



# North Maharashtra University, Jalgaon

## ***FACULTY OF COMMERCE & MANAGEMENT***

### **Syllabus of**

**Master in Business Management (Computer Management)  
MBM (Computer Management)**

*2<sup>ND</sup> Year (Sem. - III & Sem. - IV)  
For Academic Year 2011-12 Only.*

*- Specializations Offered –*

***[A] Web Management***

***[B] Application and Database Management***



# North Maharashtra University, Jalgaon

(NACC Accredited 'B' Grade University)

**FACULTY OF COMMERCE & MANAGEMENT**

**M.B.M. (C.M.) (w.e.f. June 2011) Semester III**

## ***3.1 : SOFTWARE DESIGNING AND DEVELOPMENT***

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

1. System Concept: Definitions, Types, Characteristics of system (3)
2. Software Engineering: Definition (1)
3. Role of Software Engineer / System Analysts / Users in the various phases of Systems Development Life Cycle (2)
4. Phases of SDLC: Feasibility Study, Requirements collection, Fact Finding Methods, Systems Analysis, Systems Design, Testing, On-site Implementation and Maintenance (4)
5. Models for SDLC: Waterfall Model, Spiral Model, Prototyping, RAD, Object Oriented, 4GL (4)
6. Process Modeling – Data Flow Diagrams, Concept of Object Oriented Modeling (6)
7. Data Modeling – Entity Relationship Model (4)
8. Normalization Technique for Database Design (4)
9. Software Requirement Specifications (2)
10. Documentation Techniques- System Flow Charts, Functional Decomposition Diagrams, Structured Flow Charts (N-S Diagrams), Logic Representation Techniques - Decision Trees, Decision Tables, Pseudo code and Structured English (8)
11. Users Interface Design: Menu, Screen and Report Layout Designing (2)
12. Data Codification Schemes, Designing Code-less systems (2)
13. Software design and implementation: Functional/process oriented design, bottom up design, Object oriented Design, (2)
14. Implementation strategies -top-down, bottom-up, testing and debugging (2)
15. Introduction to Computer Aided Software Engineering (CASE) (2)
16. Introduction to Reverse Engineering (2)

### **Books Recommended:-**

1. Analysis and Design of Information System 2nd Ed. – Senn
2. Software Engineering Practitioner's Approach – Roger Pressman, McGraw-Hill H.E.
3. Systems Analysis and Design, Donald Yeates, Tony Wakefield, Pearson Education
4. Software Engineering Concepts – Fairley
5. Software Engineering, 6th Edition., Ian Sommerville, Addison Wesley,
6. Systems Analysis and Design – Elias Awad
7. Software Engineering - K.K. Agrawal



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**FACULTY OF COMMERCE & MANAGEMENT**  
**M.B.M. (C.M.) (w.e.f. June 2011) Semester III**

**3.2 Organizational Behavior**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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- 1) Introduction (6)**
- a) Definition of O.B,
  - b) Key elements of O.B.
  - c) Nature & Scope of O.B.
  - d) Disciplines contributing to O.B.
- 2) Individual Perspective (9)**
- a) Personality. Concept. Determinants and Types, How Personality influences O.B
  - b) Attitudes. Types, Components & Functions. Attitudes & O.B.
  - c) Concept of Job Satisfaction.
  - d) Perception. Definition, Basic Elements, Factors Influencing Perception, Attribution.
  - e) Learning: Meaning and determinants.
- 3) Interpersonal Relationship (9)**
- a) Developing interpersonal relations
  - b) Conflict. Meaning, Sources, Types.
  - c) Intrapersonal Conflict - Role Identity, Role Perception, Role Expectation, Role Conflict.
  - d) Interpersonal Conflict (Transactional Analysis and Johari Window)
  - e) Aspects of Conflict (Functional and Dysfunctional)
  - f) Conflict Management
- 4) Group Dynamics (6)**
- a) Groups in Organization, Nature, Membership, Process of Group Development, Types of Groups, Group structure
  - b) Group Norms, Group Conformity, Group Cohesion, Group Size, Group Think, Group Shift.
  - c) Group dynamics & Inter-group dynamics
- 5) Motivation (10)**
- a) Meaning
  - b) Types of Motives
  - c) Theories of Motivation
    - i) Hierarchy of needs Theory
    - ii) Theory X and Theory Y
    - iii) Motivation-Hygiene Two Factor theory
    - iv) Goal Setting Theory
  - d) Motivation applied - Financial and non-Financial motivators
- 6) Leadership (10)**
- a) Meaning, Functions, Styles, Traits of Leadership
  - b) Fielders Leadership Contingency theory

- c) Path Goal Theory
  - d) Charismatic Leadership Theory
  - e) Ohio State Leadership Quadrants and Management Grids
- 7) Change management and Development
- a) Why organization changes? Planned change, Resistance to change, Managing resistance to change
  - b) Meaning of Organization development, Characteristics, Objectives
  - c) Work Stress: Meaning of stress, Nature and sources of stress, consequences of stress, coping strategies for the stress, stress and task performance

## References

1. Organization Behavior – K. Ashwathappa, Himalaya Publications
2. Organization Behavior – V.S.P. Rao, Excel Books
3. Organization Behavior – Suja R. Nair, Himalaya Publications
4. Organization Behavior –Stephen P . Robbins, Pearson
5. Organization Behavior –S.S. Khanka, S.Chand & Sons
6. Organization Behavior –Fred Luthans
7. Human Behavior at Work –Keith Devis
8. Organization Behavior – P G Aquinas, Excel books, New Delhi
9. Organization Behavior – M.N. Mishra, Vikas Publications



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III (Web Management)*

### 3.3 A : Web Mining Concepts

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

*[Required Lectures: 50 hours]*

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Introduction to data warehouse, data and Web mining	[Lectures : 4]
Association Rules Mining	[Lectures : 14]
Supervised Learning: Decision Trees, Classification using Association Rules, Naïve Bayes, K-Nearest Neighborhood	
Supervised Learning: Evaluation Methods	[Lectures : 10]
Unsupervised Learning: K-means, Hierarchical Clustering, Evaluation Methods	
Web Search: Crawling	[Lectures : 10]
Web Search: Information Retrieval	
Web Search: Link Analysis	
Web usage mining and personalization: Data preparation and modeling	[Lectures : 12]
Discovery and Analysis of Web usage patterns & recommender systems	

#### **Textbook:**

- *Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data.* by Bing Liu, Springer

#### **Reference books:**

- *Data Mining Techniques for Marketing, Sales, and Customer Relationship Management* by Michael J. A. Berry and Gordon S. Linoff Wiley
- *Data Mining: Concepts and Techniques* by Jiawei Han and Micheline Kamber Morgan Kaufmann, Elsevier Inc.



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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III (Web Management)*

### **3.4 A : Scripting Languages**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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#### **Chapter 1 : Scripting Language Basics**

**(Lectures : 5)**

- Meaning of Scripting Language
- Types of Scripting Language (JavaScript, VBScript, Perl, ASP, PHP)
- Scripting Language vs. programming Language
- Differences between client-side and server-side scripting
- Advantages and Disadvantages of Scripting Languages

#### **Chapter 2 : JavaScript**

**(Lectures : 15)**

- JavaScript: Introduction
- Advantages of using JavaScript.
- Writing JavaScript into HTML.
- Basic Programming Techniques: Data Types and Literals, Creating variables, JavaScript Array, operators and Expressions (Arithmetic, Logical, Comparison, String and Assignment operator) in JavaScript .
- JavaScript Programming Constructs: Conditional checking (if-then-else statement), Loops (for loop and While loop), Functions in JavaScript (Built-in functions and User defined functions)
- Dialog Boxes (Alert, Prompt and Confirm Dialog Box)
- Handling Web Page Events using Java Script.
- Creating Frames in JavaScript: accessing different frames, storing and using information in a frame.
- Forms used by a Website, Form Object's Methods, Form Actions and Form Validation.

