping the Object – Optimizing the Curves — Softening the Edges.

UNIT IV: TRANSFORMATIONS

Arranging the Elements – Aligning Objects. ADVNCED CONCEPTS**:** Frames – Layers- Scenes

UNIT V: ANIMATION

Frame –By-Frame Animation – Motion Tweening – Shape Tweening – Text Animation – 3D Animation.

TEXT BOOK:

K K Thyagharajan , B Anbumani, "FLASH MX 2004", Tata McGraw-Hill
Publishing Limited, New Delhi, 2004.

WEB USER INTERFACE

Objective:

4. **To teach the basic concepts of internet**
5. **To make a crisp understanding about Email and Search engines**
6. **To give a detailed instruction about HTML**

UNIT I: BASIC INTERNET CONCEPTS

What is Internet – History – Host Machines and Host Names-Client / Server Model – Domain Names – Protocols- IPAddress.

UNIT II: ADVANCED INTERNET CONCEPTS

Anatomy of an Email Message –Viewing - Sending – Replying - Search Engines – Meta Search Engine.

UNIT III: HTML INTRODUCTION

History of HTML – HTML Document – Anchor Tags– Hyper Links-Sample HTML Documents

UNIT IV: HEAD AND BODY SECTIONS

Header Section – Title – Prologue – Links –Comment – Heading – Horizontal Rule – Paragraph – Images and Pictures- Ordered and Unordered List.

UNIT V: TABLES

Table Creation – ColSpan, RowSpan – Cell Spacing, Cell Padding– Nested Tables. FRAMES**:** Frameset Definition – Frame Definition – Nested Frames. FORMS**:** Action Attribute – Method Attribute – Drop Down List –Sample Forms.

TEXT BOOK(S)

1. Wendy G. Lehnert, “Internet 101 - A Beginners Guide to Internet and the World Wide Web”, Addison Wesley.

UNITS I & II

2. C. Xavier,”World Wide Web design with HTML”, Tata McGraw Hill Publishing Limited, New Delhi.

UNITS III, IV & V

COMPUTER GRAPHICS

OBJECTIVES:

1. To understand the basics of computer graphics.
2. To understand the graphics primitives.
3. To understand the concept of two dimensional transformation.
4. To understand the three dimensional transformation.
5. To understand the computer animation.

Unit I: Overview of Interactive Computer Graphics

Positioning of points - Database Structure for Graphics Modeling - Graphics Standards - Applications of Interactive Computer Graphics - Graphics Hardware – Introduction - Basic Computer Architecture – Microcomputer – Workstation – Memory Storage Devices - Input Devices - Graphics Displays - Graphics Monitors - Hardcopy Output Devices - Graphics Systems.

Unit II: Computer Graphics Primitives

Introduction - Raster Scan Graphics - Line Drawing Algorithms – Mid - point Circle Algorithm - Mid-point Ellipse Algorithm - Scan Conversion - Ant aliasing - Drawing Text - Properties of Graphics Primitives.

Unit III: Two-dimensional Geometric transformations

Introduction – Translation – Scaling – Rotation – Reflection – Shearing -Homogeneous Coordinates - Composite Transformations - Rotation about an Arbitrary Point -Transformation between Coordinate Systems.

Unit IV: Three-Dimensional Transformations

Introduction - Translation - Scaling - Rotation - Rotation of a 3D Object about an Arbitrary Axis – Reflection – Shearing - Composite Transformations.

Unit V: Computer Animations

Introduction - Design of Animation Sequences - Primary Computer Animation Functions - Computer Animation Languages - Types of Raster Animations – Key - frame Systems - Key - frame Algorithms - Motion Specifications - Human Walking Model.

TEXT BOOK:

1. “Computer Graphics” by Chennakesava R.Alavala,

Unit - I chapter (1, 2); Unit - II chapter (3); Unit - III chapter (5); Unit - IV chapter (10);Unit -V chapter (14).

REFERENCE BOOKS:

1.”Computer Graphics- C Version” Second Edition, Donald Hearn and Pauline Baker, Pearson Education, 2006.

2. “Multimedia in Practice -Technology and Practice”. Judith Jeffcott, Pearson Education, 2007.

