Veer Narmad South Gujarat University
Surat

Master of Science (Information Technology)
[Five Year Integrated Course]

Semester :3

Syllabus
(Revised)

Effective from June 2009-2010
### Effective from June 2009

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
M.Sc. (I.T.) [Five Year Integrated Course]  
B.Sc. (Information Technology)  
**Semester III**  
Teaching and Evaluation Scheme

<table>
<thead>
<tr>
<th>Paper Sr. No.</th>
<th>Paper Title</th>
<th>Teaching Schedule (Hours/Week)</th>
<th>University Exam Theory / Practical Duration</th>
<th>Internal Exam Theory / Practical Duration</th>
<th>Total Theory / Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Data Structures</td>
<td>4 -</td>
<td>3 Hrs. 70 Marks</td>
<td>2 Hrs. 30 Marks</td>
<td>100</td>
</tr>
<tr>
<td>302</td>
<td>Object Oriented Programming</td>
<td>4 -</td>
<td>3 Hrs. 70 Marks</td>
<td>2 Hrs. 30 Marks</td>
<td>100</td>
</tr>
<tr>
<td>303</td>
<td>Digital Electronics</td>
<td>4 -</td>
<td>3 Hrs. 70 Marks</td>
<td>2 Hrs. 30 Marks</td>
<td>100</td>
</tr>
<tr>
<td>304</td>
<td>Computer Networks</td>
<td>4 -</td>
<td>3 Hrs. 70 Marks</td>
<td>2 Hrs. 30 Marks</td>
<td>100</td>
</tr>
<tr>
<td>305</td>
<td>Business System – II</td>
<td>4 -</td>
<td>3 Hrs. 70 Marks</td>
<td>2 Hrs. 30 Marks</td>
<td>100</td>
</tr>
<tr>
<td>306</td>
<td>Practicals</td>
<td>10 -</td>
<td>5 Hrs. 140 Marks</td>
<td>3 Hrs. 60 Marks</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>30 -</td>
<td>490 Hrs. 700 Marks</td>
<td>210 Hrs. 700 Marks</td>
<td>700</td>
</tr>
</tbody>
</table>
Paper No : 301 L: 4 Hrs
Paper Title: Data Structures

1. Introduction:

Data structure: Definition & classification, Importance of Data Structure
Data Structure Operations
Analysis of algorithms, Algorithms Complexity, Time-Space Trade off
Big oh and theta notation

2. Linear Data structures with applications:

Array: Storage, mapping, applications

Stack: Definition and Example, Implementation, Applications: Infix, Prefix and postfix, Converting infix to postfix, Expression Evaluation, Matching parentheses, Recursion and Simulating Recursion, Tower of Hanoi Problem

Queue: Introduction, Types of queue: simple queue, circular queue, deque, priority queue, implementation, Applications: Job Scheduling

Linked List, List Types: singly, doubly, singly circular, doubly circular Operations on all types of Lists, Dynamic implementation of stack and queues Applications: Polynomial Manipulation

3. Non Linear data structures:

Tree: Introduction and representation, Forest, Tree traversal, Binary Tree representation using array and links, Binary tree traversal (recursive & non-recursive implementation)

Applications of Trees - The manipulation of Arithmetic expressions, Expression tree, Symbol-table construction, Syntax Analysis

Binary search tree, Heap tree, AVL tree, Splay tree
4. Searching and Sorting:

Linear Search, Binary Search
Hash Tables: Introduction, hash functions and hash keys, Collisions, Resolving collisions, Rehashing

Sorting with algorithm analysis (best case, worst case, average): Bubble, Selection, Insertion, Shell, Merge, Quick, Heap, Radix

5. File Structure:

Physical storage media, File Organization, Organization records into blocks, Sequential blocks, Indexing (primary, secondary, clustered, unclustered, dense, sparse)
B+ tree Index files, B tree index files, B* Tree
Hashing function and it’s characteristics, collision resolution, linear probing, chaining with and without replacement, rehashing

Main Readings:

