Veer Narmad South Gujarat University
Surat

Master of Information Technology
[Five Year Integrated Course]

Semester : 3 & 4

Revised Syllabus
(Based on CBCS)

Effective from June 2012-2013

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

Teaching and Evaluation Scheme

Course Code	Course Type	Course Name	External Marks	Internal Marks	Contact Hours	Credits
401	FOUNDATION COURSE	Environmental Science	70	30	2	2
402	CORE ELECTIVE	Microprocessor and Assembly Language	70	30	3	3
403	CORE	VB .NET	70	30	4	4
404	CORE	RDBMS-I	70	30	4	4
405	CORE	Web Development-I	70	30	4	4
406	CORE	Practical	140	60	12	6
407	FOUNDATION ELECTIVE	E-Business	70	30	2	2
		TOTAL	560	240	31	25

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Paper No : 401 **L: 2 Hrs**
Paper Title: Environmental Science **Credit: 2**

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1. The Multidisciplinary nature of environmental Studies

Definition, scope and importance
Need for Public Awareness

2. Natural Resources

Renewable and Non renewable resources, Natural Resources and associated problems
Forest Resources
Water Resources
Mineral Resources
Food Resources
Energy Resources
Land Resources
Role of Individual in conservation of Natural Resources
Equitable use of resources for sustainable lifestyles

3. ENVIRONMENTAL POLLUTION
Definition
Causes, effects and control measures of:
Air pollution
Water pollution
Soil Pollution
Marine Pollution
Nuclear Hazards
Solid Waste Management
Role of an Individual in Prevention of pollution
Disaster Management

4. HUMAN POPULATION AND ENVIRONMENT
Population growth, variation among nations
Population Explosion
Environmental and Human health
Value Education
HIV Aids
Women and Child care
Role of I.T in Environment and human health

5. GREEN COMPUTING

Concept of Green Computing
Importance of Green Computing Important
System-Wide Green Computing
Individual Green Computing
System-Wide and Individual Green Computing
Benefits of Eco-friendly computer
Virtualisation green computing
Disadvantages of Green Computing

6. E-Waste MANAGEMENT

Definitions
Problems
Effects of E-Waste On Environment
Sources of E-Waste
E-waste Recycling
E-Waste Management

Main Readings:

1. Texbook of Environmental Studies, Eruch Bharucha UGC,University Press
2. Brown Lester R (2002) Eco- Economy:Building an economy for the earth,Orient Longman
3. Odum, E P (1971) Fundamentals of Ecology,W.B.Saunders
4. Miller, TG (1997)Environental Science,Wadsworth Publishing
5. LEAD INDIA (2002)Rio,Johannesburg and Beyond:India's Progress in Sustainable Development(Orient Longman)
6.Shukla,P R,Subodh K Sharma,Ravindranath,N H,Garg,Amit &Bhattacharya,Sumana(2003)Climate Change and India:Vulnerability Assessment and Adaption,University Press.
7. Speth,James Gustave Global Environmental Challenges:Transitions to a Sustainable World, Orient Longman.
8. E-waste: Implications, regulations, and management in India and current global best practices.(2008), Rakesh Johri
9. Handbook of Energy-Aware and Green Computing – (January 2012), Ishfaq Ahmad, Sanjay Ranka, Chapman & Hall / CRC Computer & Information Science Series Publication
10. Electronics Waste Management: An India Perspective, LAP Lambert Academic Publishing, Krunal Kamani, Dhaval Kathiriya, Paresh Virparia, Pankaj Parsania

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Paper No : 402 **L: 3 Hrs**
Paper Title: Microprocessor & Assembly Language **Credit: 3**

1. Introduction to Microprocessors.

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.

4. Programmable Peripherals Devices
Overview of Programmable Peripheral Interface Intel 8255, Programmable keyboard/Display 8279, Programmable Interrupt Controller 8259.

5. Advanced Microprocessors
Overview of 80286, 80386, 80486, Pentium architectures.

Main Readings:

1 Microprocessor & Interfacing: Douglas Hall, McGraw Hill
2 8086/8088 family architecture, programming & design : Yu Chang Liu & Gibson, PHI
3 Programming & Interfacing, J Uffenbech, PHI

Supplementary Readings:

1 Advance MS-DOS Programming – Ray Duncan
2. The Intel Microprocessors – Fourth Edition – Barry B. Brey – PHI
3. IBM PC and its Clones: Govind Rajalu: TMH Publication, 1994.

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Paper No : 403 **L: 4 Hrs**
Paper Title: VB .NET **Credit: 4**

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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

OpenFileDilog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog, Menus

6. Database Programming with ADO.NET
ADO.NET Architecture, ADO.NET Components, Connection Object, Command Object DataReader Object, DataAdepter Object, SQL Server .NET Data Provider
OLEDB .NET Data Provider, DataSet Object, Design time data binding
Runtime data binding, DataGrid Object

7. Object Oriented Programming in VB.NET

Main Readings:
1. Professional VB.NET: Fred Barwell - Wrox Publication
2. Visual Basic .NET Programming – Black Book: Stevan Holzner - Dreamtech Press
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

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Paper No : 404 **L: 4 Hrs**
Paper Title: RDBMS – I **Credit: 4**

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 :

1. Database System Concepts - Henry F. Korth & Abraham Silberschatz – TMH
2. SQL, PL/SQL – The programming Language Oracle-by Ivan Bayross - BPB
3. Raghu Ramakrishnan/Johannes Gehrke, "Database Management Systems" - TMH

Supplementary Readings :

1. Principles of Database Systems - Jeffery Ullman - Galgotia Publication
2. Data base Systems, Connoley - Pearson education
3. Introduction to Database System - Bipin C. Desai – Galgotia
4. An introduction to Database Systems - C.J.Date - Addison-Wesley

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Paper No : 405 **L: 4 Hrs**
Paper Title: Web Development – I **Credit: 4**

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

Programming Using Objects, Navigator Object, Document Object Model (Object Hierarchy, Properties,Methods, Events) ,Events, Event Listeners, and Handlers,Window Object Writing New Windows Dynamically Alert, Confirm, and Prompt Windows , Frames Navigation

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 on Change 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 Syntax, Need of XML in Application Development

7. Document Type Definition

DTD, Data Types , Validations, Writing XML using a DTD

8. XML Schemas

XML Schemas, Complex Data Types, Sequences, Binary data types, Primitive data types, Namespaces, Data Validation

10. Parsing XML DOM using JavaScript

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:

1. JavaScript: The Definitive Guide - by David Flanagan - Orielly Publication
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

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Paper No	**: 406**	**L: 0, T:0, P:10 Hrs**
Paper Title	**: Practicals.**	**Credit: 6**

Practical shall be conducted for the Papers 403, 404 and 405

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Paper No : 407 **L: 2 Hrs**
Paper Title: E-Business **Credit: 2**

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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

Un lawful 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
Rational Branding vs. Emotional 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:

1. Frontiers of Electronic Commerce : Kalakota and Whinston - Addison Wesley.
2. Electronic Commerce : A managerial Perspective : E fraim Turban, Jac Lee, David King, H Michel Chung - Pearson Education Asia..
3. E-Commerce An Indian Perspective P.T. Joseph ,S. J. - PHI publication

Supplementary Readings:

1. IT Encyclopedia.Com: Volume 8 : Parag Diwan & Sunil Sharma : E-commerce - Pentagon Press.
2. E-Commerce Strategies : Charles Trepper - PHI
3. E-business management: integration of Web technologies with business models : By Michael Shaw - Springer, 2002