

SHIVAJI UNIVERSITY, KOLHAPUR.



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(2009)

Syllabus For

B.Sc. (Information Technology) Part – III

Syllabus to be implemented from June 2011 onwards.

STRUCTURE & SYLLABUS

OF

B.Sc. (Information Technology) Part – III

With effect from Academic Year 2011-12

Paper No.	Name of the Paper	Total Marks	Theory Workload per Week	Practical Workload per Week
21	VB Dot Net Programming	100	4	--
22	Java Programming	100	4	--
23	Computer Networks	100	4	--
24	E-Commerce and Network Security	100	4	--
25	Enterprise Resource Planning (ERP)	100	4	--
26	Web Designing	100	4	--
27	Laboratory Course IX (Based on Paper No. 21)	100	--	4
28	Laboratory Course X (Based on Paper No. 22)	100	--	4
29	Laboratory Course XI (Based on Paper No. 26)	100	--	4
30	Laboratory Course XII Project- Viva	100	--	4

Paper No. 21

Paper Title: Visual Basic .NET Programming

Section – I

Unit-I Introduction

10

Visual Basic .NET IDE and its features, .NET framework, CLR

Language basics: data type, operators, control statements: branching and looping

Unit-II Console Applications

10

Creating console application, display text in dialog, sub main(), procedure, function, module, types of arguments, recursion

Unit-III NET Controls

10

Forms, text boxes, labels, command button, radio button, option buttons, check boxes, list boxes and combo boxes, introduction to ActiveX controls

Unit-IV Strings and Arrays

10

Working with Arrays, array resizing, System.Array class, manipulation of string, string functions for comparison, concatenation, copy, replace, substring, length

Section – II

Unit-V Working with Classes

10

Classes, properties and methods, attaching a class with a form

Inheritance: derived from existing classes, overriding methods from base class

Unit-VI Polymorphism

10

Abstract classes and methods, Inheritance and implementation, not inheritable classes, not overridable methods, delegates

Unit-VII Exception Handling

10

Types of errors, structured and unstructured exceptions

Tracing Errors: breakpoints, watch, quickWatch, autos, locals, call stack.

Unit-VIII Database Access

10

ADO.NET and it's Components, datasets, data adapters, server explorer, binding controls to database, Case studies

Books :

- 1) Visual Basic .Net How to Program -Deitel
- 1) Visual Basic.NET Black Book – Steve Holzner
- 2) Visual Basic.NET Programming Bible – Bill Evjen
- 3) Pro ADO.NET with VB.NET – Sahil Mailk and Paul Dickinson

Programming Lab. Course – IX

At list of programs based on paper no 21

- 1) A console program to display square root of a given number in dialog box.
- 2) A console program to calculate sum of numbers of given range
- 3) A console program to calculate factorial of given number using function
- 4) A console program to find maximum of given numbers using array
- 5) A GUI program to sort given array data
- 6) A GUI program compare given two strings
- 7) A GUI program to calculate percentage from given test marks
- 8) A GUI program to Accept and display students details
- 9) A GUI application to define class employee and use to store and process employee details
- 10) A GUI application to demonstrate class inheritance
- 11) A GUI application to demonstrate polymorphism
- 12) A GUI application to demonstrate exception handling

13) A GUI application to demonstrate database access

Paper number : 22

Paper Title : Java Programming

Section – I

Unit-1. An Overview of Java : features, comparison with C++, Java virtual Machine,

Java byte code, Java execution model, editions of Java, a Java program: source code, compile and execute, keywords, identifiers, variables, data types, operators, selection and iteration constructs in Java. (10)

Unit-2. Classes, objects and methods

Overview of classes and objects, writing a Java class, adding fields and methods, instantiating of an object, methods, static data member and static methods, parameter passing and method overloading, constructors: default constructors, parameterized constructor, overloading constructors, this keyword, garbage collection, finalize() method. (10)

Unit-3. Inheritance

An overview of inheritance and implementation, instantiating child objects, single versus

multiple inheritance, method overriding, keywords: super and final, object class and its

methods, interfaces: definition, user defined interfaces and their applications, implementing an interface, extending interfaces. (10)