1. An Introduction to Data Structures with applications – Trembley, Sorenson – TMH
2. Theory and problems of data structures – Seymour Lipschutz – TMH

Supplementary Readings:

Paper No : 302
Paper Title: Object Oriented Programming

L: 4 Hrs

1. Pointers and Self Referential Structures

2. Principles of Object Oriented Programming

Procedure Oriented Programming Vs Object Oriented Programming
Basic Concepts of Object Oriented Programming
Benefits of Object Oriented Programming

3. Classes & Objects

Specifying a class, defining member functions, Inline function, Nesting of member functions, private member function, Static data members, static member functions, friend functions, returning objects, pointers to members.

4. Constructors & Destructors

Constructors, parameterized constructors, multiple constructors in a class, constructors with default arguments, copy constructors, dynamic constructors, const objects, and destructors.

5. Operator Overloading, Functional Overloading & Type Conversions

Unary Operators, Binary Operators, Using Friends as operator functions, Overloading other Operators, User defined conversion, Four different cases of user defined conversions, Comparison of both the methods of conversion

6. Inheritance

Defining derived class using single base class, Derivation using public, private and protected access modifiers, The implementation of inheritance in the C++ object model, The multiple-inheritance, Abstract classes, Composite objects (container objects)

7. Dynamic Polymorphism

Pointers to objects, this pointer, pointers to derived classes, virtual functions, pure virtual functions.
8. I/O streams

Introduction to stream, Advantages of using C++ I/O over C I/O, The C++ Predefined streams, Formatting I/O, Formatting using I/Os members, Manipulators, Creating our own manipulator

9. Data Files

Introduction to I/O, Text and binary streams, Opening and closing files, Dealing with text files, Dealing with binary files, Providing Random Access using seek, I/O Modes Handling Errors

10. Templates

Function Templates, Non Generic (Non Type) Parameters in Template functions, Template function and specialization, Overloading a template function, Using Default Arguments, Class Templates, Classes with multiple generic data types, Static data members, Primary and Partial Specialization, The Export Keyword.

Main Readings :

1. Object Oriented Programming with C++: Balagurusamy - TMH
2. OOP in Turbo C++: Robert Lafore - Galgotia Publication

Supplementary Readings :

1. C++ Primer :Lippman - Addison Wesley
2. Object Oriented Programming Fundamentals & Applications: Probal Sengupta - PHI
3. The Complete Reference: Schildt - Osborne
4. The C++ Programming Language: Stroustrup - Addison Wesley
### Paper Title: Digital Electronics

<table>
<thead>
<tr>
<th>1. Logic gates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic symbol, Timing Diagrams, Truth table Demorgan's first &amp; second theorem. Interchangeability bubbled gates, Universal gates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Boolean Laws &amp; theorem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duality theorem sum of product method &amp; equation truth table, Karnaugh map for two three &amp; four variables &amp; it's simplification &amp; NAND-NAND ckts, Don't care condition, product of sum method, &amp; it's simplification. NOR - NOR ckts. &amp; application of duality theorem.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Data processing circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiplexers, Nibble multiplexers, Demultiplexers decoders chip expansion, BCD to Decimal decoders, seven segment decoder, decoder driver IC's Encoders, decimal to BCD decoder, parity generator &amp; checkers &amp;its application (ROM, PROM, EPROM)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Binary addition &amp; subtraction HALF adder, full adder, adder - subtracter circuits</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>5. TTL &amp; CMOS circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation, Propagation delay time, TTL ckts, two i/p TTL NAND gate, Inverter gate, NOR gate, Three state TTL devices, Schmitt Triggers, sinking and sousing, Loadings, noise immunity, Positive and negative logic CMOS ckts, CMOS Inverter, CMOS NAND, NOR gate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. FLIP FLOPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of flip flops using different gates, RS flip flops, D flip flop, Edge triggered D flip flop, clocked RS flip flop, switching time, JK flip flop, JK master slave flip flop, Schmitt trigger</td>
</tr>
</tbody>
</table>
7. Shift Registers

Types of Registers, Serial in Serial out, Serial in Parallel out, Parallel in Serial out, Parallel in Parallel out, Ring counter, Asynchronous counter 4, Binary up-down counter, Decoding gate, Synchronous counter, Mode 8 Parallel binary counter & up down counter, Parallel up down counter, Mod-3 counter, Mod-6 counters, Mod - 5 counters & C Decade counter, Shift counters, Digital clock.

