



North Maharashtra University, Jalgaon

***FACULTY OF COMMERCE &
MANAGEMENT***

Structure and Syllabus of –

A. D. S. T. M.

W.E.F. Academic Year 2011-12



North Maharashtra University, Jalgaon

(NACC Accredited 'B' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

STRUCTURE OF A.D.S.T.M.

W.E.F. FROM ACADEMIC YEAR: 2011-12

Sr. No.	Subject Code	Subject	Maximum Marks
1	1.1	Software Engineering	100
2	1.2	VB.NET	100
3	1.3	Oracle D2k	100
4	1.4	Tally ERP	100
5	1.5	Internet and Web Services	100
6	1.6	Software Testing	100
7	1.7	Practical	100
8	1.8	Project	100



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FACULTY OF COMMERCE & MANAGEMENT

A.D.S.T.M.

1.1 Software Engineering

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

[Total Lectures: 50]

Introduction

Lecture - 5

Software Engineering, Software Characteristics, Software Crisis & Myths, Software Application, The Evolving role of Software.

The Product & The Process

Lecture 8

A layered Technology, The Software Process, Software Process Models, Linear Sequential Model, The Prototype model, RAD Model, Spiral Model, Evolutionary Software Process model, Basic Web process Model, Modified Waterfall Model, Joint Application Development model, Fourth generation Techniques.

Analysis Concept and Principle

Lecture 10

Requirement Analysis, Analysis principle, Software prototyping, specification review, Analysis Modeling, The Elements of analysis model, Data Modeling, Functions modeling and information flow, Behavioral modeling, the mechanics of structured Analysis, The Data Dictionary.

Design Concepts and Principle

Lecture 12

Project planning, cost estimation model, Software Design and software Engineering, Design process, Design principles, Design concepts, effective modular design, Design Heuristics for Effective modularity, The Design model, Design Documentation, Architectural Design, Software architecture, Data design, User Interface Design, Elements of good Design, Design Issues, Feature of modern GUI, software metrics.

Software maintenance: -

Lecture 15

Types of maintenance, significance, characteristics that affect software maintenance, summary of the nature of the maintenance phase.

References :-

1. Software Engineering : A Practitioner's Approach, Roger S Pressman 7th Edition McGraw Hill International Publication.
2. The Complete Reference : Web Design, Thomas A Powell. McGraw Hill International Publication.
3. S. Mantel, J. Meredith, S. Shafer, M. S. Sutton, M. Gopalan, Project Management, Wiley India, 2006.
4. K. V. K. K-Prasad, Software Testing Tools, dreamtech Press, 2006.



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A.D.S.T.M.

1.2 VB.NET

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

[Total Lectures: 50]

1. Introduction to VB.NET

Lecture 05

- a. Event Driven Programming
- b. NET as better Programming Platform
- c. NET Framework
- d. NET Architecture
- e. The Just-In-Time Compiler
- f. NET
- g. Framework class library introduction.

2. VB.NET Development Environment

Lecture 05

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

3. Mastering VB Language

Lecture 07

- a. Data, Operators,
- b. Conditionals and Loops
- c. Procedures and Error Handling
- d. Classes and Objects.

4. Windows Applications in VB .NET.

Lecture 07

- a. Windows Forms
- b. Text Boxes
- c. Buttons
- d. Labels
- e. Check Boxes and Radio Buttons
- f. List Boxes, Combo Boxes and Picture Boxes
- g. Scrollbars, Splitters and Timer
- h. Menus, Built-in Dialogs, Image List
- i. Tree Views and List Views
- j. Toolbars, Status Bar and Progress bars.

5. Object Oriented Programming in VB .NET

Lecture 06

- 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.

6. File handling

Lecture 05

- a. File handling using File-Stream
- b. Stream-Writer and Stream-Reader
- c. Binary-Reader and Binary-Writer classes
- d. File and Directory Classes

7. Databases in VB .NET 05

Lecture 05

- a. Database : Connections, Data adapters, and datasets
- b. Data Reader, Connection to database with server explorer
- c. Multiple Table Connection
- d. Data binding with controls like Text Boxes, List Boxes, Data grid etc.
- e. Navigating data source
- f. Data Grid View, Data form wizard and Data validation.
- g. Connection Objects and Command Objects
- h. Data Adapters and Dataset Class

8. Crystal Report

Lecture 05

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

9. Custom Controls:

Lecture 05

Creating and Referencing custom controls

References :-

1. Programming Microsoft Visual Basic.NET – Francesco Balena
2. The Complete Reference -Visual Basic .NET – Jeffrey R. Shapiro
3. Murach’s VB.NET database programming with ADO.NET -Anne Prince
4. Visual Basic .NET 2003 in 21 Days. – Steven Holzner, SAMS Publications.
5. Mastering Crystal Report - BPB Publication
6. Crystal Report – The Complete Reference: - Tata McGraw Hill



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A.D.S.T.M.