#### **Chapter 3 : VBScript**

**(Lectures : 10)**

- What Is VBScript?, Adding VBScript Code to an HTML Page
- VBScript Data Types, VBScript Variables, VBScript Constants, VBScript Operators, Using Conditional Statements, Looping Through Code, VBScript Procedures, VBScript Coding Conventions
- Message and Input Boxes, Dates and Times, Page Updates.
- Using VBScript in Internet Explorer, VBScript and Forms
- The Document Object Model, History and Background of the DOM.

- f) Top-Down vs. Event-Driven Programming, Mouse Events, Keyboard Events, Validation and Error Handling

#### **Chapter 4 : ASP**

**(Lectures : 10)**

- a) Introduction of ASP, Working with ASP page
- b) Client Server Architecture, 3 Tier / N Tier Architecture
- c) ASP Objects : Response, Request, Application, Session, Server, Error
- d) ASP Components : AdRotator, BrowserCap, Content Linking, Content Rotator
- e) ASP Cookie, Determining Browser Capabilities with Cookie
- f) Error Handling in ASP
- g) Database Handling: Connection, Recordset, Command Object

#### **Chapter 5 : XML**

**(Lectures : 10)**

- a) Intro & features of XML
- b) Difference between XML & HTML
- c) Advantages of XML
- d) Components of XML Document
- e) XML writing Elements, Attributes etc.
- f) XML with CSS, XML Namespaces
- g) XML DTD, XML Schemas, Writing Simple sheets using XSLT.

#### **Reference Books:**

1. The Complete Reference HTML and CSS 5th Edition , McGrawhill Publication
2. JavaScript: The Definitive Guide, Sixth Edition Activate Your Web Pages By David Flanagan Publisher:O'Reilly Media
3. HTML, DHTML, JavaScript, Perl & CGI by Ivan Bayross, BPB Publishing
4. VBScript Programmer's Reference, 3rd Edition by Adrian Kingsley-Hughes, Kathie Kingsley-Hughes, Daniel Read; ISBN: 9780470168080, Wrox Publication
5. VBScript in a Nutshell By Matt Childs, Paul Lomax, Ron Petrussha, O'Reilly Media Publication.
6. Beginning XML, 4th Edition,David Hunter, Jeff Rafter, Joe Fawcett, Eric van der Vlist, Danny Ayers, Jon Duckett, Andrew Watt, Linda McKinnon ISBN: 978-0-470-11487, Wrox Publication
7. Professional XML by Bill Evjen, Kent Sharkey, Thiru Thangarathinam, Michael Kay, Alessandro Vernet, Sam Ferguson, Wrox Publication
8. ASP in a NutshellBy David Kreines, Ken Jacobs, ISBN: 9788173661785, Shroff/O'Reilly
9. Designing Active Server Pages By Scott MitchellISBN: 9788173663208, Shroff/O'Reilly
10. Programming ASP by Ivan Bayross

**Reference Sites:** 1. [www.w3schools.com](http://www.w3schools.com), 2. [www.devguru.com](http://www.devguru.com)



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M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III (Web Management)*

**3.5 A : C#.NET**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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### Chapter 1: The .Net framework

(Lectures : 5)

- Introduction to .NET framework
- The Origin of .Net Technology
- Common Language Runtime (CLR)
- Common Type System (CTS)
- Common Language Specification (CLS)
- Microsoft Intermediate Language (MSIL)
- Just-In -Time Compilation (JIT)
- Assemblies
- Managed Code
- Garbage Collection

### Chapter 2 : C# as a Language

(Lectures : 10)

- Introduction to C #
- Advantages & Disadvantages of C#
- Programming Structure of C#
- Structured Programming Language vs. Object oriented Programming Language.
- Difference between C++ and C#, Difference between Java and C#.
- Basic Constructs – Variables, Data types, Operators, arrays, functions
- Control Statements (if statement, if...else statement, nesting of if...else statement, the else if ladder, switch statement, the ?: operator), Looping Construct(while statement, do statement, for statement, for each statement)

### Chapter 3 : Object Oriented Programming in C#

(Lectures : 15)

- Class and Object
- Properties, Methods and Events
- Constructors and Destructors
- Inheritance
- Access modifiers: Public, Private, Protected, Friend.
- Polymorphism.
- Overloading and Overriding.
- Abstract classes, Sealed Classes, Static classes



- i) Interfaces.
- j) Structures, Enumerations, Delegates
- k) Multithreading

#### **Chapter 4 : Exception handling**

**(Lectures : 4)**

- a) Types of errors
- b) Syntax of exception handling code
- c) Try and catch block
- d) Multiple Catch Blocks
- e) Finally and throw statements

#### **Chapter 5 : File handling**

**(Lectures : 4)**

- a) Implement File Input & Output operations using FileStream Class
- b) StreamReader Class and StreamWriter Class
- c) BinaryReader Class and BinaryWriter Class
- d) DirectoryInfo Class and FileInfo Class

#### **Chapter 6 : Windows Applications in C#.NET**

**(Lectures : 5)**

- a) Introduction to GUI Programming
- b) Windows Forms
- c) GUI Components/ Controls (Text Boxes, Buttons, Labels, Check Boxes, Radio Buttons, List Boxes, Combo Boxes, Picture Boxes, Scrollbars, Menus, Built-in Dialogs, Image List, Tree Views, List Views, etc.)

#### **Chapter 7 : Databases access using ADO.NET**

**(Lectures : 5)**

- a) Introduction to ADO.NET
- b) Components of ADO.NET
- c) ADO.NET Data Providers
- d) The SqlConnection Object
- e) The SqlCommand Object
- f) Reading Data with the SqlDataReader
- g) Working with Disconnected Data

#### **Chapter 8 : Deployment of Project**

**(Lectures : 2)**

- a) Deployment process
- b) Creating DLL, & packing with setup.

#### **Reference Books:**

1. Illustrated C# 2008, Solis, Publication APRESS, ISBN 978-81-8128-958-2
2. Professional C# 4.0 and .NET 4 by Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner, WROX
3. Beginning C# Object-Oriented Programming By Dan Clark , Apress

4. ADO.NET Examples and Best Practices for C# Programmers, By Peter D. Blackburn  
Apress
5. Database Programming with C#, By Carsten Thomsen, Apress

***Reference Sites:***

- 1) [http://en.wikibooks.org/wiki/C\\_Sharp\\_Programming](http://en.wikibooks.org/wiki/C_Sharp_Programming)
- 2) <http://www.csharpkey.com/csharp/>
- 3) <http://www.academictutorials.com/ado.net/>



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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III (Web Management)*

**Lab V : 3.6 A : Based on 3.1 & 3.4 A**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

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### Practical based on 3.1: Software Designing & Development

Study following systems in detail -

1. Sales Order Processing System
2. Library System

Perform following for above systems and using any CASE Tool -(Microsoft Visio / ERWin/Rational Rose)

Draw DFD

Draw ERD

Generate table structures with constraints.

Draw UML Diagram using MS-Visio and create project of source code.

Note: Study of other business systems is also desirable.

### Practical based on 3.4 : Scripting Languages

1. Write a JavaScript for exception handling.
2. Write a JavaScript program to show use of Popup Boxes (Alert, Confirm, Prompt).
3. Write a VBScript program by using Procedures (sub procedures & function procedures).
4. Write a Java/VB Script program for checking client validation (email, not null, check numeric value, etc.)
5. Write a Java/VB Script program to display even and odd numbers from given range.
6. Write a Java/VB Script program to calculate factorial of given number.
7. Write an ASP script to create Cookies and retrieve the values from cookies.
8. Write an ASP Script to check Browser capabilities.
9. Write an ASP Script for insertion and updating the record in database.
10. Write an ASP Script for deletion and displaying all records from database.
11. Create ASP Application by using AdRotator Component.



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**M.B.M. (C.M.) (w.e.f. June 2011) Semester III**

***Functional Electives for Semester III (Web Management)***

***Lab VI : 3.7A : Based on 3.3 A & 3.5 A***

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

***[Required Lectures: 50 hours]***

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### **Practical based on 3.3 : Web Mining Concepts**

Installing and using open source data mining software like RapidMiner or WEKA

Perform Web usage mining to extract useful information from server logs i.e users history.