Unit-4. Polymorphism

packages: import statement, access control and packages, an overview of java.io package: input and output streams, writer and reader classes. An overview of polymorphism, virtual methods, abstraction, abstract classes, abstract methods. (10)

Section-II

Unit-5. Exception handling

Overview of exception handling, Runtime exceptions, Checked exceptions, flow of control, throwable classes, catching exceptions, multiple catch blocks, throws keyword, throwing exception, finally keyword, User defined Exceptions. (10)

Unit-6. Multithreaded programming

Main thread, creating a thread: implementing runnable, extending thread, creating multiple threads: using isAlive() and join(), thread priorities, synchronization, deadlock issues, suspending, resuming and stopping threads. (10)

Unit-7. Introduction to AWT

AWT classes, Windows fundamentals: component, container, panel, window, frame, canvas, working with frame windows: setting the windows dimensions, hiding and showing window, setting a window title, closing a frame window, Layout Manager, creating a frame window in an applet, working with graphics: drawing lines, rectangles and circles. (10)

Unit-8. Event Handling

Delegation event model, event classes: action event class, mouse event class, key event class, sources of events, event listener interfaces: ActionListener interface, MouseListener interface, Mouse MotionListener interface, KeyListener interface. (10)

References : 1. The Complete Reference Java2 Tata Mcgraw-Hall

2. Learning Java, Rich Raposa, WILEY- dreamtech India Pvt. Ltd.

Paper number: 28

Paper Title: Lab Course X (Based on paper no. 22)

Programs

1. Write a program to show use of static data member and static member function.
2. Write a program to show overloading of constructors and use of **this** reference in constructors.
3. Write a program to show call by value concept in parameter passing to a function.
4. Write a program showing use of inheritance concept.
5. Write a program to implement and extend interfaces.
6. Programs based on Exception handling
7. Programs based on Multithreading.
8. Programs based use of AWT components
9. Programs based on Applets.
10. Programs based on event handling unit.

Paper Number : 23

Paper Title : Computer Networks

Section-I

Unit-I

10 lectures

Introduction: Uses of computer networks, **network hardware:** LAN, MAN, WAN, Wireless networks, home networks, internet works. **Network Software:** Protocol hierarchies, Design issues for the layers, connection-oriented and connectionless services

Unit-II

10 lectures

Reference models: The OSI reference model, the TCP/IP reference model, comparison of OSI and TCP/IP, **The Physical layer: Guided transmission media:** magnetic media, twisted pair, coaxial cable, fiber optics,

Unit-III

10 lectures

The public switched telephone network: structure of the telephone system, the local loop modems, ADSL, and wireless, Trunks and multiplexing, switching. **Data link layer:** Design issues: Services provided to the network layer, framing, error control, flow control,

Unit-IV

10 lectures

Error correcting codes and error-detecting codes, **Sliding window protocol:** a one-bit sliding window protocol, a protocol using Go Back N, protocol using selective repeat,

Section-II

Unit-V

10 lectures

Network layer: Network layer design issues: implementation of connectionless and connection-oriented service, comparison of virtual circuit and datagram subnets, **Routing algorithms:** The optimality principle, shortest path routing, flooding,

Unit-VI

10 lectures

Congestion control algorithms: general principles of congestion control, congestion control in virtual-circuit subnets, **The network layer in the internet:** The IP protocol, IP addresses, Internet control protocols.

Unit-VII

10 lectures

The transport layer: The transport service: Services provided to the upper layers, transport service primitives, Berkeley sockets, **Elements of transport protocols:** Addressing, connection establishment, connection release, flow control and buffering, Introduction to UDP,

Unit-VIII

10 lectures

The internet transport protocols: TCP introduction to TCP, the TCP protocol, the TCP segment header, **The application layer:** The domain name system: the DNS name space, resource records, name servers, The World Wide Web: HTTP

Reference Books:

- 1) Computer Networks – Tannenbaum A.S.
- 2) Computer Networks – Stalling A.S.
- 3) Computer Networks Protocols, Standards and Interface – Block C.