8. D/A & A/D conversion

Variable Resistor Network, Binary Ladder, 4 bit D/A converter, dual slope A/D conversion.

9. TRANSDUCEERS

Thermo couples, capacitive pressure transducer, pizo-electric transducers, strain gauge.

Main Readings:

1. Digital Principles and Application : Albert Paul, Malvino, Donald P. Leach - TMH

Supplementary Readings:

1. Digital logic and Computer Design : By M. Morris Mano - PHI
1. Introduction to Networks

Data Communications: components, direction of data flow, Networking – Concepts, Need, Uses and advantages of Network, Categories of networks, Client, Servers and Peers based and Hybrid Networks, topologies

2. The OSI Model

Layer architecture, OSI Model, The OSI Model layer functions

3. Major Protocol Suits

Review of protocols, Models and implementations, Transport and Internet protocols

4. Physical Layer

Data and Signals, Digital Transmission, Analog transmission, Bandwidth, Transmission Media, Switching, IEEE 8.2 Standards

5. Data Link Layer

Functions of Data link layer, Error detection and correction, error detection and correction codes, data link control and protocols, Multiple access protocol: CSMA/CD, LAN: Ethernet, Introduction: Wireless LAN, Connecting devices: Repeaters, Hubs, Bridges, switches, Concept of VLAN

6. Network Layer

Connectionless service, Connection oriented service, internetworking, addressing, Routing algorithms (Distance vector, Link state), Introduction to Network layer in internet: Logical addressing, IP protocol, IP address, Classes of IP addresses, Routers, Brouters, Gateways
7. Transport Layer

Transport Service Primitives, addressing, connection establishment, flow control, multiplexing, Introduction to transport layer protocols and their features.

8. Session, Presentation and Application Layers

Introduction to: Establishing Session, Presentation with Content Encoding and Decoding Introduction to application layer protocols.

9. Network Configuration and Administration

Installing and configuring network adapters, Managing network bindings, Sharing files and printers User profiles, Folder security, Account policies, Trust relationship between domains, Computer management, Workstation management

10. Network Security

Various Types of security, Security with certificates, Planning a security approach, Security problems and their consequences, Introduction to firewalls, Encryption and decryption standards, Secure Socket Layer, Virtual Private Networks

Main reading:

1. Data Communications and Networking, 4/e Behrouz A. Forouzan - DeAnza College
2. Computer Networks by A.S. Tanenbaum - PHI Publications

Supplementary Readings:

2. Data and computer Communication, William stallings - Pearson Education,
3. MCSE: Networking Essentials Study Guide - TMH
5. Mastering Local Area Networks by Christa Anderson & Mark Minasi – BPB
1. Human Resources

2. Services Oriented Business System
Service Definition, Types of Services, Process of Services, Effects of Services, Software as a Service

3. Payroll System

4. Business Logistics System
Introduction to Logistics, Logistics Process, Procurement, Logistics And Supply Chain Management, Warehouse Management, Freight Transport, Material Management

5. Retailing
Introduction to Retailing, Customer Relationship Management in Retailing, Merchandising and Inventory Management in Retailing

6. Production Planning
Production process, Capacity Planning, Master Production, Scheduling, Material Requirements Planning, Shop Floor

7. Introduction to ERP
Evolution of ERP, Definition of ERP, Reasons for the growth of ERP, scenario And Justification of ERP in India, Various Modules of ERP, Advantage of ERP.