Perform Web content mining to discover useful information from text, image, audio or video data in the web

Perform Web structure mining to use graph theory to analyze the node and connection structure of a web site.

### **Practical based on 3.5 : C#.NET**

1. Write a program to print "NMU, Jalgaon" given number of times.
2. Write a program to show use of different operators.
3. Write a program to show use of Looping Constructs.
4. Write a console application to read command line parameters.
5. Write a program to check given number is palindrome or not.
6. Write a program to show use of static methods
7. Write a program to show use of Enumeration.
8. Write a program to show use of Constructor and Destructor.
9. Write a program to show use of Function Overloading.
10. Write a program to demonstrate Inheritance.
11. Write a program to show use of Sealed Class.
12. Write a program to show use of Exception Handling
13. Write a program to show Multithreading.



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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III*

*(Application and Database Management)*

### 3.3 B : Database Administration & Security

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ Required Lectures: 50 hours ]

1. SQL Revisited: [5 Lectures]  
DDL, DML & DCL Statements.
2. Architecture : [3 Lectures]  
Outline Of Oracle Architecture And Its Main Components
3. Installation Of Oracle Database : [2 Lectures]  
Installation Of Server & Client
4. Administrating User Security : [5 Lectures]  
Managing User, Granting & Revoking Privileges
5. Managing Oracle Instances : [5 Lectures]  
Table, Sequence, View, Synonym, Index
6. Managing Concurrency : [5 Lectures]  
Concurrency Management With The Help Of Locks
7. Database Backup & Recovery : [5 Lectures]  
Backup Types & Recovery Methods
8. Import & Export Of Database : [5 Lectures]  
Importing And Exporting Database, Table, User
9. Database Performance Management : [5 Lectures]  
Performance Tuning Of Database
10. Managing Database Storage Structures : [5 Lectures]  
Management Of Table Space
11. Managing Language Issues In Database : [5 Lectures]  
Multilingual Data Management

#### Reference Book:

Oracle DBA Certification Guide by Oracle Press

OCP Guide by Oracle Press



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**M.B.M. (C.M.) (w.e.f. June 2011) Semester III**

*Functional Electives for Semester III  
(Application and Database Management)*

**3.4 B : Java**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

**1] Introduction to JAVA (4 Lectures)**

- a) Features of Java
- b) Java Virtual Machine
- c) Java and Internet
- d) Comparison between C++ and Java
- e) Java Development Tools and API

**2] Programming Concepts of Basic Java (6 Lectures)**

- a) Identifiers and Keywords
- b) Data Types in Java
- c) Input Output in Java
- d) Control structures, decision making statements
- e) Arrays
- f) String and its methods
- g) Command Line Arguments

**3] Objects and Classes (6 Lectures)**

- a) Structure of class
- b) Constructors
- c) Object Fundamentals
- d) Inheritance with its types
- e) Access modifiers
- f) Polymorphism , Function Overloading and Overriding

**4] Language Features (6 Lectures)**

- a) Abstract Class, static , final
- b) Interfaces
- c) Wrapper Classes
- d) Packages (importing packages and classes, User defined packages)

**5] Exception Handling (4 Lectures)**

- a) Types of Exceptions
- b) Handling exception using try, catch,
- c) finally, throws keywords
- d) Creating own exception

- 6] Multithreading** (4 Lectures)
- a) Multithreading Concept
  - b) Thread Life Cycle
  - c) Thread Priorities
- 7] Applets** (4 Lectures)
- a) Applet Life Cycle
  - b) Applet Tag & its attributes
  - c) Security issues related to applet
  - d) Advantages of applet
- 8] Event handling** (4 Lectures)
- a) Event Delegation Model
  - b) Events(like mouse, key, action event etc.) Sources & Listeners,
- 9] AWT and Swing component** (8 Lectures)
- a) Containers, Frames and Panels
  - b) GUI Programming Model ,Working with Graphics class Methods
  - c) Layout managers (FlowLayout, BorderLayout, GridLayout)
  - d) MVC Model, Swing Components (JTextbox,JButton, JTextArea, JCombobox, JRadioButton, JCheckbox, JListBox)
- 10] JDBC** (4 Lectures)
- a) JDBC Model
  - b) JDBC drivers
  - c) Establishing connection with database
  - d) Creating a jdbc Statement object,

### ***References-***

*Core JAVA 2 Vol-1 & Vol-2*

-Cay S Horstmann

-Gary Cornell

*Java by Example 1.2*

-The Sun Micro Systems Press,  
New Delhi

*Programming with java, A Primer*

-E. Balguruswamy

*Deitel and Deitel Java How toProgram*

-Prentice Hall

*Complete Reference Java -2 Edition-5*

-Herbarte Schildt

*Java-2 Black Box*

-Publication –Tata MacGrawhill



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## FACULTY OF COMMERCE & MANAGEMENT

### M.B.M. (C.M.) (w.e.f. June 2011) Semester III

#### *Functional Electives for Semester III*

#### *(Application and Database Management )*

#### **3.5 B : VB.NET**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total

Marks: 100

[ Required Lectures: 50 hours ]

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#### **1. Introduction to VB.NET (4 Lectures)**

- a. Event Driven Programming
- b. .NET Framework
- c. The Just-In-Time Compiler
- d. .NET Framework class library introduction

#### **2. VB.NET Development Environment (4 Lecture)**

- a. Creating Applications
- b. Building Projects
- c. Using simple components
- d. Running VB.NET applications

#### **3. Mastering VB Language (6 Lectures)**

- a. Data, Operators, Conditionals and Loops.
- b. Procedures, Exception Handling.

#### **4. Object Oriented Programming in VB .NET (10 Lectures)**

- a. Class and Object
- b. Properties, methods and events.
- c. Constructors and Destructors
- d. Method overloading
- e. Inheritance
- f. Access modifiers : Public, Private, Protected, Friend.
- g. Overloading and Overriding.
- h. Interfaces.
- i. Polymorphism.

#### **5. Windows Applications in VB .NET (8 Lectures)**

- a. Windows Forms
- b. Text Boxes, Buttons, Labels, Check Boxes, and Radio Buttons.
- c. List Boxes, Combo Boxes. Picture Boxes, Scrollbars, Splitters, Timer



- d. Menus, Built-in Dialogs
- e. Image List, Tree Views, List Views, Toolbars, Status Bar and Progress bars.

## **6. ADO .NET**

**(10 Lectures)**

- a. Database : Connections, Data adapters, and datasets, Data Reader,
- b. Connection to database with server explorer
- c. Data binding with controls like Text Boxes, List Boxes, Data grid etc.
- d. Navigating data source
- e. Data Grid View, Data validation

## **7. Crystal Report**

**(8 Lectures)**

- a. Connection to Database, Table, Queries, Building Report, Modifying Report,
- b. Formatting Fields and Object
- c. Header, Footer, Details, Group Header, Group footer, Summary
- d. Working with formula fields, Parameter fields, Group, Special fields
- e. Working with Multiple Tables, SQL in Crystal Report, Report Templates

## **References-**

- Programming using VB .Net- Wrox Publication
- The Complete Reference -Visual Basic .NET – Jeffrey R. Shapiro
- Murach's VB.NET database programming with ADO.NET -Anne Prince and Doug Lowe
- Mastering Crystal Report - BPB Publication
- Crystal Report – The Complete Reference :- Tata McGraw Hill



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M.B.M. (C.M.) (w.e.f. June 2011) Semester III

*Functional Electives for Semester III*

*(Application and Database Management)*

**Lab V : 3.6 B : Based on 3.1 & 3.4 B**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

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### Practical based on 3.1 : Software Designing & Development

Study following systems in detail -

1. Sales Order Processing System
2. Library System

Perform following for above systems and using any CASE Tool -(Microsoft Visio/ERWin/Rational Rose)

Draw DFD

Draw ERD

Generate table structures with constraints.

Draw UML Diagram using MS-Visio and create project of source code.

Note: Study of other business systems is also desirable.