Paper Number : 24

Paper Title : E-Commerce and Network Security

Section - I**Unit – 1 E-COMMERCE and EDI****10**

Meaning, Objectives, challenges and opportunities, basic models of E-commerce: B2B, B2C, C2B, Electronic Data Interchange: Concept of EDI, requirements, benefits, comparison with trade cycle, components and applications of EDI.

Unit – 2 ELECTRONIC PAYMENT SYSTEM**10**

Overview of electronic payment technology, prepaid, postpaid payment system, cyber cash, electronic cash, digital cash, electronic checks, online credit-based systems, consumer legal and business issues.

Unit – 3 ELECTRONIC COMMERCE AND BANKING**10**

Changing dynamics in the banking industry, home banking: history, implementation approaches, open versus closed models, management issues in online banking, online customer services and support, technology and marketing strategies.

Unit – 4 E-SECURITY**10**

Security issues, security threats, access control, firewall and proxy services, digital signature, electronic document

Section - II

Unit – 5 INTRODUCTION TO CONCEPTS OF SECURITY

6

Introduction, need of security, security approaches, principles of security, types of attack

Unit – 6 CRYPTOGRAPHIC TECHNIQUES

10

Introduction, plain text and cipher text, Substitution techniques, Transposition techniques, Encryption and Decryption, Symmetric and Asymmetric key cryptography, Steganography, Key range and Key size

Unit – 7 COMPUTER BASED SYMMETRIC AND ASYMMETRIC KEY CRYPTOGRAPHY

12

Introduction, algorithm types and modes, Data encryption standard – Introduction, how DES works, strength of DES, Variation of DES, An overview of Asymmetric key cryptography, The RSA algorithm.

Unit – 8 INTERNET SECURITY PROTOCOLS

12

Basic concepts, Secure Socket Layer(SSL), Secure Hypertext Transfer Protocol (SHTTP), Time Stamping Protocol (TSP)

Reference books :

- 1) E Commerce A Managers Guide by Ravi Kalakota
- 2) E -commerce By Kenneth C Laudon and Carol Guercio Traver, Pearson Edn.
- 3) E-Commerce By C.S.V Murthy, Himalaya Publication
- 4) E- commerce Fundamentals and applications by Henry Chan, Raymond Lee, Tharan Dillon and Elizabeth Chang.
- 5) Williams Stallings – Cryptography and Network security principles and practices. Pearson Education (LPE)
- 6) Schneir, Bruce, “Applied Cryptography : Protocols and Algorithms”
- 7) Cryptography and network security – Atul Kahate (TMGH) (For UNIT -5 to UNIT -8)

Paper Number : 25

Paper Title : Enterprise Resource Planning

Section – I

Unit –I Introduction To ERP

An overview of Enterprise, Business Functions and business processes, Integrated management information, What is ERP? Evolution of ERP, Why ERP packages now? Advantages of ERP, How

does ERP create value.

10

Unit –II Risks and Benefits of ERP

Benefits: Quantifiable Benefits, The intangible benefits, other factors

Risks: What is Risk? Risk factors of ERP implementation – People Issues, Process risks, Technological risks, Implementation issues, Operation and Maintenance issues, Managing risks of ERP projects, Security and ERP.

10

Unit –III Related Technologies and Modules in ERP

Related Technologies : Introduction, BPR, Data warehousing, Data Mining, OLAP, PLM, SCM, CRM, GIS, Intranet and Extranet.

Functional Modules : Introduction, Functional Modules of ERP software

12

Unit –IV ERP Package Selection and Market

ERP package Selection : Reasons of ERP Implementation failure, Package Evaluation and Selection, ERP packages: make or buy.

ERP Market: Market overview, Top 10 companies in ERP development, Their Market share : global And Indian.

8

Section – II

Unit –V ERP Implementations

ERP Implementation Challenges, Objectives of ERP implementation, Different phases of ERP Implementation, Managing the implementation- The hidden costs, Training and education, Data Migration.

12

Unit –VI ERP Implementation strategies

Introduction, Implementation (Transition) strategies- Big Bang, Phased, Parallel, Process line, Hybrid, Choosing a strategy.

6

Unit –VII ERP project Team and Careers in ERP

Introduction, ERP implementation team, People involved in ERP Implementation, Composition of the team, Organization of the implementation team, Role of Consultant, Role of vendor, Employee, careers in ERP.