MULTIMEDIA AND ITS APPLICATIONS

OBJECTIVES:

1. To understand the basics of multimedia.
2. To understand the multimedia software and hardware.
3. To understand the audio and video file format.
4. To understand the multimedia and internet.
5. To get the knowledge about delivering a multimedia project.

Unit I: Introduction to Multimedia

Introduction to Multimedia – CD ROM and the Multimedia Highway – Uses of Multimedia – Multimedia in Business – Multimedia in School – Multimedia at Home – Multimedia in Public Places – Multimedia Skill and Training – The Team – Project Manager – Multimedia Designer – Interface Designer – Writer – Video Specialist – Audio Specialist – Multimedia Programmer.

Unit II: Multimedia Software and Hardware

Multimedia Hardware and Software – Machine Tools and Windows Protection Platform – Connections – Memory and Storage Device – Input Device – Output Device – Communication Device – Basic Software Tool – Text Editing and Word Processing Tools – Painting and Drawing Tools – 3D Modeling and Animation Tool – Image Editing Tool – Sound Editing Tool – Animation, Video and Digital Movie Tool – Making Instant Multimedia – Multimedia Authoring Tool.

Unit III: Audio and Video File Format

Multimedia Building Blocks – Text – Font and Faces – Using Text in Multimedia – Computers and Text – Font Editing and Design Tool – Hyper Media and Hyper text – Sound Multimedia system Sound – MIDI (Musical Instrument Digital Interface) VS Digital Audio – Making MIDI audio – Audio File Format – Images – Making Still image – Coral – Image File

Format – Animation – Principle of Animation – Making Animation that Work – Video – How Video works – Integrating Video Tips – Recording Format – Digital Video.

Unit IV: Multimedia and Internet

Multimedia and Internet – The Internet and How it Works – Internetworking – Connections - Internet Services – World Wide Web and HTML – Multimedia on the Web – Tool for the World Wide Web – Working on the Web – Text for the Web – Image for the Web – Sound for the Web – Animation for the Web.

Unit V: Delivering a Multimedia Project

Assembling and Delivering a Project – Planning and Costing – Project Planning – Estimating – Designing and Producing – Content and Talent – Using Content created by the Others – Using Content Created for A project – Delivering – Testing – Preparing for Delivering – Delivering on CD ROM – Delivering on WWW

TEXT BOOK:

1. Multimedia making it work – Fourth Edition – Tay Vaughan – Tata Mcgraw Hill Edition 2001

Unit I: Chapter 1,2 & 3; **Unit II:** Chapter 4,5,6 & 8**; Unit III:** Chapter 9,10 & 11**; Unit IV: Chapter 14,15 &18; Unit V:** Chapter 19 & 20.

REFERENCE BOOK:

1. Multimedia in Action – James E.Shuman – Vikas Publishing House

2. Multimedia an Introduction – John Villamil – Casanova, Louis Moliva, PHI

MAJOR BASED ELECTIVE COURSES

WEB SERVICES

OBJECTIVES:

1. To understand the basics of XML.
2. To understand the concept of XML technology family.
3. To gain the knowledge about SOAP.
4. To get the knowledge about web services.
5. To understand the concept of XML security.

Unit I: XML: EXTENDING THE ENTERPRISE

Extending the enterprise-XML: Role-Just tags-Advantages-Design by omission- XML and The Web - SOAP - Web Services -.Net and J2EE- Revolutions of XML –The Data Revolution-The Architectural Revolution- The Software Revolution.

Unit II: XML TECHNOLOGY FAMILY

XML Technologies- Name Spaces - Structuring with Schemas -DTD –XML Schema-XML processing-DOM-SAX- Presentation Techniques: CSS-XSL-XFORMS-XHTML-Voice XML- Transformation: XSLT - XLINK - XPATH – X-Query - XML Infrastructure-RDF.

Unit III: SOAP

Overview Of SOAP - HTTP - XML-RPC: Data Typing – Zwift Books - Response - SOAP: Protocol – Overview-Message Structure – Example-Paths-Intermediaries - Actors - Design Patterns - Faults - SOAP With Attachments.

Unit IV: WEB SERVICES

Web Services :Overview – Opportunity and Risk-Technologies-Architecture - Key Technologies – UDDI - WSDL – XML and its Technologies - SOAP , Web Services and E-Commerce- Enterprise's Web Services: .NET- J2EE-IBM-ORACLE.