### Practical based on 3.4 : Java

1. Create a java program for demonstrating array and its methods.
2. Create a java program for demonstrating string methods.
3. Create a java program for demonstrating polymorphism.
4. Create a java program for demonstrating static data members.
5. Create a java program for demonstrating user defined packages.
6. Create a java program for demonstrating exception handling.
7. Create a java program to demonstrate applet life cycle
8. Create a java application for different swing controls.
9. Create a java application for handling mouse events.
10. Create a java application for handling Key events.
11. Create a java application for database connectivity.



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*Functional Electives for Semester III  
(Application and Database Management)*

**Lab VI : 3.7 B( Based on 3.3 & 3.5)**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

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### Practical based on 3.3 : Database Administration & Security

1. Create user and grant privileges to user. Revoke privileges from user.
2. Create tables and insert/update/delete/select records.
3. Create and use view, synonym & sequence.
4. Grant privileges on table to user.
5. Perform database backup & restoration activity.
6. Exporting and importing data.
7. Managing table space of user.
8. Make concurrent access of data.
9. Use multilingual table.
10. Fine tune Database for better performance.

### Practical based on 3.5 : VB.NET

- Write a program to demonstrate class and objects.
- Write a program to demonstrate different control structures.
- Write a program to demonstrate use of different controls.
- Write a program to create simple calculator.
- Write a program to demonstrate different control events
- Write a program to demonstrate data binding.
- Write a program to demonstrate database connectivity.
- Write a program to demonstrate Navigation of data.
- Write a program to demonstrate simple Crystal Report.
- Write a program to demonstrate parameterized Crystal Report.



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

### M.B.M. (C.M.) (w.e.f. June 2011) Semester III

#### 3.8 Information System Audit (ISA)

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

1. Overview of Information Systems Auditing – Need for Control and Audit of Computers, Effect of Computers on Internal Controls, Effect of Computers on Auditing, Foundations of IS Auditing (5 Lectures)
2. Conducting an Information Systems Audit – Introduction, The Nature of Controls, Dealing with Complexity, Audit Risks, Types of Audit Procedures, Steps in Audit, Auditing Around or Through the Computer, introduction to Security Standards – ISO 27001 (6 Lectures)
3. Top Management Controls and Systems Development Controls – Evaluation of Planning, Organizing, leading and Controlling functions, Approaches to Auditing Systems Development, Models for Systems Development, Evaluating Major Phases in Systems Development Process (6 Lectures)
4. Programming Management Controls – Program Development Life Cycle, Programming team organization, Managing the Programming Group (5 Lectures)
5. Data Management Controls – Functions and motivations of DA and DBA roles, Organizational Issues, Data Repository Systems, Control over DA and DBA (6 Lectures)
6. Security Management Controls – Introduction, Conducting a Security Program, Major Security Threats and remedial measures, Controls of last resort – DRP, Insurance (5 Lectures)
7. Input / Output and Operational Controls – Data preparation and entry, Production control, Library, Documentation and Program Library, Help desk and Technical Support, Capacity Planning and Performance Monitoring, Managing Outsourced operations, Check Digits, Batch Controls, Audit Trail Controls, Exposures in Communication subsystem, Controls over the Subversive Threats, OS Integrity Checking, Built in validation checks in Software, Online output Production and Distribution Controls (11 Lectures)
8. BCP and Cyber Crimes – Difference between BCP and DRP, Social Engineering, Data Diddling, Denial of Service attack, Sniffing, Man in Middle attack, Identity Theft and spoofing – Phishing, Pharming, SQL Injection, Zeroth Day Attacks. (6 Lectures)

#### **Reference Book –**

1. Information System Control and Audit – Ron Weber – Pearson Education
2. Information System Audit and Assurance – D.P. Dube and V.P. Gulati – Tata McGraw Hill
3. ISACAs IT Audit standards –  
<http://www.isaca.org/KNOWLEDGE-CENTER/STANDARDS/Pages/default.aspx>



# North Maharashtra University, Jalgaon

(NACC Accredited 'B' Grade University)

## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

### 4.1 QUALITY CONTROL AND SOFTWARE TESTING

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ Required Lectures: 50 hours ]

#### **Introduction :** (06)

Concept and evaluation of quality control, Measurement & Metrology, precision vs accuracy. TQM : Basic Concept, Quality control , Quality Assurance and Quality Management and Total Quality Management. Implementation of TQM . ISO 9000 and its series, Zero defect. Taguchi method, Six Sigma concepts. Other Factors in Quality : Human Factors such as attitude and errors. Material-Quality, Quality circles, Quality in sales & service.

#### **Fundamentals of Testing** (03)

Human and errors, Testing and Debugging, Software Quality, Requirement Behavior and Correctness, Fundamentals of Test Process, Psychology of Testing, General Principles of Testing, Test Metrics

#### **Role of Testing in SDLC** (03)

Review of software development models (Waterfall Models, Spiral Model, W Model, V Model) Agile Methodology and Its Impact on testing, Test Levels (Unit, Component, Module, Integration, System, Acceptance, Generic)

#### **Approaches to Testing - I** (05)

Static Testing  
Structured Group Examinations  
Static Analysis  
Control flow & Data flow, Determining Metrics

#### **Approaches to Testing - II** (10)

Dynamic Testing  
Black Box Testing  
Equivalence Class Partitioning, Boundary Value Analysis, State Transition Test, Cause Effect Graphing and Decision Table Technique and Used Case Testing and Advanced black box techniques  
White Box Testing  
Statement Coverage, Branch Coverage, Test of Conditions, Path Coverage, Advanced White Box Techniques, Instrumentation and Tool Support  
Gray Box Testing, Intuitive and Experience Based Testing

#### **Test Management** (08)

Test Organization  
Test teams, tasks and Qualifications  
Test Planning  
Quality Assurance Plan, Test Plan, Prioritization Plan, Test Exit Criteria

Cost and economy Aspects

Test Strategies

Preventive versus Reactive Approach, Analytical versus heuristic Approach

Test Activity Management, Incident Management, Configuration Management

Test Progress Monitoring and Control

Specialized Testing: Performance, Load, Stress & Security Testing

**Testing Tools** (10)

Automation of Test Execution, Requirement tracker, High Level Review

Types of test Tools

Tools for test management and Control, Test Specification, Static Testing, Dynamic Testing,

Non functional testing

Selection and Introduction of Test Tools

Tool Selection and Introduction, Cost Effectiveness of Tool Introduction

**Testing Object Oriented Software** (05)

Introduction to OO testing concepts, Differences in OO testing

**References:**

1. Software Testing Foundations, Andreas Spillner, Tilo Linz, Hans Schaefer, Shoff Publishers and Distributors

2. Software Testing: Principles and Practices by Srinivasan D and Gopalswamy R, PearsonEd, 2006

3. Foundations of Software Testing by Aditya P. Mathur – Pearson Education custom edition 2000

4. Testing Object Oriented Systems: models, patterns and tools, Robert V Binder, Addison Wesley, 1996

5. Software Engineering – A practitioner's approach by Roger S. Pressman, 5th Edition, McGraw Hill

6. The art of software testing by GJ Myers, Wiley.



# North Maharashtra University, Jalgaon

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**FACULTY OF COMMERCE & MANAGEMENT**

**M.B.M. (C.M.) (w.e.f. June 2011) Semester IV**

## **4.2 Information Security and Cyber Laws**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

### **1. Introduction to Information Security**

(6 Lectures)

History of Information Systems and its Importance, basics, Changing Nature of Information Systems, Basic Principles of Information Security, Confidentiality, Integrity, Availability and other terms in Information Security

### **2. Security Threats and Controls**

(12 Lectures)

Information System Threats and attacks, Security Threats to E Commerce, Business Transactions on Web, E-Governance and EDI, Concepts in Electronics payment systems, Internet Banking, E-Cash, Credit/Debit Cards., Physical Security- Needs, Disaster and Controls, Basic Tenets of Physical Security and Physical, Entry Controls., Access Control- Biometrics, Benefits of Biometrics Systems and Criteria for selection of Biometrics.