12

Unit –VIII Future Directions and trends in ERP

New Markets, New channels, Easier customization tools, Business Models and BAPIs, Application platforms, New business segments, Need-based applications, Open source, web enabled and wireless Technologies, Enterprise Application Integration, Market Snapshot.

10

References: Enterprise Resource Planning, Alexis Leon (Tata MacGraw Hill)

ERP – A Managerial Perspective, S. Sadagopan (Tata MacGraw Hill)

Paper Number : 26

Paper Title : Web Designing

Section – I

UNIT – 1 INTRODUCTION TO INTERNET

10

Concept of Internet, Uses and benefits of internet, Devices required to connect internet, Definitions and concepts (not in detail) : ISP, Browsers, Web Page, URL, Cookies, FTP.

E-Mail : Concept, e-mail service providers, Creating account, sending mail, attachments

UNIT – 2 HTML BASIC TAGS **10**

Introduction to World Wide Web, steps in web development, HTML, Advantages of HTML, Essential tags, Heading and formatting tags, anchor tag, table tags, Inserting images frames and frameset, form tag

UNIT – 3 FRAMES, IMAGE MAPS AND FORMS **10**

Introduction to frames, frame tags, frame linking, floating or inline frames, image maps<MAP> and <AREA> tags, form design, <FORM> tag, <INPUT> tag, <SELECT> tag, <OPTION> tag, Inserting audio in HTML pages, <EMBD> tag

UNIT – 4 CASCADING STYLE SHEET (CSS) **10**

Introduction to cascading style sheet (CSS), CSS styles and <STYLE> tag, <LINK> tag, Classes and IDs, Contextual selectors, Group selectors, Positioning using CSS, 3D Layers, Letter spacing, Text-decoration, Cross browser testing.

Section – II

Unit – 5 CLIENT SIDE SCRIPTING (JAVA SCRIPT - Basic) **10**

Introduction to Java script statements- keywords, data types, basic statement, control statements (if-else, looping) with examples

Unit – 6 DOM and Event Handling **12**

Document Object Model – Document Object, Window Object, Navigator Object and HTML Object. Event overview, mouse events, error events, focus events

Unit – 7 Validations **12**

Different data types and input types validations, e-mail validation, date validation, user name and password validation

Unit – 8 Web Site Development : Case Studies **8**

Development of web sites with full validations : College web site, Bank web site, Travel agency web site, Book agency web site

Reference books :

1. Web Publishing- Monica D'Souza & Jude D'Souza (BPB)
2. HTML Black Book by Steven Hoizner
3. The Complete Reference HTML – Thomas A. Powell
4. HTML 4.0 – No experience required – E.Stephen Maok & Janan Platt
5. Learn Advanced JavaScript Programming – Ye huda Shiran & Tomer Shiran
6. Teach yourself JavaScript in 24 hours – Michael Moncur
7. The ABC's of JavaScript – Lee Purcell & May Jane Mara

Paper Number : 29

Paper Title : Laboratory Course XI (Based on Paper no. 26)

Programs

1. Creating web pages using basic HTML tags
2. Creating web pages using Table tag
3. Creation of web pages using frames and CSS
4. Creating web pages using audio and video
5. Design a web page with different form object. Example – Feedback form, Data entry form
6. Develop web pages using java script for various validations
7. Write java script to validate date
8. Write java script to validate e-mail id
9. Write java script to validate user name and password
10. Developing complete web-site.

Nature of Practical Question Paper-**Laboratory Course –IX , X and XI**

1. Solve any three questions (Out of five questions)
2. Each question carries 25 marks
3. 15 marks for Viva and 10 marks are reserved for journal

Laboratory Course –XII (Project and Viva)

The project should be undertaken preferably by group of two to four students who join the work and implement the project. The group is expected to complete analysis of problem/Task, System design, coding and minimum five to six reports

The external viva-voce examination will be conducted by external examiners appointed by the university.

Marks Distribution:

Documentation -20 Marks

On-line presentation-30 Marks

Viva -50 Marks

*Nature of Question Paper for theory shall be applicable as per B.Sc. (General)