Explanation of the above systems must be supported with the help of related documents, visuals of the systems, case studies and demonstration of computerized systems.
Main Readings:

5. Retailing Management: Levy writz - TMH.
7. Retailing Management: Swapna Pradhan - TMH

Supplementary Readings:

2. Logistics And Retail Management: John Fernie And Leigh Sparks - Kogan Page.
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
M.Sc. (I.T.) [Five Year Integrated Course]
B.Sc. (Information Technology)
Semester III

Paper No    : 306
Hrs          : L: 0, T:0, P:10
Paper Title  : Practicals.

Practical shall be conducted for the Papers 301, 302 and 304
Veer Narmad South Gujarat University
Surat

Master of Science (Information Technology)
[Five Year Integrated Course]

Semester :4

Syllabus
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Effective from June 2009-2010
Effective from June 2009

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
M.Sc. (I.T.) [Five Year Integrated Course]
B.Sc. (Information Technology)
Semester IV
Teaching and Evaluation Scheme

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<thead>
<tr>
<th>Paper Sr. No.</th>
<th>Paper Title</th>
<th>Teaching Schedule (Hours/Week)</th>
<th>University Exam Theory / Practical Duration</th>
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<th>Total Theory / Practical</th>
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<tbody>
<tr>
<td>401</td>
<td>VADT</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>402</td>
<td>RDBMS-I</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>403</td>
<td>Microprocessor &amp; Assembly Language</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>404</td>
<td>Web Development-I</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>405</td>
<td>E-Business</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>406</td>
<td>Practicals</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>200</td>
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<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>490</td>
<td>210</td>
<td>700</td>
</tr>
</tbody>
</table>

VADT - Visual Application Development Techniques
RDBMS – Relational Database Management System
1. Introduction to Microsoft .NET

Microsoft .NET Framework architecture, Common Language Runtime
Common Type System, Microsoft Intermediate Language Assemblies, namespaces
and class libraries

2. The VB.NET Language

Data Type, Variables, Constants, Arrays, Control Array, Collections, Subroutines
Functions, Control Flow statements, MessageBox and InputBox.

3. Working with Win Forms

Form Lifecycle, Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox
RadioButton, Link Label, Panel, Scroll bar, Timer, ListView, TreeView, Toolbar
StatusBar

4. Containers

Flow layout panel, Group box, Panel, Split container, Tab control, Table layout panel

5. Dialog Boxes and Menus

OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog, Menus

6. Database Programming with ADO.NET

ADO.NET Architecture, ADO.NET Components, Connection Object, Command
Object
DataReader Object, DataAdapter Object, SQL Server .NET Data Provider
OLEDB .NET Data Provider, DataSet Object, Design time data binding
Runtime data binding, DataGridView Object
Main Readings:

1. Professional VB.NET: Fred Barwell - Wrox Publication

Supplementary Readings:

1. Mastering VB.NET by Evangelos petroutsos- BPB publications
2. Introduction to .NET framework -Worx publication
3. The Complete Reference – Visual Basic .NET : Jeffrey Shapiro - TMH
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
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Semester IV

Paper No : 402        L: 4 Hrs
Paper Title: RDBMS - I

1. Relational Data Model

   Enhanced ER Diagrams and Features, Specialization, Generalization, Aggregation
   Entity Integrity Constraints, Domain Constraints
   Referential Integrity Constraints
   Codd’s Rules for RDBMS

2. Relational Database design

   Functional Dependency – definition, trivial and non-trivial FD, closure of FD set,
   closure of attributes, irreducible set of FD
   Normalization – 1NF, 2NF, 3NF, Decomposition using FD- dependency preservation,
   BCNF, Multi-valued dependency, 4NF, Join dependency and 5NF
   Effect of de-normalization on database performance

3. SQL Basics

   Table Fundamentals, Data Types, Statements, Names, Constants, Expression
   Basic Structure, DML Statements, Simple Queries, Search conditions, Sorting
   Defining constraints – Data Constraints, Unique Key,
   Column and Table level Constraints, Primary key and Foreign Key Constraints,