### **3. Cryptography & Network Security**

(14 Lectures)

Model of Cryptographic Systems, Issues in Documents Security, System of Keys, Public Key Cryptography, Digital Signature, Requirement of Digital Signature System, Finger Prints, Firewalls, Network Security- Basic Concepts, Dimensions, Perimeter for Network Protection, Network, Attacks, Need of Intrusion Monitoring and Detection, Intrusion Detection Virtual Private Networks- Need, Use of Tunneling with VPN, Authentication Mechanisms, Types of VPNs and their Usage, Security Concerns in VPN

### **4. Cyber Law & IT Act**

(10 Lectures)

Fundamentals of Cyber Law. Introduction to Indian Cyber Law: Information Technology Act 2000. Main features of the IT Act 2000, Information Technology Amendment Act 2008 and its major strengths.

### **5. Case Studies on Cyber Crimes**

(8 Lectures)

**[Minimum 5 cases]**

#### **References :**

1. Godbole, "Information Systems Security", Willey
2. Merkov, Breithaupt, "Information Security", Pearson Education
3. Yadav, "Foundations of Information Technology", New Age, Delhi
4. Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill
5. Sood, "Cyber Laws Simplified", Mc Graw Hill
6. Furnell, "Computer Insecurity", Springer
7. IT Act 2000



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV (Web Management)*

### 4.3 A : Website Management & Services

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ Required Lectures: 50 hours ]

Domain Management: Domain types, domain search, domain registration, renewal, legal issues in domain management. [Lectures : 6]

Web Server Management : Web server, web space, types of web server, hosting web site on server, security issues, understanding IP addressing system, maintenance of server [Lectures :10]

Website: structure, types, characteristics of good website, stages of website development, developing website using tools, portal – definition, need , advantage [Lectures : 9]

Searching fundamentals, search engine, multilingual search, translation of search results [Lectures : 4]

Email services and its management [Lectures :4]

Introduction to Content Management, Crowd Sourcing [Lectures : 4]

Blog : Concept, usefulness and development [Lectures : 6]

Use of Wikipedia, IBM Web sphere, social networking for business, chatting, document sharing site, video conferencing tool [Lectures : 7]

#### References :

Heilman	Web Development Solutions	Dreamtech Press
Mendes	Web Engineering: Theory and Practice of Metrics and Measurement for Web Development	New Age Intl
Alonso	Web Services: Concepts, Architectures and Applications	Universities Press

Note :Visiting IBM Web site for various web services is desirable.





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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV (Web Management)*

### 4.4 A : ASP.NET

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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#### **Chapter-1 Introduction to ASP.NET**

[04]

What is ASP.NET?

ASP vs. ASP.NET

Upgrading HTML Pages to ASP.NET

Upgrading ASP Pages to ASP.NET

#### **Chapter-2 Essentials of ASP.NET**

[04]

Types of web sites in Visual Web Developer

ASP.Net Web Page Model (Single Page Model, Two Page Model)

Server Side Script Execution

ASP.NET Compilation Model

#### **Chapter-3 Objects and Controls**

[09]

Working with Web form controls

HTML Server Controls

Validation Controls

AdRotator Controls

Detect Browser Capabilities

Page Level Errors and Application Level Errors

Control Events, Connect Multiple Event to Single Event Handler

#### **Chapter-4 Intrinsic Objects under ASP.NET**

[04]

Request Object

Response Object

Session Object

Application Object

Server Object

#### **Chapter-5 State Management**

[07]

Page Level – ViewState

User Level – Session

Application Level – Application

Website Level – Cookies  
Cleaning the Session State  
Global Application Class (global.asax)  
Web Configuration File (web.config)

**Chapter-6 Data Access with ADO.NET [08]**

Overview of ADO.NET Objects,  
Create and retrieve Database Connections  
SqlDataSource Controls  
ASP.NET Data-Bound Controls  
GridView, Repeater, DataList, Details View, Form View

**Chapter-7 Master Pages & skins [03]**

Master Page overview  
How to Create Master Page  
Configure Content Page  
Themes and Skins in ASP.NET

**Chapter-8 Security and Configuration [06]**

Using the CreateUserWizard control  
Using the LoginStatus control  
Using the Login control  
Using the LoginView control  
Web.Config vs. Machine.Config

**Chapter-9 Web Services [05]**

Introduction to XML Web Services  
Creating Web Services with Visual Studio .NET  
Testing a Web Method, Consuming a Web Service in Client Application

**REFERENCE BOOKS:**

**References:-**

- i. ASP.NET and VB.NET Web Programming, by Crouch Matt J, Addison Wesley 2002.
- ii. Programming ASP.NET, J.Liberty, D.Hurwitz, (3rdEd), O'REILLY, 2006
- iii. SAMS Publication Series
- iv. [www.asp.net](http://www.asp.net)
- v. [www.w3schools.com](http://www.w3schools.com)



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV (Web Management)*

### 4.5 A : PHP & AJAX

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ Required Lectures: 50 hours ]

#### **Chapter 1 – Configuring & Installation**

[02]

Web architecture, web Server (xamp Server, apache server), Web Browser, Introduction to Web Development: Open Source, Proprietary, Technologies, Introduction to PHP & its installation, configuration (php.ini, httpd.conf)

#### **Chapter 2 – PHP Language Basics**

[12]

Structure and Syntax, Using HTML, Constants and Variables, Passing Variable between Pages, Using if/else, Switch, Loops, String , Operators, Includes, Functions. Arrays syntax, foreach Constructs, Using PHP \$\_GET, PHP \$\_POST Working with Forms: Processing Forms Form Validation Emailing Form Data Linking Form Together, Hidden Form Fields, Validating User Input Handling and Avoiding Errors, Files & Directories

#### **Chapter 3- Using PHP with MySQL**

[08]

Introduction to MySQL, installation & configuration with PHP, MySQL Structure and Syntax, Interacting with Databases, Modifying Database Records Using PHP, MySQL Connect, Create, Insert, select, Where, Order by, Update, Delete, Using PHP and Arrays of Data: foreach

#### **Chapter 4- OOPs Concept in PHP**

[06]

Introduction, Advantages, class & object, data member, data fields, inheritance, constructor & destructor, abstract classes, final classes, exception handling

#### **Chapter 5 – Advanced PHP**

[10]

Emailing in PHP, File Handling function, File uploading, Sending Free SMS to Mobile, loading PHP application on web server By FTP. Web services

#### **Chapter 6- Ajax**

[04]

Introduction, Creating Ajax Object in different Browser, using the ajax object

#### **Chapter 7 – CMS Technolgy in PHP**

[08]

Introduction of CMS, joomla Installation & use, Plug-in of joomla , Various manger in Joomla

**REFERENCE BOOKS:**

1. Beginning PHP5, Dave Mercer, Allan Kent, Steven Nowicki, David Mercer, Dan Squier, Wankyu Choi, Wiley Publishing(Wrox) ISBN: 0-7645-5783-1
2. “Beginning PHP, Apache, MySQL Web Development”, Michael K. Glass, Yann Le Scouarnec, Elizabeth Naramore, Gary Mailer, Jeremy Stolz, Jason Gerner, Wiley Publishing(WROX), March 2004, ISBN: 978-0-7645-5744-6
3. “PHP, MySQL Web Development”, Luke Welling, Laura Thompson, Sams, second edition
4. PHP for Beginners, Ivan Bayross, Sharanam Shah, THE X Team , SPD
5. [www.w3schools.com](http://www.w3schools.com)
6. [www.basicphpprogramming.com](http://www.basicphpprogramming.com)



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV (Web Management)*

**Lab VII : 4.6 A : Based on 4.1 & 4.4 A**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

### Practical based on 4.1 : Quality Control & Software Testing

**Important Note:** The concerned teacher (conducting this laboratory course) should provide the required software (properly installed and correctly working) along with a sample set of appropriate type of programs (minimum 5 sample programs) to be tested using the respective software to the students. This should be observed in case of each of the assignment sets given below.

Interested teachers/students also can visit the link given below to get more information about free and open source software testing tools other than the one's listed below. URL for the same is <http://sourceforge.net/search/?q=software+testing>.

#### Assignment Set 1

**JUnit:** JUnit is a testing tool for Java. It helps you write down, structure, and run your test cases.

<http://www.junit.org/>

Installing JUnit is very easy. Get JUnit by either:

- downloading the distribution from [www.junit.org](http://www.junit.org)
- in case you run Linux, check whether your distribution offers JUnit (Ubuntu does), and install it.