1.3 Oracle D2k

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

[Total Lectures: 50]

1: INTRODUCTION TO ORACLE

Lecture 04

- 1.1 . Introduction to Oracle Tool.
- 1.2 . Oracle DBA.
- 1.3 . SQL *PLUS.
- 1.4 . Oracle Architecture.
 - 1.4.1 Memory Structure.
 - 1.4.2 System Global Area (SGA).
 - 1.4.3 Program Global Area (PGA).
 - 1.4.4 Process (User, Oracle and Instance).
- 1.5 . Oracle Data Type.

2: INTERACTIVE SQL

Lecture 03

- 2.1. Creation of tables using CREATE table.
- 2.2. INSERTION of data into table.
- 2.3. UPDATING the Contents of table.
- 2.4. DELETING the Contents of table.
- 2.5. MODIFICATION using ALTER table.
- 2.6. DROP table Command.

3: DATA CONSTRAINTS

Lecture 04

- 3.1. Column level and table level constraints.
- 3.2. Constraints: - Primary Key, Foreign Key, Unique Key, Not Null, Check, Default.
- 3.3. Defining Integrity Constraints in the ALTER table Command.
- 3.4. Dropping Integrity Constraint in the ALTER table Command.

4: SQL AND SUB QUERIES

Lecture 03

- 4.1. Introduction of SELECT, FROM, WHERE CLAUSE.
- 4.2. GROUP BY, HAVING in SQL.
- 4.3. JOIN:-Self Joins, Multiple Joins.
- 4.4. Introduction to SUBQUERIES, Use of UNION, INTERSECT, MINUS CLAUSE.

5: VIEWS AND SEQUENCES

Lecture 03

- 5.1. Create Views, Update Views, Predicate Views, Views and Joins.
- 5.2. SEQUENCES: - Creating, Altering and Dropping Sequences.

6: ORACLE TRANSACTION

Lecture 02

- 6.1. Use of Commit.
- 6.2. Use of Rollback.
- 6.3. Use of Save Point.

7: PL/SQL

Lecture 04

- 7.1. Introduction.

- 7.2. PL/SQL Syntax and Execution.
- 7.3. PL/SQL Control Statements.
- 7.4. Use of Exception.(Error handling)
- 7.5. Utilities like DBMS_OUTPUT.PUT_LINE.
- 7.6. CURSOR:-Implicit and Explicit, Cursor Attributes.

8: Stored Procedures And Functions, Data Base Triggers **Lecture 03**

Developer 6i

- | | |
|--|-------------------|
| 1. Introduction | Lecture 05 |
| <ul style="list-style-type: none"> a. Working with the Form Developer Environment b. Working with a Basic Form Module c. Working with Data Blocks And Frame Running the Form Developer Application | |
| 2. Data Blocks | Lecture 03 |
| <ul style="list-style-type: none"> a. Data Block wizard b. Creating Block Manually c. Base Table Block and control block d. Master Detail Blocks. | |
| 3. Working with GUI Controls | Lecture 05 |
| <ul style="list-style-type: none"> a. Working with Text items b. Creating Additional input items c. Check Box, Radio Button d. List item e. Creating Non input items Display item f. Push Buttons g. Label and Boiler Plate Graphics. | |
| 4. Record Group and LOV | Lecture 02 |
| <ul style="list-style-type: none"> a. Working with Record Groups b. Creating LOV's, LOV's wizard, LOV Properties | |
| 5. Editors and Alerts | Lecture 02 |
| <ul style="list-style-type: none"> a. Types of Editors b. Alerts – properties | |
| 6. Property Class and Visual Attributes | Lecture 02 |
| <ul style="list-style-type: none"> a. Creating Popup Menu b. Toolbar, Trigger and Trigger Validation | |
| 7. Report | Lecture 05 |
| <ul style="list-style-type: none"> a. Design and Running Report b. Parameter Report c. Group Report d. Matrix Report e. Tabular Report | |

References:

Ivan Bayross, “Commercial Application Development using Oracle developer 2000” ,BPB pub.