   NOT NULL, Check Constrains
   Default Value Concepts

   Arithmetic and Logical Operators, IN Operator and Like Clause,
   Range Searching and Pattern Matching, The Oracle Table – Dual, SYSDATE
4. SQL Functions, Sub queries and Joins

Aggregate functions, Built-in functions – Numeric, Date functions, String functions, Conversion Functions
Grouping Data from Tables, Group By and Having Clause, The Rollup and Cube Operator
Sub queries and query expression, Correlated sub-queries, Exist/Not Exists Operator, Joins, Types of Joins, Structure of Joins, Any, All
Using UNION, INTERSECT, MINUS Clause
View: What is view, Creating View, Updateable View, Destroying View

5. Security Management Using SQL

Types of privileges
Granting and Revoking Permissions
Grant and Revoke Command

6. Data Dictionary

Introduction to data dictionary,
Usage of data dictionary

Main Readings :
2. SQL, PL/SQL – The programming Language Oracle-by Ivan Bayross - BPB

Supplementary Readings :
1. Principles of Database Systems - Jeffery Ullman - Galgotia Publication
2. Database Systems, Connooley - Pearson education
3. Introduction to Database System - Bipin C. Desai – Galgotia
4. An introduction to Database Systems - C.J.Date - Addison-Wesley
1. **Introduction to Microprocessors.**

Typical requirements of architecture: Batch Processing, Multiprogramming, Time sharing & Multitasking Systems; Intel 8086 architecture, Internal Operation Addressing Modes, Intel 8086 Configurations-Minimum Mode and brief introduction of Maximum Mode, Intel 8086 System Connections, System Bus Timing

2. **Intel 8086 Family assembly Language Programming**

Program Development Stage, Programming with the use of Assembler and other Development Tools like Loader, Compiler, Locator, debugger, Assemble Instruction Format, Practice with Simple sequence Programs, Flags, jumps, etc. Implementation of Decision making, Multiple Branching and Iterative Looping Controls with Assembly Language instructions, String Instructions, Stack manipulation, Writing & Using Procedures, Macros & Debugging of Assembly Language Programs, Assembly Directives. Use of DOS / BIOS interrupts. Using C with Assembly language Programming.

3. **Interrupts Management**

Intel 8086 interrupts, IVT, acknowledgment cycle, typical 8086 response. Different types of Interrupts, Interrupt Service Routines, TDR’s, Block transfers and Interfacing DMAC - IC 8237.

4. **Advanced Microprocessors**

Overview of 80286, 80386, 80486, Pentium architectures.

5. **Introduction of Microcontroller 8051 core**

Architecture, Keyboard interrupt, Timers / Counters, UART, SPI, I2C, ports.
Main Readings:

1. Microprocessor & Interfacing: Douglas Hall - TMH
2. 8086/8088 family architecture, programming & design : Yu Chang Liu & Gibson, PHI
3. Programming & Interfacing, J Uffenbech, PHI
4. The 8051 microcontroller and embedded system by Muhammad ali Mazidi, Pearson Education India publication

Supplementary Readings:

1. Advance MS-DOS Programming – Ray Duncan
Client Side Web Scripting

1. JavaScript Basics

HTML to XHTML, Basics of JavaScript Programming, The `<script>` tag — Basic Syntax Variables (expressions, data types, operators), Arrays Working With Text Converting Strings, Conditionals, Loops, Functions, Entities, Advanced math operations, Date object, Timeout, Cookies

2. Object Model and Event Handling


3. Manipulating Components

The Keyword this, Forms, Names vs. IDs, Arrays of Elements, Manipulating the Value of a Text Field, Text Field Events, Form Handlers, Checkboxes, Radio Buttons, Selects, `onChange` in Various Form Elements, Hidden Text Field values, Dynamically Modifying Select Lists, Validating Form Entries, Processing Forms,

4. Image Handling and Browser Capabilities

Image Swaps, Graphical Navigational Bar (rollovers, pre caching, changing buttons), Interactive Image Maps Using JavaScript, Browser detection, Browser compatibility, The Location and History Objects, Screen Object
5. Handling Layers
Using JavaScript to Manipulate the Layer Object (hide and show content, positioning)