In either case, make sure you use JUnit4 or higher. No further installation is needed!

1. You will be given a java program/s by your Teacher in-charge. With respect to the code /program given write test cases using Black box technique for a number of methods using their specifications. Analyse the specifications in order to divide the set of possible inputs into different situations. Then write a set of test cases for each method, which covers the different cases well. For each test case, give a comment which describes what situation it tests. Report your results as a test class which runs all test cases via JUnit
2. For this assignment, you will be using the source code of the methods. For each method you should first derive a suite of test cases using white box technique which together have full statement coverage of the source code. Then you should write additional test cases (if any are needed) which together with the ones already there have full branch coverage of the code. The test cases should be executable with JUnit just like in part 1 of the assignment. If any of the test cases for a method fails, try to find the bug and correct the source code.

## Assignment Set 2

### Prerequisite:

The Teacher in-charge should first demonstrate how to compile and debug the code using gcc compiler and gdb/ddd debugger on Linux environment. They also are required to train students to understand use of the profiler.

For this assignment students will be given a code written in C which contains set of functions, loops, etc. Students are expected to compile the program and debug the program for various set of inputs. As the later part of this assignment students need to make use of GCOV Which is a tool they can use in conjunction with GCC to test code coverage in their programs. GCC and GCov are bundled with every Linux distribution. Sometimes with few distributions if it unavailable one can install g++.

## Assignment Set 3

Selenium (<http://selenium.openqa.org/>) is a test tool for web applications. Selenium tests run directly in a real browser such as Firefox or Internet Explorer. IDE for Selenium can be downloaded from the URL <http://www.openqa.org/selenium-ide/>

Note: video tutorials also can be viewed from [http://wn.com/Tutorial\\_Selenium\\_IDE](http://wn.com/Tutorial_Selenium_IDE)

## Assignment Set 4

PHPUnit: This is a unit testing framework for PHP. This is a unit-testing framework for PHP based on the "JUnit" framework for Java. ( <http://sourceforge.net/projects/phpunit/> )

- Expert PHP 5 Tools, Packt Publishing, Dirk Merkel A very practical book, which throughout its seventh chapter builds with the reader practical examples of unit tests with PHPUnit.
- PHP Objects, Patterns and Practice, Third Edition, Apress, Matt Zandstra, Chapter 18 is devoted to PHPUnit.
- Pro PHP Refactoring, Apress, Francesco Trucchia, Jacopo Romei, chapters 5 and 6 are devoted to PHPUnit and Selenium RC
- Students are expected to write test cases using following tools.

## Assignment Set 5

**Canoo WebTest:** Used for functional testing of web pages, WebTest is an open source testing framework built on top of HttpUnit. It allows tests to be defined in XML as Ant targets. (URL: <http://webtest.canoo.com/webtest/manual/Downloads.html>)

## Assignment Set 6

**JSystem:** JSystem is an open source framework for writing and running automated system testing. JSystem includes: 1. Services Java API - exposes JSystem services 2. JSystem Drivers- Java modules used to interfaces with the system under test. 3. JRunner - GUI application interface used for creating and running tests scenarios. 4. JSystem Agent - Execution engine used to run scenarios on a distributed setup. 5. JSystem Eclipse plug-in - accelerates the development environment setup and enforces JSystem conventions. JSystem is based on JUnit (tests and steps) and Ant (execution engine). (Downloadable URL: <http://www.jsystemtest.org/> )

### **Assignment Set 7**

**Maveryx:** Maveryx is a free and open source Test Automation Framework for functional and regression testing of Java applications. Maveryx eliminates the GUI Map dependency. Testers do not have to capture and maintain any GUI Map. GUI objects described in the scripts are identified and located directly at runtime during the test scripts execution. Maveryx supports approximate matching to identify the GUI objects even in case of few or partial information given by the tester in the test scripts. Maveryx works with Eclipse, NetBeans, JUnit, IBM Rational Functional Tester, etc. (Downloadable URL: <http://maveryx.sourceforge.net/>)

### **Practical based on 4.4 : ASP.NET**

1. Demonstration of creating a simple web form
2. Demonstrate how to handle Application Level Errors.
3. Demonstrate how to check Browser Capabilities.
4. Demonstrate the use of Server.Transfer and QueryString
5. Demonstrate how to use SiteMapPath control.
6. Demonstrate how to use TreeView control.
7. Demonstrate use of Master Pages.
8. Demonstrate use of global.asax
9. Demonstration of GridView Data Control.
10. Demonstration of ASP.NET objects (HTTPApplicationState, HTTPSessionState)
11. Demonstrate use of Publish web site Utility (Deployment of Web Project).



# North Maharashtra University, Jalgaon

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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV (Web Management)*

**Lab VIII : 4.7 A : Based on 4.3 A & 4.5 A**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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### **Practical based on 4.3 : Website Management & Services**

1. Perform domain search
2. Search for web space and prepare comparative chart
3. Develop your blog
4. Translate search results in Hindi/Marathi into English and vice versa.
5. Practical based on email management
6. Develop attractive website using tool
7. Participate in Video conferencing using tools like Skipe
8. Draw following Web Diagram using MS Visio
  - a. Conceptual Web Site
  - b. Web Site Map

### **Practical based on 4.5 : PHP & AJAX**

1. Write a PHP Script To display Resume on web browser.
2. Write a PHP script to display table of 1 to 10
3. Write a PHP script to create a Simple Login Window with validation.
4. Write a PHP script to Demonstrate inbuilt & user define Function.
5. Creation of MySql database demonstration of various SQL queries(create table,insert, update, delete)
6. Accessing MySql data from PHP script: Displaying tables and fields along with their types and constraints, table data in tabular format.
7. Write a PHP script to Demonstrate OOPS Concept In PHP.
8. Write a PHP script to Demonstrate Sending a Email.
9. Write a PHP script to Demonstrate File uploading on web server.
10. Write a PHP script to Demonstrate Web services.
11. Write a Script to demonstrate Ajax Object.
12. Create a website By using CMS Technology.





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**FACULTY OF COMMERCE & MANAGEMENT**

**M.B.M. (C.M.) (w.e.f. June 2011) Semester IV**

*Functional Electives for Semester IV*

*(Application and Database Management)*

**4.3 B : Data Mining and Data Warehousing**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

**[ Required Lectures: 50 hours ]**

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## **Introduction to Data Mining**

**[ 4 Lectures ]**

Basic Data Mining Tasks, DM versus Knowledge Discovery in Databases, Data Mining Issues, Data Mining Metrics, Social Implications of Data Mining, Overview of Applications of Data Mining

## **Introduction to Data Warehousing**

**[ 5 Lectures ]**

Architecture of DW, OLAP and Data Cubes, Dimensional Data Modeling-star, snowflake schemas, Data Preprocessing – Need, Data Cleaning, Data Integration & Transformation, Data Reduction, Machine Learning, Pattern Matching

## **Data Mining Techniques**

**[ 5 Lectures ]**

Frequent item-sets and Association rule mining: Apriori algorithm, Use of sampling for frequent item-set, FP tree algorithm, Graph Mining: Frequent sub-graph mining, Tree mining, Sequence Mining

## **Classification & Prediction**

**[ 16 Lectures ]**

### ***Decision tree learning:* [3 hrs]**

Construction, performance, attribute selection

Issues: Over-fitting, tree pruning methods, missing values, continuous classes, Classification and Regression Trees (CART)

### ***Bayesian Classification:* [6 hrs]**

Bayes Theorem, Naïve Bayes classifier, Bayesian Networks Inference

Parameter and structure learning

### ***Linear classifiers* [4 hrs]**

Least squares, logistic, perceptron and SVM classifiers

### **Prediction [3 hrs]**

Linear regression, Non-linear regression

## **Accuracy Measures**

**[ 5 Lectures ]**

Precision, recall, F-measure, confusion matrix, cross-validation, bootstrap

## **Introduction to Software for data mining and applications of data mining [ 5 Lectures ]**

R, Weka, Sample applications of data mining

**Clustering**

[ 5 Lectures ]

k-means , Expectation Maximization (EM) algorithm, Hierarchical clustering, Correlation clustering