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1.4 Tally ERP

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

[Total Lectures: 50]

- 1) Basic Concepts: Lecture 5**
- a) Accounting Concepts & Conventions.
 - b) Accounting Standards : As 1, As 2, As 3, As 4, As 5, As 6, As 7, As 8, As 9, As 10
- 2) Elements of Accounts: Lecture 5**
- a) Types of Accounts
 - b) Journals, Ledgers, Trial Balance, Cash Book
 - c) Adjustment Entries And Final Account of Sole Traders
- 3) Rectification of Errors Lecture 5**
- 4) Bank Reconciliation Statement: Lecture 5**
- Need, Causes of Disagreement, Preparation of Bank Reconciliation Statement
- 5) Tally Accounting Package Lecture 30**
- a) Introduction To Tally :**
- i) Features Of Tally Software (Version ERP)
 - ii) Starting Tally - Gateway Of Tally And Exit From Tally
 - iii) Company Creation In Tally, Saving The Company Profile, Alteration / Deletion Of Company, Selection Of Company
 - iv) Account Groups And Ledgers
 - v) Hierarchy Of Account Groups And Ledgers, Reserved Account Groups,
 - vi) Account Groups Of Balance Sheet – Account Groups Of Liabilities & Assets
 - vii) Account Groups Of Profit & Loss Account - Account Groups Of Direct Income And Direct Expenses Apart From Sale And Purchases, Indirect Income And Indirect Expenses
 - viii) Account Masters - Account Groups Creation And Account Ledgers Creation
 - ix) Feeding Of Opening Balances
 - x) Alteration / Deletion Of Account Master Records
 - xi) Feeding Of Closing Stock Value
- b) Tally: Voucher Entry**
- i) Types Of Vouchers In Tally - Contra, Receipts, Payments And Journal
 - ii) Entering Account Voucher - Sales, Purchases, Debit Note, Credit Note, Incomes, Expenses, Voucher Modification, Saving The Voucher
 - iii) Voucher Alteration, Deletion And Cancellation, Single Mode Voucher Entries, Account Voucher Printing - Online Voucher Printing, Multi Voucher Printing

- iv) Displaying Voucher List, Day Book, Ledger
- v) Extracting Daybook Summaries

c) Tally: Trial Balance And Final Accounts

- i) Extracting Detailed Trial Balance, Exploded Trial Balance And Ledgerwise Trial Balance
- ii) Extracting Balance Sheet - Primary Balance Sheet , Detailed Balance Sheet
- iii) Closing Stock Value Entry Through Balance Sheet
- iv) Extracting Profit And Loss Account - Detailed Form And Vertical Form,
- v) Extracting Income And Expenditure Statements For Non-Trading Units

References :-

1. Fundamentals of Accounting, S.N & S.K Maheshwari – Vikas Publications
2. Advanced Accountancy – Shukla & Grewal – Sultan Chand & Sons
3. Advanced Accountancy – Tulsian – Tata McGraw Hill
4. Financial Accounting – Ashok Banerjee – Excel Books
5. Implementing Tally 9, Comprehensive Guide – A. K. & K. K. Nandani, BPB Publishers, New Delhi
6. Tally 9.2 - Comdex Publisher
7. Practical Approach towards Tally 8.1 & 9 S. H. Sharma , Siddhant Prakashan, Aurangabad



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A.D.S.T.M.

1.5 *Internet and Web Services*

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

[*Total Lectures: 50*]

1. Internet Basics

Lecture 06

- a. Introduction, History, growth of Internet.
- b. Advantage of internetworking?
- c. The problems in Internetworking.
- d. A virtual Network
- e. Internetworking Devices.
- f. Repeaters.
- g. Bridges.
- h. Routers.
- i. Gateways.

2. Networking Protocols and OSI Model

Lecture 10

- a. Introduction to Network.
- b. Types of Network.
- c. Network Topologies.
- d. Protocols in computer communication.
- e. The OSI Model.
- f. OSI Layers functions.

3. Introduction to TCP/IP, IP, ARP, RARP

Lecture 10

- a. Introduction
- b. TCP/IP Basics.
- c. Addressing.
- d. Why IP addressing.
- e. Logical Addresses.
- f. TCP/IP Example.
- g. Address Resolution Protocol (ARP).
- h. Reverse Address Resolution Protocol (RARP).

4. Introduction to TCP, UDP

Lecture 10

- a. Introduction
- b. TCP Basics
- c. Features of TCP
- e. Ports and Sockets.
- f. Connections- Passive Open and Active Open
- g. TCP Connections.

- h. TCP Segment Formats.
- i. Persistent TCP Connections.
- j. User Datagram Protocols(UDP).
- k. UDP Datagram.
- l. Difference between UDP and TCP.