Unit V: XML SECURITY

Security Overview: Single key and Public key cryptography-Digital Signature-Managing certificates and Private key - Canonicalization - XML Security Framework - XML Encryption - XML Digital Signature - XKMS Structure - Guidelines for Signing XML Documents.

TEXT BOOK:

1. Frank. P. Coyle, "XML, Web Services and The Data Revolution", Pearson Education, 2002 **Unit I (Chapter-1), Unit II (Chapter-2), Unit III (Chapter-4), Unit IV (Chapter-5),Unit V (Chapter - 7),**

REFERENCE BOOKS:

1. Ramesh Nagappan , Robert Skoczylas and Rima Patel Sriganesh, " Developing Java Web Services", Wiley Publishing Inc., 2004.

2. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services", Pearson Education, 2004.

E-COMMERCE

OBJECTIVES:

1. To understand the basics of Electronic Business and marketing.
2. To get the knowledge about transmission modes.
3. To gain the knowledge about Internet and its types.
4. To understand the concept of Electronic Data Interchange.
5. To get the knowledge about security based protocols.

UNIT-I: WELCOME TO E-COMMERCE

Electronic Commerce - Types of Electronic Commerce Solutions - Major Projects In Electronic Communication - Application Of Electronic Commerce -Direct Marketing And Selling – Examples Of Today's E-Commerce-Transaction Processing Systems-Value Added Networks - Information Services - Educational And Medical.

UNIT-II: ESSENTIAL TOOLS FOR E-COMMERCE

Data Communication – Forms Of Data Transmission – Data Transmission Techniques - Communication Channel Bandwidths – Types Of Communication Channels – Methods Of Data

Transmission – Transmission Modes – Multiplexing – Integrated Services Digital Network (ISDN) – Asynchronous Transfer Mode (ATM).

UNIT-III: INTERNET, INTRANET AND EXTRANET

The Internet – Information Superhighway – Internet and E-commerce – Linking to the Internet – Internet Address – Internet Tools – Domain Name System(DNS) - Intranet – Communication Systems – Software used in Electronic Mail – Electronic Meeting Systems – Extranets – X.400 Message Handling System – X.500 Directory Service.

UNIT-IV: TECHNOLGIES IN E-COMMERCE SYSTEMS

Introduction – Electronic Data Interchange(EDI) – Use Of EDI – The Evolution Of EDI – Benefits Of EDI Process – How EDI Works – EDI Standards – Cost Benefit Analysis Of EDI - EDI Components – File Types – EDI Services – Choosing EDI Value Added Network(VAN) – Business Approach to EDI- EDIFACT – Structure Of EDIFACT – EDI Security and Legal Aspects.

UNIT-V : SECURITY ISSUES AND ELECTRONIC PAYMENT SYSTEMS

Introduction To Security – Authentication : Passwords – Viruses – Firewalls – Types Of Firewalls –Encryption - Pretty Good Privacy(PGP) – Secured Hypertext Transfer Protocol(SHTTP) – Secured Socket Layer(SSL) – RSA – Electronic Payment Systems – Digicash – Cybercash – Smart Card.

TEXT BOOK:

1. "Doing Business Through Internet" By S.Jaiswal

Unit-I (Chapters 1,2) Unit-II(Chapter 3) Unit-III(Chapter 9)

Unit-IV(Chapters 10 ,11) Unit-V(Chapter 13)

REFERENCE BOOK:

1."E-Commerce –The Cutting Edge Of business" Kamlesh K.Bajaj And Debjani Nag.forth

COMPUTER ARCHITECTURE

Objectives:

1. **To teach digital core concepts like gates, Boolean algebra, flip flops.**
2. **To educate the students constructing Sequential, Combinational and Integrated circuits**
3. **To create inbound knowledge about CPU and** Data Transfer
4. **Educating them about IO Organizations.**

UNIT I: Digital Circuits

Digital computers-Logic Gates- Boolean algebra-Combinational circuits - flip flops-Sequential circuits.

UNIT II: Digital Components

Integrated circuits-Decoders-Multiplexers-Registers-Shift Registers-binary counters-Memory unit.

UNIT III: Data Representation

Data types-Complements-Fixed point Representation- Floating point Representation-Gray code-Error Detection codes-Register Transfer and Micro Operations: register Transfer -Bus and memory transfers-Arithmetic micro operations- Binary Adder – binary Subtractor-Binary Incrementor -Logic micro operations-Shift micro operations.