**Brief overview of advanced techniques**

[ 5 Lectures ]

Active learning, Reinforcement learning , Text mining, Graphical models, Web Mining

**Reference Books:**

1. Data Mining – Introductory and Advanced Topics, Margaret H. Dunham, S. Sridhar Pearson Education
2. Pattern Recognition and Machine Learning Christopher M. Bishop Springer 2006
3. Intelligent Data Mining: Techniques and Applications: Ruan, D.; Chen, G.; Kerre, E.E.; Wets, G. (Eds.), Springer
4. Data Mining Techniques, Michael Berry, Gordon Linoff, Wiley India, ISBN 8126505176
5. Tom Mitchell, —Machine Learning||, McGraw-Hill, 1997
6. R.O. Duda, P.E. Hart, D.G. Stork. Pattern Classification. Second edition. John Wiley and Sons, 2000.
7. Raghu Ramkrishnan, Johannes Gehrke, Database Management Systems, Second Edition, McGraw Hill International
8. [Research-Papers]: Some of the relevant research papers that contain recent results and developments in data mining field
9. Ian H.Witten, Eibe Frank. Data mining : Practical Machine Learning Tools and Techniques, 2nd ed., Morgan Kaufmann series in data management systems.
10. Jiawei Han, Micheline Kamber Data Mining: Concepts and Techniques, Morgan Kaufmann Publishers



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## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV*

*(Application and Database Management)*

### **4.4 B : Oracle/D2K**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

<b>Introduction to Oracle</b>	(3)
a. Introduction to Oracle Tool.	
b. Oracle DBA.	
c. SQL *PLUS.	
d. Oracle Architecture.	
i. Memory Structure.	
ii. System Global Area (SGA).	
iii. Program Global Area (PGA).	
iv. Process (User, Oracle and Instance).	
<b>Structured Query Language (SQL):</b>	(4)
a) Introduction	
b) Data types in oracle, Operators in oracle, Working with tables.	
c) Introduction to DML, TCL, DDL, DCL, Nested tables, Varray, Object table integrity constraints.	
d) Functions in Oracle, Numeric Function, Character Function, Date Function, Conversion Function, Group Function	
<b>Sub Queries, Joins and Database Objects</b>	(4)
a. Sub Queries using correlated queries view, Index Partition, Sequence, Cluster, Synonyms, and Materialized View.	
b. Set Operators, Joins, Inner joins, Equi, Non Equi, Self-join and Outer Joins	
<b>Locks</b>	(2)
a. Locks in Oracle Concept of Locking	
b. Shared Locks and Shared update Locks	
c. Dead Locks	
<b>PL/SQL</b>	(4)
a. Introduction	
b. PL/SQL Blocks	
c. Advantages of PL/SQL	
d. Control Structure, Nested Blocks	
<b>Cursor</b>	(4)
a. Implicit Cursors and Explicit Cursor	
b. Composite Data Type, Table and Records	

- Triggers** (4)
- a. Types of trigger
  - b. Enabling & Disabling
  - c. Database trigger

## **Developer 6i**

- Introduction** (2)
- a. Working with the Form Developer Environment
  - b. Working a Basic Form Module
  - c. Working with Data Blocks and Frame Running the Form Developer Application

- Data Blocks** (03)
- a. Data Block Wizard
  - b. Creating Block Manually
  - c. Base Table Block and Control Block
  - d. Master Details Blocks

- Working with GUI Controls** (5)
- a. Working with Text Items
  - b. Creating Additional
  - c. Input Items, Check Box, Radio Button, List Item
  - d. Creating Non Input Items Display item, Push Buttons
  - e. Label Boiler Plate Graphics

- Record Group and LOV** (3)
- a. Working with Record Groups
  - b. Creating LOVs, LOVs Wizard
  - c. LOV Properties

- Editors and Alerts** (3)
- a. Types of Editors
  - b. Alerts, Properties

- Menu and Trigger** (3)
- a. Creating POP UP Menu
  - b. Menu Properties
  - c. Attaching Forms and Reports to menu.
  - d. Trigger, Trigger Validation

- Report** (6)
- a. Design and Running Report
  - b. Parameter Report
  - c. Group Report
  - d. Matrix Report
  - e. Tabular Report.



# North Maharashtra University, Jalgaon

(NACC Accredited 'B' Grade University)

## FACULTY OF COMMERCE & MANAGEMENT

M.B.M. (C.M.) (w.e.f. June 2011) Semester IV

*Functional Electives for Semester IV*

*(Application and Database Management )*

**4.5 B : J2EE & J2ME**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

### JAVA 2 ENTERPRISE EDITION

- 1. J2EE introduction and architecture** (4)
  - Comparison between J2EE and .NET
  - Application development roles
  
- 2. RMI (Remote method Invocation)** (4)
  - Java distributed technology
  - RMI architecture
  - Object passing in RMI
  
- 3. Enterprise Java Beans** (8)
  - Comparison between different distributed technologies
  - EJB architecture
  - EJB container
  - Stateless session bean
  - State full session bean
  
- 4. XML** (6)
  - Introduction
  - Need of XML in application architectures
  - DTD (Document type definition)
  - DOM (Document object model)

### JAVA 2 MICRO EDITION

- 5. Overview of the J2ME Architecture** (2)
  - Describe J2ME Architecture
  - Run the J2ME Wireless Toolkit demonstrations
  
- 6. Building and Executing MIDP Applications** (6)
  - MIDP 2.0 application environment
  - MIDP development process
  - Write and build a MIDP
  - Interrogate the device to verify that it can run the new MIDlet (Mobile Information Device Profile application)

## **7. High-Level User Interface (10)**

- Describe the MIDP user interface (UI) architecture
- Describe the MIDP high-level UI API
- Describe the Display object
- Define the Item class and subclass components
- Implement high-level item event handling
- Display a message on the MIDlet screen
- Implement a user input interface
- Handle user input through item state changes
- Verify form data using a Command object
- Implement the menu system

## **8. Low-Level User Interface (3)**

- Describe the MIDP low-level UI API

## **9. Managing Data on the Devices (7)**

- Define data persistence and the RMS package in the MIDP
- Access RecordStore objects on the device object
- Store and retrieve data in a RecordStore object
- Describe the RecordEnumeration interface
- List RecordStore objects
- Share a RecordStore object between MIDlet suites
- Implement an option screen, and save and retrieve the data in the RecordStore object

Reference Books :

1. J2ME ( The Complete Reference), James Edward Keogh, TMH Publication
2. Beginning J2ME Platform : From Novice to Professional, Jonathan Knudsen and Sing Li, Apress
3. EnterPrise J2ME : Developing Mobile Java Applications, Michael Juntao

Yuan



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**Lab VII : 4.6 B : Based on 4.1 & 4.4 B**

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### Practical based on 4.1 : Quality Control & Software Testing

**Important Note:** The concerned teacher (conducting this laboratory course) should provide the required software (properly installed and correctly working) along with a sample set of appropriate type of programs (minimum 5 sample programs) to be tested using the respective software to the students. This should be observed in case of each of the assignment sets given below.

Interested teachers/students also can visit the link given below to get more information about free and open source software testing tools other than the one's listed below. URL for the same is <http://sourceforge.net/search/?q=software+testing>.

#### Assignment Set 1

**JUnit:** JUnit is a testing tool for Java. It helps you write down, structure, and run your test cases.

<http://www.junit.org/>

Installing JUnit is very easy. Get JUnit by either:

- downloading the distribution from [www.junit.org](http://www.junit.org)
- in case you run Linux, check whether your distribution offers JUnit (Ubuntu does), and install it.

In either case, make sure you use JUnit4 or higher. No further installation is needed!