5. Introduction to DNS, Email, FTP, TFTP.

Lecture 06

- a. Domain Name System (DNS).
- b. Electronic Mail (Email).
- c. File Transfer Protocol (FTP).
- d. Trivial File Transfer Protocol (TFTP).

6. Introduction to WWW, HTTP, Telnet

Lecture 06

- a. Brief History of www.
- b. The basics of WWW and Browsing.
- c. Hyper Text Markup Language(HTML)
- d. Web Browser Architecture.

7. Web Services

Lecture 06

- a. Introduction to web services.
- b. Why web Services.
- c. Web services Platform Elements such as SOAP,WSDL, UDDI.

References:

- Web Technologies - Achyut S. Godbole and Atul Kahate.
- Internet Complete - BPB Publication.



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A.D.S.T.M.

1.6 Software Testing

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

[**Total Lectures: 50**]

1. Fundamentals of Testing

Lecture 06

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

2. Role of Testing in SDLC

Lecture 06

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)

3. Approaches to Testing - I

Lecture 06

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

4. Approaches to Testing – II

Lecture 12

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

5. Test Management

Lecture 12

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

6. Testing Tools

Lecture 08

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

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.



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A.D.S.T.M.

1.7 Practical

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

[Total Lectures: 50]

Practical Assignments on VB. NET

- 1) Create a simple console application in VB.NET
- 2) Create a VB.NET application using windows forms with simple controls.
- 3) Create a VB.NET application using windows forms with controls picture Box, Scroll Bar, Timer etc.
- 4) Create a VB.NET application to demonstrate Built-in-Dialog boxes.
- 5) Create a VB.NET application using constructor.
- 6) Create a VB.NET application to demonstrate concept of method overloading
- 7) Create a VB.NET application to demonstrate inheritance
- 8) Create a VB.NET application to demonstrate interface
- 9) Create a VB.NET application to demonstrate MDI forms.
- 10) Create a VB.NET application to demonstrate concept of File Handling operations.
- 11) Create a VB.NET application to demonstrate Data Base Connectivity.
- 12) Write a crystal report using simple and multiple tables.

Practical assignments on Talley ERP

- 1) Creation of company, Alter and Shut Company, Delete the existing company and show the company details.
- 2) Creation of Groups, Alter the Groups and deletion of Group and Display Groups.
- 3) Creation of Ledger A/c's, Display and Alter the Ledger A/c's, Deletion of Ledger a/c's.
- 4) Demonstrate different types of voucher entries and display Profit & Loss A/c and Balance Sheet.
- 5) Creation of stock groups, stock Item and also stock category with unit of measurements.
- 6) Creation of Purchase order and sales order.
- 7) Demonstrate of Value Added Tax (VAT) using Voucher Entry.
- 8) Showing Ledger wise Trial-Balance of a Company
- 9) Showing detailed Profit & Loss Account & balance Sheet of a Company
- 10) Showing Income & Expenditure Statements for Non Trading Concerns.

Practical assignments on Oracle and D2k

1. Create users grant all privileges to users.
2. Create table using different Constraints.
3. Write SQL Queries Using Simple SQL.
4. Write SQL Queries Using Nested SQL.
5. Write SQL Queries Using Group By, Having and Aggregate Function.
6. To create sequence order sequence in ascending order.
7. Program for alter the sequences.
8. Write a simple program for PL/SQL.
9. Write PL/SQL Program using various Control Statements.
10. Update the contain using PL/SQL Block.
11. Write PL/SQL Block for Error Handling.
12. Write PL/SQL Block for Cursor Handling.
13. Write PL/SQL Block for Procedure and Function.
14. Write PL/SQL Block for Database Trigger
15. Create Simple Data Entry form with Validation.
16. Create Master Detail data entry Form
17. Create a Form with menu.
18. Design Simple Report.
19. Design Master Detail Report.
20. Design Matrix Report



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A.D.S.T.M.

1.8 Project

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

Group Project is not allowed.

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 ADSTM

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
Quantum of Work	Not enough for Project	0	10	
	Just right	3		
	Good amount of work done	6		
	Very-good amount of work	10		
Understanding of project/task objectives	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		
Approach adopted	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		
Effort	No evidence of interest in the work	0	10	
	Reasonably good effort	3		
	Conscientious effort	6		

	Excellent amount of effort	10		
Initiative and self-motivation	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		
Achievement of objectives	Not much progress	0	10	
	Adequate but not enough	3		
	Good progress and made best use of the opportunities present	6		
	Outstanding performance	10		
Report Content	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		
Presentation	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		
Q & A	Not participated	0	15	
	Could handle but confused	5		
	Could handle competently	10		
	Could handle professionally	15		