

**Swami Ramanand Teerth Marathwad University,
Nanded
B.Sc IIIrd Year
Computer Science (Optional)**

(Semester Pattern)

(W.E.F. – June 2011)

Paper No	Paper Title	Teaching Periods/week	Marks (University Evaluation)	Marks (Internal Evaluation)	Total Marks	Total periods	Duration of Examination
Semester - V							
XII	Software Engineering	03	40	10	50	40	03 Hours
Elective (any one) XIII-A	Relational Database Management System	03	40	10	50	40	03 Hours
XIII-B	OR E-Commerce	03	40	10	50	40	03 Hours
Semester - VI							
XIV	Programming in Visual Basic	03	40	10	50	40	03 Hours
Elective (any one)							
XV- A	Computer Network	03	40	10	50	40	03 Hours
XV- B	OR Unix Shell Programming	03	40	10	50	40	03 Hours
Annual Practical Papers							
XVI	Computer Lab-4 (Annual Practical based on Paper No XIII & XIV)	01 Practical (03 Periods)	50		50	20 Minimum Practicals	03 Hours
XVII	Computer Lab-5 (Project work)	01 Practical (03 Periods)	50		50	20 Minimum Practicals	03 Hours

Paper No: XII
Software Engineering
(Theory)

1. Introduction to software Engineering

The Evolving role of software, Software, Software Myths

2. Software Process Models

Software Engineering- A layered technology, Waterfall model, Incremental Process models, Evolutionary Process models, Specialized Process models

3. Requirement & Design Engineering

Requirement Engineering task, Building the analysis model, Requirement analysis, Design within the context of software engineering, Design process & design quality, The Design model

4. Software testing

A Strategic approach to software testing, System testing, Software Testing fundamentals, White box testing, Basis path testing , Black box testing

5. Web Engineering

Attributes of web based systems and applications ,Web Engineering layers , Web engineering process

6. Risk Management

Software risks , Risk identification, Risk projection

Ref. Books:

Software Engineering – A Practitioner’s Approach By Roger S. Pressman
(McGraw Hill) Sixth Edition

(Elective- Select any one from Paper No- XV –A & XV –B)

Paper No: XIII-A
Relational Database Management System
(Theory)

1. Basic Concepts

Data Modeling for a database , Records and files, Three level architecture, Components of DBMS, Advantages and disadvantages

2.Data models

Introduction, Data Associations, Data models classification, Entity Relationship Model, Relational Data Model, Network Data Model,

3. Relational Model

A Brief Review of Set theory , Relational Database, Physical Implementation Issues

4. SQL

Basic Structure , Set Operations, Aggregate functions, Null Values , Nested sub queries ,Derived Relations , Views , Modification of database, Joined relations, Data Definition Language ,Embedded SQL

4. Relational Database Design

Pitfalls in Relational Database Design , Decomposition, Normalization using functional Dependencies,

5. Database System Architectures

Centralized Systems , Client Server Systems, Parallel Systems, Distributed Systems

Ref. Books :

1. An Introduction to Database Systems by Bipin Desai (Galgotia Publications)
2. Database System Concepts By Abraham Silberschatz and Henry F Korth (McGraw Hill) 4th Edition.

Paper No: XIII-B
E-Commerce
(Theory)

1. E- Commerce
2. EDI
3. The UN/EDIFACT Standard
4. Identification and Tracking Tools
5. Legal Issues
6. Information Technology Act 2000
7. Electronic payment system and Internet Banking

Ref. Books:

1. E- Commerce – The cutting edge of business By Kamlesh K Bajaj & Debjani Nag (Second Edition)
(Tata Mcgaw Hill Publications)

Paper No: XIV
Programming in Visual Basic
(Theory)

1. Getting Started with VB

The IDE , The Elements of user interface, Designing user interface, Programming an application Visual Development and Event Driven Programming.

2. Visual Basic- The language

Variable, Constants, arrays, collections, Procedures, control flow & loop statements

3. Working with forms

Form types, Appearance of forms, Designing menu structure, Building dynamic forms at run time

4. The Multiple document Interface

MDI Applications, Accessing child forms Implementing scrolling forms

5. Database Programming with VB

Understanding Database and DBMS , Understanding relational concepts, Understanding Visual data manager

6. Introduction to Web

Internet & web protocols , An HTML Primer, Activating the client with VBScript, Dynamic HTML, Study of Web browser control and Internet explorer object.

Ref. Books :

1 Mastering Visual Basic 6 By Evangelos Perroustos (BPB Publications)

(Elective- Select any one from Paper No- XV -A & XV -B)

Paper No: XV -A
Computer Network
(Theory)

1.Introduction to Computer networks

Uses of Computer Networks, Network Hardware, Network Software, Reference Models

2. Physical Layer & Data link Layer

Transmission Media, Wireless Transmission, The Mobile Telephone System, Design issues of Data link layer.

3. The Network Layer

Internetworking, The IP Protocol, IP addresses

4. The Transport Layer

Services Provided to the upper layers, Transport service primitives

5. The Application Layer

Domain name system, E-mail, The world wide web

6. Network Security

Introduction to cryptography, Two Fundamentals Cryptographic principals.

Ref. Books:

1. Computer Networks By Andrew S. Tanenbaum (Prentice Hall India) Fourth Edition

Paper No: XV -B
Unix Shell Programming
(Theory)

1. Getting Started
2. Gaining Confidence
3. The Unix file system
4. Essential Unix Commands
5. I/O Redirection & piping
6. Vi Editor
7. Shell Programming – First Step
8. Taking Decision
9. The Loop Control Structure
10. Shell meta Characteristics

Ref. Books:

1. Unix- Shell Programming By Yeshwant Kanentkar (BPB Publications)

(Practical Papers are Annual)

**Paper No: XVI
Computer Lab-4
(Practical)**

Annual Practical based on Paper No XIII & XIV - At least 20 practical exercises

**Paper No: XVII
Computer Lab-5
(Project Work)**

About Project Work

- Maximum a group of 03 students are allowed to work on a project.
- Project Synopsis should be submitted by the students to their concern faculty also a declaration should be submitted by the students regarding the originality of work.
- Project report should prepared by the students & it should be certified by concern faculty & head of the department.
- Students should submit one hardcopy of report to the department.

• **Distribution of marks for project is as**

○ Project Work	30
○ Project Viva	10
○ Project Report	10

Total Marks: - 50