3. You will be given a java program/s by your Teacher in-charge. With respect to the code /program given write test cases using Black box technique for a number of methods using their specifications. Analyse the specifications in order to divide the set of possible inputs into different situations. Then write a set of test cases for each method, which covers the different cases well. For each test case, give a comment which describes what situation it tests. Report your results as a test class which runs all test cases via JUnit
4. For this assignment, you will be using the source code of the methods. For each method you should first derive a suite of test cases using white box technique which together have full statement coverage of the source code. Then you should write additional test cases (if any are needed) which together with the ones already there have full branch coverage of the code. The test cases should be executable with JUnit just like in part 1 of the assignment. If any of the test cases for a method fails, try to find the bug and correct the source code.

## Assignment Set 2

### Prerequisite:

The Teacher in-charge should first demonstrate how to compile and debug the code using gcc compiler and gdb/ddd debugger on Linux environment. They also are required to train students to understand use of the profiler.

For this assignment students will be given a code written in C which contains set of functions, loops, etc. Students are expected to compile the program and debug the program for various set of inputs. As the later part of this assignment students need to make use of GCOV Which is a tool they can use in conjunction with GCC to test code coverage in their programs. GCC and GCov are bundled with every Linux distribution. Sometimes with few distributions if it unavailable one can install g++.

## Assignment Set 3

Selenium (<http://selenium.openqa.org/>) is a test tool for web applications. Selenium tests run directly in a real browser such as Firefox or Internet Explorer. IDE for Selenium can be downloaded from the URL <http://www.openqa.org/selenium-ide/>

Note: video tutorials also can be viewed from [http://wn.com/Tutorial Selenium IDE](http://wn.com/Tutorial_Selenium_IDE)

## Assignment Set 4

PHPUnit: This is a unit testing framework for PHP. This is a unit-testing framework for PHP based on the "JUnit" framework for Java. ( <http://sourceforge.net/projects/phpunit/> )

- Expert PHP 5 Tools, Packt Publishing, Dirk Merkel A very practical book, which throughout its seventh chapter builds with the reader practical examples of unit tests with PHPUnit.
- PHP Objects, Patterns and Practice, Third Edition, Apress, Matt Zandstra, Chapter 18 is devoted to PHPUnit.
- Pro PHP Refactoring, Apress, Francesco Trucchia, Jacopo Romei, chapters 5 and 6 are devoted to PHPUnit and Selenium RC
- Students are expected to write test cases using following tools.

## Assignment Set 5

**Canoo WebTest:** Used for functional testing of web pages, WebTest is an open source testing framework built on top of HttpUnit. It allows tests to be defined in XML as Ant targets. (URL: <http://webtest.canoo.com/webtest/manual/Downloads.html>)

## Assignment Set 6

**JSystem:** JSystem is an open source framework for writing and running automated system testing. JSystem includes: 1. Services Java API - exposes JSystem services 2. JSystem Drivers- Java modules used to interfaces with the system under test. 3. JRunner - GUI application interface used for creating and running tests scenarios. 4. JSystem Agent - Execution engine used to run scenarios on a distributed setup. 5. JSystem Eclipse plug-in - accelerates the development environment setup and enforces JSystem conventions. JSystem



is based on JUnit (tests and steps) and Ant (execution engine). (Downloadable URL: <http://www.jsystemtest.org/> )

### **Assignment Set 7**

**Maveryx:** Maveryx is a free and open source Test Automation Framework for functional and regression testing of Java applications. Maveryx eliminates the GUI Map dependency. Testers do not have to capture and maintain any GUI Map. GUI objects described in the scripts are identified and located directly at runtime during the test scripts execution. Maveryx supports approximate matching to identify the GUI objects even in case of few or partial information given by the tester in the test scripts. Maveryx works with Eclipse, NetBeans, JUnit, IBM Rational Functional Tester, etc. (Downloadable URL: <http://maveryx.sourceforge.net/> )

### **Practical based on 4.4 : Oracle & D2K**

1. Create table, Insert Records and perform simple SQL
2. Create table with various constraints as PRIMARY KEY, REFERENCES KEY, and CHECK  
& NOT NULL Constraints
3. Write down SQL by using
  - i. GROUP BY
  - ii. HAVING CLAUSE
4. Write down SQL by using
  - i. Aggregate functions
  - ii. Date functions
  - iii. String functions
5. Write down PL/SQL for FOR, WHILE LOOP and IF.. END IF .
6. Write down PL for Implicit & Explicit cursors.
7. Write down PL for Stored procedure & Function.
8. Create Simple Data Entry form with Validation.
9. Create Master Detail data entry Form
10. Create a Form with menu.
11. Design Simple Report.
12. Design Master Detail Report.
13. Design Matrix Report



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**Lab VIII : 4.7 B : Based on 4.3 B & 4.5 B**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[ *Required Lectures: 50 hours* ]

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### Lab 4.3 : Data Mining & Data Warehousing

**1: Implementing the data mining algorithms with machine learning tool weak (Waikato Environment for Knowledge Analysis) or Tanagra or other related tool**

1. Association rule mining with apriori algorithm
2. Decision tree classifier
3. partitinal clustering with K-means
4. Hierarchical clustering
5. Naïve Bayes classifier

**2: Data warehousing labs with OLAP tool**

1. Aggregations and OLAP operations: SQL and aggregations; aggregation functions; grouping, roll-up, Slicing, and pivoting.
2. Materialized views
3. Fundamentals of ETL using external tables
4. Software Partitioning using Partitioning tables and indexes
5. Schema design and creating and using bitmap indexing in data warehouse

### Lab 4.5 : J2EE & J2ME

- 1) Downloading & Installation of MIDlet (J2ME Application) building software package.
- 2) Understanding Directory Structure for storage of J2ME Application.
- 3) Using J2ME Integrated development Environment (J2ME IDE) for building MIDlet application.
- 4) A Practical assignment on simple MIDlet application.
- 5) A Practical assignment on MIDlet application using controls like Textbox, Buttons & Menus.

- 6) A Practical assignment on MIDlet application using event handling. i. e. by selecting particular menu, respective text message should be displayed on menu selection.



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### **4.8 :Project (Based on respective Specialization)**

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Project will be based on specialization opted by student.

Group Project is not allowed.

Outline of the Project is required to be submitted before Semester 3 practical Examination in Hardcopies as well as in soft copy.

Use of CASE tool is expected. Use of testing tools is desirable.

Students have to submit Project Report in hard copies as well as in pdf format to the college & college should submit it to university.

#### **Project Marking Scheme for MBM (Computer Management)**

Marks are Out of 100 (Convert to out of 40 for internal and to out of 60 for external)

Criterion	Performance		Total marks	Marks given
<b>Quantum of Work</b>	Not enough for Project	0	10	
	Just right	3		
	Good amount of work done	6		
	Very-good amount of work	10		
<b>Understanding of project/task objectives</b>	No understanding of project/task objectives	0	10	
	Fair amount of understanding	3		
	Clear understanding of various aspects	6		
	Detailed understanding of the all aspects of the project	10		
<b>Approach adopted</b>	Technically inept, with no motivation to improve	0	10	
	Reasonable level of skills demonstrated	3		
	Technical competence demonstrated	6		
	Outstanding demonstration of technical skills, creative approach	10		
<b>Effort</b>	No evidence of interest in the work	0	10	
	Reasonably good effort	3		

	Conscientious effort	6		
	Excellent amount of effort	10		
<b>Initiative and self-motivation</b>	No Evidence	0	10	
	Evidence of some contribution of ideas	3		
	Significant contribution towards developing/refining/doing the task allocated	6		
	Sufficient evidence of handling the tasks independently and efficiently	10		
<b>Achievement of objectives</b>	Not much progress	0	10	
	Adequate but not enough	3		
	Good progress and made best use of the opportunities present	6		
	Outstanding performance	10		
<b>Report Content</b>	Not Submitted	0	10	
	Mostly sound but a lot of scope of improvement	3		
	A very well structured report	6		
	Comprehensive and detailed report	10		
<b>Presentation</b>	Not presented	0	15	
	Okay, but not an overall understanding of what constitutes a presentation	5		
	Well presented	10		
	Very well presented, with clear understanding of goals	15		
<b>Q &amp; A</b>	Not participated	0	15	
	Could handle but confused	5		
	Could handle competently	10		
	Could handle professionally	15		