UNIT IV: Central Processing Unit

Central processing unit: General register organization-Stack organization-Instruction formats-Addressing modes-Data Transfer and Manipulation-Program control-Reduced Instruction Set Computer (RISC).

UNIT V: I/O Organizations

I/O Interface- Asynchronous Data Transfer –Modes of transfer- Priority Interrupt- DMA.

Textbook:

Computer system and Architecture, by M.Morris Mano III Edition, Prentice Hall India.

Chapters

Unit I-1,Unit II-2,Unit III-3,4,Unit IV-8,Unit V-11

Reference book:

Digital Electronics, K.Meena

COMPUTER NETWORKS

Objectives:

4. **To make a proper understanding about the fundamentals of Computer networks.**
5. **To teach the concepts of different media.**
6. **To give an inbound knowledge about the individual layers in detail.**

UNIT-I: Introduction

Uses of Computer Networks- Network Hardware - Network Software-Reference Model: OSI Model-TCP/IP Model.

UNIT-II: Physical Layer

Guided Transmission Media-Wireless Transmission-Communication Satellites-The public Switched telephone Network.

UNIT-III: The Data Link Layer

Data Link Layer Design Issues-Error Detection and Correction-Simplex Stop and Wait Protocol-Sliding Window Protocols-HDLC-High Level Data Link Control.

UNIT-IV: The Network Layer

Network Layer Design Issues-Routing Algorithms-Congestion Control Algorithms. Quality of Services: Requirements-Techniques of Achieving Good Quality of Service-Internetworking.

UNIT-V: The Transport Layer

Services Provided To The Upper Layers-Transport Service Primitives-Berkeley Sockets. The Application Layer: Domain Name System-Electronic Mail-The World Wide Web.

TEXT BOOK:

1. Andrew S. Tanenbaum, "Computer Networks", 4th Edition, Prentice hall India.

[**Unit-I: Chapter1** (1.1, 1.2, 1.3, 1.4, 1.5), **Unit-II:** Chapter 2(2.2, 2.3, 2.4, 2.5), **Unit- III:** chapter 3(3.1, 3.2, 3.3.2, 3.4, 3.6.1), **Unit- IV:** Chapter 5(5.1, 5.2, 5.3, 5.4.1, 5.4.2, 5.5), **Unit-5**:Chapter 6(6.1.1, 6.1.2, 6.1.3),Chapter7(7.1, 7.2, 7.3)].

REFERENCE BOOK:

2. Behruz A.Ferouzan,"Data Communication and Networking",4th Edition, Tata McGraw Hill Publication.

SOFTWARE ENGINEERING

Objectives:

4. **To teach the students the basic concepts of** software engineering
5. **To impart inbound knowledge about** software life cycle
6. **To give them proper guidelines to implementation ,verification and validation**

UNIT-I

Introduction to software engineering: Introduction-Size factors-Quality and productivity factors-Managerial issues. Planning a software project: Introduction-Defining the problem-Planning the development process-Planning an organizational structure-Other planning activities.

UNIT-II

Software cost estimation: Introduction-Software cost factors-Software cost estimation techniques-Staffing level estimation-Estimating software maintenance costs. Software requirements definition: Introduction-The Software requirement specification-Languages and processors for requirement specification.

UNIT-III

Software design: Introduction-Fundamentals design concepts-Modules and modularization criteria-Design notations-Design techniques.

UNIT-IV

Implementation issues: Introduction-Structured coding techniques-Coding style-Standards and guidelines-Documentation guidelines.

UNIT-V

Verification and validation techniques: Introduction-Quality Assurance-Walkthroughs and Inspections-Static analysis-Unit testing and debugging-System testing-Formal verification-Software Maintenance: Maintenance concepts.

Text Book

Software engineering concepts, Richard E.Fairley, Tata McGraw Hill Publishing company Limited.2003 Reprint.

Chapters

Unit I-1, 2,Unit II-3,4,Unit III-5,Unit IV-6,Unit V-8,9

Reference Book

Pressman, Roger S., Software engineering, A practitioner's approach, Sixth edition, McGraw-Hill International edition, 2005 (ISBN 007-124083-7)