Extensible Markup Language (XML)

6. XML Fundamentals
XML Basics, History, Writing a Sample XML, Need of XML in Application Development

7. Document Type Definition
Writing a DTD, Data Types, Validations, Writing XML using a DTD

8. XML Schemas
XML Schemas, Representing Various Data Structure in schemas like Complex Data Types, Sequences, Binary data Types, Primitive Data Types etc. NameSpaces, Data Validation, Internationalisation

9. XLink and XPointer, XPath, XQuery

10. XSL, XSLT, XML on the Web

11. Parsing XML DOM using JavaScript

12. XML and Databases, XML as Middleware, Introduction to AJAX

Main Readings:
1. JavaScript Bible - by Danny Goodman, Michael Morrison - Wiley
2. The Book of JavaScript: A Practical Guide - by Thau
3. XML in a Nutshell" written by Elliotte Rusty Harold & W. Scott - Orielly Publication
4. Professional XML (Programmer to Programmer) by Bill Evjen, Kent Sharkey, Thiru Thangarathinam, and Michael Kay - Wrox Publication

Supplementary Readings:
2. Head First java Script by Michael Morrison - Orielly Publication
3. XML All-in-One Desk Reference for Dummies by Richard Wagner and Richard Mansfield - Wiley
1. Information Technology And Business

Introduction, Objectives, Commerce – The Traditional way - The Buyer, The Seller
History of Electronic Commerce, Definition of Electronic Commerce
Comparison between Traditional Commerce and E-Commerce
The Technologies of E-Commerce, Advantages and Disadvantages of E-Commerce,
International Electronic Commerce, Infrastructural requirements for E-Commerce

2. Types of E-Commerce

Introduction, objectives, Types of business transactions, Business-to-business (b2b)
Business-to-consumer (b2c), Business-to-employee (b2e), Business-to-government (b2g)
Government-to-business (g2b), Government-to-government (g2g)
Government-to-citizen (g2c), Consumer-to-consumer (c2c), Consumer-to-business (c2b).

3. Security Of E-Commerce

Introduction, Network and website Security Risks, Website Hacking, Security
Incidents on the internet, How Vulnerable are the internet sites, Security and E mail,
Network and website security, E- business Risk management issues, Firewall,
Security framework

4. Cyber Security and Legal Issues

Unlawful conduct, Computer as target for crime, Computer as storage Devices,
Computer as Communication Tools, Cyber stalking, Case on Cyber stalking
Cops to widen Web to catch cyber criminals (Mumbai), Limitation of India’s Cyber
Laws. Privacy Risk in the internet age, Cookies and privacy, Phishing, Copyright
Internet Gambling, Threats to Children.
The special nature of computer ethics.
The three ethically significant characteristics of the internet.
5. E-Payment

Introduction to e-payments, Digital payments requirements, Digital Token based E payment system, Classification of new payment system, Properties of electronic cash
Electronic Cheque Payment, Risk and E payment system.
Designing E payment system, Digital Signature
Online financial services in India, Online Stock Trading: The High speed alternative,

6. Implementing An E-Commerce Site (Case Study)

Introduction, Web presence goals, Achieving Web presence goals
How the Web is different, Meeting the needs of Web site visitors, Usability Testing
Identifying and Reaching customers, Communication on the Web
The Web’s new marketing approaches, Technology-enabled Relationship management
Creating and maintaining Brands on the Web, Elements of Branding

7. Models of E – Business

Introduction to Supply chain management, Introduction to Mobile Commerce
Introduction to Customer relationship management, Introduction to EDI
E strategy, E marketing

Main Readings:

3. E-Commerce An Indian Perspective P.T. Joseph, S. J. - PHI publication

Supplementary Readings:

2. E-Commerce Strategies: Charles Trepper - PHI
Effective from June 2009

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Semester IV

Paper No : 406
Hrs

Paper Title : Practicals.

Practical shall be conducted for the Papers 401, 402 and 404