S. Y. B.Com. /B. A.
Vocational Paper III: Relational Data Base Management Systems
Practical for Paper III: Oracle

Vocational Paper - IV: System Analysis Design and Software Engineering
Practical for Paper – IV: Event Driven Programming (Visual Basic 6.0)

Objectives
1. To get acquainted with Database concepts.
2. To enable the students to develop small, real life business applications i.e. from concepts to the products.
3. To get familiar with software concepts and real life applications used in business industries.

Computer Applications (Vocational)
Vocational Paper III: Relational Data Base Management Systems
1. Files, Database and Database Systems
1.1 Basic of Data Arrangement and access
1.2 Data Hierarchy
1.2.1 Bit, Byte (Character), Field, Record, File and Database
1.3 Storing and Accessing Records
1.4 Traditional File Environment and Problems with the File Approach
1.5 Concepts of Database
    1.5.1.1 Benefits of Database in Business
    1.5.1.2 Hierarchical, Network and Relational Database Models
1.6 Database Systems
    1.6.1 Objective
    1.6.2 Components
1.7 D.B.M.S.
    1.7.1 Components
1.8 R.D.B.M.S. Basic
    1.8.1 Concept of R.D.B.M.S.
    1.8.2 The Relational Database Model
1.9 Advantages of R.D.B.M.S.
1.10 Security and privacy Controls of R.D.B.M.S.
2. Developing Database Applications
Seven Steps for Database development
2.1 Study the Problem
2.2 Determine the Requirement
2.3 Design the Database
    2.3.1 E.R. Modeling
    2.3.2 Data Dictionary
    2.3.3 Normalization
2.4 Create the Database
2.5 Design the application
2.6 Create the Application
2.7 Test the application

3. RDBMS Software Package such as Oracle
3.1 Features
3.2 Specifications and Components
3.3 Data Types
3.4 Keys
       Primary Key
       Foreign Key
       Candidate Key
       Super Key

4. SQL
4.1 Concept of SQL
4.2 Features and Types
4.3 Sub-divisions of SQL
       4.3.1 DDL
       4.3.2 DML
       4.3.3 DCL
       4.3.4 DQL
4.5 Functions
       4.5.1 Mathematical Functions : Sqrt, Pow, Sin, Cos, Tan, Log
       4.5.2 Date Functions : Sysdate, Last_day, Next_Day, Months_between
       4.5.3 Character Functions: Len, Lower, Upper, Initcap, Trim, Ltrim, Rtrim, Lpad,
                              Rpad, Substr, Concat
       4.5.4 Aggregate Functions: Sum, Min, Max, Average, Count

5. Introduction
5.1 PL/SQL
       Overview, Data Types
       PL/SQL Block : % type, % row type
       Operators
       Control Statement: if, while
5.2 Sequences
5.3 triggers
5.4 Advanced Topics

Reference Books
1. Complete reference Oracle 8- George Koch & Kevin Loney TMH
2. Understanding DBMS S. Parthasarathy & Khalkar Master Education
2. Understanding SQL – Martin Gruber BPB
3. The SQL Programming Reference – Wanyne S. Freeze Comdex
4. Commercial Application Development Using Oracle and Developer 2000- Ivan
Bayross BPB
5. Computerisation in your Future Marilyn Mayer & Roberta Bayer PIII
6. An Introduction to Database Systems- C.J. Date Addis OTI Wesley
7. Database Systems- Hansen & Hansen
8. Database Systems- Korth

Vocational Paper IV: System Analysis Design and Software Engineering

1. System

1.1 Systems Concepts

1.2 Basic Components of System

1.3 Elements of a System

1.4 General Model of a System

2. System Analysis and development

2.1 System Analysis, Systems Approach, System Analysis,
   System Design and System Analyst

2.2 System Development Life Cycle

      2.2.1 System Analysis

            2.2.1.1 Feasibility Study

            2.2.1.2 Requirement Analysis

            2.2.1.3 System Requirement Analysis

      2.2.2 System Design

            2.2.2.1 System Design Specifications and Programming

            2.2.2.2 System Implementation follow up and Maintenance

            2.2.2.3 Evaluation of the System

2.3 System Security- Physical Security, Logical Protection

2.4 Structured System analysis and Design Method

2.5 Systems Evaluation

3. System Tools and Techniques

3.1 Fact Gathering Techniques

3.2 Flow- Charting

3.3 Decision Tree and Decision Tables

3.4 Data Flow Diagrams

3.5 Data Dictionaries

3.6 Pseudo- code and Structured English

3.7 File Specifications

3.8 Designing

      3.8.1 Input Design

      3.8.2. Code Design

      3.8.3 Forms design

      3.8.4 Output Design

4. Software Engineering

4.1 What is Software Engineering?

4.2 Objectives of Software Engineering

4.3 Software Qualities

4.4 Methods of software Development

      4.4.1 Waterfall Analysis

      4.4.2 Spiral

Reference Books:
1. System Analysis Design and Software Engineering: Parthasarthy & B.W.Khalkar
2. Software Engineering: Roger Pressmen McGraw Hill

MARKING SCHEME
1. UNIVERSITY THEORY PAPER : 40
2. TERM END EXAM. : 60 Marks converted to 20
3. PRACTICAL- VIVA/JOURNAL : 40

Annexure-II
Structure/ Pattern of Syllabus must be as follows:
1) Title of the Course: **Computer Applications (Vocational)**
2) Introduction: **Annual Pattern**
3) Eligibility: **Should have offered at Computer Applications (Vocational) F.Y.B. Com./B. A. and Passed F.Y.B. Com./ B. A. as per Pune University Rules**
4) Examination
A) Pattern of examination
i) **80:20** (University Semester examination of 80 Marks & Internal assessment of 20 Marks) Details as per the syllabus
ii) Pattern of the question paper: **As per the specimen given**
B) Standard of Passing : **As per Pune University norms**
C) ATKT Rules : **As per Pune University norms**
D) Award of Class : **As per Pune University norms**
E) External Students : **Not permitted**
F) Setting of Question paper/ Pattern of Question paper: **As per Pune University norms**
G) Verification of Revaluation : **As per Pune University norms**
5) Structure of the Course :
i) Optional
ii) Medium of instruction : **English**
6) Equivalence subject/ papers & Transitory Provision: **Computer Applications (Vocational)**
7) University terms : **As per Pune University norms.**
8) Subject wise Detail Syllabus : **Attached**
9) Recommended books : **Mentioned in syllabus**

Name of Expert Teacher
Prof. B. W. Khalkar
Mrs. L. M. Bhat
Mrs. S. Y. Mulay